July 27, 2006

Tagger ladder connection

Conversion Prolunghe Azzurre

11 -> 21
12 -> 22
13 -> 23
14 -> 26

2 PM Copy of Cable Mapping for Scintillators

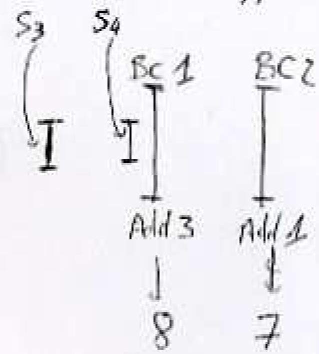
HV : 38 → Č1 34 → S_R
35 → Č2 36 → S_2
33 → S3 37 → S_1
32 → S0 (52)
30 → S_4

Signal (black BNC) BNC
0 → S_0
1 → S_1
2 → S_2
3 → S_3
4 → S_4 (Triple scint.)

Blue Cables
11 → 21 → $Č_1$
12 → 22 → $Č_2$
23 → 23 → S_R

+ CU : black BNC 16 → Clock = Output
15 → Ext Trigger = Input.

Tagger Cabling

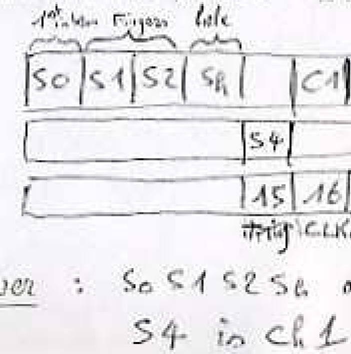


Alimentation / Power : Chadors
Currents

FADC #	CH #	Cable
0	0	1
0	1	2
1	0	7
1	1	8

Scintillators : 27/07

Panels in the rack : Si



HV Power : $S_0 S_1 S_2 S_R$
S4 in Ch 1

July 27th : Running CalCPTs

~ 10 AM FM109 : runs 616 → 627 PASSED
FM119 : runs 628 → 639 PASSED
FM101 : runs 640 → 651 PASSED
+ calo calibration settings : all DACs to 20
default settings
rate ~ 20 kHz
~ probably muons from the beam.

11:30 AM + Running muTrig from /Debug Area
· change INCLUDE / calheart / config CalBoard.cm
change Digitization Track_Delay 80 → 65
· Threshold 15 MeV Trigger CalLo 2400 a.
· People moving the table during the runs!

1 PM ~ Taking Cosmics for stability check : 700000657 : 100k
Standard Settings. BT:2

1:30 + change back calheart track_Delay for CI to 80. ✓

2 PM · Cosmics : 700000658 ~ 150k Standard Setting BT2.

5 PM · Trying find synchronization runs (runs 668 - 666)
→ Pb: Beam intensity is too high, no way
we can get synchronized ~ Trigger Rate 40 kHz
→ need VME access in AD DAQ to send
the spill loop and set ON the Veto

8 PM run 670 - BT 14 so that cal people have something
to play with.

First attempt to line-up the trigger.

In Ancillary/toplevel
- latest_ext_delay_CU :
  delay_ext_trig = (0x60)

When running the Trigger Time In suite this way it seems like the ext. trigger is late.

- setting delay_ext_trig to (0x0)
  still doesn't work.

Looking at the monitor of the trigger during an end2end BT 1 ...
with delay_ext_trig set to 0x0 the Cal seems within the window, while the txr is apparently outside (unless the txr trigger rate is much lower than the CAL, which seems unrealistic).

- creating latest_file_FMxxx.xml the using nominal settings. → required for TREK test.

- External trigger delay was 22 bits in CBA. At CERN we expect a 500 ns delay to which should be ~ 12-16 bits.

Timings:
- External Trigger
- Trigger Request
- Tach Delay
- Windows width
-

MARTIN +1-650-926-2887

Multi trigger Timing

27/7

1 AM WATER LEAK
SYSTEM → CHERR

1 30 AM LOWER COOLI
LEAK → CO
→ REL
→ AM
TO
THE
AIR

July 28th

2 AM Starting CAL calibration [Johan / Eduardo / Philippe]

⚠ no MySql Srv → NO ELOG BOOK
NO HouseKeeping

- Temperature: we care about it but during the night we "hadn't" no problems!

1st run 692 - BT 14 { X = 187,65 ~ 30k
Trigger Rate ~ 500Hz { Y = -153,12

693 - BT14 { X = 187,25 ~ 30k
{ Y = -125,28

MySQL back from thirteen → 694 - BT14 { X = 187.25
{ Y = -97.44

Looking at the event display: majority of hits without track. Because of BT14: CAL to trigger. Deciding to scan the BT cooking.

695 : BT 1 X = 187.25 Y = -97.44
696 : BT 2 " "
697 : BT 3 " "
698 : BT 13 " "
699 : BT 15 " "

Johan cooks BT16: four range readout / zero suppressed / external trigger

700 : BT16 X = 187.25 Y = -97.44 → (3)
701 : " X = " Y = -153.12 (1)

Trigger rate: 39 Hz. In order to calibrate the two towers we decide to let it between logs but with 30k events each time

BT16: 4 range

→ Diagnostic

- Eduardo says
- E. Grove asked if

Where is it chang

overvo

↳

28/07/2006 700000702 : BT16 SCAN(Y) (1)

~30k { X = 187,25
Y = -133,20

Beam and following : + 40 kHz
+ Č in t
+ RunContro

Pb : It looks like we're not really [illegible] between two logs.
The Online Monitor "Quick Reconstruction" shows a discrepancy of about 1 cm with respect to the X/Y table position.

{ Table y = -139,20
Plot y = -128 (Average)

→ Very Stable beam

=> we're not sure about where we are!
we decide to do a full scan Log by Log with less statistic ~ 10k

Table : ~~[crossed out]~~
[187,25 , 0

4 A.M. New Scan Y : actually re-starting it ...

700000703 { X = 187,25 BT16 (2)
Y = -125,28 ~10k

704 { X = 187,25 Number (4)
Y = -69,60 (see page before for (3))

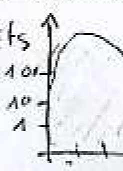
705 { X = 187,25 (5) → { • From this run, it look
Y = -41,76 agreement between position
• Maybe an effect of th
being biased because

706 { X = 187,25 (6)
Y = -13,92

707 { X = 187,25 (7)
Y = +13,92

708 { X = 187,25 (8)
Y = +41,76 Phillippe Ref #

• TEM ERROR Events ~
→ probably FIFO
On the tracke
→ OM ThrHits



28th July - 4.50 AM continue with CAL Calibration runs.

- 709 { x = 187,25 ; y = +69,60 } Number (9)
- 710 { x = 187,25 ; y = 97,44 } (10)
- 711 { x = 187,25 ; y = +125,28 } (11)
- 712 { x = 187,25 ; y = +153,12 } (12)

5.20AM Starting Y Scan of Tower 3 : BT16

Run ID	X	Y	Tower	Pilippenet PB #
713	561,75	153,12	3	12
714	" "	125,28	"	11
715	" "	97,44	"	10
(10k) 716	" "	69,60	"	9
717	" "	41,76	"	8
718	"	13,92	"	7
719	"	-13,92	"	6
720	"	-41,76	"	5
721	"	-69,60	"	4
722	"	-97,44	"	3
723	"	-125,28	"	2
724	"	-153,12	"	1

=

- Temperature : { House Ke... ; Data lo...
- O.M. : Now are we on... before the edg... and the Tan... to drift (...
- Table : Philippe ... position

Summary of Y Scan

Run ID	X
700	187...
701	"
702	"
703	"
704	"
705	"
706	"
707	"
708	"
709	"
710	"
711	"
712	"

06h52 Starting X Scan of tower 2 BT16

(28/07) [Carmela/Thierry/Fred] (⊕ Philippe → run 735)

run ID	X	Y	PB#	
725	34,13	0	1	online monitoring shows $\langle X \rangle_{THR} \simeq X_{table} + 20$ mm. (0.5 mm)
726	61,97	0	2	
727	89,81	0	3	
728	14,13	0	1-bis	→ −20 mm
729	97,65	0	4-bis	
730	135,49	0	5-bis	→ −10 mm ? (analysis of 1000 evts of run 700)
731	163,33	0	6-bis	
732	191,17	0	7-bis	
733	219,01	0	8-bis	
734	246,85	0	9-bis	
735	274,69	0	10-bis	
736	302,53	0	11-bis	
737	330,37	0	12-bis	

08h26 Starting X scan of tower 3 BT16

run ID	X	Y	PB#	
738	398,63	0	1-bis	→ we still apply a −10 mm correction wrt desired position in X but
739	426,47	0	2-bis	
740	454,31	0	3-bis	
741	477,15	0	4-ter	→ −15 mm seems better
742	504,99	0	5-ter	
743	532,83	0	6-ter	
744	560,67	0	7-ter	
745	588,51	0	8-ter	RUN ABORTED @ 23 kEvt DUE to NO Beam ←
746	588,51	0	8-ter	Same as 745 ←
747	616,35	0	9-ter	
748	644,19	0	10-ter	
749	672,03	0	11-ter	

CAREFUL!

do a RESET befo[re]

database connect[ion]

(DB is wrong between

↳ table pos[ition]

settings

MESSAGE FROM THE

Beam Stopped @ 9:30 [...]

Slow Extraction sextupole [...]

Beam restarts @ [...]

12:18 pm

2011

12 - 1PM Si detectors recabled

12.30 - 1.30PM Veto counter installed / All scintillators checked

~~UPS on LAT-RSF server installed~~

Fan on XY table installed to cool table motors

1.30 PM BEAM ON AGAIN - SAME CONDITIONS

CU AND AD DAQ SYNC TEST START

⟹ ARM II OF TAGGER ON THE BEAM ⇒ SA + SCI + AP protection ON THE BEAM

14:00 Synch checked at ~ 30 Hz per spill.
→ the clal-C need restart in AD DAQ.

14:35 test @ 5Khz per spill → NO Synch!

17:15 Studying CU - ARC

700000766 : SL

Fabio implement

not loosing syn

the run.

OK.

Run Control : I

wh

28/07 - 6.46 PM Updating Cal settings in "Ancillary-Root"


```
Updating Ancillary CAL settings LAC/FLE/FHE/ULD
  Pisa_pass4 summary :
   + Data taken in Pisa before INC with INT-1.66.2
     + CPT_beamtest FM109 TEM1 700000392 PASSED INT 01.66.2
     + CPT_beamtest FM101 TEM3 700000431 PASSED INT 01.66.2
     + CPT_beamtest FM119 TEM2 700000418 PASSED INT 01.66.2
     + calibDAC FM109 TEM1 700000403 FAILED INT 1.66.2
     + calibDAC FM119 TEM2 700000438 FAILED INT 1.66.2
     + calibDAC FM101 TEM3 700000445 FAILED INT 1.66.2
     + calf_gain_p01_1.28 FM109 TEM1 700000486 GOOD
     + calf_gain_p01_1.28 FM119 TEM2 700000485 GOOD
     + calf_gain_p01_1.28 FM101 TEM3 700000487 GOOD
   + CalibGenCAL v4r2
   + relgain table from calf_gain_p01_v1.28
   + all xxx2adc xml files smoothed before analysis
   + Old bias table (not used for uld/lac)

  FM109
 + cp Pisa_Best_G5_MeV2_FM109_CAL_lac.xml latest_lac_FM109.xml
 + cp Pisa_Best_G5_MeV2_FM109_CAL_lac.xml latest_G5_MeV2_lac_CAL_FM109.xml
 + cp Pisa_pass4_G5_MeV100_FM109_CAL_fle.xml latest_G5_MeV100_fle_CAL_FM109.xml
 + cp Pisa_pass4_G5_MeV100_FM109_CAL_fle.xml latest_fle_FM109.xml
 + cp Pisa_pass4_G5_MeV100_FM109_CAL_fle.xml default_CAL_fle_FM109.xml
 + cp Pisa_pass4_G5_MeV15_FM109_CAL_fle.xml latest_G5_MeV15_fle_CAL_FM109.xml
 + cp Pisa_pass4_G5_MeV8_FM109_CAL_fle.xml latest_G5_MeV8_fle_CAL_FM109.xml
 + cp Pisa_pass4_G15_MeV1000_FM109_CAL_fhe.xml latest_G15_MeV1000_fhe_CAL_FM109.
xml
 + cp Pisa_pass4_G15_MeV1000_FM109_CAL_fhe.xml latest_fhe_FM109.xml
 + cp Pisa_pass4_G15_MeV1000_FM109_CAL_fhe.xml default_CAL_fhe_FM109.xml
 + cp Pisa_Best_FM109_CAL_uld.xml latest_G5_CAL_uld2adc_FM109.xml
 + cp Pisa_Best_FM109_CAL_uld.xml default_CAL_uld_FM109.xml
 + cp Pisa_Best_FM109_CAL_uld.xml latest_uld_FM109.xml
  FM101
 + cp Pisa_Best_G5_MeV2_FM101_CAL_lac.xml latest_G5_MeV2_lac_CAL_FM101.xml
 + cp Pisa_Best_G5_MeV2_FM101_CAL_lac.xml latest_lac_FM101.xml
 + cp Pisa_pass4_G5_MeV100_FM101_CAL_fle.xml latest_G5_MeV100_fle_CAL_FM101.xml
 + cp Pisa_pass4_G5_MeV100_FM101_CAL_fle.xml latest_fle_FM101.xml
 + cp Pisa_pass4_G5_MeV100_FM101_CAL_fle.xml default_CAL_fle_FM101.xml
 + cp Pisa_pass4_G5_MeV15_FM101_CAL_fle.xml latest_G5_MeV15_fle_CAL_FM101.xml
 + cp Pisa_pass4_G5_MeV8_FM101_CAL_fle.xml latest_G5_MeV8_fle_CAL_FM101.xml
 + cp Pisa_pass4_G15_MeV1000_FM109_CAL_fhe.xml latest_G15_MeV1000_fhe_CAL_FM109.
xml
 + cp Pisa_pass4_G15_MeV1000_FM109_CAL_fhe.xml latest_fhe_FM109.xml
 + cp Pisa_pass4_G15_MeV1000_FM109_CAL_fhe.xml default_CAL_fhe_FM109.xml
 + cp Pisa_Best_FM109_CAL_uld.xml latest_uld_FM109.xml
 + cp Pisa_Best_FM109_CAL_uld.xml default_CAL_uld_FM109.xml
 + cp Pisa_Best_FM109_CAL_uld.xml latest_G5_CAL_uld2adc_FM109.xml
 FM119
 + cp Pisa_Best_G5_MeV2_FM119_CAL_lac.xml latest_G5_MeV2_lac_CAL_FM119.xml
 + cp Pisa_Best_G5_MeV2_FM119_CAL_lac.xml latest_lac_FM119.xml
 + cp Pisa_pass4_G5_MeV100_FM119_CAL_fle.xml latest_G5_MeV100_fle_CAL_FM119.xml
 + cp Pisa_pass4_G5_MeV100_FM119_CAL_fle.xml default_CAL_fle_FM119.xml
 + cp Pisa_pass4_G5_MeV100_FM119_CAL_fle.xml latest_fle_FM119.xml
 + cp Pisa_pass4_G5_MeV15_FM119_CAL_fle.xml latest_G5_MeV15_fle_CAL_FM119.xml
 + cp Pisa_pass4_G5_MeV8_FM119_CAL_fle.xml latest_G5_MeV8_fle_CAL_FM119.xml
 + cp Pisa_pass4_G15_MeV1000_FM119_CAL_fhe.xml latest_G15_MeV1000_fhe_CAL_FM119.
xml  + cp Pisa_pass4_G15_MeV1000_FM119_CAL_fhe.xml default_CAL_fhe_FM119.xml
 + cp Pisa_pass4_G15_MeV1000_FM119_CAL_fhe.xml latest_fhe_FM119.xml
 + cp Pisa_Best_FM119_CAL_uld.xml latest_G5_CAL_uld2adc_FM119.xml
 + cp Pisa_Best_FM119_CAL_uld.xml latest_uld_FM119.xml
```

→ Tested end2end BT 14 ~ working ... missing no error of missing xml file

Run 770

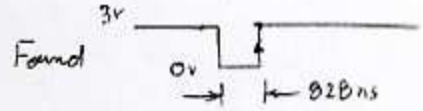
~~2006~~ 28/07/2006 21^{30} G Godfrey + Johan on shift

Ext Trig = S0 · (S1 · S2) · S3 · (C1 · C2) · $\overline{S11}$ = Electrons E_{beam} = 5.0 GeV

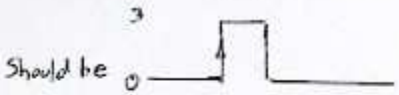
Verify the Ext Trig Delay in the CU is correctly set. In Pisa for cosmic ray panels this delay was $\times 14 = 20_{10}$. It should be about 250 nsec less at CERN. Therefore $\times F = 15_{10}$. It was set here for Cal electron scan last night.

Now take runs at 5 tick (=250 nsec) steps about 15_{10}.

RUN	Time Start	Ext Trig Delay in CU	
797	21^{36}	$\times F = 15_{10}$	– Stop. Found the trig rate low and the TTL trig pulse to CU is inverted.



Found — GASU triggers on ⎍ positive edge.



Should be — so that the width of the pulse is not part of the timing delay.

Have now changed the NIM to TTL converter switch from $\overline{out}$ to out.

We will take ~30K electrons/run at Ext Trig Delays = 0, 10, 20, 30, 40, 50 ticks
The electron energy peak will have its largest value for $15 + \frac{828\,ns}{50\,ns} = 32$ ticks (if all the above logic is correct)

The ~~xpx~~ Si Tagger detectors are in the beam tonight but we are not reading them out for these runs.

Luca looks up the GASU delays being used: TKR = | Flight Module 108 at SLAC
CAL = B0F00

Run	Start Time	Ext Trig Delay [ticks]	Hex [ticks]
792	23^{40}	0_{10}	×0
793	23^{05}	10_{10}	×A
794	23^{15}	20_{10}	×14
795	23^{25}	30	×1E
797	23^{10}	40	×28
798	24^{00}	50	•

SSD strip orientation

SSD 0	1	384	Vertical
	TOP	Bottom	
	385	768	Horizontal
	Right L	Left R	
SSD 1	1	384	
	TOP	Bottom	V
	385	768	
	Right L	Left R	H
SSD 2	1	384	H
	Right L	Left R	
	385	768	V
	Bottom	TOP	
SSD 3	1	384	H
	Right L	Left R	
	385	768	V
	Bottom	Top	

Right ⇓ Left

29/07/2006

h: 00.05

Agzim on the tri

Current settings

CAL 109	0x0 trs-zli
CAL 101	0x0 trs-z
CAL 119	0x0 like
TKR 16	0x0 trs-z
TKR 8	0x0 like

delay_ext_trig =

#run 700000799

CAL peaks @ 7

TKR peaks @ 10

new run with

ext_delay = 0x5

cal trg_alignment = 0x0 for all
(just like before)

tkr trg_alignment = 0x2 for all.

* run 700000800

now tkr and cal perfectly aligned,
peaking @ 3.

relative rates:

ext = 367
cal_lo = 365
tkr = 264

↑ still lower than expected.

average trigger rate = 90 Hz.

Moving "ext_delay" to 8 run 808
⇒ Trigger Primitives aligned at 0

(1/8) – this page is here by

9 – Change of the window

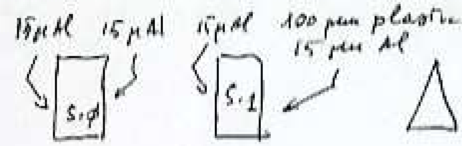
trigger to reduce noise

that kills the X view of

Removed the carbon w

Al 15 μm thick window

On two detectors a p
place (not possible to re



Run 811 : $\bar{e}$ 5 GeV X=187.25 Y=13.92 θ=0
50 k gats with good delay settings

Test the pin- hardware settings :
.50.53.!C1&!C2 in anticoincidence
run 813 : Raw Energy peak at ~ 90 MeV as expected

Switch back to $\bar{e}$ trigger setting : 50.53.C1.C2

Changing the delay setting
provided by Edwards.

After ACD calibration, s
trigger.

3.AM Solving CAL_Hi problem...
in the schema file GTCE "Config-1" set to "0x7"
but the cnd2 and BT overwrites this to 0x3
→ it's actually the calat_lay_FM1xxx.xml file
that has all settings to 0x2
→ we change them all to 0x7
→ Now we can see CAL_Hi fluctuating.
From Run "820"

Switching to table configuration :
x_p = 749 y = 13.92 z = -100.4 θ = 90
in order to see a lot of CAL_Hi
Run 821 30 k gats

Changing external delay : from 8 to 4
Run 822 : two bumps structure in CAL_Hi signal
trigger.

Switching to ACD calibration

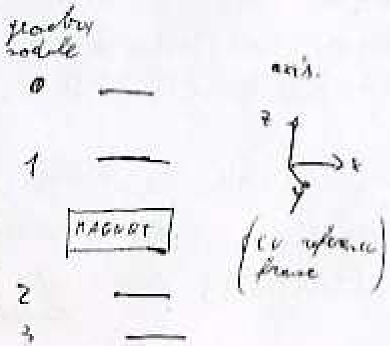
Table position : x = 54, y = 0, z = 720, θ = 0 (File 4)
Run 823 70 k
824 15 k

29 / 7 / '06

Power went off at 7:50

PERSONAL COMMENT: CHE CULO!

Tagger [illegible] Chamber numbering.



module	layer	coordinate	verso (+/-)
mod. 0/1	lyr 0	y	+
0/1	1	X	+
2/3	0	X	+
2/3	1	y	-

Good synch run before power failure

700000843

→ good for chamber alignment.
→ good for matter debug!

30/7 HISTORY OF CONFIGU

MATERIAL AR

TH 27/7 00-1AM { S1, F2: 2x2 mm SCI
S00 1 cm LARGE
2 Si det WITH AL

TH 27/7 MORNING: S00 RE
S0 (1 cm THICK
INSTALLED S3 B
CV AND PLACED
DAYTIME : TEST RUNS

FR 28/7

NIGHTTIME: CAL CALI
MOVING THE
MATERIAL

2 Si-det WITH AL WI
S0 (1 cm)
S3 (1 cm)
C1 (0.3 atm CO_2 5 m)
C2 (0.3 atm CO_2 3 m)
S1, F2 (2x2 mm)
SOME AL FROM 2nd ARM
TAGGER PLACED ~ 3 cm
BEAM LINE => 1 cm AL

FR 28/7 1PM : S4 (HALO
F2 REMOVED
S2 ([illegible]
[illegible] 2nd AR

FR 28/7 AFTERNOON : TEST RUNS
EVENING : MAGNET LEA

SAT 29/7 NIGHT : EXT TRIGGER SETUP AND ALIGNMENT
AND CALIBRATIONS RUN

MATERIAL S0(1 cm), S1 (2 mm), S2 (2 mm), S3 (1 cm)
C1, C2, 4 Si det + AP WINDOW,
S4 (1 cm)

TRIGGER $\overline{C1 \& C2 \& S0 \& S3}$ ~~(& S4)~~
FOR $\overline{4}$

BEAM 5 GeV

SUN 30/7 18:00 NEWS on VPS:
we tried to use the small (white) VPS for the CV to protect the 28V PS and VME Crate.
→ we had "OVERLOAD" with 28V PS when we turn the CV Front End on.
→ Using the VPS for VME crate only seems to be fine so we decided to use that one for VME only and we put it on the CV

=> VME Crate only under VPS

- Run Control bug:
with a synch run, when the run is stopped.
if the operator tries to start a new run without closing R.C. the ~~run~~ "trigger sweep time out"

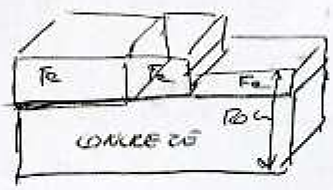
- Synch Test:
run 700 000 866, BT-1
~ 100 Kevt.
→ 0-10 KHz of trigger de
→ ~ 390 Hz of Event co
// Sync OK

15:00 Introduction of a
Trigger to prevent
accessive rate. Th
gate generator in
signal is generated
A total delay of
signal delivered

31/7/06 CU reached it's lowest temperature up to now: 21.1°C
(read by the Data Logger)

7:45 Removed from Tagger silicon detectors the Al protection windows (2 mm of Al per xy detector)

10:00 BEAM DUMP: INSTALLED 1 VERTICAL Fe BLOCK + 1 HORIZONTAL Fe BLOCK:



BEAM HEIGHT 130 cm
⇒ WILL BUILD FINAL TIP OF DUMP WITH PB BRICKS

Test of CU dead time (Th. R, D.D, Tom, BL)

31/7 19.24 Run started : CU DAQ-test, BT-12
↓
19.26 Run crashed

(User is not Johan Bregeon but Thierry ← not in the user list)

Run Control No Synch	: with out ancillary daq for non-gamma runs
Run control	: with ancillary daq for gamma runs

Trigger So with signal through Fast Amplifier 612AM
The gain is changed to adjust rate.

Run 885 19.35 – 19.37 1 kHz, spill on (10 s / 16.8 s) BT 12

19:55 Run 886 1 kHz BT 12 "no spill" condition.
Rate went down to 700 Hz during measurement.

19:56 Run 887 same as 886 with rate: 1 kHz
average value at the end of the run 861 Hz

20:04 Run 888 no spi…

20:12 Run 889 same …
no spill …
<ν> = 8…
2 independent scal…
and the number …
N = 88.127 T = …

20:24 Run 890 same as …
We repeat this mea…
estimated.
T N = 114.642 N T = 1…
$\nu_{scal} = \frac{N}{T} = \left(\frac{11464\ldots}{116.6\ldots}\right.$

20:29 Run 891 ν ~ …
N = 259 158 T …
$\nu_{scal} = \frac{N}{T} = \frac{259\ldots}{171.\ldots}$

20:36 Run 892 ν ~ …
N = 126 809 T = …
ν scal = 2024.6 …

20:42 Run 893 ν ~ …
20:53 Run 894 ν ~ …
N = 89623 T = …
ν scal = 313,10 Hz …

21:08 Run 895 ν = …
N = 84286 T = …

21:21 Run 896 $\nu \simeq 300$ Hz (report run 894) because 91% live time looks a bit small)

$N =$ $T =$ $\nu_{acc} =$

$\Rightarrow \nu_{sub} = \frac{N}{T} =$ lost counts. $\frac{\nu_{acc}}{\nu_{sub}} =$

21:25 Run 897 same as 896 (the scalers has reset itself before we read the values ...)

$N = 54847$ $T = 183,453$ s.

$\Rightarrow \nu_{sub} = \frac{N}{T} = 299.0$ Hz $\nu_{acc} = 285,88$ Hz $\Rightarrow \frac{\nu_{acc}}{\nu_{sub}} = 95,62$ %

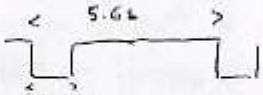
Run 898 $\nu \simeq 400$ Hz

$N = 56395$ $T = 183,157$ s $\nu_{acc} = 368,69$ Hz

$\nu_{sub} = 393,9$ Hz $\frac{\nu_{acc}}{\nu_{sub}} = 93,6$ %

22:34 Run 899 $\nu \simeq 1900$ Hz simulated spill signal duration: 400 ms/5 Gs

T and N not recorded because of losing scalers.



ν_{acc} must be corrected by $\frac{5,6}{0,4}$

22:43 Run 900 $\nu \simeq 1900$ Hz (idem 899)

$N = 10006209$ $T = 501,326$ s $\nu_{acc} = 107,8$ Hz

$\nu_{sub} = 1980,2$ Hz $\frac{\nu_{acc} \times \frac{5,6}{0,4}}{\nu_{sub}} = 76,2$ %

22:55 Run 901 $\nu \simeq 1000$ Hz

$N = 539764$ $T = 495,3$ s $\nu_{acc} = 63,6$ Hz

23:08 Run 902 $\nu \simeq$

Aug. 1 0:00 5 GeV

BL: after 1st run, it is ... have "wrong" currents. The currents QDE 06 ...

QF 07 ...

2 TAGGER ALMS IN THE BEAM

RUN	TRIGGER	CULATE
906	S0+S1+S2+Sl	~100 C
907	S0+S2+Sl	
~~907~~		
908	S0+S2+Sl+C1+C2	~
909	S0+S1+S2+C1+C2+Sl	

1 30 1/8

START TESTING TAGGER

→ FOUND A PROBLEM WITH ... IS ON CHANNEL → TRY ...

~~TRY~~ LEAKAGE CURRENT

BVT PROBLEM

+ 5 GeV π^- runs (scans in position and
Johan & Philippe
of the trigger out of the beam No. A1 protection
on the first arm.
offset of the table
$x = 201.17$ $y = 13.92$ $\theta = 0°$
on beam monitor: $x_{mean} \simeq 202$ $y_{mean} \simeq 11$

ys: S0. S2. C1. C2
only 22 Hz average rate (2 spills/cycle)

5 positions in X (700000916 → 700000920)
5 " " (700000921 → 700000925)
4 " " (700000926 → 700000929)
3 (700000931 → 700000933)
2 (700000934 →

empty → during run 700000935
says LINAC problems.

back

700000936 continuation of.
$\theta = 60°$

center tower 2 $\theta = 30°$
x: 201.17 y: 13.92 z: -47.4
350.25
423.80
500.00

electron scans:

Summary of x-y-θ scan.

Aug 01, 06 8:43 **scans_2006_08_01.txt** Page 1/2

```
theta=0
-------

center tower2
X= +201.17 Y=  +13.92 Z=  -47.4 theta= 0   700000916 20k

left hand side of the crack
X= +250.25 Y=  +13.92 Z=  -47.4 theta= 0   700000917 20k
X= +350.25 Y=  +13.92 Z=  -47.4 theta= 0   700000918 20k

inside the crack
X= +374.50 Y=  +13.92 Z=  -47.4 theta= 0   700000919 17k

right hand side of the crack
X= +398.75 Y=  +13.92 Z=  -47.4 theta= 0   700000920 10k


theta=10
--------

center tower2
X= +201.17 Y=  +13.92 Z=  -47.4 theta=10   700000921 17k

left hand side of the crack
X= +250.25 Y=  +13.92 Z=  -47.4 theta=10   700000922 15k
X= +350.25 Y=  +13.92 Z=  -47.4 theta=10   700000923 15k

inside the crack
X= +389.50 Y=  +13.92 Z=  -47.4 theta=10   700000924 15k

right hand side of the crack
X= +429.00 Y=  +13.92 Z=  -47.4 theta=10   700000925 15k

theta=20
--------

center tower2
X= +201.17 Y=  +13.92 Z=  -47.4 theta=20   700000926 16k

left hand side of the crack
X= +350.25 Y=  +13.92 Z=  -47.4 theta=20   700000927 15k

inside the crack
X= +405.60 Y=  +13.92 Z=  -47.4 theta=20   700000928 15k

right hand side of the crack
X= +461.00 Y=  +13.92 Z=  -47.4 theta=20   700000929 16k

theta=45
--------

center tower2
X= +201.17 Y=  +13.92 Z=  -47.4 theta=45   700000931 15k

left hand side of the crack
X= +350.25 Y=  +13.92 Z=  -47.4 theta=45   700000932 15k

in the crack
X= +460.00 Y=  +13.92 Z=  -47.4 theta=45   700000933 15k

theta=60
--------

center tower2
X= +201.17 Y=  +13.92 Z=  -47.4 theta=60   700000934 15k

left hand side of the crack
X= +350.25 Y=  +13.92 Z=  -47.4 theta=60   700000935 5k 700000936 15k
```

Tuesday August 01, 2006 scans_2006_08_01.tx

Aug 01, 0

```
theta=30
--------

center to
X= +201.1

left hand
X= +350.2

in the cr
X= +423.8

right han
X= +500.0
```

1/2 night

3h25 Start 5 GeV e^- Runs (Seems ok position and angle) Johan & Philippe

⚠ The second arm of the keyser out of the beam. No Al protection on the first arm.

Check the offset of the table

700000916 : $p = 201.17$ $y = 13.32$ $\theta = 0°$

with the online monitor : $p_{mean} \approx 202$ $y_{mean} \approx 11$

(Trigger settings : S0.S2.C1.C2

only 22 Hz average rate (2 spills/cycle))

Summary of x-

Config: BT1

$\theta = 0°$:	5 positions in X	(700000916 → 700000920)
$\theta = 10°$:	5 " "	(700000921 → 700000925)
$\theta = 20°$:	4 " "	(700000926 → 700000929)
$\theta = 45°$:	3	(700000931 → 700000933)
$\theta = 60°$:	2	(700000934 → ↓)

≃ 8h00 spills empty --- during run 700000935

8h05 PCP says LINAC problems.

8h29 Beam back

Run 700000936 continuation of $\theta = 60°$

Run ~~700000937~~ center Tower 2 $\theta = 30°$

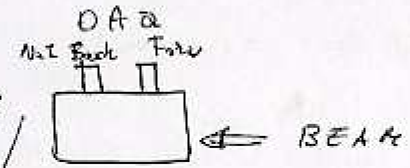
700000937	1)	$x = 201.17$	$y = 13.92$	$z = -47.4$
938	2)	350.15		
939	3)	423.80		
940	4)	500.60		

9h20 End of electron scans

BEAM OPEN OPEN NO INTERVENTION

9:23 Cherenkov pressure was too high : ≈ 0,38
→ starting refilling of the tubes.

10:00 AM Cherenkov pressure at ≈0,3 bar
Ts NaI calorimeter is plugged to ADC



Forw → ADC ch 2
Back → ADC ch 3

Positive HV : Forw → ch 1 @ +900 V
Back → ch 2 @ +900 V

GATE From 820 ns to 1 μsec

Ts NaI is along the beam to perform a check run with pi
S3 is back in the beam in front at NaI to trigger purpose

h 10

10[20] Data with beam area open

S∅ - S3 from run 700000944 (Test for Trigger)
~~trigger~~

11 00 NaI calibrations Pedestals ≃ 600 ADC counts
HV : +900 V Hmon (MIP) ≃ 1150 ADC "

11.15 Test de - NaI cal and S3 put out of beam

11:40 Run 944 Pions 5 GeV table back at 0!
X = 570 mm · Y: 13.92 mm Z: -17.4 mm

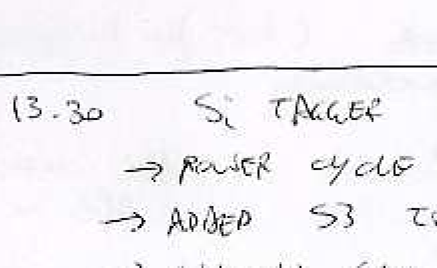
12:30: Due to "synch l...
back to a standa...
to we removed ...

12:45 Pos Slitte

12:50 BEAM FOCUS +1...
TABLE N°5 SEHI...
S₀ ≈ 5000 p cnts
(primary p...

... 10

the Si chambers have new...



1/8 13.30 Si TAGGER
→ POWER CYCLE
→ ADDED S3 TO
→ CHANGED SING...
ON AO DAQ
→ BEAM RATE

End of Spill
Scaler Configuration

ch	Source
0	S0
1	S1
2	S2
3	S3
4	S4
5	Sh
6	C1
7	C2
8	S1·S2·S3·S4 * (* it depends on the trigger chosen in the V1720 crate)
9	S5C1C2
10	S1·S2
11	Hw Triggers No DAQ Veto
12	Triggers DAQ Veto
13	Sh + S2
14	
15	

Modification on the DAQ:

- added flag <Ancillary> in xcReport that is "True" for synchronized run, "False" for non synch.
- The End of Spill Scaler is added in the last event within a spill and is folded to the used 2 channel SIScaler used for Timestamp. To be more clear:

  @ All event but the last in the spill
  { ch 0 = timestamp.
  { ch 1 = empty

Aug 4 - 13:46 Run
for
Trigger
Rate

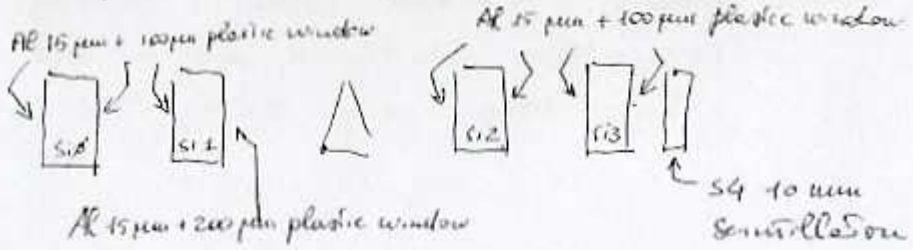
Aug 5 12:55

Synch test are OK.
We collected ~ 100kevt, with
without problems.
synch is fine with exception
all test are done in BT 1 Co
was done in BT 22 (T4 + Dig
there are discarded events from
configuration is more than

Aug *

20.55 Beam optics
set to trigger
been foc
slit pos =
& pressure =
Beam optics
to Configuration's

Setup Si detectors - To close light leakages
@ 1 mm plastic windows are have been added



CdB

C') position at z = +270 mm.
To be able to see the 3 GeV beam at -0.5 Tm
(RV distance from the magnet axis 4.18 m, angle 50 mrad
270 - 8.05 · 4180 = 220 - 209 = 61 the deflected beam is 60 mm
from the tower edge, 52 from the last Si str.p.
With 1.5 GeV, + 0.5 Tm the deflection is + 418 mm
270 + 418 = 688 mm, at 52 mm from the end of
tower 3 active area

CdB

Aug 8
9.00 C pressure ≈
QFØ3 posit
Pos = 52
S_0 ≈ 3000 -

9:50 Pos = 53 bo
S_0 ≈ 10000

RUN # 1145

10:15 S_0 ≈ 7000 a
S_0 dry to p/s
Hard trigg

RUN # 1146

11:40 New beam - 3 GeV/c
QFØ3 negative current
Pressure = 0.8 bar ,
Pos = 53 both u
S_0 ≈ 4000 event
RUN # 1148
11:50 QFØ3 positive current
RUN # 1149
SPILL beyond @ 12 sec

12:10 Bee- optics
to Enrico's te

Tagger alignment.

Run 1148 Beam divergence (first arm) x : σ = 4.5 mrad
Y : σ = 2.0 mrad

Beam profile : Y0 : average = +3 mm
Y1 : " = +5 mm
Y2 : " = -5 mm
Y3 : " = -3 mm.

Beam is ~~[illegible]~~ not centered on the first two chambers.

Run 451
Beam div. X : σ = 3.0 mrad μ = -2.2 mrad
Y : σ = 2.0 mrad μ = 0.5 mrad

Beam profile average:

pos = 53 both H
S0 ≈ 38000 counts

pos = 52 both H
S0 ≈ 15000 counts/

RUN # 1151

S3 on front of CU wit
aligned on red line
CU at 270, 0, 0
Si2, Si3 moved by 119 ...
Now center of ch Si2 ~
line.

Run # 1152 ~~Trigger S0~~

S3 * S0 * C1 * C2 + plop
Check of S3 alignment [S3 ...

Run # 1153 (with S3 in the Trigger...

Run # 1154
Moved S3 by +45 mm [z= +...

Run # 1155
The edge of the S3 is +50 mm ...
Trigger S0 - S3

Edge of S3 on red line		S0 8060...
	S3 - 50 mm	845...
Run 1156	S3 - 25 mm	84...
Run 1157	- 75	8...

beam 3 GeV/c

Run	A
1159	0
1160	100
1161	200
1162	300
1163	400
1164	500

position [272, 155, -67.6]

pos = 51.5 both H and V

$S_0 \approx 17000$ counts/s

Run 1157: vertex x hit on TKR

Cu res x

Run 1160

magnet current @ 100 A

Cu res x = -50.7 mm

$\alpha = \text{atan}\left(\frac{50.7 - 0.3}{4180}\right)$

$\alpha = \frac{0.3\,BL}{P} \Rightarrow BL$

expected B ~ 1/6 T > BL

more than expected.

S_2 and S_3 moved $\Delta z = -40$ mm

16:30 Box optics to -1.5

(QF03 positive current

Box - Pos. at +10

Pos = 515 both H and V slits

S_0 ≈ 45000 cnts/spill 0.4 sec

| p = −1.5 GeV/c | B = 0

RUN # 1166 | CV OUT 100 mm |

KNP 17 I = +600 Amp

RUN # 1167 (TRIG : $S_0 \cdot S_2 \cdot C_1 \cdot C_2 \, \bar{S}_4$

$\bar{S}_0$ [illegible] in veto

Wrong setting for KNP17 current set to −600 Amp (!!)

KNP 17 I = +600 Amp

RUN # 1168 (TRIG $S0 \cdot S2 \cdot C_1 \cdot C2 \, \bar{S}_4$)

I = +600 A

Pedestal RUN # 4308 after new position of 2nd arm SSD

Run # 1169 Position of SSD3 moved by 50 mm in z

I = +600 A

new position on SSD3 ⇒ wrong position set RUN ABORTED

New pedestal RUN # 4309 new correct position of 2nd arm SSD (moved −2.5 cm)

18^{30} DUMP IN POSITION RUN 1170

I = 600 A ($S0 \cdot S2 \cdot C1 \cdot C2 \cdot \bar{S}_4$)

CV = 0° | E Beam = 1.5 GeV |

No...

19th Beam momentum change at Ebeam | 1.25 GeV |

Added NaI cal downstream Si chamber (after the Dump) with HV = 800 V

Run 1171 started
I = +600 A (Trig S0·S2·C1·C2·SH)

Run 1172 Ebeam 1.125 GeV

I = +600 A (Trig ")
→ tagchan lost during run ⇒ To be rejected or redone

Run 1173 Ebeam | 1.375 GeV |

I = " (Trig ")

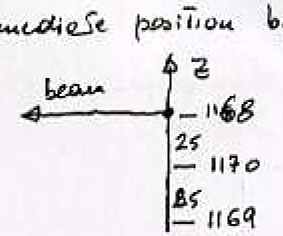
Pos = 51.0 Both H and V slits
S0 ≃ 9000 / spill × 0.4 sec

Run 1174 Ebeam | 1.125 GeV |

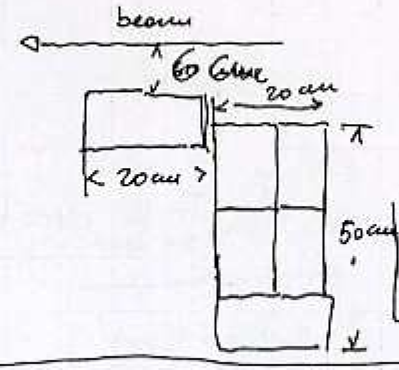
I = " Trig = "

20th Set Beam Momentum at 3 GeV

New position of SSD3
(Intermediate position between



DUMP in + Calorimeter



FROM THE RUN #117
ON CU - ON CU YOU

Slits 52.0

S0 : 40 Kcount / spill (0,4

Tr. S2 · S4 · C1 · C2 · (S

P = 3 GeV electron.

run 1175
Particle type was "Electron"
We see strange events on

- Pset to 2.5 GeV.
Starting run ~~1154~~ 1176

20^{45} Changed Cherenkov Settings :

HV from 2100 to 2000

Thresholds : C1 = 150 mV (unchanged)
C2 = 150 mV (was 100 mV)

to avoid ($\bar{n}$) misinterpreted as (e)
→ increase beam purity

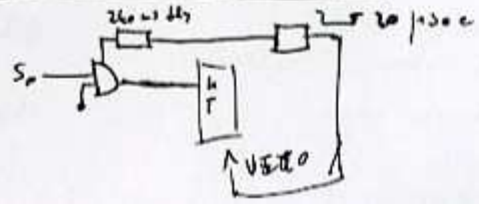
SLITS = 51.5 → SΦ = ~~20~~ k/spill (0.6 GeV)

Trigger = ~~OSH~~ · C1 · C2 · $\overline{SH}$

				#Evts
Run 1177	Tagged ⊖	E = 2.5 GeV		~~2~~k
Run 1178	"	"	"	
" 1179	"	"	"	
" 1180	"	"	"	

End at 23^{45}.

NEW SETTINGS



S0 veto width from 10 μsec to 20 μsec

Full beam

TRIG : $S_0 \cdot S_2 \cdot C_1$

TRIG to CU : Ex

S_0 ≈ 7000 e

Hard trigger ≈

GAUGE

00	Run	1181	Full	
00^{16}	"	1182	"	
00^{30}	Opened the slits to ± 51.8 in bo			
	Now SΦ ≈ 10,000/sp.11	Trigg		
01^{00}	Notice Triggers ~ 500/sp.11#1	5		
01^{11}	Run	1183	Full	bre
02^{15}	Run	1184	Full	bre
03^{18}	Run	1185	Full	bre
04^{22}	Run	1186	Full	bre
05^{26}	Run	1187	Full	bre
06^{30}	Run	1188	Full	bre
07^{36}	Run	1189	Full	bre
08^{45}	Run	1190	Full	bre
09^{16}	No Beam			
10^{50}	Run	1191	BT22	C
10^{56}	Run	1192	BT3	C
11^{10}	updating		Lab. Ard Veto	
11$^{?}$	Run	1193	BT3	C

11 Aug, 2006

8:50 ~~[illegible]~~ re
$C_1 \approx 0.8$

F = - 2.5 GeV/c

Slits pos = 5l.
S0 ≈ 20 k /

RUN 1200 (Q

Run 1201 : Pedestal for

~~Run 1202~~: Trg : Ten
1
2
3

Run 1202 : electron 2.5

Average rate
Ttart rate
S0 rate
Nicola Marziali

→ stopped @ 50

11:20 ~~[illegible]~~
Note : magnets QFO Φ3
at the nominal
They have been se
Focus set at

11:30AM 70000 1204 : Run Synchronized, E ~ 0,5 GeV, Magnet OFF
Nicola is looking at the Timing in ξ
Lower energy → slower particles ...
Beam spot is larged, it looks like S_2 does not VETO...

→ Now have 2 Spills per Super Cycle
→ Need to analyze this run to see wether we can run with this settings.

SLIT POS 51.5 (both H
S_ϕ ~ 15K / spil
HW TRIG ~ 800 / sp
$S_\phi C_1 C_2$ ~ 9,2 K/
$S_h S_2$ ~ 9k/sp

11:45AM 70000 1205 : Run Synchronized, E ~ 1 GeV, Magnet OFF →
→ see the same feature on Beam Spot on the OnlineMonitor AD plots.
→ it looks like | S_2 is quite inefficient
S_2 in triggering also on its light guide
So is in trigger and get everything from the beam comparing with previous runs.

• Changing Beam
SLIT unchanged
Beam Line Magnets set to

MAGNET ON ~ 2
Trigger : S2 S4
Rates : 2 spills

12:10AM Keep same Beam Energy 1 GeV and settings
MAGNET ON ~ I = 240,0 A.

70000 1206 : Synchronized Tagged γ
→ O.M. shows : Quite a lot of events with no cluster in the 3rd and 4th Calorimeter
=> Very likely two effects | • S_2 light guide x $\overline{S_4}$ coincident
• Magnetic field also too low.

=> Adding S_1 (forgot in trigger) to check wether Magnet setting is OK.

1M. => Adding S3

as S_4 is "inefficien

70000 1207 : same settings but S_1 in trigger
→ OM. shows | • Nice cluster distributions!
• No More zero clusters in 3rd Module.
→ Low rate ~ 20 events / spill
⚠ Last bunch not sent through the Socket ...

1.10PM Trigger $S_2 S_4 C_1 C_2 (\overline{S_1} + S_3)$

but Beam OFF for ---- few minutes ...

70000 1208 : Synchronized Tagged γ 1 GeV e^-
→ Off. plots look better
one can see fewer "0 cluster events" in 3rd Module and 4th Module.

2:10 PM AD Pedestal Run. 4378

2.34PM Here comes the 3rd Spill of the Super Cycle!
70000 1209 : Synchronized Tagged γ 1 GeV e^-
same as 1208 but after 12k we have 3 spills per supercycle.
→ Taking 200 events per SuperCycle

⇒ After 25k, Beam intensity is lower and we get back to a double spill structure ...
⇒ Synchronization Look after 30k events!
Stopping run and restarting

3:20PM 70000 1210 : Same run Synch Tagged γ. 1 GeV e^-
→ Going for 70k events ⇒ BOR STARTED WITH PARTICLE TYPE = Electron INSTEAD OF Tagged γ (Radio)

17th July At the 3rd meeting Philippe + everybody agreed that our next angle at @ 2.5 Gev should be

30° $(x, y, z) = (200., \overset{13.2}{0.}, -48.)$

17th Updating AcdVetoDAC in dGnFo/ancillary/Gax161 with file provided by Eric Charles August 11th

18:50 70000 1211 New CU Position 1 GeV e^- synch tagged γ
95k evt magnet $i = 260$ A

For a while we ha

19:42 70000 1212 Same ru
BOT mag
19:47 Run 1212 stopped @ 1
19:50 70000 1213 Same ru
magnet i

20:02 70000 1214 1 GeV e^-,
35 kevts

20:51 70000 1215 1 GeV e^-,
25 kevts

21:38 70000 1216 1 GeV e^-,
25 kevts

22:25 70000 1217 1 GeV e^-,
30 kevt

- 1 GeV e^-, synch tagged photo

Aug 11, 2006

23^{25} 1) Moved cable to unsync trigger ← vetoes on S2 light pipe events
2) Changed trig to $S\phi \cdot S2 \cdot \overline{SH} \cdot C1 \cdot C2 \cdot \overline{S3}$
3) Turned of Spect Mag Beam Still 1 GeV

Start Run 70001220
Undeflected 1.0 GeV shows 234 Avg (230 by eye)
"x-impact pos on cal top"
for table at $(\theta_{table}, x, y, z) = (30.^{\circ}, 200., 13.2, -48.)$

$S\phi$ = 15,700/1.2 sec HwTrig = 930/1.2 sec (sum of 3 pulses)

Raw Cal Energy Sum shows peak ~600 MeV with ~~# of events~~ ~ $\frac{100 \text{ events}}{10,000}$ at 0 MeV ⇒ small # of e^- hitting dump

Aug 12, 2006

0^{15} Run 1221 Beam = 1.0 GeV still
Spect = OFF Trig Same as ~~before~~ 1220 $(S\phi \cdot S2 \cdot \overline{SH} \cdot C1 \cdot C2)^{\overline{S3}}$
Taking ~10,000 Triggers @ ~50 Hz (S4 is not required)
Data is sync'd.

Idea is to look at the ~1% of events in cal that = 0 energy.
Then see if first Si Tagger (#1 and #2) point at the dump.

Phillipe's quick analysis shows these ~0 Cal energy events are electrons which hit the dump.

12^{30} Changed energy to 2.5 GeV (Nicola +10 m focus settings)
Run 1222 Spect = off Run syn'd to see where beam is steered on Tag Si #1 and #2. ~10,000 Triggers
Chng "x-impact pos on cal top" = 240 (Close enough to 1 GeV 234)
Dist centr on Tag #1 is same as at 1 GeV because SH hole is determining the part of the beam that triggers.

12^{45} Now unsyn'd Trigger still $S\phi \cdot S2 \cdot \overline{SH} \cdot C1 \cdot C2 \cdot \overline{S3}$, D0 ~250 r/sum)

0^{55} Opened all 4 slits from 5
2^{10} I looked at Č thresholds

	Threshold Disc [mv]	elec Pulse Height [mv]
C1	150	~175
C2	150	~225

Conclude: Thresholds are set abo
the electron pulse heig
pions don't work the
Pressure = .87 and

~~AM~~ 8:46 : Start synchro r
7.5 GeV,
3/2 spill . Very short run,
restarting...
(S0 | S1 & C1 & C2 & !S3 !

Run 123x - 25 K events.

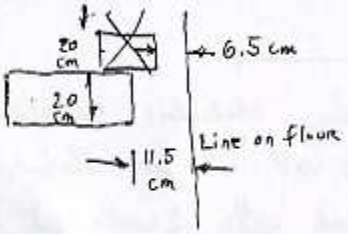
Runs 123 → 2.5 GeV ~ 110 K eve

12:42 Č1
Č2

13[15] JB, Phillipe, Gilles, Local

Removed the most downstream Pb bricks from the dump
These bricks were 6.5 cm from the "Line" on the floor.

Now:



Setting for 500 MeV tagged photons, vertical (0 deg.):
- Reduced Dump.
- Magnet = 120 A.

~~Tuning~~ run

1240 : electron.
1242 : Y, 120 A } test.
1243 : Y, 100 A }
1244 : Tagged gamma, 0,5 GeV, 120 A.
1245 ~~Tuning~~
1246 ← 6000 evt only
1247
1248 ← 100 Kevts here
1249 + 10k
1250 + 25k (*)

August 12th : 7.PM
+ Taging The new version of the AD DAQ that runs without reading FADCs
→ succesful for runs 1250 - 1251
with a dead time of 250 μs

7.10PM Run 1253
Ramping Magnet Current up to 150A to clean the Beam in the Tagger.
Final setting 120 A

7:30 : run. 1254 : 500 MeV
tag. chan.

(*) run. 1255 : continu
for 0,5
run unde

run 1256 : Same
run 1257 : "
run 1258 : "

23:00 Changed settings f
ZT9 spectro turned

run 1259 : 1 GeV
Magnet
trigger

23:20 Set Magnets to 2.5 G (was
set Spect = ~~+ 000~~ 0 Amps
Cher Press = .84 , .92
Take 10,000 event synch'd
CU = (θ, x, y, z) = (50.°, -
Dump is still at new 6.0

23[15] Moved CU = (50.°, -70., 1
Take 10,000 events synch'd

AUG 12, 2006

23[55] 28s Spect = 600. (was 0) amps   Trig = $S\phi \cdot S2 \cdot \overline{S3} \cdot \overline{S4} \cdot C1 \cdot C2$

Begin Full Brems RUN 1262 unsyn'd

$S\phi = \frac{32000}{4\,pulses \times 4\,sec} = 20{,}000\,Hz$ (× 20μsec = 40% dead)   Trig rate instantaneous $= \frac{2000}{4\,pulses \times 4\,sec} \approx 1200\,Hz$

DAQ AVRG event rate = 122 HZ (Higher now because 4 pulses)

AUG 13, 2006   POSITION 3

8:20 Spectrum i = 240 Amp   Trig $S\phi \cdot S2 \cdot S4 \cdot \overline{S4} \cdot \overline{S3} \cdot C_1 C_2$
Energy 1 Gev
RUN 70000 1276 tau e⁻ 1 Gev tagged photons, synch
25 kevts   pos 3

8:53 Same run el 1GeV for tagged photons synch i = 240 A
RUN 70000 1277 25 kevts

9:26 RUN 70000 1278 Same run el 1GeV for tagged γ, synch
i = 240 A, pos 3, 25 kevts

9:57 RUN 70000 1279 Same run el 1GeV for tagged γ, synch
i = 240 A, pos 3, 25 Kevts

10:29 New Pedestal RUN 4324 for ancillary

11:00 [1 GeV beam, directly on tagger chambers for beam study,
run 1283, 10 Kevts
I = 400 A
Conf 10 = "Test"]

11:30 [0,75 GeV beam, directly ...
run 1285, 10 Kevt...
I = 330 A, Confi...]

Moving to 0,5 GeV for ...
I = 120 A, Configurat...

Runs:

12:15 PM No Beam!
Stopping run 1...

12:20PM Beam in Bae...
run 1287
+ Installed on swit...
PC Clust 22
23
31

13:07 RUN 1288 same ru...
25 kevts

13:57 RUN 1289 same ru...

14:43 RUN 1290 JUNK

14:45 RUN 1291 same ru...

15:38 RUN 1292 same ru...

16:28 RUN 1293 same run...

3 August ; 17:50PM End up here with Tagged Photons at 0,5 GeV
56 it's too slow!

Summary of runs E=0,5GeV; electrons; Configuration 3 ; 48°

+ Run	Events
1286	18k
1287	25k
1288	25k
1289	25k
1291	25k
1292	25k
1293	25k
1294	19k

Position 3 . 50°

8 runs for 187k Tagged γ with 0,5GeV e⁻

18 PM Philipp moved the table to "annihilation study" position successfully ~ 145°
but after going back to Normal Position 2
the table got stuck.
We had to enter the area and reset the xy Table.

18.15 PM Starting Tagged γ with 0,5 GeV electron beam
→ Table Position 2 : 30°
[200, 13.2, -48, 30°]
Run 1295 : Tagged γ . I=120A, Pos 2 . E=0,5 GeV, e⁻, 25k

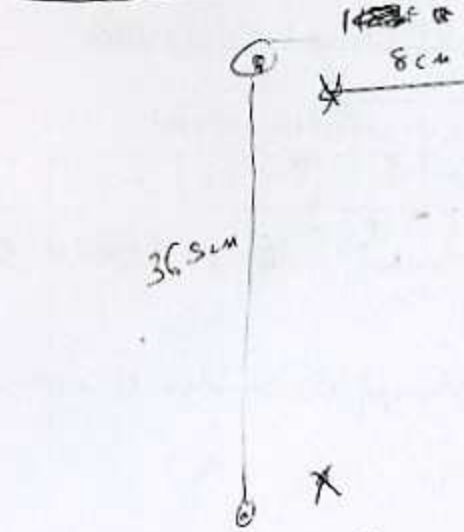
18 50 Later Tonight
929 For the beam going up through the calorimeter side:
from Phillipe (Θ, x, y, z) = (-215°, 749., 13,2, -175)

19:20PM Run 1296 : JUNK Lost signal at the beginning
Run 1297 : Tagged γ, Pos 2, E=0,5 GeV e⁻ / Junk!
Check Lost of synch
Run 1297 is probably OK at the beginning.
[50]

Run 1298 : Tagged γ , P
Run 1299 : Tagged γ , P
21:10 Run 1300 : Tagged γ .
Runs 1301 - 1302 - Ju
Run 1303 Tagged γ
13:03 Run 1304 Tagged γ

This Run w
That the number o
to rise in the o

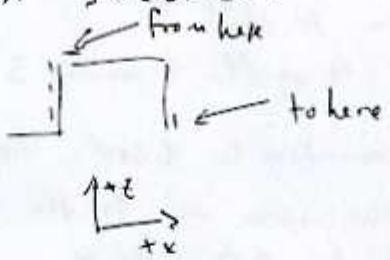
Run 1305 Tagged γ



Dimension for P
for moving

1:00 8/14

moved Ted tube #4 to new position on +X side of CV.



This should be moved back to the original position after the photon runs.

2. Run 1307 ; Test run with muons

Run 1308 tagged photons 1 GeV pos 2
1309 tagged photons 1 GeV pos 2

2:59 Move the CV in position 1
Run 1310 tagged photons 1 GeV pos 1
Run 1311 tagged photons 1 GeV pos 4
- Skip 1 mode (wrong energy or wrong current?)
remove S4 from the trigger, start "full beam" in pos. 4
Run 1312 Full brem, 2.5 GeV pos 4 (1120 K events)
Run 1313 Full Brem, 1.5 GeV pos 4 (500 K evt.)
Run 1314 Full Brem, 2.5 GeV pos 4 (263 K events)
Run 1315 Full Brem, 2.5 GeV pos 4 (274 K events)
Run 1316 Full Brem, 2.5 GeV pos 4 (263 K events)
Run 1317 Full Brem, 2.5 GeV pos 4 (283 K events)
Run 1318 Full Beam, 2.5 GeV Pos 4 (300 K events)

Wrong Trigger information in the "Auxiliary Data Info"

For these Beam although runs the Trigger was the standard ones
S0, S2, C, Ce. 5 3 0 5 K

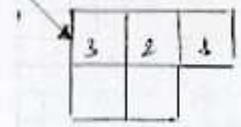
⇒ End of Full Beam E ~ 2.5 GeV Position 4

8/14 : 8:35 AM Shifters

- Beam Energy set
- Magnet Current set
- Table Position
- Beam is still 4

When changing Beam [illegible]
noticed that the Focus
it should be set to
→ Energy is set it to
→ may explain why we
- Control Č pressure
- Taking a pedestal run

7xxxx1319 : First run at
Position 4 = Beam at 145°
Beam Position
See a Beam
Taking ~
First Spill



Average Rate RC
Control Temp
Voltage

→ Good run

Let's go for another 175K

08/14 9:30AM Tagged γ 1 GeV Pos 4

70000 1320 : Tagged γ 1 GeV Pos 4 θ ~ 145° 25k
1321 : Tagged ——————— !
1322 : JUNK
1323 → 1326 : TimeStamp are Wrong but run still OK

10:45 · We had a problem from run 1321, TimeStamp was bad probably because of the Scaler Cable. that is not reliable.
After a few trials, ~~Plug~~ Unplug the cable
Turn OFF VME / Unplug Scaler
Change NIM - ECL → TTL Channel.
→ It works again...

70000 1327 : Tagged γ 1 GeV Pos 4 (θ ~ 145°) 25 K
11:27 70000 1328 : Tagged γ 1 GeV Pos 4 (θ ~ 145°) 25 K
counting rate decreasing ~~Stopped~~ Go trigger/spill

0.5 GeV TAGGED GAMMA Pos 4

12:16 70000 1329 : tagger gamma 0.5 GeV Pos 4 (θ ~ 145°) 25 K
13:21 70000 1330 : Tagger gamma 0.5 GeV Pos 4 10 K

1.5 GeV TAGGED GAMMA POSITION 1

70000 1331 : Test Run for beam position - NoSync. OK
14:27 70000 1332 : TAGGED γ, 1.5 GeV - pos 1 (0°) upgrade b/p 25 K.

4326 pedestal run for Si b
15:15 70000 1333 : Tagged γ, 1.5 GeV, pos 1 - Sync. lost < 36 events
15:26 70000 1334 : Tagged γ, 1.5 GeV, pos 1 25 K
16:12 70000 1335 : Tagged γ, 1.5 GeV pos 1 25 K
16:56 7000 1336 : Tagged γ, 1.5 GeV pos 1 ← Sync. lost < 1700 events
17:02 7000 1337 : Tagged γ, 1.5 GeV pos 1 ← No good sync ⇒ skipped when 1280 events
19:10 7000 1338 : Tagged γ, 1.5 GeV pos 1 25 K

14 1.5 GeV Tagged

18:09 7000 1339 : Tagged γ
18:47 7000 1340 : Tagged γ
19:26 7000 1341 : Tagged γ
20:06 7000 1342 : Tagged γ
1.5 GeV Tagged

20:48 7000 1343 Tagged γ
21:26 7000 1344 : Tagged γ
21:45 Now have 4 spill
22:01 7000 1345 : Tagged γ
22:33 7000 1346 : Tagged γ

15 AGO
Table 2 "position"
~~1332~~ 1 GeV
1347
1:32 7000 1351 : Se

I (A)	num.
220	1350
230	1351
240	1352
210	1353
200	1354

1:51 7000 1355 : 1 Ge
2:00 Move 1 Table 43
two ladders ⇒ Tar

Aug 15, 2006 Tues

2:10 70000[illegible]356 : 250K e+ 1GeV with target
3:01 70000[illegible]357 : short run e+ 1GeV for quick analysis
3:05 70000[illegible]358 : 250K e+ 1GeV with target
4:10 70000[illegible]359 : 250K e+ 1GeV with target
5:03 70000 1360 : 250K e+ 1GeV with target
6:14 70000 1361 : 250K e⁻ 1GeV with target
7:15 70000[illegible]362 : 250K e⁻ 1GeV with target

8:00 Find Spect = 220 A (This has been its setting all night)
Shadow? of [illegible]? can be seen at ~550 mm in "Impact position of cal Top" Graph (2 peaks either side of 550).

8:30 70000 1362 : 361 K e⁻ 1 GeV with target
70000 1363 : 255 K " " "
70000 1364 : 134 K e⁻ 1 GeV " "

10:20 $\check{C}$ counters evacuated and refilled $\check{C}_1$ = 2.06 bars
$\check{C}_2$ = 3.22 bars

9:30 Benoit, [illegible], Carmelo
Removed e^+ dump extension
Rotated/Trans Table = $(\theta, x, y, z) = (20.^\circ, 76., 23., 600.)$ ← Since 0° and the beam is very close to tower wall
All slits = 51.0 (only ±2 mm !!)
The 130 cm from floor, beam is slightly below center of Tower
The 4× Flight MMD block is ⊥ to Beam, on
Spect = off So beam follows floor line.
The MMD block is at the active center of the ACD tile.
The Floor line goes through the active center of the ACD tile.
E_{Beam} = 10.0 GeV (For focus settings of Nicola).

1:00 Took Run 7000 1365. Unfortunately, beam is going between Cal #2 and #3.

11:30 Cherenkov thresholds:
{ c1 from 140 mV to
c2 from 150 mV to

11:45 Moved table to (θ, x, y, z
~~and~~ This puts the floor li
of the $\check{C}$ tile. Then ce

12:00 Run 1369 Sync'd Sø·52·

But M

12:10	Run	1370	Unsyn'd	986 K
		1371	"	511 K
12:15	Run	1372	"	262 K
13:35	Run	1373	"	22 K
13:38	Run	1374	"	518 K

Instantan

14:00	Run	1375	"	616 K
14:30	Run	1376	"	506 K
14:50	Run	1377	"	502 K
15:15	Run	1378	"	539 K
15:37	Run	1379	"	506 K
			Total:	4,988 K (10
16:15	Run	1380	"	[illegible] K
17:02	Run	1381	"	513 K
17:52	Run	1382	"	533 K
18:11	Run	1383	"	504 K

8[30] RUN 1385 Vnsync 500 K

RUN 1386 " - STOP INTERRUPTED

LAT-BTSERVER GOT STUCK After a PDF file on the ISC from confluence was opened

~~Called Ric , ...~~

Contacted John Panetta on ICQ, who called Ric

we reboot Lat-btserver while waiting for Ric

RUN 1387 - test

10[45] 1388 Vnsync 6 GeV proton 30° degree
533K

11[20] 1389 " stopped @ 501 Kevt (00:10)

-.- 16 - Aug - 2006 -.-.-.-.-.-.-.-.-

00:10 1390 " stopped @ 501 kevt (01:00)

01:00 1391 " Stopped @ 503 Kevt (01:45)

01:45 End of 6 GeV/c proton runs

02:10 CU moved at x = 749.0 y = 0.0 z = -100.5
θ = +90.0°

02:15 Beam Momentum = 10 GeV/c

RUN 1392 → Test with 10 GeV/c protons
S0 = 160k/4 pulses Trig = 6,6 k/4 pulses
AVRG Evt Rate = 368 Hz
Stopped @ 200 kevt

02:30 Start runs with protons 10 GeV/c
CU position x = +7.9 y = 0 z = -100.5 ϑ = 90°

Start run 70000 1393 (stop @ 501 Kevt)

02:55 Start run 70000 1394 (stop @ 510 Kevt)

03:21 Start run 70000 1395 (stop @ 557 Kevt)

03:50 Start run 70000 1396 (stop @ 501 Kevt)

04:15 Start run 70000 1397 (stop @ 501 Kevt)

04:45 CU position changed :
x = + 7.9 y = 0 z = - 7.9 ϑ = 90°
beam momentum still 10 GeV/c

04:50 Start run 70000 1398 (test run, stopped @ 30 Kevt)

04:52 Start runs with 10 GeV/c protons :

run 70000 1399 started (stopped @ 510 Kevt)

05:21 run 70000 1400 started (stopped @ 500 Kevt)

05:50 run 70000 1401 started (stopped @ 501 kevt)

06:15 RUN 70000 1402 started (stopped @ 510 Kevt)

06:40 RUN 70000 1403 started (stopped @ 501 Kevt)

07:11 Beam momentum set at 6 GeV/c

RUN 70000 1404 → test RUN (stopped at 34 K evt)
SP = 84 K / 4 spill TRIG = 3 K / 4 spill
AVRG = 170 Hz
Evt RATE

START RUN 8 WI

07:16 RUN 70000 1405 S

08:16 RUN 70000 1406 St

NEW SHIFT : LEON R + C

Note: - looking at CLOSED w
large angle and
- the cal plot of
peak and the
events with many

Note : Housekeeping found
probably not x
reboot - Check
DL appear ok

09:05 Run 70000 1406 S
Beam monitor
alignment of beam
→ play with steer
→ BM203 setting

9:15 RUN 70000 1407 : Sto

⇒ 10:00 RUN 70000 1408 Sa
hitting by 2) D
4 range readout
particles in the sa

SLITS	COUNTS 50/spill H
51.5	60 K
50.5	12 K

10:30 Slits set to 50.5
take 2 runs with BTI
event on pedestal di

RUN 70001409 : slits at 50.5, BT1, p 6 GeV, 90°

RUN 70001410 : start @ 10:51, BT22, p 6 GeV 90°
pos = 50.5

Reduce slits more

SLITS	S0	ACD-TRG
50.3	7500	750

(**) (NOTE: HCVA vertical slits reading say CLOSED → we try anyway to take a run)

RUN 70001411 : BT1, p 6 GeV, 90°, slits 50.3 (**)

Pedsed ACD had been OFF all night

RUN 70001413 : BT1, p 10 GeV, 90° - lyz slits 51.5
ACD ON !lits are there indeed!!

CAL Tests — Magnet OFF

70001414 BT22 | run 70001373 Configuration for CAL testing (Sasha)
20 k events (30°, 93, 23, 600)
Slits to 51 ; S0 = 21k/spill

70001415 | Same but with LAC modified Tower[1,0,0,0]
BT01

70001416 | Same but with LAC modified Tower 1 Layer 0
BT22

70001417 : Same but BT1

+ Proton Studies more standard settings : Magnet OFF
- Moving table to [0°, 561, 13.2, 0] Center of Tower 3
70001418 : Test run to check Table position protons 10 GeV/c - OK
70001419 : protons 10 GeV/c - [0°, 561, 13.2, 0] - Tower 3
100k.
70001420 . same run but [60; 561; 13.2; 0]

70001421 : 10 GeV/c Proton
Good

17 PM Change Beam ener

700001422 : 6 GeV/c Proto
100 k ever

700001423 : 6 GeV/c Protons

End of Proton ru

18 PM Taking some "Muon Calib
70001424 : 6 GeV/c protons
BT-16 4
70001425 : 6 GeV/c Protons
BT-23 4

18:15 → Moving table to [0°;
700001426 : 6 GeV/c Protons
BT23 4

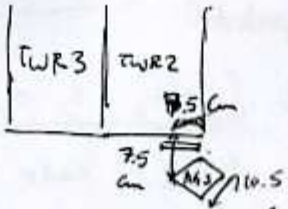
Moving Table to [0°;
700001427 6 GeV/c Pro
~~70001428 6 GeV/c Prot~~

18:50 Internal Trigger Test
~~70001428 → 1431~~
~~[0°,100; 13.2; 0] [0°~~

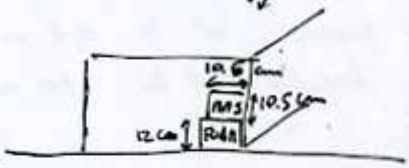
19 PM → Switching t

19:30 MHS TARGET POSITION SURVEY
P RUNS

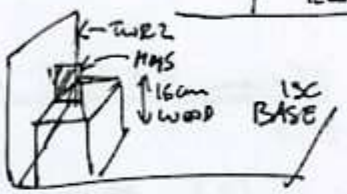
p RWKS TOP VIEW



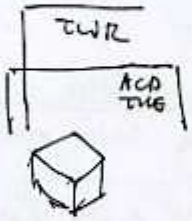
FRONT VIEW



e+ RWKS



SIDE VIEW



MKS DIMENSION 10.6 x 10.5 x10.5 cm

16/08 19:45

Test 4327 Ancillary pedestal

- Table moved to [607, 4
- Cherenkov in trg (no
- Cherenkov pressure set
- " threshold set

runs.

1432 : reference run. E
Synch run, 10 K

1433 : Electrons 2.5 GeV

1434 : " "

1435 : Tagged Photons, 2.5 GeV

runs 1435 and 1436 hav

10PM Run 4328 Pedestal run

Run ? Test run stron

10:30 PM Run 1438 : Tagged Photons

17/08

0:22 Run 1441 : Tagged phot
Stopp

0:58 Run 1442 : Tagged phot
Stopped

1:59 Run 1443 Tagged phot
Stopped

3:17 Run 1445 full bremss.

3:42 Run 1446 full bremss

4:13 Run 1447 full bremss

4:42 Run 1448 full bremss

5:12 Run 1449 full bremss

5:40 Run 1450 full bremss

06:07 Run 1451 full brenss, 2.5GeV. 600A 100k
06:36 Run1452 full brenss. 2.5GeV. 600A, 100K
07:05 Run1453 full brenss, 2.5GeV. 600A, 100k
07:33 Run1454 full brenss, 2.5GeV, 600A . 100K
08:02 Run1455 full brass, 2.5GeV, 600A 18K

17/08

09:30 RUN1456 tagg. phot, 2,5GeV, 600 A , 30K
So 3K event/spill
3 spill.
STOPPED ctrl-c

PETE 4329

10:10 RUN 1457 tagg. phot, 2.5GeV 600A , 30K
Run 1458 = JUNK
Run 1459 = Junk 5 GeV. electrons - testing beam
→ few events !
checking Č pressure, threshold, H.V.
→ adjusting settings

Run 1460 5 GeV/c electrons [0°; 201.17; 13.92; -47.4]
SO = 6k/spill
HV Trigger = 120
SO.C1C2 = 400
DAQ TRG = 80
$\check{C}_1$ = 0,36 bars
$\check{C}_2$ = 0.406 bars

1461 : x = 250.25
1462 : x = 201.12
1463 : x = still 201.
1464 : x = 350.25
was not cop
1465 : x = 374.5
1466 : x = 201.1
1467 : x = 201.17

1468 : x = 398,75
5 GeV/c electron

Random Trigger circuit:

18:28 RUN 1469 x = 320.0 y =
5 GeV/c elect

18:39 RUN 1470 x = 330.0
5 GeV/c ele

18:51 RUN 1471 x = 340.0
5 GeV/c el

19:02 RUN 1472 x = 360.0
5 GeV/c el

19:13 RUN 1473 x = 410.0
5 GeV/c el

19:25 RUN 1474: x = 420.0 y = 13.92 z = -47,4 θ = 0°
5 GeV/c electrons

19:37 RUN 1475: x = 430.0 y, z, θ same as previous
→ COMPLETED 5 GeV/c electrons RUNS @ 0 deg

19:48 RUN 1476: x = 201.17 y = 13.92 z = -47,4 θ = 10°
5 GeV/c electrons (stopped @ 15,2 kevt)

20:02 RUN 1477: x = 250.25 y, z same as previous θ = 10°

20:11 RUN 1478: x = 350.25 y, z same as previous θ = 10°
5 GeV/c electrons (stopped @ 15.8 kevt)

20:23 RUN 1479 x = 389.5 y, z, θ same as previous
5 GeV/c electrons

20:32 RUN 1480 x = 4290 5 GeV electrons

20:41 RUN 1481 x = 330.0, y, z, θ same as previous
5 GeV/c electrons (stopped @ 15 kevt)

20:51 RUN 1482 x = 370.0 y, z same as previous θ = 10 deg
5 GeV/c electrons (stopped @ 15 kevt)

21:00 RUN 1483 x = 410.0 y, z same as previous θ = 10 deg
5 GeV/c electrons (stopped @ 15 kevt)

21:10 RUN 1484 x = 450.0 y, z same as previous θ = 10 deg
5 GeV/c electrons (stopped @
→ COMPLETED 5 GeV/c electrons RUNS @ 10 deg

STARTING RUN WITH θ = 2

21:18 RUN 1485: x = 201.17
5 GeV/c ele

21:30 RUN 1486: x = 350.25
5 GeV/c elec

21:39 RUN 1487: x = 405.60
5 GeV/c elect

21:48 RUN 1488 x = 461.0 y
5 GeV/c elec

22:00 RUN 1489 x = 330.0 y, z
5 GeV/c elect

22:09 RUN 1490 x = 375 y, z
5 GeV/c elect

22:21 RUN 1491 x = 430.
22:35 RUN 1492 x = 470.0
→ COMPLETED 5 GeV/c el

23:41 RUN 1493: x = 201.17
5 GeV/c

22:50 RUN 1494: x = 350.2
(stopped @

23:01 RUN 1495: x = 423.8
(stopped @

23:10 RUN 1496: x = 500.0
(stopped @

23:19 RUN 1497 x = 330.0 y
(stopped at

23:28 RUN 1498 x = 385 y, z
(stopped at

70000

23:55 RUN 1499 : X=460. Y=13.92 Z=-47.4 θ=30° 15 K.
5 GeV/c electrons

4 pile - [illegible]

./8/2006 -

0:09 RUN 1500 : X=520 Y=13.92 Z=-47.4 θ=30° 15 K.
idea 5 GeV/c electrons
likes

45°

0:22 RUN 1501 X=460 Y=13.92 Z=-47.4 θ=45° 15 K.
5 GeV/c electrons

0:33 RUN 1502 X=400 Y=13.92 Z=-47.4 θ=45° 15 K.
5 GeV/c electrons

0:42 RUN 1503 X=350.25 Y=13.92 Z=-47.4 θ=45° 15 K.
5 GeV/c electrons.

0:52. RUN 1504 X=201.17, Y=13.92 Z=-47.4 θ=45° 15 K.
5 GeV/c electrons

60°

1:04 RUN 1505 X=201.17 Y=13.92 Z=-47.4 θ=60° 15 K.
5 GeV/c electrons

1:14. RUN 1506 X=350.25 Y=13.92 Z=-47.4 θ=60° 15 K.
5 GeV/c electrons

1:24 RUN 1507 X=430 Y=13.92 Z=-47.4 θ=60° 15.1 K.
5 GeV/c electrons

2.5 GEV TAGGED PHOTONS in TWR 3

1:35 ANCILLARY PEDESTAL 20:430 - slits reduced to 51.5
- C1 and C2 0.71, 0.88 B.

RUN 1508 X=374.5 Y=0 Z=-132 θ=30 5K position OK
RUN 1509 idem to check [illegible]

MAGNET: 600 A.

2:05 RUN 1510 ① X=374.5 Y=0 Z=-132 θ=30° < slits open ⇒ 52.0 25 K

2:47 RUN 1511 ② X=374.5 Y=0 Z=-132 θ=30° 25K

3:31 RUN 1512 ③ X=374.5 Y=0 Z=-132 θ=30° 25K.

4:17 RUN 1513 ④ X=374.5 Y=0 Z=-132 θ=30° 25K.

30° (reduced

5:12 RUN 1514 ① X=~~512~~ 525

5:58 RUN 1515 JUNK. No

6:04 RUN 1516 ② X=525,

6:47 RUN 1517 ③ X=525,

7:33 RUN 1518 ~~④ X=525~~

7:36 RUN 1519 ④ X=525

10°

8:25 RUN. 1520 ① X=561

9:10 Run 1521 False start,

9:11 Run 1522 ② (x,y,z) = (
No triggers, restart

9:20 1523 ② (x,y,z) = (

10:10 ANCILLARY PED

10:15 Run 1524 10 degree r

~~10:37~~

11:37 Run 1525 10 degree r

20°

X=500 Y=0 Z=-

13:15 Run 1527 ~~220~~

14:09 Run 1528 Run stopped
Target 4→
rate decreased
Target should be cha

14:20 Run 15 29

15:39 Run 1530 stopped at

18:20 Installed finger scintil

18:12 Run 1531 started
18:27 Run aborted because S4 out of trigger
18:29 Pedestal run 4332
18:31 Run 1532 started (40 kevt)

19:39 Moving Table to [607; 45; 0; 0°]
Beam Energy set to 1 GeV/c
Magnet Current set to 240 A.
19:40 Run 1533 started (25 kevt)
20:16 RUN 1534 started (25 K events)
20:44 RUN 1535 started (25 K events)
21:15 Run 1536 started (25 kevt)

21:50 Moving table to [374.5; 0; -132.0; θ=30°]
Run 1537 started (25 kevt)
22:29 Run 1538 started (25 kevt)
22:55 Run 1539 started (25 kevt)
23:18 Run 1540 started (25 kevt)

23:50 Moving table to [525; 0; -48; θ=30°]
Run 1541 started (25 kevt) (1°)

18th August
00:22 RUN 1542 25 kevt
00:30 slits reduced to 51
1543 : random trig
1544 : " "
1:20 slits to 51
RUN 1545 : tagged γ 2
2:10 RUN 1546 : "
2:50 TABLE MOVED to X=561
START RUN 70000 1547 : TAGGED
03:26 RUN PEDESTALS # 4333 ON AD
03:30 STARTED RUN 70000 1548 : TAGGED
04:07 STARTED RUN 70000 1549 : "
04:45 STARTED RUN 7000 1550 : "
05:20 TABLE MOVED TO X=500 Y=0
RUN # 1551 tagged γ . 1 GeV
5:59 RUN 1552 " "
6:40 RUN 1553 " "
7:40 RUN 1554 " "
Change:
Table moved to X=607, Y=45, Z=0
7:55 RUN 1555 tagged photons 1.5
8:31 RUN PEDESTAL #4334 ON
8:35 RUN 1556 - TAG. PHOTONS
9:50 RUN 1557 " "
10:25 RUN 1558 " "

TABLE MOVED TO POS (374.5, 0, -132) 30°

:15 RUN 1559 1.5 GeV, I = 360 A, 25K evts 1/4

1:60 RUN 1560 " " " 2/4

STOPPED CTRL-C 40K

Sync. lost

2:05 RUN 1561 " " " 25K 3/4 → ~~STOP~~

2:39 RUN 1562 " " " 25K 3/4

3:17 RUN 1563 " " " 25K 4/4

→ NEW POSITION (x=525; y=0; z=-48; 30°)

14:00 ANCILLARY PED 4555

RUN 1564 1,5 GeV I = 360 A 25K evts 1/4

RUN 1565 " " " 2/4

20 RUN 1566 " " " ~~3/4~~

STOPPED CTRL-C — SYNC. LOST

NO BEAM

RUN 1567 " " " 25K 3/4

RUN 1568 " " " 25k 4/4

move to (561, 0, -48, 10°)

Run 1569 : Pedestal run BT22, random trigger

7:35PM

70000 1570 : 1,5GeV, I = 360A; [561; 0; -48; 10°] 25k 1/4

70000 1571 : " " " " " " 25k 2/4

70000 1572 : " " " " " " 25k 3/4

1573 : 25k 4/4

PMT Connections for Posi

	Ch	HV	HV
FF	10	21	1300V
FB	11	23	1300V

move table to

1574 : 1.5 GeV, I = 36

1575 : when

1676 Junk

23:54 1577 : Junk

1578 : 1,5 GeV I = 3 COA

1579 : ——

~~Stop~~ 1580 : 1.5 GeV ma

Switch to pedestal

5 GeV e⁻ table (

1581 : BT22 slits

1582 : BT22

1583 : ——

1584 : ——

1585 : ——

23:55PM Switching to Full Beam

Beam Momentum set to

Focus 10 mm

Slits 51

Moving table to [

1586 : 2.5 GeV e⁻ Ma

1587	2.5 GeV, Full-stream γ's,		50k
1588	"	"	100k
1589	"	"	100k
1590	"	"	250k
1591	"	"	254k
1592	"	"	250k
1593	"	"	250k
1594	"	"	250k
1595	"	"	256k
1596	"	"	

SUNDAY 20th August 2006

8:00 The last "free bhremstrahlung" RUN is STILL Running

9:10 RUN 40000 1597 Tagged photons 4/6 25k
0.5 GeV, TWR 3 0° i = 120 Amps

9:50 RUN 40000 1598 tagged photons .25K
0.5 GeV, TWR 3 0° Deg (x = 607, y = 45, z = 0, dy = 0) 2/6
i = 120 Amps

10:48 RUN 40000 1599 " " " 7/6 16k
Instantaneous Counting rate: 80 6000 /spill.
DAQ: 80 /spill
raised peak x 6 times the value during spill at 3.5 10 /spill
run arrêté à 16709 evts

11:30 : security button press[...]
all UPS seem to wor[...]
but we cannot turn th[...]
+ Shutdown bt-serv[...]
Power off
+ The load is quite h[...]
→ Cannot turn off
after something lik[...]
→ not powered off

+ Ancillary PC diagn[...]
+ PCFlash 30 and 37 [...]
such as PC flash 22, [...]
+ Bias P.S. and SV P.S. fo[...]
inside the cave [...]
→ turn all power[...]

12:30 Power ON

12:36 RUN 4336 PEDE FOR [...]

12:50 RUN 4337 PEDE FOR [...]

RUN 4338 LAST PEDE[...]

1:04 External Trigger CU [...]
Internal Trigger CU

13:35 RUN 70000 1602 CAL PEDESTAL
Random Trigger S_2

RUN 70000 1603 TAGGED 0.5GeV TWR3 0° I=120A 25K 3/6
following of runs 1577 → 1579

14:37 RUN 70000 1604 same 25K 4/6

15 3. 1605 5/6

10:15 (ended at 17:05) 1606 25K 6/6

16:30 Switching to positron run
+ Entering the Cave to set things up.
Beam: Positrons 0,5GV I = 120A.

70000 1607 : BT.1 taking
→ Since Magnet Current was −120

70000 1608 : BT-1
Trigger only on S0 to see the beam shape

70000 1609 : BT.1 Magnet I = 120A

70000 1610 − 1616 Optimizing beam

70000 1617 : Positrons 0,5GeV/c I = 91A
10k Good Events but Rate ~ 10Hz

19:22 70000 1617 − 1618 : Positrons 1GeV/c
⇒ Taking Settings

70000 1619 : Since
70000 1620 : 1GeV/c positrons I = 210A default Magnet setting
70000 1621 : 0,5GeV/c positrons I = 105A & BVTO1 = 20.18A [+5]

BVTO1 20,18A [+5]
Spectro 105A

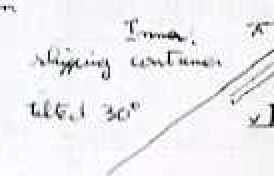
19:51 . Starting gett[…]

70000 1622 : 1GeV[…]
First […]
1G[…]

20:34 : 70000 1623 : 1GeV[…]
21:18 : 1624 : —

Annihilator: 6 layers […]
+ 1 layer […]
26.2 mm - thic[…]
The annihilator is […]
axis, its center bein[…]
the beam axis. It is […]
front of the inner […]

As seen from above



The fingers are side[…]

22:00 RUN 1625 started 1[…]
22:50 RUN 1626 started 1[…]
23:40 1627 " […]

20 - Aug - 2006

Run 70000 1629 : random triggers for pile-up studies

Run 70000 1630 : 1 GeV positrons I = 210A 100K (6)

1:32 Run 70000 1631 1GeV e⁺, I=210A 100K (7)

2:16 Run 70000 1632 1GeV e⁺, 210A 100K (8)

3:00 Magnet settings changed for 1GeV/c electrons I = -210A

SC : 20K / cycle 1 cycle = 4 spills
HW : ~800 events / cycle
FF : ~1100 events / cycle
FB : ~1000 events / spill

3:10 Run 70000 1633 1GeV/c e⁻ I = -210A 100K (1)

5:48 Run 70000 1634 1GeV/c e⁻ I = -210A 100K (2)

4:27 Run 70000 1635 1GeV/c e⁻ I = -210A 100K (3)

17:06 Run 70000 1636 1GeV/c e⁻ I = -210A 100K (4)

5:45 Run 70000 1637 1GeV/c e⁻ I = -210A 100K (5)

6:24 Run 70000 1638 1GeV/c e⁻ I = -210A 100K (9)

7:01 Run 70000 1639 1GeV e⁻ I = -210A 100K (7)

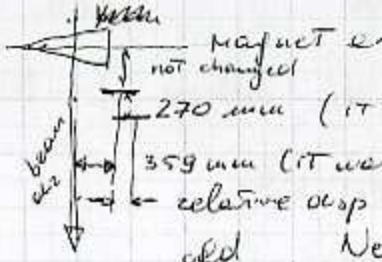
7:40 Run 70000-B1640 1GeV e⁻ I = -210A 100K (8)

8:19 Run 70000 1641 1GeV e⁻ I = -210A ~30K

~5:30 beam stopped. →

Moved oscilloscope for

New positions of SS



	old X	old Z	New X	New Z
SSD2	161.7	1005	359	1
SSD3	159.9 +50	1305	359 +125	1

August 21st

Redestal run for AD 4340 17 PM.

Beam Momentum 0,5 GeV/c Slits 51.5

50/spill = 3k

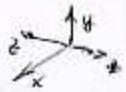
HW Tag/spill = 150

DAQ Tag/spill = 100

run

1642 setup run S3 not in anticoincidence

1643 voltage $\overline{S_3}$ testing new position of the Tagger



Tagger has been moved

Δy = 4 mm (moved up)

Δz = + 20 mm (moved towards the beam axis)

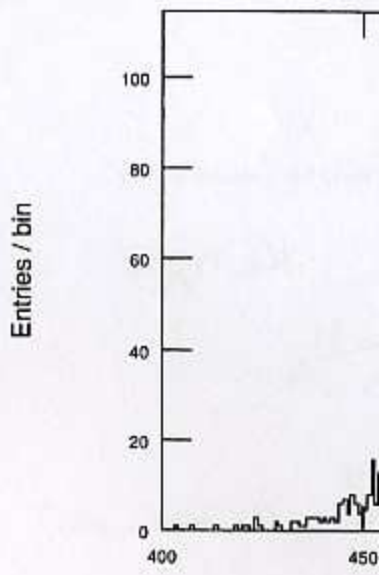
1644 5 Kev

1645 20 Kev SSD offsets used for on line (CU rif)

SSD			
0	0	0	1517
1	4.518	-1.46	1017
2	520	0	-1005
3	520+125	0	-1277
	X_{cu}	Y_{cu}	Z_{cu}

→ NOT aligned

I = 600 A Tag_r



Run 1646 - I = 500

Tagger pulse di

Run 1647 I = 480

Tagger pulse

Moved sy a bit to hav

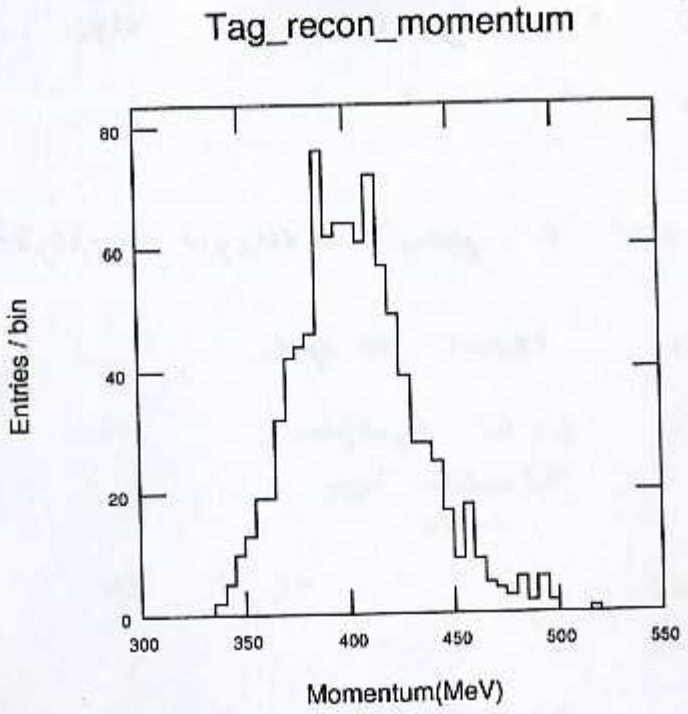
Run 1648 - 25 Kev

" 1649 - 20 Kev

CU moved in a bett

from 607, 0, 0

to 561, 0, 0



				CV position			Start
Runs	1650	25 Kev	561	0	-68	0	19:25
	1652	"	"	"	"	"	20:35
	1653	"	"	"	"	"	22:05
	1654	"	"	"	"	"	23:04
	1655		749	0	400	60	Aborted No beam
	1656	"	"	"	"	"	Loss of synch

RUN 7000 1656 Stopped @ 21K BEAM OFF -> LOSS OF synch

RUN 7000 1657 0.5 GeV Typical photons 1.480 OK 25K

RUN 7000 1659 0.5 GeV

RUN 7000 1660 "

4:52 NEW CV

RUN 7000 1661 Aborted

RUN 7000 1662 0.5 GeV

High rate

RUN 7000 1663 "

06:52 NEW

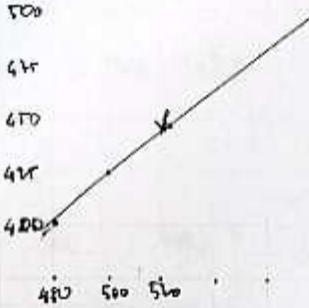
RUN 7000 1664 0.5 GeV

RUN 7000 1665 0.5 GeV

High

08:40 TABLE Moved to x = 0

RUN 1666 TAGGED Phot .5 GeV



70000 1667 : Sunk
20000 1668 : Tagged γ 0,5GeV 25K 2/4 ?
70000 1669 : Sunk

12:10 Starting FHE study
electron beam 5GeV/c , I=0A
Slits = 5 2,5 , C_1 = 0,351 ; C_2 = 0,406

70000 1670 : BT 19 FHE 1GeV for testing Bkgnds
→ Rate too low with Slits to 5 1.
Trigger = $S_0 . S_2 . C_1 . C_2 .$ Veto$(S_3 + S_4)$

70000 1671 : BT 19 FHG 1 GeV . Position [561; 0; -48; 0 deg]

	Run	BT	FHG (GeV)	Position
✓	1671	19	1	[561; 0; -48; 0°]
✓	1672	17	0,5	" "
NoCAL_Hi	1673	21	2	" "
NoCAL_Hi	1674	21	2	[350; -13; -48; 60°]
NoCAL_Hi	1675	20	1,5	" "
✓	1676	19	1	" "
	~~1677~~	~~18~~	~~0,75~~	" "
	1678	17	0,5	" "
	1679	18	0,75	" "

RUN 1679 has problems.
1680 18 0,75 " "
voir plus of 1679
RUN 1680 stopped at 4033 evts because no beam.
1681 stopped at 5 xxx evts → suite 1690

RANDOM TRI

1682 Trigger normal ~~confirmation~~ fw
1683 electrons 2.5 GeV/c Full Beam
TABLE moved to 20
18:19 1684 electrons 2.5 FullBe
19:57 1685 " 200,
1686 "
1687 Idem but Trigger hig

20:58 Table moved to [-50; 13.2
20000 1688 : FullBeam 2.5 GeV/c

21:20 Table Moved to [607; 4
* 1689 Full Beam 2.5 GeV

#4341 Calib Angulai

Settings = TAGGED
Table → 561, 0, -48, 0°
E_e = 0,5 GeV.
Slits -51.5
Magnet = 600 Amps and other,
Trigger = S0 S2 S4 C1 C2
Veto = S4 S3 Pile up In
SYNCHRONIZATION ON -
RUN 1690 -0.5GeV
22:10 RUN 1691 -0.5GeV
NOT for analysis ! ! chercher H

22:25 1692 - same conditions (0.5 GeV, 525 A) 20 Kev

program for the night: take 6 runs (150 Kev) at I = 525 A
($\gamma \sim 50$ nW)
Go to I 480 A ($\gamma \sim 100$ nW) take runs up to the shift end

		Beam (GeV)	I	# Evts	
→	1693	0,5	525	20k	✓
Aug 23	1693	0,5	525	30k	✓
1:12.	1694	0.5	525	25k. → 24.5k	✓

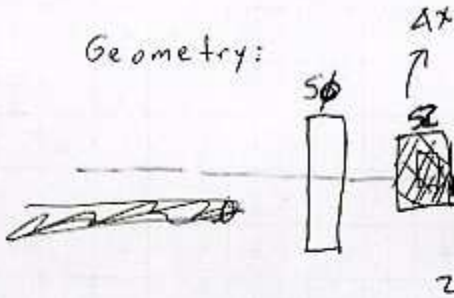
——— Beam-off at 1:05 am. ———

still No beam... at 3:30. Control room says spare power supply of magnet also died. Go to bed...

8:05 AM CU power off

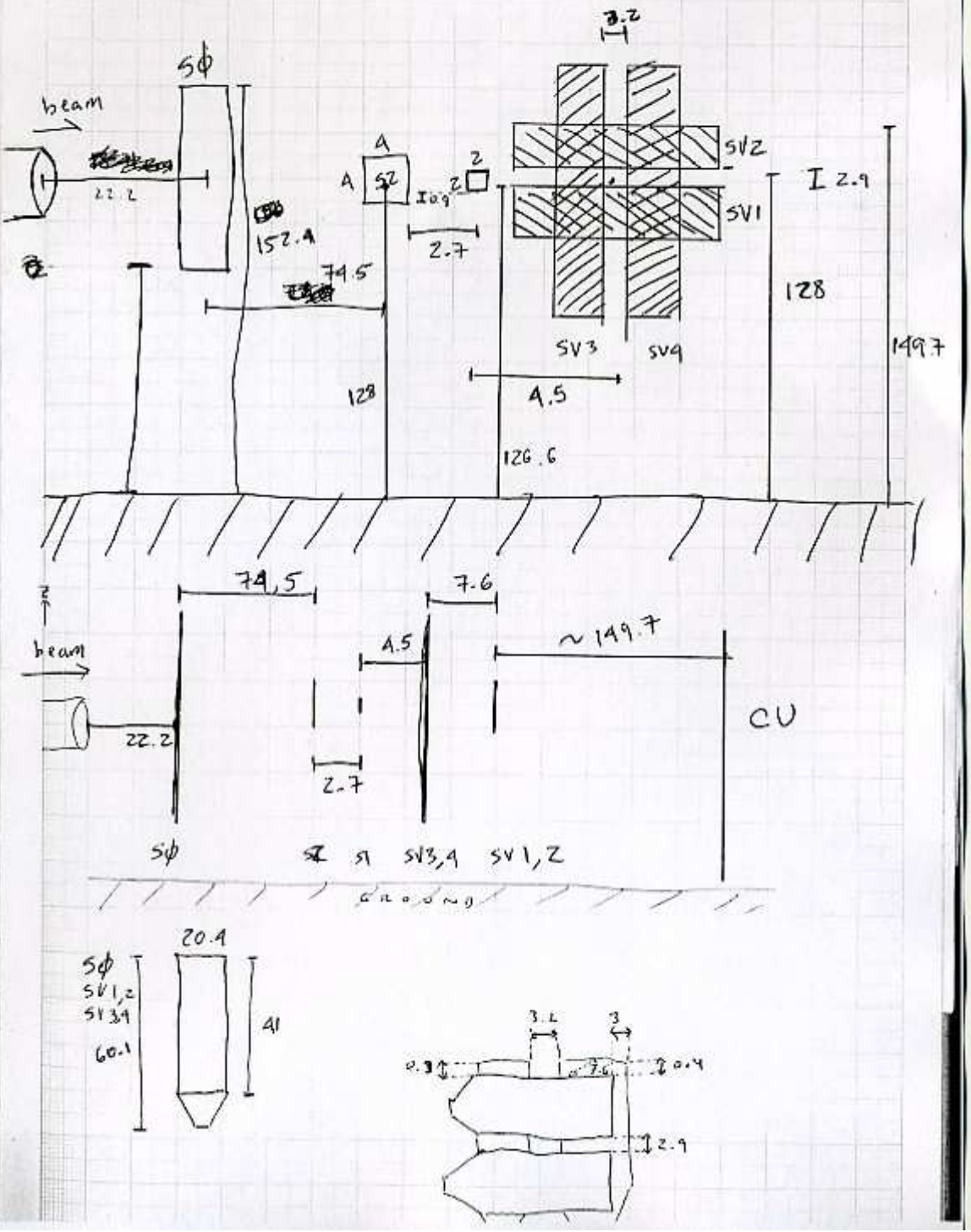
09/05/06

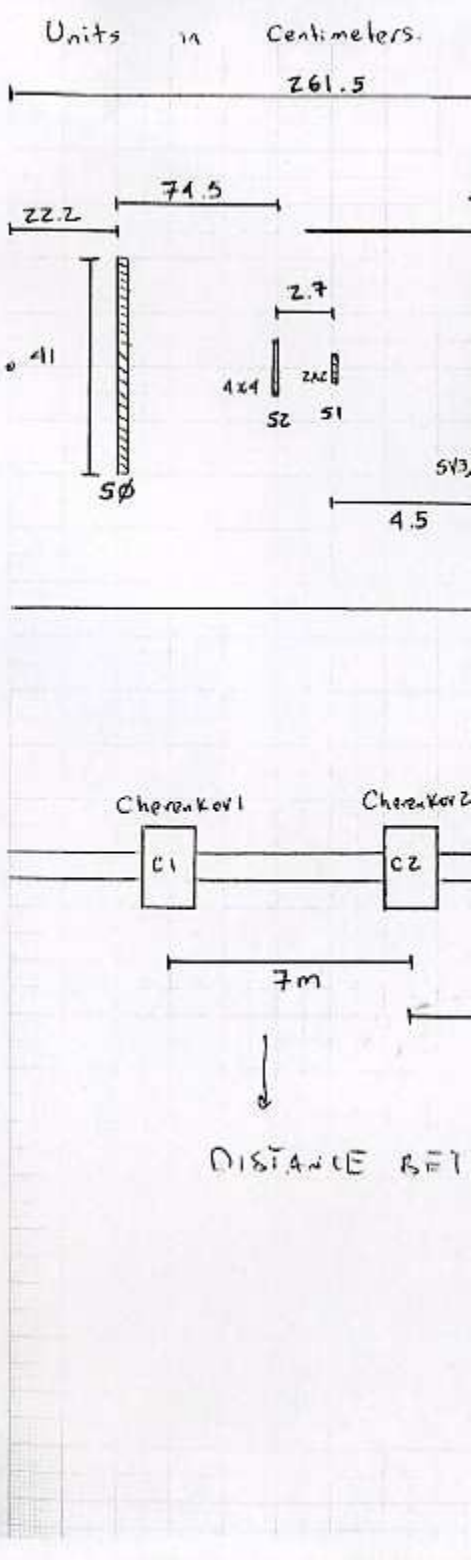
Geometry:



Signal	Signal cable	HV cable	HV val
SV1	1	71	12
SV2	2	72	12
SV3	3	73	13
SV4	4	74	12
S1	5	75	18
S2	6	76	18
Sϕ	10	80	12
Ĉ1			
Ĉ2			

[cm] for every distance

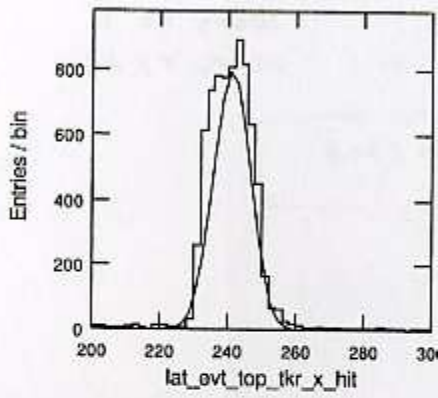


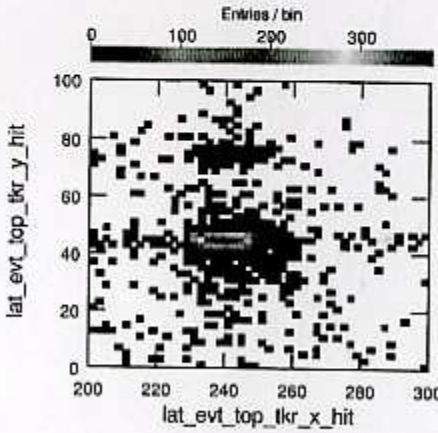

Units in Centimeters.
261.5
71.5
22.2
2.7
41
4x4
2x2
S2
S1
5Ø
4.5
Cherenkov 1
Cherenkov 2
C1
C2
7m
DISTANCE BE

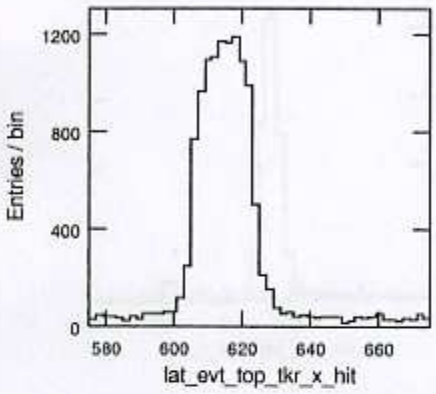
CV testing

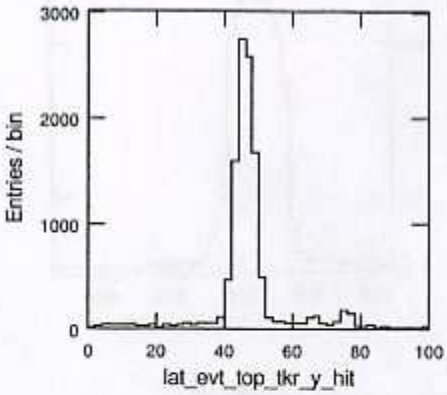
CAL CPTs:		TKR Noise Occupancy	
Tem	Summary run #,	Tem	Run.
1	70000 1746		
2	70000 1733	2	70000 1734
3	70000 1720	3	70000 1721

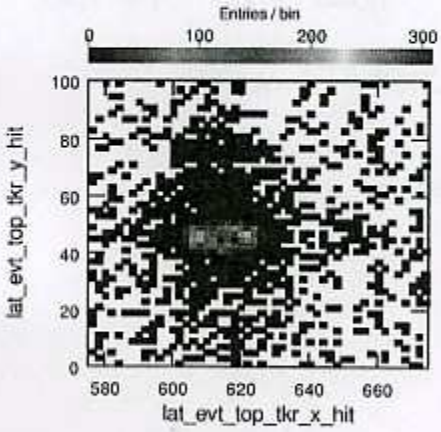
BT-22 run for Cal pedestals: 70000 1747









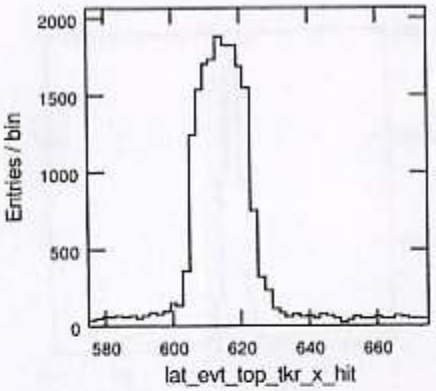


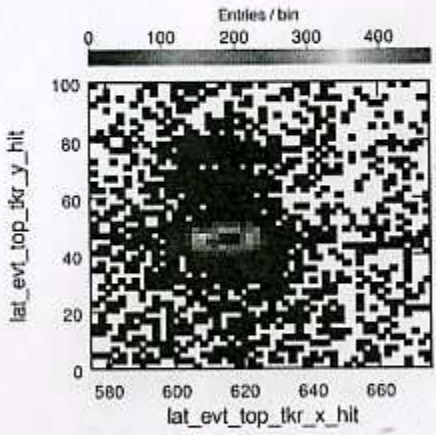
#1758

Sφ @ Veto

the beam shape does not change with or without

=> Veto is well centered





IPT conclusions

The scintillator defines dimension of the beam

It must be shifted

Trigger delay study -

Start time.

CAL Trig 0
CAL TACH 0x2d <> 0x2e
THR Trig 2
THR TACH 0
delay evt 8

run 1759 - BT 1
run 1761 -> BT 4 ->

reset settings for TREG
evt = 2
cal = 0
thr = 0

setting 3 for TREG
evt = 2
cal = 0
thr = 0

final settings for T

evt = 5 - cal

~~[illegible]~~

run 1766 - p

new settings and configurations:

NOMINAL FOR SPS
- cal Trig delay is 1
- tbr Trig delay is 0
- est delay is 5

BT-1 standard config with all conditions at same time.

BT-5 new config with cal/tbr in the middle of the window. Allows trigger efficiency study.

09:00 Calibration run: x = 187.5 y = -125.12 100 GeV
JAN BENOIT THIERRY LUCA B. run 1770 (BT5)

Online uncorrect positions x = 200.574 (CU)
y = -138.45.

Offset between table and CU positions need to be checked after (X)

09:15 run 1771.
Calibration run: x = 187.5 ; y = -125.28.

CU positions. x = 200.56
y = -114.82.

9:33 run aborted. No beam until 11:00

10^{-5} Position checked by
corrected of the X/

During the night runs

were: C1 -2.5
C3 -3
C6 -2.

These values are set

12:19 Start cali
Nominal pos

corrections { X → x
may vary { Y → y
better check

on ONLINE monitor and adjust.

01:04 pm run 1773
01:11 pm run 1774
01:20 run 1775
01:30 run 1776
01:38 run 1777
01:53 run 1778

02:02
Stop calibration and test. (280 GeV)

→ made with BT5 = "four range"

17:20 Counting rate study at 200 GeV.

X: 613
Y: 43
Z: 0
θ: 0
} center of twr 3.

Trig. Config. BT5
Trig $S_0 . S_2$. spill.

Col3: 2.5

	#	70001782	rate: 4200 Trg / cycle 100 kevents with TEM correct.	(att -10, 10 H -20, 20 V)
	#	1783	rate = 7200 Trg / cycle 60 kevt (with 10k TEM corr)	-25, 25 H -25 ver V
	#	1784	rate = 14000 T/spill Col3: 4.5 (tp)	-30 30 H -30 30 V
18:00	#	1785	rate = 19000 T/spill Col3: 6.5	-30 30 H -30 30 V
	#	1786	rate = 1500 T/spill Col3: 2.0	-10 +10 H 10 HO V
	#	1787	rate 800 T/spill Col3=2.0 50 kevts with 6500 ev/s	-7 +7 H -7 17 V

100 Ge[V]

Beam file 100 GeV. ok.

C_1 -2.6; 2.6 — C_3 -3[...]

~~BT5~~ BT 16 — TO[...]

Time	RUN	X (mm)	Y (mm)
20:12	~~1788~~	187.25	13.92 ~~41.76~~
20:25	1789		-153.12
20:31	1790		-125.2[...]
20:37	1791		-97.4[...]
20:41	1792		-69.6[...]
21:07	(1793) ?		-41.7[...]
21:15	1794		-[...]
21:24	1795		-13.9[...]
21:29	1796		+13.9[...]
	Panne vide		
23:20	1797		+41.76
23:27	1798		+69.6[...]
23:32	1799		+97.4[...]
23:37	1800		+125.2[...]
23:46	1801		+153.12

Note! Mismatch between tab[...]
and table position from [...]
run 700001795. Act[...]
~~[illegible]~~

⇒ paper / e-log boo[...]

... 179 5 [...]

180 GeV scan (Followed)
same conditions.

TOWER 3

Time	RUN	X	Y	Z	T	Trig/spill	evts
	1802	561.75	+153.12	0	0	1100	12 K.
AM 12:00	1803		125.28				12 K
12:10	1804		97.44				11.5 K
12:16	1805		69.60				11.5 K
12:22	1806		41.76				10 K
12:27	1807		13.92				7.5 K
12:31	1808		-13.92				7. K
	1809		-41.76				
	1810		-69.60				5 K
	1811		-97.44				~5 K
	1812		-125.28				~5K
12:50	1813		-153.12				~5K

10 K events per run from now on to save time.

5K events per run from now on

Tower 2 x-scan
same conditions.

Beam stable at 50/spill = ~2600 trig/spill = ~1100

Time	Run	x	Y	z	T	Trig/spill	evt
	1814	34.13	0			~1100	5.7 K
1:00	1815	61.97	0			~1100	5 K
	1816	89.81	0			~1100	5 K
	1917	117.65	0			1150	5.5 K
	1818	145.49	0				
	1819	173.33	0				
1:21	1820	201.17	0				7.2K
1:29	1821	229.01	0				
	1822	256.85	0			1100	5.2 K
	1823	284.69	0			1100	5.8 K
	1824	312.53					~6 K

Tower 2 x-scan

Time	Run	x
1.45	1826	408.63
	1827	436.47
	1828	464.31
1:58	1829	~~492.15~~
	1830	492.15
2:04	~~1831~~ 1831	492.15
	1832	519.99
	1833	547.83
	1834	575.67
	1835	603.51
	1836	631.35
	1837	659.19

Beam was lost for
it is ~~came~~ stable aft

Time	Run	x
2:31	1838	687.03
	1839	714.87

Tower 1 x-scan Same conditions

Time	Run	x	y	z	T	Trg/spill	Evts
2:40	1840	-340.37	0	0	0	~1100	52 K
2:49	1841	-312.53					54 K
	1842	-284.69					55 K
2:50	1843	-256.85					
	1844	-229.01					
	1845	-173.37					
	1846	-201.17					
	1847	-145.49					
	1848	-117.45					
	1849	-89.81					
	1850	-61.97					
	1851	-34.13					

Tower 2 y-Scan Same Conditions

3:29	1852	-187.25	-153.12	0	0	~1100	~56 k
	1853		-125.28				
	1854		-97.44				
	1855		-69.60				
	1856		-41.76				
	1857		-13.92				
	1858		13.92				
	1859		41.76				
	1860		69.60				
	1861		97.44				
	1862		125.28				
	1863		153.12				
	1864						

4:40 AM

ACD Calib

Table settings:

x = 54

y = 0

z = 720

~~θ~~ = 0

Run 1864 switching

BT 1 ,

ACD

Run 1865 BT 12

table.

Run 1866 BT 12

table

trig/spill = ~1100

15K events

PMT B  PMT A

Run 1867. Let's move the side top tile a few centimeters to ~~that~~ calibrate both set of fibers. ~~(A~~

$x = -88$	
$y = +60$	
$z = 632$	
$\phi = -90$	

~~single run could result in a bias if one set of fibers gets more illuminated by the beam).~~ (Ask Alex if not clear)

Run 1868. table = (-88, -60, 632, -90)

still calibrating the same tile.

7.7 K events

there is a noticeable effect!

Run 1869: Next tile on the side (end from top)

table = (-88, 0, 462, -90)

Clear spectrum ☑

15.5 K events

Run 1870: 3rd side tile from the top.

table = (-88, 0, 259.50, -90.00)

Clear spectrum ☑ peak ~ 2000

15.8 K events

Run 1871: 4th

table = (-8

Clear spe

ACD Calibration

Changing to 20

"H4A.052" Electron

Run 1872: Ver

table = (60

Run 1873: Adjust

table (c07,

Coll. 01: -30, 30

02: -5, 5

03: -1, 1

04: -40, 40

05: -25, 25

Run 1874

Collimators 01 -9.9, 9.9
03 -0.6, 0.4 ~1000 trig/spill
06 -10, 10

all others the same 20K events

Run 1875

~~Collimators~~ Collimators
01 -7, 7 ~500 trig/spill
06 -7, 7

all others the same

~~Run 1876~~

Starting 50K runs.

Run 1876

table = (548, 13, -47.4, 0)

~ 1000 trig / spill

60.3 K events

Run 1877

table = (492, 13, -47.4, 0)
~ 1000 trig/spill

Run 1878 table

Run 1879 table

Run 1880 table

Run 1881 tabl

Run 1882 tab

Collimators configuration

C01:	-10, +10
C02:	-5, 5
C03:	-0.6, -0.4
C04:	-40, 40
C05:	-25, 25
C06:	-10, 10
C07:	-40, 40
C08:	[illegible]
C09:	-40, 40

8:10 Run 1883 Table x = 687 y = 125 z = -47,4 θ = 0°

8:25 Run 1884 Table x = 714 y = 153 z = -47,4 θ = 0°

8:44 Run 1885 Table x = 201,17 y = 40 z = -47,4 θ = 0°

8:58 Run 1886 Table x = 250,25 y = 40 z = -47,4 θ = 0°

9:12 Run 1887 Table x = 350,25 y = 40 z = -47,4 θ = 0°

9:26 Run 1888 Table x = 374,50 y = 40 z = -47,4 θ = 0°

9:39 Run 1889 Table x = 398,75 y = 40 z = -47,4 θ = 0°

9:56 Run 1890 Table x = 201,17 y = 40 z = -47,4 θ = 10°

Run stopped @ 8 Kent

We notice that SCINTO 4, 02, 06, and 08 are IN!
The pressure in the 2 Cerenkovs is ~ 1,9 bar.
We take the SCINTs out.
We reduce the Cerenkov pressure to a minimum : Cerenkov 1 : ~ 0.02 bar
Cerenkov 2 : 0,11 bar

10:20 Run 1891 x = 201,17 y = 40 z = -47 θ = 10°

Run was stopped because there was NO Beam

10:25 Run 1892 x = 201,17 y = 40 z = -47 θ = 10°

Beam is back ...

10:39 Run 1893 x = +250.25 y = +40 z = -47.4 θ = 10°
(beam lost for about 1-2 min in the beginning of the run)

10:52 Run 1894 x = +350.25 y = +40 z = -47.4 θ = 10°

11:08 Run 1895 x = 399.5 y = 40 z = -47.4 θ = 10°

11:24 Run 1896 x = 4

We noticed that t
Benoit found out t
magnets was the s
the reason for this
Benoit modified th

He also noted th
not appropriate (too

He updated the

CO 1	-5	+5
CO 2	-12	+12
CO 3	-2	+2
CO 4	-40	+40
CO 5	-25	+25
CO 6	-10	+10
CO 7	-40	+40
CO 8	-2	+2
CO 9	-20	+20
CO 10	-40	+40

The rate is again
Repetition of the pr

12:15 Run 1897 x =

12:30 Run 1898 Table x = 201,17 y = 40 z = -47,4 θ = 20°

12:44 Run 1899 Table x = 350,25 y = 40 z = -47,4 θ = 20°

12:57 Run 1900 Table x = 405,60 y = 40 z = -47,4 θ = 20°

13:13 Run 1901 Table x = 461,00 y = 40 z = -47,4 θ = 20°

13:30 Run 1902 Table x = 201,17 y = 40 z = -47,4 θ = 30°

13:45 Run 1903 Table x = 350.25 y = 40 z = -47.4 θ = 30°

14:00 Run 1904 Table x = 423.80 y = 40 z = -47.4 θ = 30°

14:19 Run 1905 Table x = 500.0 y = 40 z = -47.4 θ = 30°

14:35 Run 1906 Table x = 201.17 y = 40 z = -47.4 θ = 45°

14:50 Run 1907 Table x = 350.25 y = 40 z = -47,4 θ = 45°

15:06 Run 1908 Table x = 460 y = 40 z = -47,4 θ = 45°

15:21 Run 1909 Table x = 201,17 y = 40 z = -47,4 θ = 60°

15:35 Run 1910 Table x = 350,25 y = 40, z = -47,4 θ = 60°

→ From now we start to take data in RT5 configuration

15:49 Run 1911 Table x = 201,17 y = 40 z = -47,4 θ = 00

16:04 Run 1912 Table x = 250,25 y = 40 z = -47,4 θ = 0°

16:18 Run 1913 Table x = 350,25 y = 40 z = -47,4 θ = 0°

16:31 Run 1914 Table x = 3

16:45 Beam Aborted at 40

16:54 Run 1915 : Run again
10 kevents t

17:02 Run 1916 : Table x = 398,7
196,12 GeV/c

Shiftnames : - Thierry Repeseur
- Frederic Piron
- Sylvain Guiriec

17h52 Changement d

S0 = 2800
S1 = 1500
S2 = 1900

COLL01 =
COLL03 =
COLL06 =

From now new
taking is RT 6
(see next page)

17:57 Run 1917 : Table x = 3

18:29 Run 1918 : Table x = 3

19:00 Run 1919 : Table x = 35

19:27 Run 1920: Table x = 2

19:49 Run stop by mistake at

19:50 Continuation of run 1920

Standard config. for SPS runs:

after setting on 7 sept.

BT - 6 → baseline: flight setting.
typ: nominal + 6
TEM diagnostics ON

BT - 5 → like BT 6 but TEM diag. off.

20:26: Run 1923 Table x= 548
20:51: Run 1924 Table x= 49

21:28 → Run 1925 table x = 43
(note: this run is called 1924 in the Logbook)
21:59 Run 1926 table x = 4
22:13 Run 1927 table x = 6
22:40 Run 1928 table x = 68
23:13 Run 1929 table x = 63
23:44 Run 1930 table x = 68
0:17 Run 1931 table x = 7
→ no beam for 3 spills
0:52 Run 1932 table x = 20
1 27 Run 1933 table x = 2
2 03 Run 1934 table x = 3
2 35 Run 1935 table x = 3
Run stopped : Op
Low Intensity fro
3 09 Run 1936 -11-
CU 4 pos : 405 8 (Δ
3 42 Run 1937, x = 429
1 phasing cm.
CU 4 pos : 447 (Δ =
4 11 Run 1938; x = 201.
observed double peak st
Beam almost recovered
4 43 Run 1939; x = 350.2
5 17 Run 1940; x = 405,6
5.54 Run 1941; x = 461.0
6 28 Run 1942; x = 20

6:55 Run 1943, x = 350.25 ;
7:15 Run 1944, x = 938.80,
7:23 Run 1945, x = 500.0 ;
Shifters : Jan, Tom.

End of shift, nothing

Begin new shift, 8 sept

8:22 - Run 1946, x = 201, y =
8:53 - Run 1947, x = 350,25 ,
9:21 Run 1948, x = 460, y =
9:51 Run 1949 x = 201,17 ;
10:20 Run 1950 x = 350,25
10:51 Run 1951 x = 749,00

S_1 temporarily removed
trigger : $S_3 \cdot S_0 \cdot \overline{S_V}$
S_3 : CERN detector
Coolant pressure : 1.2

1:10 Run 1952 ; x = 201.17
BT 24 :
1:30 Run 1953 BT 28 :
2:00 Run. 1954 BT 27 :
2:20 Run 1956 BT 26 :
16:09 1957 SAMA setting

16:40 Run 1958 ; BT25 CAL_HE : 0,85 GeV
trg: 800 ; SØ: 3K cmb/pyB.

16:58 The Run trigger has been delayed of 70ns in order to have a good timing for the Cherenkov in Velo (low E p)

17:15 latest_ext_delay_CV.cmd in $ANCILLARY_ROOT/top level modified to accomodate te trigger setting for Cherenkov.
run . 1959 - before modification.
1960 - after

NEW POSITION FOR CAL_HE STUDY @ 282 GeV.
x = 603 y = 41 z=0 θ=0 - CENTER of TWR 3

17:20 Run 1961 | BT 24 | cmb/pyB: trg → 800 SO → 3K | 46 keVts

Begin New Shift

Run Aborted: No Beam

Shifters: Denis, Frederic, Sylvain

17:40 Run 1962 | BT29 | No Beam → for pedestal only, trigger logic: SØ, off spill

17:52 Run 1963 | BT25 | Run aborted: No Beam

Beam instable

18:00 Run 1964 | BT25 | trg→900 SO → 3k | 51 keVts

18:18 Run 1965 | BT26 | trg→800 SO→3k | Run aborted: No Beam

18:32 Run 1966 | BT26 | trg→700 SO→2500 | 52 keVents

18:50 Run 1967 | BT27 | trg→850 SO→2500 | 50 keVents

No Beam

19:11 Run 1968 | BT29 | No Beam → for pedestal only → 700 ints

19:19 Run 1969 | BT28 | trig→
Run Aborted : N

19:39 : Run 1970 | BT28 | trig—

20:13 Run 1971 | BT2 | trig
center of Tower 3
603 41 0

20:31 Run 1972 | BT6 |

21:49 Run 1973 | BT2 | trig→4
Center of Tow
230. 41. 0. 6

22:15 Run 1974 | BT6 |

~~22:56~~ ~~Run 1975 | BT6 |~~ ~~trigger~~

New shift.
Gilles - Thierry

Tests à 45

23:40 # 1975 BT6 Table

9/10/06 0:13 # 1976 "

+ 1977 Pedestals: B

1:26 + 1978

1:47 + 1979

the End

02:20 Go to 100 GeV/c electrons

Beam file is H4A.051

Collimators:

C1	-2.1	+2.1
C3	-2	+2
C6	-2.5	+2.5
C8	-3	+3

⇒ S0 ≃ 2200 SV1 ≃ 1300
S1 ≃ 1310 SV2 ≃ 1200
S2 ≃ 1350 SV3 ≃ 1200
SV4 ≃ 1300

S1.S2 ≃ 1000
trigg ≃ 900

Time	Run #	X_{pos}	Y_{pos}	Z_{pos}	Θ	
2:35	1980	201,17	40	+47.4	0	attention Z_{pos} = +47.4
2:47	1981	201.17	40	-47.4	0	
3:03	1982	250,25	40	-47.4	0	
3:25	1983	350,25	40	-47.4	0	5K.
3:42	1984	374,50	"	"	"	50K
4:06	1985	398,75	"	"	"	50 k
4:22	1986	201.17	40	-47.4	10	1 beam unstable (because of CPS)

NO BEAM SINCE 4:29 (JC)

8:05 : Shifter Ja (
RUN # 1987 :
- No Ran We
no beam becaus
- Started CAL
only (ST29)

8.54 : SPS beam is

8:59 : SPS back to
rate reduced by
C1 was -2

we change to :
C1 : -2.2
C3 : -2.1

9:08 : 1988 201.17 ;
9:26 : 1989 250.25 ;
9:44 : 1990 350.25 ;
10.01 : no beam
changed C1 : -3
Beam not until 1

~ 1052 1991 389.5 ;

~11.07 . 1992 429.0 ;

Changed collim
more due to hig

Beam intensity
Spread around 500

~ 11.23 1995 217.17 ; 4
1 phase error

11.46 1994 350.25 ; 40

12 14 . 1995 405.60 ; 40

12 27 1996 461.00 , 40

Redo CAL calibration

Pos X = 187.25 Y =

Pos X = 187.25 Y =

Calibration : BT 16.

12.44 1997 187.25 . Y =

12.43, 1998 187 25 ; Y

Resuming points runs Q

13.01 . 1999 201.17 ; 4

13.15 2000 350.25 ; 4

13.28 2001 425.80 ; 40

13.41 2002 500.00 ; 40

13.55 2003 201.17 ; 40

14.08 2004 350.25 ; 40

14.21 2005 460.00 ; 40

time	run	x	y	z	angle	trig/spill
14.34	2006	201, 17	40	-47.4	60.0°	~1000
14.46	2007	350.25	40	-47.4	60.0°	~1000
15.16	2008	548	13	-47.4	0.0°	~1500
15.30	2009	492	13	-47.4	0.0°	~1300
15.[illegible]	2010	436	13	-47.4	0.0°	~1300
15.55	2011	408	13	-47.4	0.0°	~1300

END OF SHIFT

16:00 Start of shif by Alex and Luis

	Run	x	y	z	θ	trig/spill
1610	2012	631	13	-47.4	ϕ	~ 1500
	2013	Beam is lost - Cancel run				
16:30	2014	687	13	-47.4	ϕ	~~1000~~ Beam lost
17:10	2015	687	13	-47.4	ϕ	~1000 (repeat previous run)
17:30	2016	631	69	-47.4	ϕ	~1000
17:50	2017	687	125	-47.4	ϕ	~1100
19:20	2018	714	153	-47.4	ϕ	~970

Runs from Leon's request:

18:30	2019	749	40	126	45	~1000
18:45	2020	749	40	160	45	~1000
19:00	2021	749	40	190	45	~1000
19:15	2022	749	40	224	45	~1000

CAL Pedestal calibration run.

2023 BT 29 x=201 y=40 z=-47.4 θ=ϕ

Changing to 50 GeV
pressure in the Cher

After playing with
back to BT 6.

Run	x
2023	201

(Just to check for
Collimator settings

C01 : -1.0, 1.0
C02 : -4.81, 5
C03 : -2, 2
C04 : -40, 40
C05 : -25, 25

Rates per spill:

SØ : 2784
S1 : ~1600
S2 : ~1600
SV1 : ~1300
SV2 : ~1300
SV3 : ~1300
SV4 : ~1400

Now back to 120 GeV beam.

Collimator settings:

C01:	-2,5 , 2.5	C06:	-2.6 , 2.5
C02:	-13, 5.0	C07:	-40 , 40
C03:	-2 , 2	C08:	-3, 3
C04:	-40 , 40	C09:	-40, 40
C05:	-25 , 25	C 10:	-40, 40

Rates per spill:

S0:	~2500	SV3:	~1400
S1:	~1500	SV4:	~1400
S2:	~1400	SVOR:	~4000
SV1:	~1400	S1.S2:	~1100
SV2:	~1400	trig:	~1000

Run 2024: E = 99.7 GeV table = (201, 40, -439, 0)
BT 6.
- Sanity check to see that everything is in order.

Run 2025: Pedestal Calibration Run
- Four range readout
- Zero supression off

Trigger = "True + False". The idea is to trigger ~~after the spill (random)~~ inside the spill but with a delay

Run 2026: Pedest
previo
Trigger out

Run 2027: Mult-Trigger
seems
1. Internal trigger
→
2. Ext. trigger (rando

⟹ New version of

Run 2028: Back
every thing
With ra

Run 2029: Ba
that eve
With ran

Change beam to
multi-trigger engine.

C01:	-5, 5
C02:	-12, 12
C03:	-2, 2
C04:	-40, 40

Run 2030: Electrons 200 GeV
BT 31 → Using Multi-trigger engine
50K
table = (201, 40, -47, 4)
50K events

Run 2031: Same as before. Accumulating stats.
Another 50K.

Run 2032: Same as before. Accumulating stats.
Another 50K

Run 2033: Increase rate by opening collimators
SØ rate = 5K.

C01: -10, 10
C06: -10, 10 everything else the same
C08: -3,5, 3,5

Run 2034 Increase rate by opening collimators
SØ rate = ~ 10K

C01 = -15, +15
C06 = -15, +15

Run 2035: Increase
SØ rate
C03 = -3.5

Run 2036: Electrons 19
table = (600, 40,

Run 2037: Electrons
table = (60
Alex & Lu

Run 2038 Electrons
table = (6
Alex & L

New shift / Beam
Changing to 50 GeV

Electrons 49.994 GeV

50GeV (49.984 GeV) BTC Electron

00:08 Run 2039 Table X = 201.17, Y
00:09 Run 2040 Table X = 250.25, Y
01:23 Run 2041 Table Y = 350.25,
01:38 Run 2042 Table X = 374.50,
01:54 Run 2043 Table X = 398.75,

02:08 Run 2044 Table X = 201.17 Y = 40
02:24 Run 2045 Table at the same position
02:46 Run 2046 Table X = 250.25 Y = 40
Beam unstable loos
03:07 Run 2047 Table X = 350.25 Y = 40
03:27 Run 2048 Table X = 399.50 Y = 40
03:48 Run 2049 Table X = 489. Y = 40
Beam stable now
04:01 Run 2050 Table X = 201.17 Y = 40
04:16 Run 2051 Table X = 350.25 Y = 40
04:30 Run 2052 Table X = 405.6 Y = 40
04:44 Run 2053 Table X = 461 Y = 40

04:57 Run 2054 Table X = 201.17 Y = 4
05:12 Run 2055 Table X = 350.25 Y = 4
05:25 Run 2056 Table X = 423.80 Y = 4
05:42 Run 2057 Table X = 500 Y =

05:56 Run 2058 Table X = 201.17 Y =
06:09 Run 2059 Table X = 350.25 Y =
06:23 Run 2060 Table X = 460 Y =
Beam lost a
06:41 Run 2061 Table X = 460 Y =
06:48 Run 2062 Table X = 460 Y =
Beam is back
07:20 Run 2063 Table X = 460 Y =

07:34 Run 2064 Table X = 201.17
07:47 Run 2065 Table X = 350.25

08:05 Run 2066 Table X = 201.17

8:23 Run 2067 Table X = 548

8:01 Run 2068 "

8:18 Run 2069 Table X = 452,

9:30 Run 2070 Table X =

9:43 Run 2071 Table X = 40

9:56 Run 2072 table X = 6

10:08 Run 2073 table X = 6

10:25 Run 2074 table X = 63

10:41 Run 2075 table X = 6

11:00 Run 2076 table X = 2

11:15	Run 2077	table	x = 749	y = 40	z = 126	θ = 45°	1100 trigg/spill
11:28	Run 2078	table	x = 749	y = 40	z = 160	θ = 45°	1000 trigg/spill
11:42	Run 2079	table	x = 749	y = 40	z = 190	θ = 45°	1100 trigg/spill. interrupted @ 32K evts
12:11	Run 2080	table	x = 749	y = 40	z = 224	θ = 45°	1100 trigg/spill
12:28	Run 2081	"	"	"	"		pedestal Run 25 100

12:49 End of 50 GeV/c

12h51 Beam interruption

PM

01:56 Beam is back — 20 GeV/c file: H4A.048

Collimators: C1 = [-2 ; 2]
C6 = [-3.3 ; 3.3]
C3 = [-2. ; 2.]
C8 = [-2.9 ; 3.0]

Scales: SØ ≃ 2700
S1 ≃ 1200
S2 ≃ 1800
SV1 ≃ 1000
SV2 ≃ 1000
SV3 ≃ 1000
SV4 ≃ 1000
SV OR ≃ 3000
S1.S2 ≃ 1100
Trigg ≃ 1000

01:59	Run 2082	table	X = 201.17	y = 40	z = -47.4	θ = 0°	900 trigg/spill
02:16	Run 2083	table	X = 250.25	y = 40	z = -47.4	θ = 0°	700 trigg/spill
2:33	Run 2084	table	x = 350.25	y = 40	z = -47.4	θ = 0°	900 tg/spl
2:46	Run 2085	table	x = 374.5	y = 40	z = -47.4	θ = 0°	900
après ?	Run 2086	table	x = 398.75	y = 40	z = -47.4	θ = 0°	900 /spill
3:21	Run 2087	table	x = 201.17	y = 40	z = -47.4	θ = 10°	900 /spill
3:40	Run 2088	table	x = 250.45	y = 40	z = -47.4	θ = 10°	1000 /spill

C6 opened a little to put trigger ≃ 1000 /spill again
C6 = [-3.7 ; +3.7]

3:56	Run 2089	table	x = 3
4:15	RUN 2090	table	x = 3
4:31	RUN 2091	table	x = 4
4:45	RUN 2092	table	x = 20
4:59	RUN 2093	table	x = 35
17:13/5:13	Run 2094	Table	x = 40
17:24	Run 2095	Table	x = 46
17:53	Run 2096	Table	x = 20
18:08	RUN 2097	table	x = 35
18:22	RUN 2098	table	x = 4
18:35	RUN 2099	table	x = 5
18:48	RUN 2100	table	x = 2
19:01	RUN 2101	table	x = 2
19:18	RUN 2102	table	x =
19:32	RUN 2103	table	x =
19:45	RUN 2104	table	x =
~~20~~:			
20:00	RUN 2105	table	x = 5
20:14	RUN 2106	table	x = 4
20:28	RUN 2107	table	x = 4
20:43	RUN 2108	table	x = 40
20:57	RUN 2109	table	x = 6
21:13	2110	Table	x = 68
21:29	2111	Table	x = 63
21:42	2112		x = 68
21:59	2113		x = 71

22:19 RUN 2114 $x=749$, $y=40$, $z=126$ $\Theta=45$ ~1100/spill
22:39 RUN 2115 $x=749$, $y=40$, $z=160$ $\Theta=45$ ~1100/spill
22:53 RUN 2116 $x=749$, $y=40$, $z=190$ $\Theta=45$ ~1100/spill
RUN 2117 $x=749$, $y=40$, $z=224$ $\Theta=45$ ~1200/spill

23:18 RUN 2118 PEDESTAL RUN BT 29
$x=749$, $y=40$, $z=224$ $\Theta=45$ | Col 1,6 : -30,30
ENERGY TO 2281.19 GeV | Col 3,8 = -12,12

23:50 RUN 2119 junk for ACD background measurement
table moved during the run
~500 trg/spill

E = 2281,19 GeV

11 Sept

00:10 RUN 2120 table $x=0$, $y=0$, $z=750$ $\Theta=-90$
ACD background measurem.

Run 2121 - 2122: junk. Looking for ACD Background

Run 2123: Table = (0, 0, 760, -85°) ACD background.

The table → 1.11.1 → with respect to -90°

m
(-9
per
0 → 0,10 ± 0,07
10 → 0,2 ± 0,17
20 → 0,48 ± 0,2
30 → 1,40 ± 0,2
TOT → 0,25 ± 0,06
AVER.

cles from beam note.
e tracks would be
TKR).

Run 212 -17.5, 48). The
o maximize the rad
TKR

Run 2125: table = (
A

Run 2126: table =
B

Run 2127: table =
C

Run 2128: table =
D

Run 2129:
E

22:19 RUN 2114 $x=749$, $y=40$, $z=126$ $\theta=45$ ~1100/spill
22:39 RUN 2115 $x=749$, $y=40$, $z=160$ $\theta=45$ ~1100/spill
22:53 RUN 2116 $x=749$, $y=40$, $z=190$ $\theta=45$ ~1100/spill
RUN 2117 $x=749$, $y=40$, $z=224$ $\theta=45$ ~1200/spill
23:18 RUN 2118 PEDESTAL RUN BT 29
$x=749$, $y=40$, $z=224$ $\theta=45$ | Col 1,6 : -30,30
ENERGY TO 281.19 GeV | Col 3,8 = -12,12
23:50 RUN 2119 Junk for ACD background measurement
table moved during the run
~500 trg/spill

E = 281,19 GeV

11 Sept

00:10 RUN 2120 table $x=0$, $y=0$, $z=750$ $\theta=-90$
ACD background measurem.

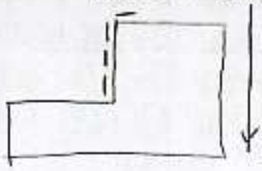
Run 2121 - 2122: junk. Looking for ACD Background

Run 2123: Table = $(0, 0, 760, -85°)$ ACD background.

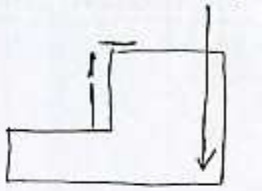
The table is tilted by 5° with respect to -90° in order to measure tracks from beam noise (-90° is not good since tracks would be parallel to layers in TKR).

Run 2124: table = $(-50, 40, -47.5, 48)$. The table is set to maximize the rad lengths in the TKR

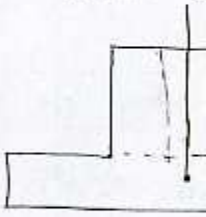
Run 2125: table = (87



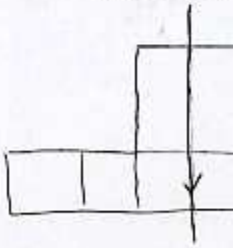
Run 2126: table = (6



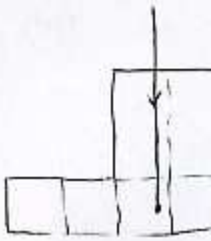
Run 2127: table = (



Run 2128: table = (



Run 2129:



Switching to 200 GeV C1: -5/5 C6 /-10/10
beam not very stable: C8, C8: -3/3
trig/spill: 800 → 1200

Run 2130: table = (850, 40, -47.4, 0)

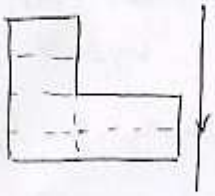
Back to position (A) (see previous page)

trig/spill = ~ 800 - 1200

Beam is lost during the run 04:28
it came back, run completed at 04:46

Run 2131: table = (0, 0, 750, -90)

(F)



trig/spill = ~ 800

ACD tile 110 has too many hits! why?

Run 2132: table = (0, 0, 760, -85)
trig/spill = ~ 750

Run 2133: table = (0, 0, 750, -90)
trig/spill = ~700

Back to this configuration to check on ACD tile 110 (GAFE 9) to see if it is still getting a lot of hits

Run 2134: table = (0

Move table

on tile

Run 2135: table (0,

Move table even

Now tile 100

Run 2136: table = (0

Back to co

Run 2137: ~~table~~

Back to

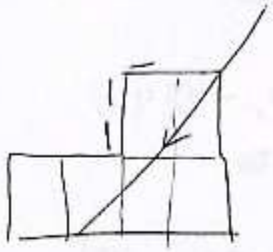
Run 2138: table = (

Back

Run 2139 table = (

trig/

Run 2140 table = (-50, 40, -47.40, 45°)



trig/spill = ~700

Switching to 100 GeV C1, C6 : -2.5/2.5
C3, 68 : -2.5/2.5
trig/spill ~1000

Run 2141 : table = (0, 0, 750, -90)
trig/spill = ~1000

Back to configuration (F)

Run 2142 : table = (850, 40, -47.4, 0)
trigger/spill = ~1000

Run 2143 : table = (687, 40, -47.4, 0)
trigger/spill = ~1000

Collimator changed = See Electronic Logbook!
Run 2144 : table = (548, 40, -47.4, 0)
trigger/spill = ~1100

Run 2145 : table = (408, 4
trig/spill = ~ 1

Run 2146 : table = (340, 4
trig/spill = ~

Run 2147 : table (-50, 40,
trig/spill = ~

Run 2148 : table = (-50,
trig/spill = ~

Run 2149 : table (-50, 40
trig/spill = ~

2150: EMPTY

Switching to 50 GeV

Run 2151 : table (0, 0, 7
trig/spill = 100

Run 2152 : table (850, 40
trig/spill ~

Run 2153 table (687, 40, -4
2154 interrupted (548,

16:11 2155 table (x = 548, y = 40, z = -47.4) $\vartheta = 0°$ ~ 1000 trig/spill
16:33 2156 table (x = 408, y = 40, z = -47.4) $\vartheta = 0°$ ~ 1000 trig/spill
2157 " " " " " same as 2156
16:33 2158 table (340, 40, -47.4) $\vartheta = 0°$ " "
17:30 2159 table (-50, 40, -47.4) $\vartheta = 0°$ " "

20 GeV

18:10 2160 table (0, 0, 750) $\vartheta = -90°$ ~ 400 trig/spill

18:54 2162 table (850, 40, -47.4) $\vartheta = 0°$ ~ 400 trig/spill
19:38 2262 table (687.40, -47.4) $\vartheta = 0°$ ~ 350 trig/spill

20 GeV e⁻

20:25 2163 table (548, 40, -47.4) $\vartheta = 0°$ ~ 400 trigs/spill
[NO BEAM STOPPED]

20:40 - Beam changed to Shorter Super Cycle
21:08 - 2164 table (548, 40, -47.) $\vartheta = 0°$ ~ 900 trig/spill
21:25 - 2165 table (408, 40, -47.4) $\vartheta = 0°$ ~ 900 trig/spill
21:32 - 2166 table (340, 40, -47.4) $\vartheta = 0°$ ~ 1000 trig/spill
21:53 2167 table (-50, 40, -47.4) $\vartheta = 0°$ ~ 1000 trig/spill
22:11 2168 table (187.25, -13.92, 0) $\vartheta = 0°$ ~ 1500 trig/spill BT 16
22:13 2169 table (187.25, +13.92, 0) $\vartheta = 0°$ ~ 1500 trig/spill BT 16
22:18 2170 table (187.25, +41.76, 0) $\vartheta = 0°$ ~ 1500 trig/spill BT 16
2:28 2171 table (187.25, 41.76, 0) $\vartheta = 0°$ ~ 1000 trig/spill Pedestal Run
2:40 2172 table (201.17, 40, -47.4) $\vartheta = 0°$ ~ 1000 trig/spill BT24 BT 29
22:55 2173 table (201.17, 40, -47.4) $\vartheta = 0°$ ~ 1000 trig/spill BT 25
23:05 2174 table " " " " " BT 26
23:20 2175 table " " " " " ~ 1500 trig/spill BT 27
23:31 2176 " " " " " ~ 1000 trig/spill BT 28

switch to p = -20 GeV - pions -

Tuesday, 12. sept Shift: David - Johan - Thierry

00:51 Run 2180 (201.17, 40, -47.4) $\vartheta = 0°$ ~ 1000 trigs/spill
particle type wrong: should be "protons"

Switch to π^-

01:10 Run 2181 Pe

begin x-y

electrons 20 GeV e^-

BT16 fo

Time	Run	X	Y	Z
01:30	2182	187.25	-13.12	
01:58	2183	187.25	13.12	

→ try { X reference, Z ref., Z ref.

switch OFF - ON
Philippe is called

Works !

Control

Start calibration. with π^- @ 20 GeV/c

Time	Run	X	Y	z	θ	
03:40	2184	187.25	-153.12	0	0	Tower 2 Y scan ≃ 20 kents per run
03:52	2185	187.25	-125.28	0	0	
04:04	2186	187.25	-97.44	0	0	
04:11	2187	187.25	-69.60	0	0	
04:24	2188	187.25	-41.76	0	0	
04:31	2189	187.25	-13.92	0	0	
04:39	2190	187.25	+13.92	0	0	
04:47	2191	187.25	+41.76	0	0	
04:56	2192	187.25	+69.60	0	0	
05:05	2193	187.25	+97.44	0	0	
05:14	2194	187.25	+125.28	0	0	
05:22	2195	187.25	+153.12	0	0	
05:29	2196	561.75	+153.12	0	0	Tower 3 Y scan
05:39	2197	561.75	+125.28	0	0	
05:48	2198	561.75	+97.44	0	0	
05:57	2199	561.75	+69.60	0	0	table still @ 97.44
06:04	2200	561.75	+41.76			

Same problem
control as before
table says it moved
but it did not.

Access in vault — power OFF the whole box
(left hand side switch)
power ON.

initialize table → OK.

[illegible] [illegible] [illegible] [illegible]
TORALITY. watch the ONLINE monitor and check

Calibration π^- @ 2

Time	Run	X	Y
06:41	2201	561.75	69.6
06:48	2202	561.75	69.6
06:57	2203	561.75	41.7
07:06	2204	561.75	13.9
07:13	2205	561.75	-13.9
07:21	2206	561.75	-41.7
07:29	2207	561.75	-69.6
07:36	2208	561.75	-97.4
07:53	2209	"	"
08:20	2210	"	"
08:55	2211	"	"
09:01	2212	561.71	-125.28

Person needs to reconnect Chevalier
5 min access

09:15	2213	561.71	-153.12
09:27 Tower 2	2214	34.11	0
09:36	2215	61.97	0
~~09:49~~	~~2216~~	~~89.81~~	~~0~~
13:10	2217	89.81	0
13:31	2218	117.65	0
13:42	2219	145.49	0
13:51	2220	173.33	0
14:09	2221	201.17	0

Calib π^- at 20 GeV cont'

Time	Run	X	Y	Z	θ
14:18	2222	229.01	0	0	0
14:27	2223	256.85	0	0	0
14:35	2224	284.69	0	0	0
14:44	2225	312.53	0	0	0
14:53	2226	340.37	0	0	0
15:03	2227	408.63	0	0	0

New Shift Denis, Piergiorgio 12/05/2016 16h

Test with positive beam at 20 GeV

17:40 Run 2228 mixed beam 20 GeV BT16 3200 trig/spill.

17:48 Run 2229 Cerenkov Veto ON mean 3 bars protons BT16 330 trig/spill (test run)

17:53 Run 2230 Cerenkov Veto ON protons BT6 20 ~ 10 trig/spill.

18:10 Run 2231 Cerenkov Veto OFF 20 GeV, all particles 200 trig/spill

18:18 Run 2232 Cerenkov Veto ON 20 GeV protons 200 trig/spill looks good.

Now Cerenkov veto ON

Program ↓ π^- (20 GeV) ~~repeating~~ (2224, 2225, 2226, 2227) (180k evts).

BT16

18:53 Run 2233 protons Table X = 284.69 Y=0 Z=0 θ=0 200/spill 10 kevts

19:09 Run 2234 protons Table X = 312,53 Y=0 Z=0 θ=0 200/spill 10 kevts

19:20 Run 2235 protons Table X = 340,37 Y=0 Z=0 θ=0 200/spill 10 kevts

19:41 Run 2236 protons Table X = 408,63 Y=0 Z=0 θ=0 200/spill 10 kevts

now switching to Geometrical configuration program.

20:04 Run 2237 protons Table X = 201.17 Y=402.-47.4 θ=0 200/spill 100 kevts

10:40 PM Fuoco, Bregeon

+ Switching beam to start FIFO

+ All runs: BTG

FIFO	Almost Full	Max H
Anders Configs	64	
1	64	
2	64	
3	64	Tree
4	64	Tree
	122	
5	122	
	122	
6	122	Tree
	122	Tree

70000 2238 : Junk

No beam for 15 supercycle ...

	Energy
70000 2239	196,1
70000 2240	196,1
70000 2241	196,1
70000 2242	196,1
70000 2243	196,1
70000 2244	1866
70000 2245	186,1

12:15 PM That was fast

70000 2246 - BT 2

70000 2247 BT 2

Moving to (672.13, 32.0

70000 2248 BT 6

12:30AM Moving Table to (672, 13,92, 0, +30°)
70000 2248 : BT6 FIFO 5 +30° 10k

Moving Tabl to (672, 13,92, 0, +60°)
70000 2250 : BT6 FIFO 5 +60° 10k

12:35AM End of FIFO study.

1 22 AM Changed beam configuration to protons, 20 GeV
H4A.900 (← filename)
SO ≃ 4100
S1 ≃ 1200
S2 ≃ 2500
SV1 ≃ 2100
SV2 ≃ 1900
SV3 ≃ 1800
SV4 ≃ 1600
SVOR ≃ 5400
C1, C2 ≃ 2400
S1, S2 ≃ 1000
TRIG ≃ 210

1 22 AM Run 70000225 1 (BT6) 20 GeV X = 201.17 y = 40 z = -47.4 Θ = 45°
~200 trig/spill Cherenkov veto on
~100 k Events

3 30AM Run 700002252 (BT6) 20 GeV X = 749.0 y = 0 z = -79.0 Θ 90°
~200 trig/spill Cherenkov veto on
~100 k Events

5 48 AM Run 700002253 (BT 6) 20 GeV x = 201.17 y = 40 z = -47.4
Θ = -180°
~ 200 trig/spill Cherenkov veto on
~ 100 k Events
Error when setting Θ = 180deg : " ZV Pos out of range"

9 AM Started cosmic ra
(BT 6) run 70
Table x = 201.17
Next person to ac
take over (perhap

JB. 10:30AM BT6 is not suitable for
Trigger ... stopping

10:35 AM Starting Cosmic run
70000 2255 : Cosm

16:30PM CPT_beamtest for
70000 2256 and 2
CPT_beamtest 1st
FM 109 225
FM 119 227
FM 101 225

18:50 PM Back to CO_BT
70000 2257 : C

Shift 16:00 – 00:00 (Max - Piergiorgio)

~~Beam off~~ π @ 20 GeV BTG

17:24 still waiting for the beam

18:34 Beam is back after MD BTG 20K wets

Beam not stable yet

21:30	2298	table (436,47, 0, 0) ϑ = 0°,	~300 tag/spill
21:43	2255	table (x = 464,32; 0; 0) ϑ = 0°	~300 tag/spill
21:50	2300	table (x = 492.15; y = 0; z = 0) ϑ = 0°	~300 tag/spill
21:55	2301	table (x = 519.99; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:03	2302	table (x = 547,83; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:10	2303	table (x = 575,65; y = 0, z = 0) ϑ = 0°	~300 tag/spill
22:17	2304	table (x = 603,52; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:25	2305	table (x = 631,35; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:32	2306	table (x = 659,19; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:41	2307	table (x = 687,08; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:49	2308	table (x = 714.87; y = 0; z = 0) ϑ = 0°	~300 tag/spill
22:57	2309	table (x = -340.37; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:04	2310	table (x = -312,53; y = 0, z = 0) ϑ = 0°	~300 tag/spill
23:11	2311	table (x = -284,69; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:18	2312	table (x = -256,85; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:25	2313	table (x = -229,01; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:33	2314	table (x = -201,17; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:39	2315	table (x = -173.3; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:46	2316	table (x = -145.49; y = 0; z = 0) ϑ = 0°	~300 tag/spill
23:54	2317	table (x = -117.65; y = 0; z = 0) ϑ = 0°	~300 tag/spill

NEW SHIFT owl: 0 – 8

shifters: Toni Ylinen & David Smith

π @ 20 GeV BTG

00.10	2318	table (x = -89.81; y = 0; z = 0) ϑ = 0° ~300 tag/spill
00.18	2319	table = (x = -61.97; y
00:26	2320	table = (x = -34.13; y
00:36	2321	table = (x = -187.25;
00:44	2322	table = (x = -187.25;
00:52	2323	table = (x = -187.25;
00:58	2324	table = (x = -187.25;
01:06	2325	table = (x = -187.25;
01:13	2326	table = (x = -187.25;
01:20	2327	table = (x = -187.25;
01:27	2328	table = (x = -187.25;
01:33	2329	table = (x = -187.25;
01:40	2330	table = (x = -187.25;
01:47	2331	table = (x = -187.25;
01:56	2332	table = (x = -187.25;

e⁻ @ [illegible] GeV 150 ~ file: H4A.[illegible]

02.33	2333	table = (x = 749; y =

collimators were set to

03:26	2334	table = (x = 749; y =

04:03 RF problem, no

04:17 investigating R

Stopping run at 04.4

04:42 RF cavity vac

05:50 Expert arrived

05:59 TKR temp Moni

30 C

08:00 END OF SH

no electrons here!

20k

09/15/06 10:20 AM

No beam for at least another 5 hours.
RF vacuum problem.

Run 70000 2335: Requested by Luis
Random trigger.
shift: Thierry/Johan/Nikos BT 12 ACD non-zero supressed.

08:06 PM: Beam is back. See NOTE ⟹

- Tune beam to 10 GeV/c electrons

Run 2336: internal trigger - started before end of tuning beam junk.

Run 2337: BT6 - table (187, 0, 0, 0)
10 GeV/c. still steering/setting the beam during the run.

xqin 10GeV/c e⁻

~~Run 2338 BT6 - table (201.7, 40, -434, 0)~~

Scales @ 20:20. no Čerenkov signal but very few prons

SØ	4000	C1 = C2 = 0	
S1	1300	S1 ∧ S2 ≃ 1200	
S2	3200	trigg ≃ 1000	
SV1	1500		
SV2	1700	SVOR : 4000	
SV3	1000		
SV4	1200		

begin 10 GeV/c

Time	Run #	
20:20	Run 2338	BT6
20:33	Run 2339	BT6 +
20:49	2340	BT6
21:04	2341	BT6
21:19	2342	BT6

21:31 change C2 from [-5; +5]

NOTE: S2 has
Since RU
down a lit

TRIM 5 has been pr
equilibrate

Time	Run	
21:42	2343	BT6
21:55	2344	BT6
22:05	2345	BT6
22:19	2346	BT6
22:29	2347	BT6
22:43	2348	BT6
22:54	2349	BT6
23:11	2350	BT6
23:19	2351	BT6

C2 collimator closed agai
because beam intensity w

Time	Run#	X	Y	Z	θ	
23:27	2352	461.00	40.	-47.4	20	1000 trigg/spill beam went low - C2, C3 and C8 re-opened
23:47	2353	201,17	40	-47.4	30	50K.
5:37	2354	350.25				first 15K with trigger rate ≃ 1600 after → Trigger ≃ 1000/spill with coll 3 ≃ 5mm.
5:53	2355	423.8				≃ 1500 trg/spill 50K
	2356	500,				
6:19	2357	201.17	40	-47.4	45°	≃ 1000 trg/spill - C6 reduced from 10 to 6 mm
6:35	2358	350.25				50K
6:52	2359	201.17	40	-47.4	60°	50K
7:07	2360	-50,	40,	-47.4,	48°	41K
		Pedestal				
7:21	2361	BT29 -	same position			23K.

$\pi^+ p$

Absorber in
converter (Absorber) off

	2362		a = 201.17
	2363	BT6	201.17
7:45	2364		201.17
7:55	2365	BT6	749.0

the END

GSI R

14/11 HDDs arrived at GSI -
15/11 CU installation C

16/11 Electronics for DAQ a

Network connections :

CU/SBC CNTRL/DEBUG
CU/SBC DATA
ENN/HON DATA+CNTRL (PC

17/11 1PM CU Setup in
Turning ON the C

1.05PM 70000 2458
first run

17/11 3.35 AM 70000 2662
2663 CR
the nig

10 AM stopping run

Running CPTs for
+ 70000 2464 : star
70000 2475 : end
+ 70000 2476 : Sta
70000 2487 : End

11.12AM 70000 2488 - 70000 2499 : CPT FM101 - TEM3 PASSED

TKR Tests { 70000 2500 TKR Noise Occ. TKR 8 - Dm 3 - 16 chan. masked
70000 2503 " " " TKR 96 - Dm 2 - 21 chans masked

15:10 PM:

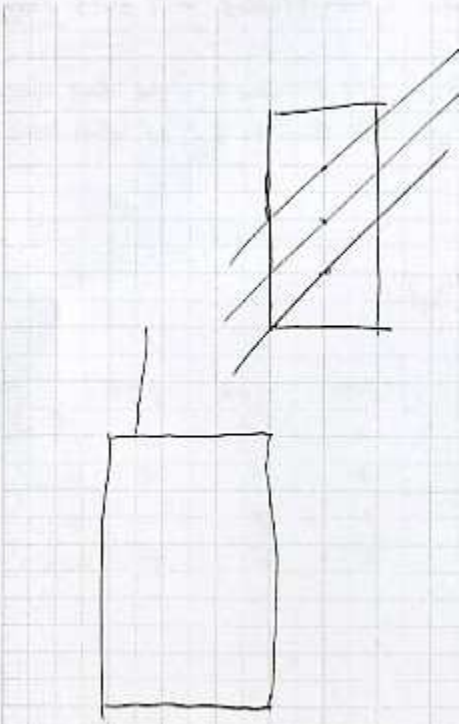
BT-55 : multiple try for CR test

Conditions	CAL-LO	CAL HI	TKR	EXT	CNO	PER	
0	T	None	F	F	F	F	CAL only
1	F	F	T	F	F	F	TKR only
2	F	F	F	F	T	F	CNO =
3	F	F	F	F	F	T	PER =
4	all the rest						-

engine#		
0	4-range - 2	CAL
1	1-range - 2	TKR
2	1-range - 2	CNO
3	4-range - 2	PER
4	1-range - 2	All the rest.

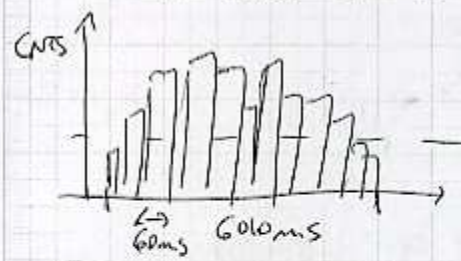
18/11 7.45 70000 2513 1st RUN WITH BEAM ON
Looking at BEAM POSITION

70000 2514 - 70000 2515 JUNK
70000 2516 : Test run with sim beam at the end.
70000 2517 : BT 51 - Testing
70000 2518 : BT 51 - FIFO CU_BT.5 - 10 kevents
Short Test run for the pipeline.



BEAM RATE COUNTS

MONITOR SPILL COUNTS



BEAM STEERING (

- SELECT ENGABE (
- " HTCKY1 FOR
- INPUT VOLTAGE VALUE

Klaus is steering the beam...

9 AM 700002519 : Trigger Alignment and Beam Position

on { X : 108 ± 14
{ Y : −23 ± 10 (Beam, RMS)

{ $\Theta_{yz} = 0,3°$
{ $\Theta_{xz} = 0° \pm 0,8°$

Steering Magnet HTCKY1 = 1V
Changed to HTCKY1 = 6V

700002520 : New Beam Position.

on { X = 103 ± 8
{ Y = −3 ± 10
{ $\Theta_{yz} = 0,2 \pm 0,6$
{ $\Theta_{xz} = 0, \pm 0,9$

700002521 New Beam Position. HTCKY1 = −5V

{ $\Theta_{xy} = 0,08$
{ $\Theta_{yz} = 0,3 \pm 0,5$
{ X = 108 ± 11
{ Y = −52 ± 10

700002522 HTCKY1 = −5V, HTCKY2 = +3V

{ $\Theta_{xy} = 0 \pm 0,8$
{ $\Theta_{yz} = -0,35 \pm 0,4$
{ X = 108 ± 11
{ Y = −42 ± 10

AVERAGE RATE ~ [redacted] 200 Hz

Runs with ~200
E =

700002527 BT 50
700002528 : BT 51
700002529 : VD Beam
700002530 : BT 54
700002531 : BT 53

Rate moved to 100
→ 600 - 700 coinc

700002532 : BT 50
2533 : BT 51
2534 : BT 53

Changing rate and CV
New rate: [redacted] ~260 H
New position: 30 Ley

Run 700002535 : BT 5
+ W
up

from the Monitor. <θz =
Y = −

run. 0.700002536 → wrong beam settings.

70000253

HTC Ky1 = -2,5 V
HTC Ky2 = 3 V

y = -41
X = 494
θ = -27,54 → -30° in the GUI.

We are happy with this setting.
Starting new session. @ -30°

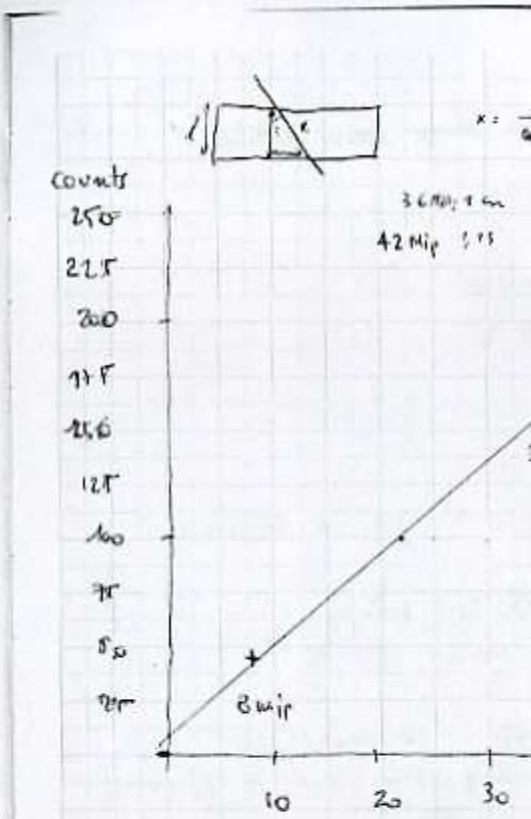
70000 2534 : BT 50 rate: 1 100 counts / spill.
Ten Error Evt ≈ 30 / spill. (≈ 1,7 %)
→ 100 KEVT.

700 00 2540 : BT 51 same condition & precisions. 100k

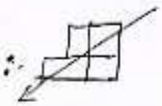
70000 2541 : BT 51 same condition 100k

2542 BT 54 100 K evt
2543 120 K evt

→ Testing EFB setting → new beam selected.



CV @ 60° :



run 70000 2546: BT 50 - problem with machine.

$$\begin{cases} X = -100 \\ Y = -41 \\ \theta = 60 \end{cases}$$

start running;

70000 2550 BT 50 · 100 K. evt
70000 2551 - BT 51 - 250K. evt
70000 2552 - BT 54 - 150K. evt
70000 2553 - BT 56 - 140K evt

CV moved to 0° / beam on Tar 2

70000 2572 - BT 3 - 250 K evt.
6060 / 251732 error CVD

2573 BT-50 - 154 Kevts (1400 sec.)
+ 5790 error (4%)

2574 BT51 - 150 Kevts
2575 BT54 - 250 Kevts
2576 BT50 NEW SCHEMA FILE READING
HALF LAYERS FROM LEFT, HALF FROM RIGHT
TO REDUCE NB OF FIFO FULL ERROR TAKING
ADVANTAGE OF HAVING BEAM ALWAYS ON
ONE SIDE ONLY
⇒ FIFO full RATE DROPS FROM 60 TO
5 / SPILL

~~2~~ 63 : 0 1 1 1 0 0 1 1

~~2~~

Ke BEAM FROM 1.30

- RUN 2577 SEEN ON
~~COUNTING~~ BY FIFO
- BEAM TUNED BY ELEC
- RUN 2578 - BEA
HTCKY 3 - 2.0
- 2.1
- 2.3
(-4)
- Huge dusts seen with
- >90% FIFO FULL ERRORS
- RUN 2579 (SPECIAL FIFO
2580 - BT 50 Beam ba
→ setting
by d

2581 - BT 53 (out trg.

19/11/2006 04:30 A.M.

| Al target put on the beam |

Starting Xe program with the target. BT53 / BT 52

Waiting for the operator to reset the counter. There were problems in the in/out procedure to/from the cave for somebody of us (Luca, Luca 2, Sandro).

05:40

70000 2582 : first BT53 run with Xe and target

counting rate is excessively high (10 k evt / spill).

70000 2583 : BT 53 1 kevt / spill still special FIFO FULL configuration.

Back to the ... file. (122 _ ...

70000 2584 : BT 53

rate is the sa... FIFO full ... higher than ...

70000 2585 : BT53

FIFO se...

Trigger rate ... the previou... no FIFO ...

~~Back to the~~

70000 2586 : BT 2

internal ... best run ...

Back to the standar... back to the ...

70000 2587 : BT53, ... (122_ 6...

70000 2588 : BT53, ...

70000 2589 : BT53, ...

Now the counting rate is factor of 3-4 higher than before.

70000 2590 : BT 52, same setting as before

100 K daq

70000 2591 : BT 52
Same as before.

7. 20 APR WARNING: In the e-log database, runs ranging from 70000 2588 to 70000 2590 have a beam energy of 1.5 GeV/nucleon instead of 1.6 GeV/nucleon.

70000 2592 BT 53 with Special TheSplit Configuration
70000 2593 BT 53 with special TheSplit configuration read out with Target Xenon 1 GeV/nucleon with a CsI log in front of the CU.

2594

CALIBGEN SUITE WITH Xe BEAM 70000 2595 - 2607

LOADED TABLE SCHEMA PIN TO PERFORM CI SCAN WITH C BEAM WHILE TAKING SCINTILLATION MEASUREMENT

70000 2608 E2E WITH

CALIBGEN SUITE

70000 2609 - 70000 262

CAL LOG REMOVED FRO

INTENSITY REDUCED TO

CREATED HSK CONFIGUR

4-RNG, 0-SUPPRESSION