HiRA Lab
Logbook 1
Experiment 05133

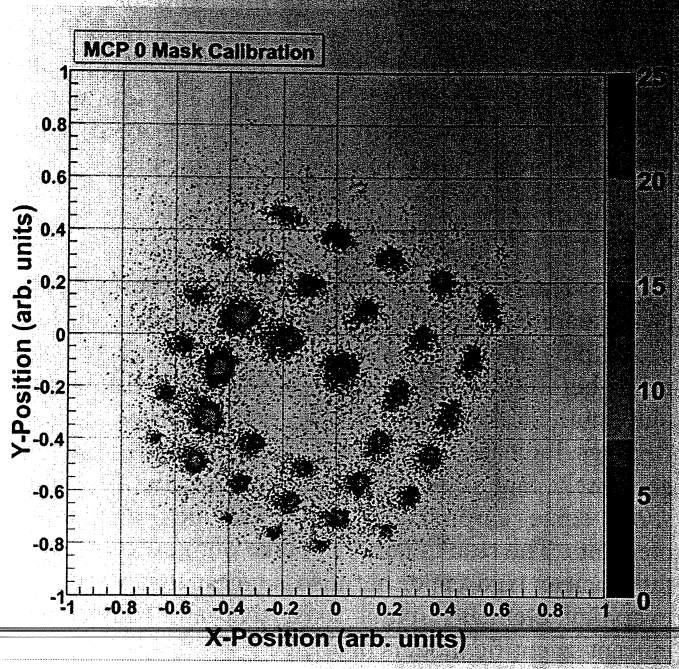
THE GREENSHEET

Vol. 25 No. 43 October 26, 2007

Experiment of the Week

Experiment 05133 is the first in a series of single neutron transfer experiments using radioactive beams on a hydrogen target. By measuring angular distributions of the projectile residue after transferring one neutron, experimenters hope to learn the shell structure of the residue. This experiment exploits complete two-body kinematics to study the reaction of argon isotopes on the hydrogen target. The High Resolution Array (HiRA) detector is used to detect the emitted deuterons (hydrogen atoms picking up a neutron from the projectile) and the S800 mass spectrometer is used to detect the recoiled residue.

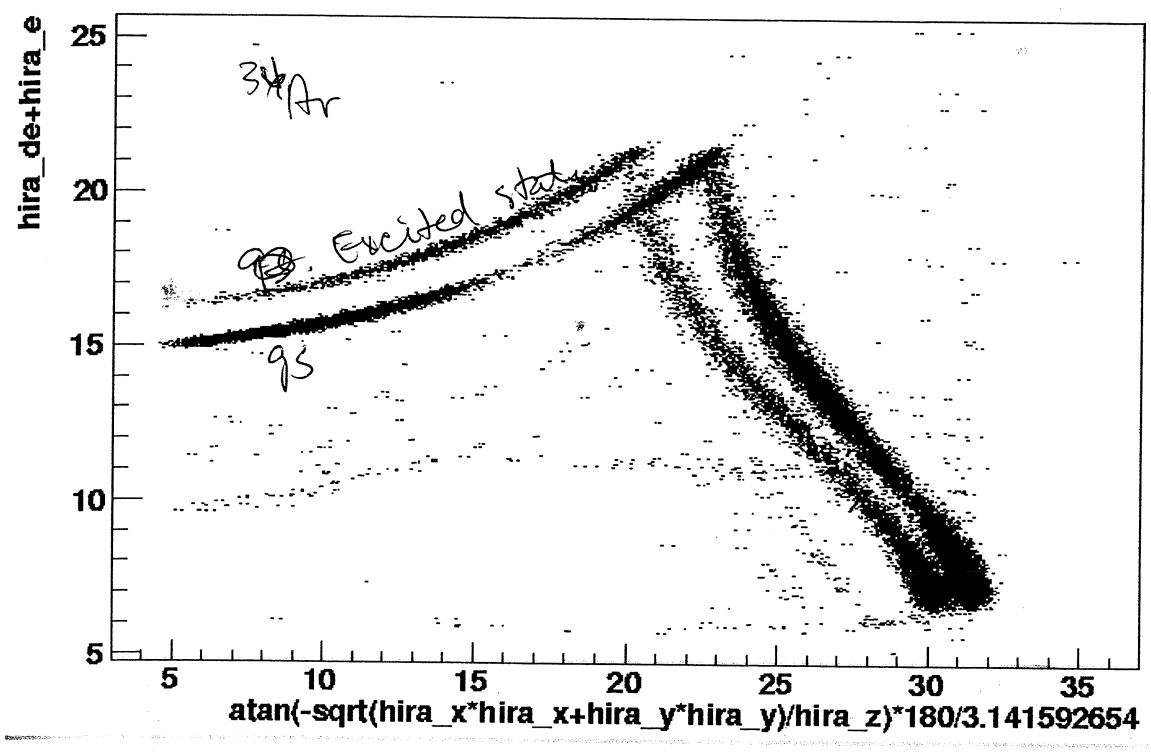
Sixteen HiRA telescopes are used in the experiment and nearly all 1600 electronic channels are working well. To ensure good position determination at the target, the experiment employs two microchannel plate (MCP) detectors, which can handle high beam rates up to one million particles per second. The figure shows the pattern of the mask used in calibrating the MCP. The more intense dots forming an "L" pattern are images of 2 mm holes. Other dots are images of 1 mm holes. The experimenters have completed two reactions using ^{34}Ar and ^{36}Ar beams, with online analysis revealing several excited states. An ^{46}Ar beam is being developed for the second part of this experiment. This is NSCL student Jenny Lee's thesis experiment.



The mask pattern used to calibrate the two microchannel plate for Experiment 05133.

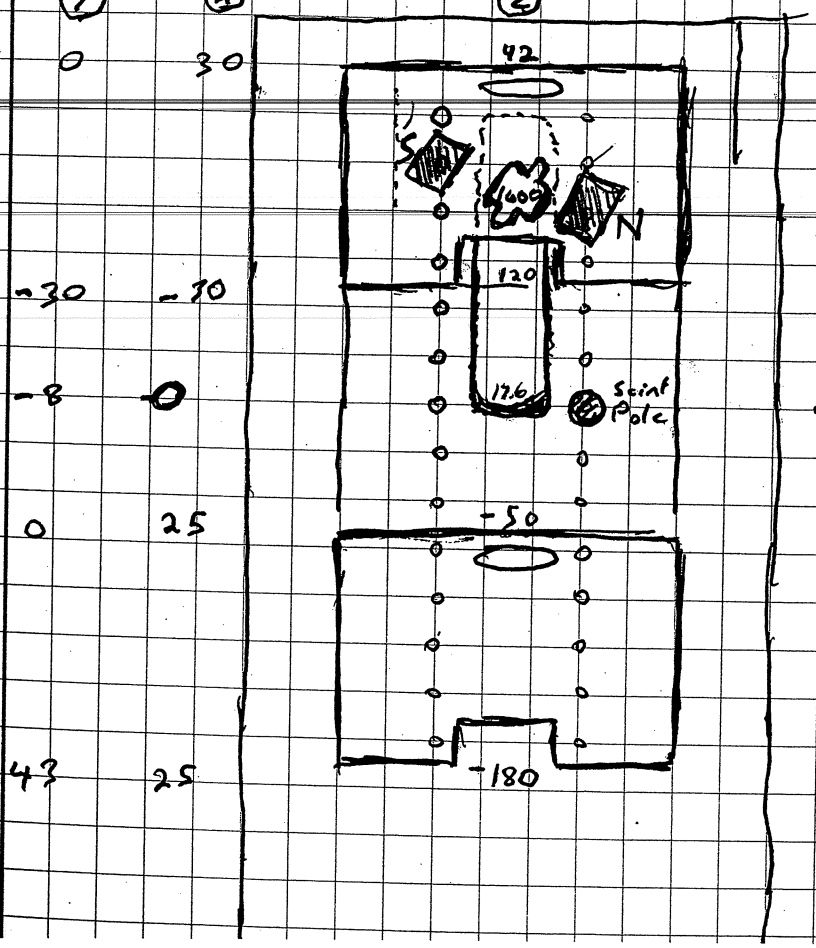
Seminars

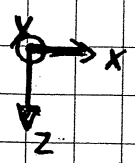
- **Monday, October 29, at 12:30 PM**
  JINA Pizza Lunch in room 1400 BPS
  Carla Froehlich (University of Chicago): Title



10-16-2007

• MCP Magnetic Yoke field map

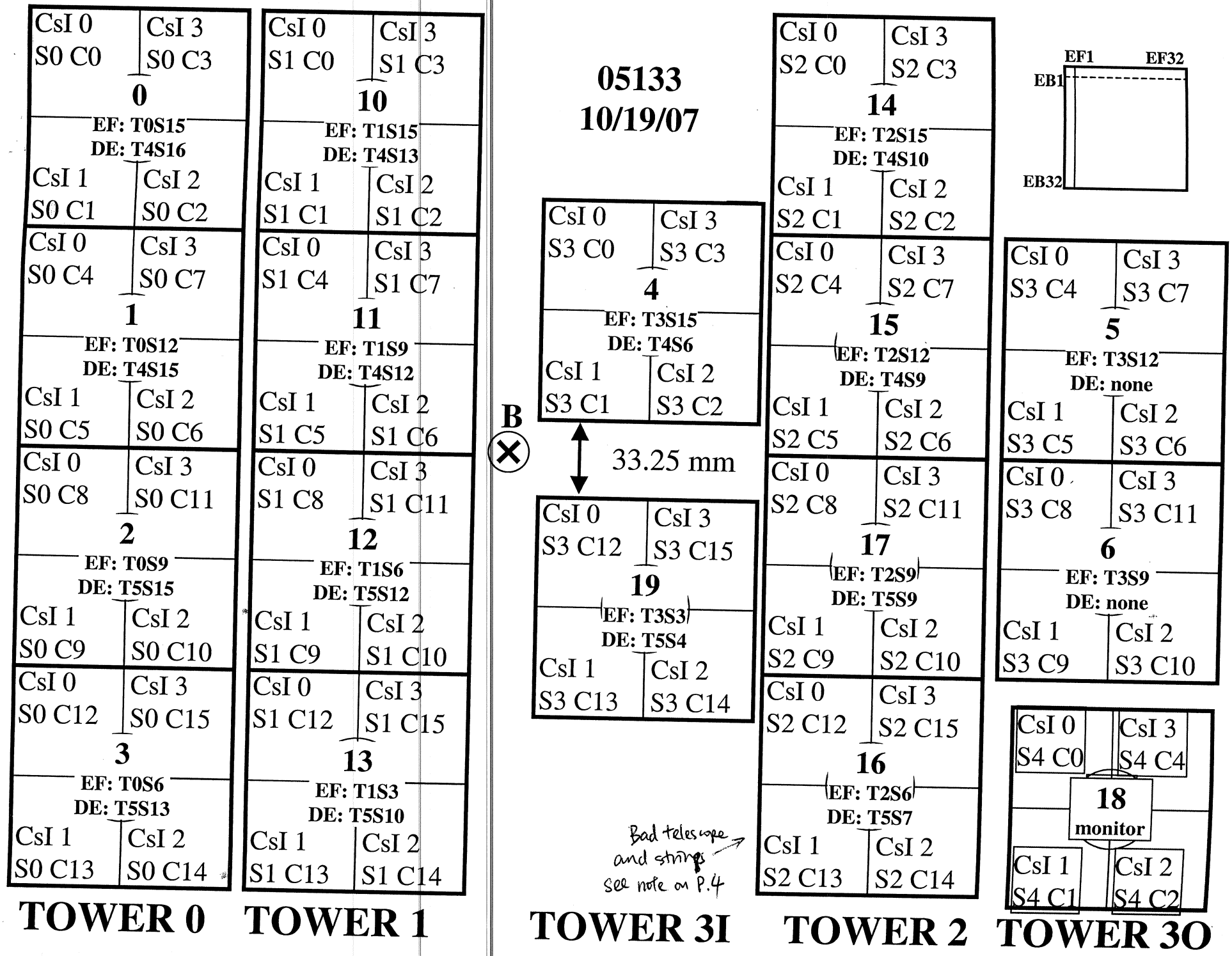




Units are in Gauss.

Height	
2.96	top of yoke
17.6 G	beam
0	MCP Platform

MCP	(cm)	(kG)
	0	5.7
	7	1.27
	9	1.5
	10	1.82
	11	2.4
	12	3.14
	13	4.35


05133
10/19/07
B
33.25 mm
EF1
EF32
EB1
EB32
CsI 0 S0 C0
CsI 3 S0 C3
0
EF: T0S15
DE: T4S16
CsI 1 S0 C1
CsI 2 S0 C2
CsI 0 S0 C4
CsI 3 S0 C7
1
EF: T0S12
DE: T4S15
CsI 1 S0 C5
CsI 2 S0 C6
CsI 0 S0 C8
CsI 3 S0 C11
2
EF: T0S9
DE: T5S15
CsI 1 S0 C9
CsI 2 S0 C10
CsI 0 S0 C12
CsI 3 S0 C15
3
EF: T0S6
DE: T5S13
CsI 1 S0 C13
CsI 2 S0 C14
CsI 0 S1 C0
CsI 3 S1 C3
10
EF: T1S15
DE: T4S13
CsI 1 S1 C1
CsI 2 S1 C2
CsI 0 S1 C4
CsI 3 S1 C7
11
EF: T1S9
DE: T4S12
CsI 1 S1 C5
CsI 2 S1 C6
CsI 0 S1 C8
CsI 3 S1 C11
12
EF: T1S6
DE: T5S12
CsI 1 S1 C9
CsI 2 S1 C10
CsI 0 S1 C12
CsI 3 S1 C15
13
EF: T1S3
DE: T5S10
CsI 1 S1 C13
CsI 2 S1 C14
CsI 0 S3 C0
CsI 3 S3 C3
4
EF: T3S15
DE: T4S6
CsI 1 S3 C1
CsI 2 S3 C2
CsI 0 S3 C12
CsI 3 S3 C15
19
EF: T3S3
DE: T5S4
CsI 1 S3 C13
CsI 2 S3 C14
Bad telescope and strings see note on P.4
CsI 0 S2 C0
CsI 3 S2 C3
14
EF: T2S15
DE: T4S10
CsI 1 S2 C1
CsI 2 S2 C2
CsI 0 S2 C4
CsI 3 S2 C7
15
EF: T2S12
DE: T4S9
CsI 1 S2 C5
CsI 2 S2 C6
CsI 0 S2 C8
CsI 3 S2 C11
17
EF: T2S9
DE: T5S9
CsI 1 S2 C9
CsI 2 S2 C10
CsI 0 S2 C12
CsI 3 S2 C15
16
EF: T2S6
DE: T5S7
CsI 1 S2 C13
CsI 2 S2 C14
CsI 0 S3 C4
CsI 3 S3 C7
5
EF: T3S12
DE: none
CsI 1 S3 C5
CsI 2 S3 C6
CsI 0 S3 C8
CsI 3 S3 C11
6
EF: T3S9
DE: none
CsI 1 S3 C9
CsI 2 S3 C10
CsI 0 S4 C0
CsI 3 S4 C4
18
monitor
CsI 1 S4 C1
CsI 2 S4 C2
TOWER 0
TOWER 1
TOWER 3I
TOWER 2
TOWER 3O

10/19/07

Calibrating SpecTcl Hira readout, taking into account Readout order offset.

Comparing with and without ROO:

Run 53, tele 0, 1, 2, 3, 10, 11, 12, 13, 14, 15, 16, 17
Run 58, tele 4, 19
Run 86, tele 5, 6

in general, where there were odd-even effects on EB, which was true on most, they were significantly lessened, generally all resolutions now between 60-75 keV, FWHM, was 60 - 120+

Some outlying channels brought significantly down
A few brought slightly up, ≤ 10 keV, usually toward the mean.

EF generally unchanged, even-odd effects remain.
↳ if they existed before

Specific Notes:

tele 3. ef. 31 poor resolution, but was worse (undefined)
↳ ~ 100 keV

tele 10. ef. 25 & eb. 13 → ~ 100 keV, but EB is better

tele 11. ef crap

tele 12. eb. 23 ~ 85 keV (unchanged)

tele 14. ef range 80-90 keV (unchanged)

tele 16, both faces 60-85;
ef shows unchanged e-o effect
eb shows improved e-o effect

tele 10. ef shows strong unchanged e-odd effect

tele 17. ef shows strong unchanged e-o effect
odds ~ 120 keV, evens ~ 80 keV

tele 10. ef even line slightly better (~ 60-70 keV)
odd line unchanged ~ 80 keV

tele 17. eb. 15 & .17 poor resolution

tele 4. ef. 21 ~ 140 keV resolution. unchanged

tele 19. ef. 2 ~ 115 keV unchanged

tele 6. ef. 10 ~ 140 keV unchanged

Summary of channels w/ poor resolution from pl.: ≥ 100 keV FWHM

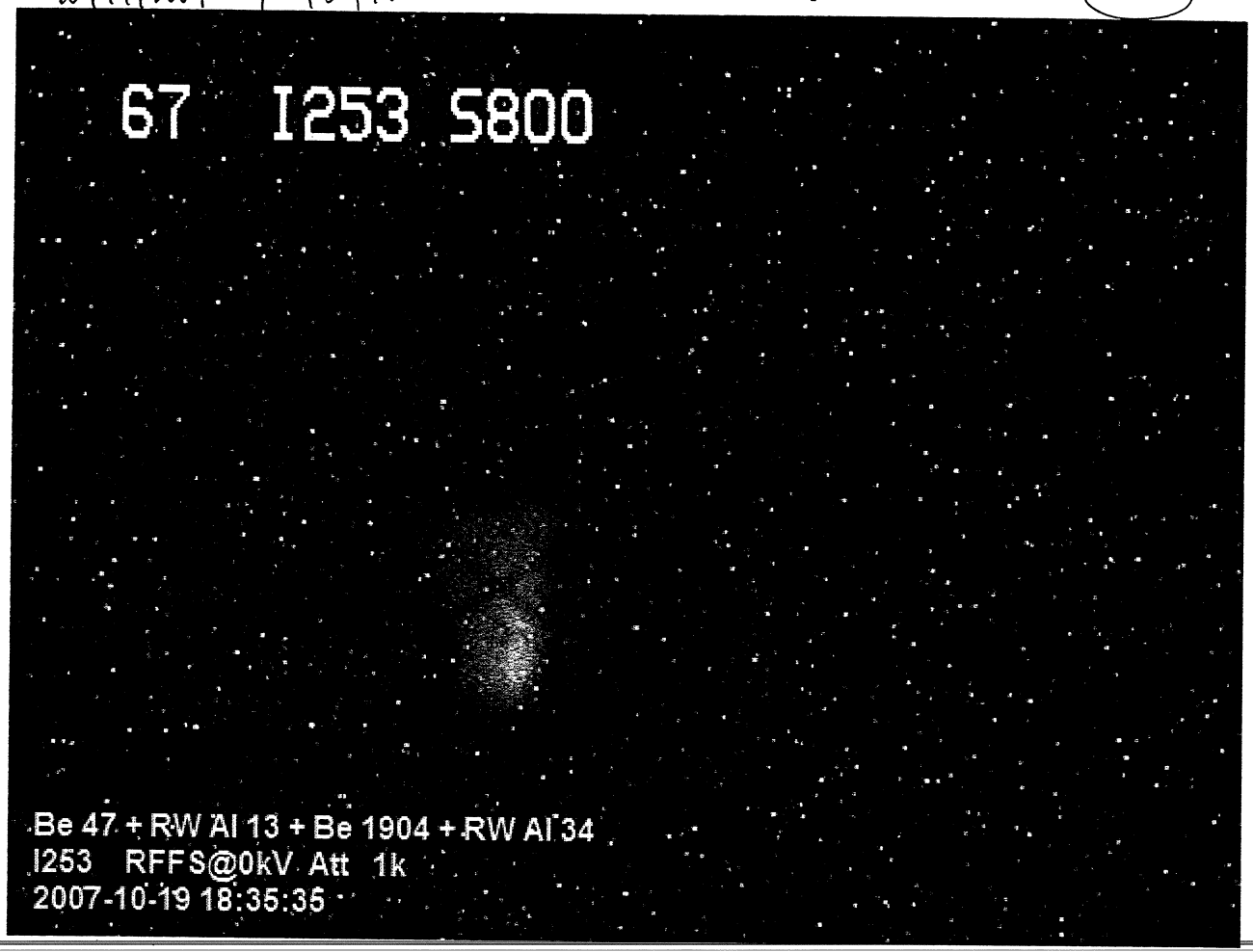
tele	face	chan
3	EF	31
4	EF	24
6	EF	10
10	EF	25
11	EF	All
17	EF	all odds
17	EB	15, 17
19	EF	2

Scaler list (same channels on each scaler, 1st Live, 2nd Raw)

0	CsI 1 . Live
1	CsI 2 .
2	CsI 3
3	CsI new (Tele 18, monitor)
4	CsI new (pulser trigger, down scaled)
5	OR T_1
6	OR T_3
7	BIC BROTHER
8	S800 + HiRA
9	E OR
10	dE OR
11	MCP 0
12	MCP 1
13	A 1900 Focal Plane
14	
15	CsI 1, Raw
16	etc.

\\Daq1\a1900\projects\05133\campics\05133_campics_20071019-34Ar.doc

10/19/2007 7:45PM **Camera Photos for Exp 05133 35MeV/u 36Ar 18+**



shortly before beam is tuned into S800.

Around this time, start biasing.

PA on, Sparky off

Biasing EB to 100V

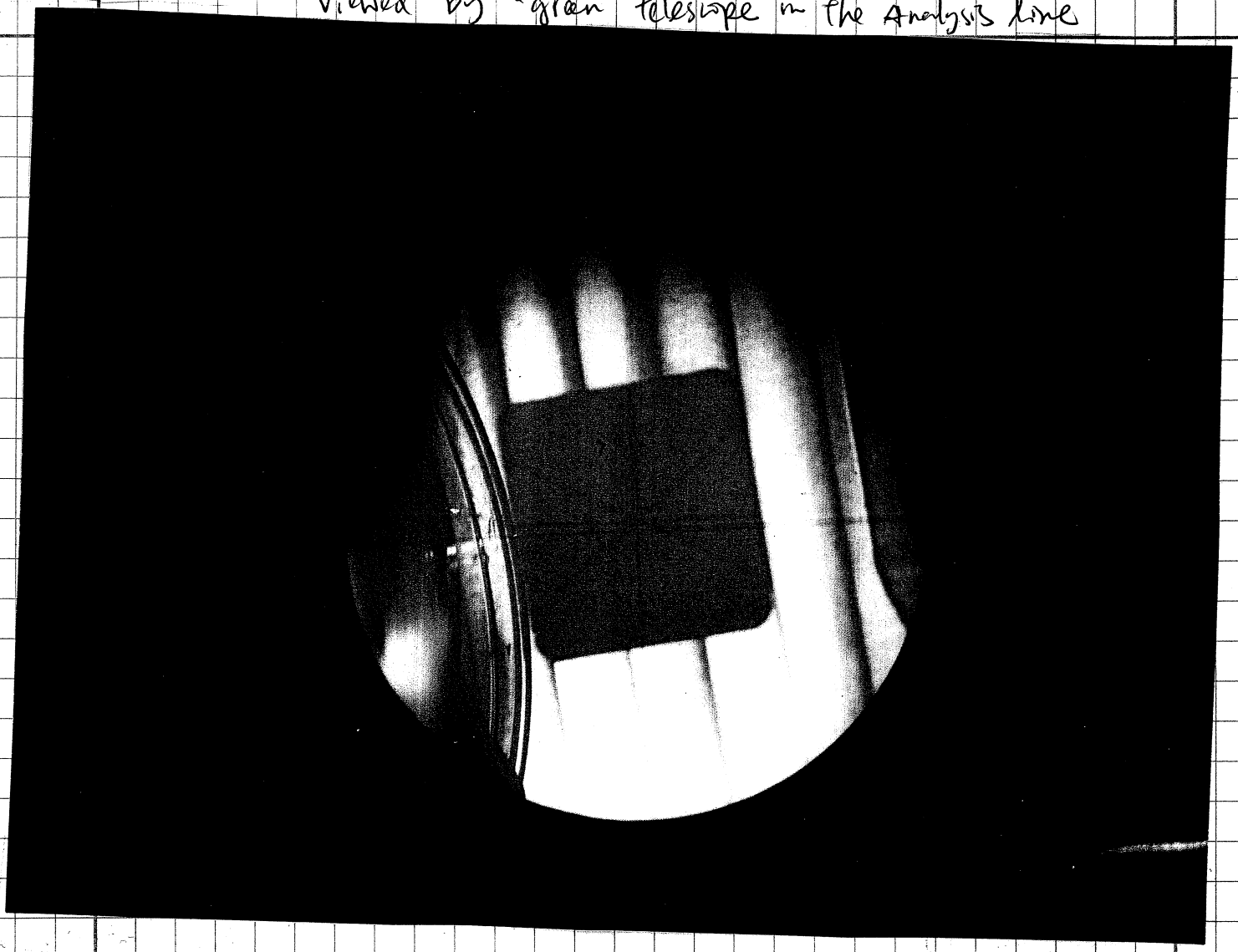
then all EF on in Caen

& All CsI

All biased (Sparky off) ~ 14:40 10-19-2007

EB	Current
T0	4.11 μA
T1	6.18 μA
T2	5.66 μA
T3	6.35 μA

Viewed by "green" telescope in the Analysis line

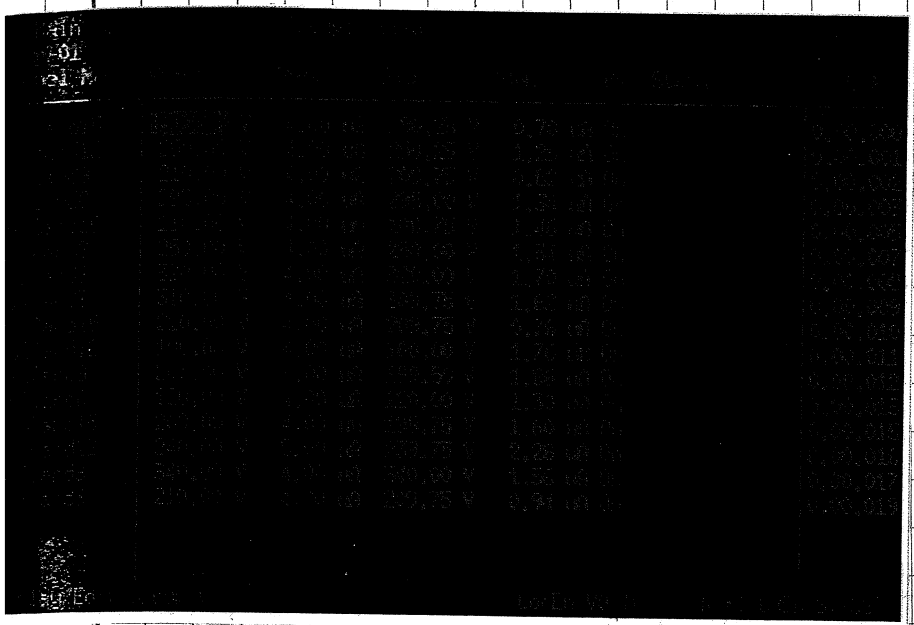


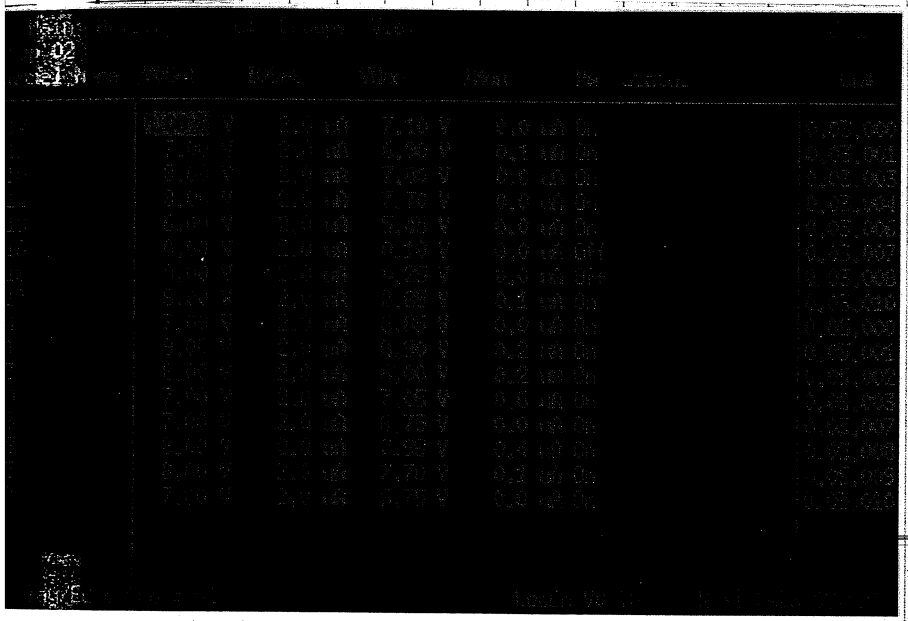
Problems with tele 16, 17

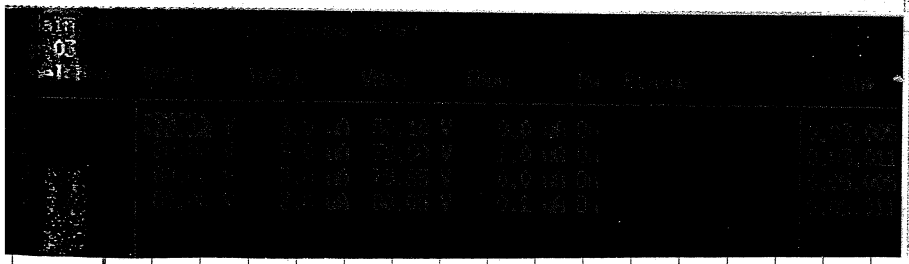
Concerning Tel 16, CB looks good, but the detector makes me worried. To my ~~best judgement it is underbiased by approx. 35-40 Volts, which is~~ affecting some 10-12 Eback channels. On the other hand it also has 3 discharging channels on EF - both edge strips and chn2 on chip 2. I have observed some troubles on these three strips during the tests in the small vacuum chamber few weeks ago, but this time it looks much worse. Moreover two of these channels (plus additional on Eback, which otherwise looks fine) deteriorate quickly with any additional voltage on the detector. Considering the previous tests, all these three strips behaved pretty much the same in small vaccum chamber. Now their respective CSA noise levels are 140mV, 0.6 V and 1.2 Volts, i.e. quite different from one another. Especialy the second channel doubles its noise amplitude with rise of voltage already by extra 15V. Just to cut long story short, I want to say that this detector is underbiased but sort of OK as it is right now, but it would be my bet if I should point out a detector I think can go completely bad first. If it is matter of hours or weeks I can not say (so far the detectors were biased couple of times only for a period of 6-8 hours). I am sorry for not-the-best news.

Anyway considering our situation and the fact that we will open the chamber once more, we may think of a possibility to do something about the bad EF CB of Tel 17, and possibly exchanging Tel 16 in advance. I am not sure if either is worth the trouble (time and risks involved, loss of preliminary calibration, unsure gains ...). Concerning the posible E exchange we have E from Tel 8, which however seemed to go bad towards the end of the 4pi experiment, but it did not reach the worst state yet, and maybe it never will ... , or we could try to involve the 2nd new detector from Micron. It has not been tested yet, but I can do that during the evening within 3-4 hours, and if good it can be ready for Thursday.

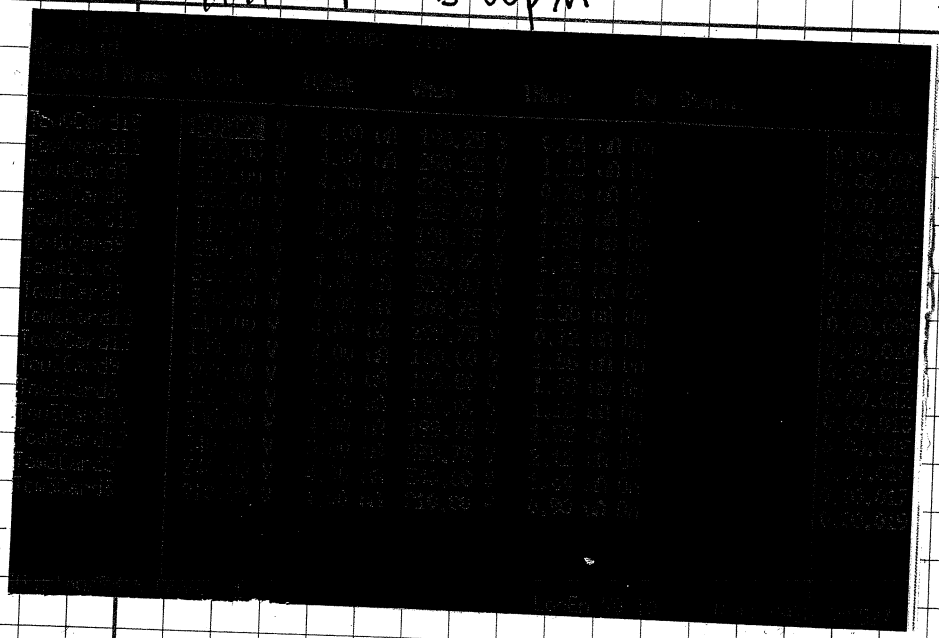
10-19-2007 14:40







10/19/2007 5:00pM



	Vbias(V)	I(μA)
Back 0	~~328~~ 100.1	3.87
Back 1	100.2	5.72
Back 2	100	5.19
Back 3	100.1	6.00

When beam handed back to us.
Issues – We don't seem to be triggering
– We aren't sure ~~what Rate Con Be~~ what Big Brother is
⇒ it is the Es from telescopes 4, 11, 12, 19
– We have a very large raw rate on Big Brother sometimes. Very inconsistantly.

Items Turned off discriminators on all chips except EF & EB on tele 4, 11, 12, 19 now ok rate.
⇒ suggests a CB from tele 10, 13, 5 of 6 is very noisy

/projects/proj4/hira/lise_settings/

Projectile $^{36}Ar^{18+}$
150.54 MeV/u 1 pnA
Fragment $^{34}Ar^{18+}$

Target	Be	1491.32 mg/cm2
Stripper		
D1	Brho	2.2729 Tm
D2	Brho	2.2729 Tm
I2_slits	slits	-14.9 H +14.9
I2_wedge	Al	366.885 mg/cm2
D3	Brho	1.6230 Tm
D4	Brho	1.6230 Tm
FP_slits	slits	-25 H +25
XFP_SCI	H10C9	127 micron
Dipole 5...	Brho	1.5741 Tm

config: A1900_2006 dp/p
option: A1900_2006 0.5%
version: 7.9.10 total

Physical calculator

A 34 | Element Ar | Z 18 | Q 18 | Beta+ decay | Table of Nuclides | Z | N

Energy	32.9588	MeV/u	Energy	32.9397 AMeV
Brho	1.5741	Tm	TKE	1119.95 MeV
Erho	122.479	MJ/C	Velocity	7.77031 cm/ns
P	8494.26	MeV/c	Beta	0.2591897
p_trnspt	0.471903	GeV/c	Gamma	1.035383
After				

Block	Z \ Thickness	Energy Remain. MeV/u	E-Loss MeV	MeV	<Q>

after/into

Energy Remain	32.9588	MeV/u
Energy Loss	0	MeV
Energy Strag.(sigma)	0	MeV/u
Angular Strag.(sigma)	0	mrad (plane)
Lateral spread (sigma)	0	microns
Brho (for Q=Z)	1.5741	Tm

Equilibrium values for material " "

Charge State <Q>	17.98	
dQ (sigma)	0.14	
Thickness	0.72483	mg/cm2

Range and Energy Loss to | Si

Range	dRange (sigma)	
157.023	0.35554	mg/cm2
673.921	1.5259	micron

Energy Remain.	0.000	MeV/u
Material thickness for energy rest	157.02	mg/cm2
	673.92	micron

Calculation method of

Energy Losses	2	Energy straggling	1
Charge States	3	Angular straggling	1

Print | Help | Quit

Projectile $^{36}Ar^{18+}$
150.54 MeV/u 1 pnA
Fragment $^{36}Ar^{18+}$ =beam=

Target	Be	2012.07 mg/cm2
Stripper		
D1	Brho	1.7179 Tm
D2	Brho	1.7179 Tm
I2_slits	slits	-14.9 H +14.9
I2_wedge		
D3	Brho	1.7179 Tm
D4	Brho	1.7179 Tm
FP_slits	slits	-25 H +25
XFP_SCI		
to S800	Brho	1.6691 Tm

-20 H +20
-20 V +20

config: A1900_2006 dp/p
option: A1900_2006 0.5%
version: 7.9.10 total

Physical calculator

A 36 | Element Ar | Z 18 | Q 18 | Stable | Table of Nuclides | Z | N

Energy	33.0733	MeV/u	Energy	33.0435 AMeV
Brho	1.6691	Tm	TKE	1189.56 MeV
Erho	130.085	MJ/C	Velocity	7.78311 cm/ns
P	9006.91	MeV/c	Beta	0.2596165
p_trnspt	0.500384	GeV/c	Gamma	1.035506
After				

Block	Z \ Thickness	Energy Remain. MeV/u	E-Loss MeV	MeV	<Q>

after/into

Energy Remain	33.0733	MeV/u
Energy Loss	0	MeV
Energy Strag.(sigma)	0	MeV/u
Angular Strag.(sigma)	0	mrad (plane)
Lateral spread (sigma)	0	microns
Brho (for Q=Z)	1.6691	Tm

Equilibrium values for material " "

Charge State <Q>	17.98	
dQ (sigma)	0.14	
Thickness	0.72666	mg/cm2

Range and Energy Loss to | Si

Range	dRange (sigma)	
167.173	0.36787	mg/cm2
717.479	1.5788	micron

Energy Remain.	0.000	MeV/u
Material thickness for energy rest	167.17	mg/cm2
	717.48	micron

Calculation method of

Energy Losses	2	Energy straggling	1
Charge States	3	Angular straggling	1

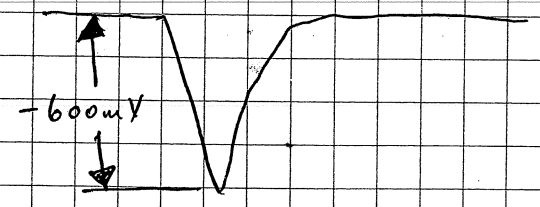
Print | Help | Quit

A1900 "Print19Oct07_19h02.txt" Friday 19:02:51 2007-10-19 A1900
Moe V3 *** 36Ar 18+ to S800 target 35Mev/u ***
Expt: 05133 "Neutron transf. rxns ... Ar isotopes" [Betty Tsang] Line: S800 [8]
Beam: 36 Ar 7+ 13.06 MeV/nuc (K500) 18+ 150.00 MeV/nuc (K1200)
<Att 1M> ECR, Apertures: SCECR 150.0; 25.0; 25.0 mm SHVBI: 23.2300 kV
K500 a,b: 594 A, 484 A K1200: 724 A, -227 A RF: 23.83840 MHz
A1900 Optics: L19S3I_Focus60x30HiRA.data

	Rigidity	Field	Radius	(live)	Difference (Field*Radius)
Seg 0:	3.66957 Tm				
Seg 1:	1.71790 Tm	0.55433 T	3.09882 m	3.09904 m	-0.00724 % (1.71778 Tm)
Seg 2:	1.71790 Tm	0.55395 T	3.10148 m	3.10119 m	0.00938 % (1.71806 Tm)
Seg 3:	1.71790 Tm	0.55530 T	3.09397 m	3.09367 m	0.00973 % (1.71807 Tm)
Seg 4:	1.71790 Tm	0.55497 T	3.09547 m	3.09548 m	-0.00015 % (1.71790 Tm)
Seg 5:	1.66910 Tm				
Seg 6:	1.66910 Tm				
Seg 7:	1.66910 Tm				
Seg 8:	1.66910 Tm				
A116DS		0.53740 T	3.10539 m	3.10588 m	-0.01588 %
A132DS		-0.52180 T	3.19847 m	3.19874 m	-0.00819 %
A165DS		0.28235 T	5.91156 m	5.91146 m	0.00177 %
I200DS		0.00000 T	3.15406 m	0.00000 m	100.00000 %
I205DS		0.00000 T	3.14391 m	0.00000 m	100.00000 %
I223DS		0.00000 T	3.07696 m	0.00000 m	100.00000 %
I228DS		0.00000 T	3.18622 m	0.00000 m	100.00000 %
I265DS		0.00000 T	2.80630 m	0.00000 m	100.00000 %
I269DS		0.00000 T	2.80597 m	0.00000 m	100.00000 %

XF_SCi in

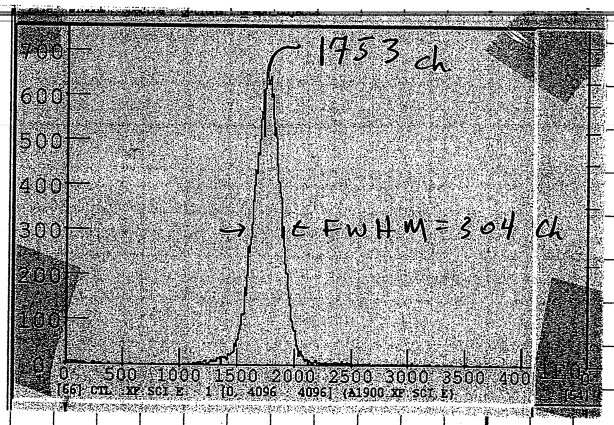
Z001TL: out, Z013TL: Be 47, Z014TL RW Al 13
Z015TL: Be 1904, Z016TL RW Al 34
Z030BC Beam Stop: -126.88 mm
Z037L,R: -0.83, 3.50 mm or -0.03, 0.12 width= 0.15 %; Z037DC: out
Z057MS: out, Z061MS: out
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG: 0.16, 203.25, 202.05 mm Z082TL: out
Z103DC: out, Z104DC: 5 mil BC400, Z106DC: out, Z107DC_U/_L: out/out
Z105TL: out, Slits: nothing installed; PPACs: gas on; Z107 outlim: Y
Z104 XC,G;YC,G: 0.34, 5.67; -0.00, 2.00 mm
Slits: I181 XC,G,YC,G: 0.95, 99.29; 0.02, 98.34
I187: out, I188: out, I189: out, I190: out
I213: out, i214: out, I215: out, I216: out
I214DC Detector Drive: out
I259XM: 0.1045 XP: 0.0000 YM: 0.0000 YP: 1.7182



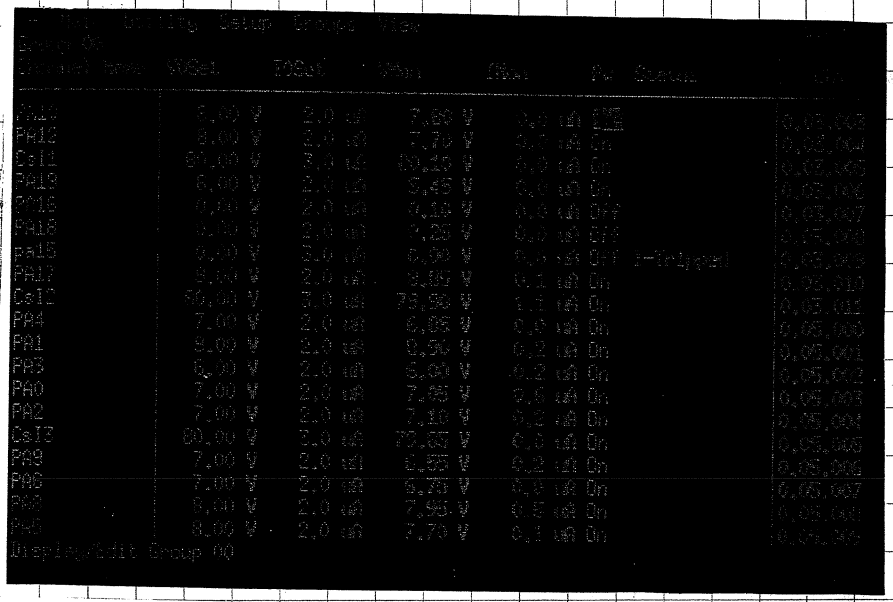
XF Sci bias = 1400 V

10^6 pps @ 0.56 enA
on Z014/F-C

- 40 mV threshold setting

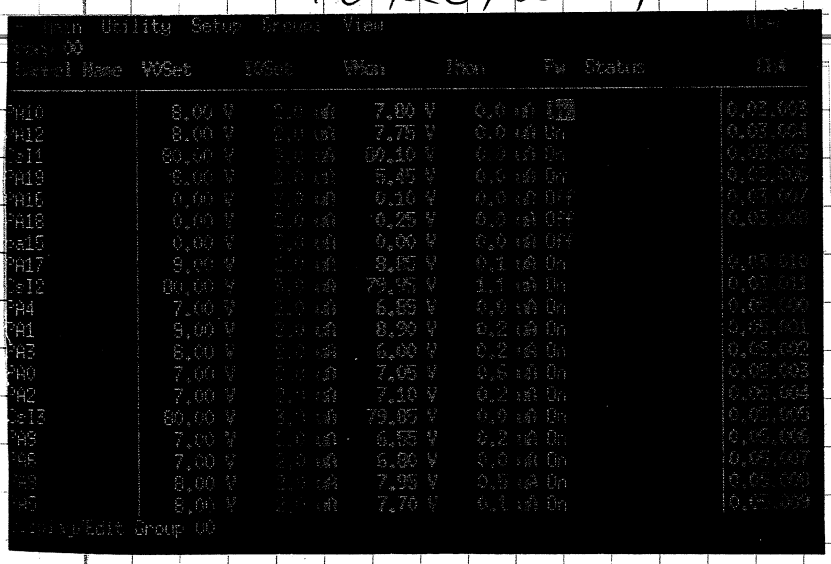


10/19/2007 10:30 pm

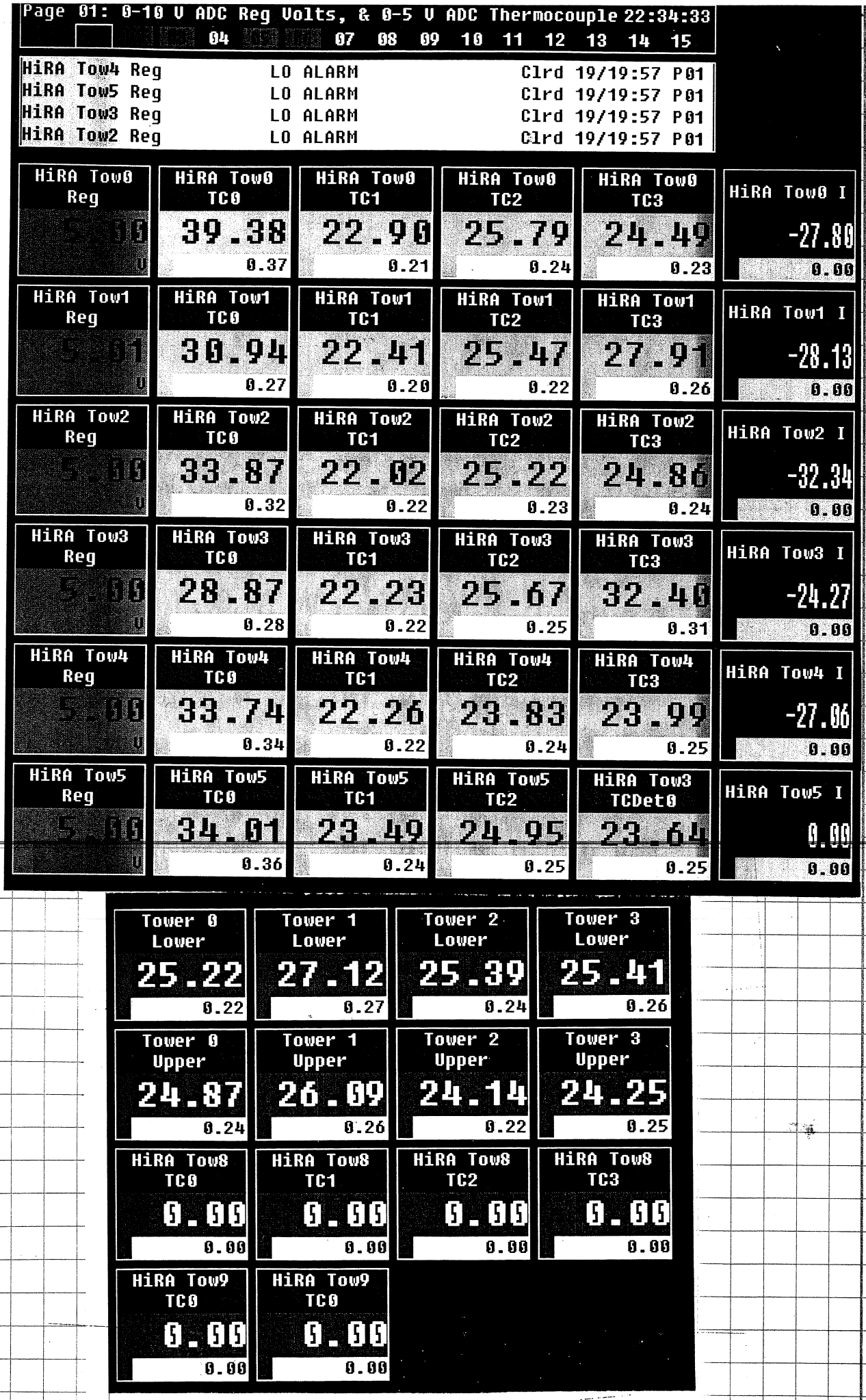


	Vbias(V)	I(μA)
Back 0	100.1	4.00
Back 1	100.2	5.87
Back 2	100.0	5.33
Back 3	100.1	6.13

10/20/2007 1:37 am



	Vbias(V)	I(μA)
Back 0	100.1	4.03
Back 1	100.2	5.91
Back 2	100.0	5.36
Back 3	100.1	6.18


Page 01: 0-10 V ADC Reg Volts, & 0-5 V ADC Thermocouple 22:34:33
04 07 08 09 10 11 12 13 14 15
HiRA Tow4 Reg LO ALARM Clrd 19/19:57 P01
HiRA Tow5 Reg LO ALARM Clrd 19/19:57 P01
HiRA Tow3 Reg LO ALARM Clrd 19/19:57 P01
HiRA Tow2 Reg LO ALARM Clrd 19/19:57 P01
HiRA Tow0 Reg
5.00
V
HiRA Tow0 TC0
39.38
0.37
HiRA Tow0 TC1
22.90
0.21
HiRA Tow0 TC2
25.79
0.24
HiRA Tow0 TC3
24.49
0.23
HiRA Tow0 I
-27.80
0.00
HiRA Tow1 Reg
5.01
V
HiRA Tow1 TC0
30.94
0.27
HiRA Tow1 TC1
22.41
0.20
HiRA Tow1 TC2
25.47
0.22
HiRA Tow1 TC3
27.91
0.26
HiRA Tow1 I
-28.13
0.00
HiRA Tow2 Reg
5.00
V
HiRA Tow2 TC0
33.87
0.32
HiRA Tow2 TC1
22.02
0.22
HiRA Tow2 TC2
25.22
0.23
HiRA Tow2 TC3
24.86
0.24
HiRA Tow2 I
-32.34
0.00
HiRA Tow3 Reg
5.00
V
HiRA Tow3 TC0
28.87
0.28
HiRA Tow3 TC1
22.23
0.22
HiRA Tow3 TC2
25.67
0.25
HiRA Tow3 TC3
32.40
0.31
HiRA Tow3 I
-24.27
0.00
HiRA Tow4 Reg
5.00
V
HiRA Tow4 TC0
33.74
0.34
HiRA Tow4 TC1
22.26
0.22
HiRA Tow4 TC2
23.83
0.24
HiRA Tow4 TC3
23.99
0.25
HiRA Tow4 I
-27.06
0.00
HiRA Tow5 Reg
5.00
V
HiRA Tow5 TC0
34.01
0.36
HiRA Tow5 TC1
23.49
0.24
HiRA Tow5 TC2
24.95
0.25
HiRA Tow3 TCDet0
23.64
0.25
HiRA Tow5 I
0.00
0.00
Tower 0 Lower
25.22
0.22
Tower 1 Lower
27.12
0.27
Tower 2 Lower
25.39
0.24
Tower 3 Lower
25.41
0.26
Tower 0 Upper
24.87
0.24
Tower 1 Upper
26.09
0.26
Tower 2 Upper
24.14
0.22
Tower 3 Upper
24.25
0.25
HiRA Tow8 TC0
0.00
0.00
HiRA Tow8 TC1
0.00
0.00
HiRA Tow8 TC2
0.00
0.00
HiRA Tow8 TC3
0.00
0.00
HiRA Tow9 TC0
0.00
0.00
HiRA Tow9 TC0
0.00
0.00

Run# 122	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments:_____

_____

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

note

- MCP 0, 1
- A1900 focal plane scl need to be plugged into scalers
- CsI monitor (pulser trigger → downscaled by a factor of ~100
- check the dE pulser

DAT CsI gains matched during RUN122

ADC thresholds for ~~RUN122~~ CsI set all new (and right) during RUN122

Run# 123	Trigger				Date:10/__/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA	S800	Coin.		On shift: Vlad Daniela Mike
	Target : (CH2)n; 1 mg; 2mg				

Comments:_____

_____

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

03AM RUN126 → taking data after resetting pulser

Run# 126	Trigger				Date: 10/20/2007
Beam: ~~^{40}Ar~~; ~~^{38}Ar~~ ^{36}Ar	(HiRA)	S800	Coin.		On shift: Vlad, Daniela, Mike F. etc...
E/A=~~35~~ MeV 33AMeV	Target : (CH2)n; 1 mg; 2mg				
Alpha source					

Comments: just taking data with HiRA

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0 NA; 1 NA; 2 /; 3 /

CsI 19: 0 NA; 1 NA; 2 /; 3 /

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Stabilization pulser set to 4V for BNC pulsers and 0.4V for CsI pulser

RUN127 - HiRA singles → looking at CsI Tel 18 searching for proton recoil peak

↳ should be broad ~ 400 chs around ~ 1000 ch position

↳ we observe alpha like structures in all CsI's of Tower 3, but nowhere else. Maybe it is bad distribution box and cross talk from pulser

↳ we turn off pulser on CsI's and start RUN128, but Bill wants to solve other problems first

RUN 128 → short FIRA singles

5 AM we enter S3 vault to patch out some signals and realize that up to now we have been having dE's in the trigger
↳ we removed it

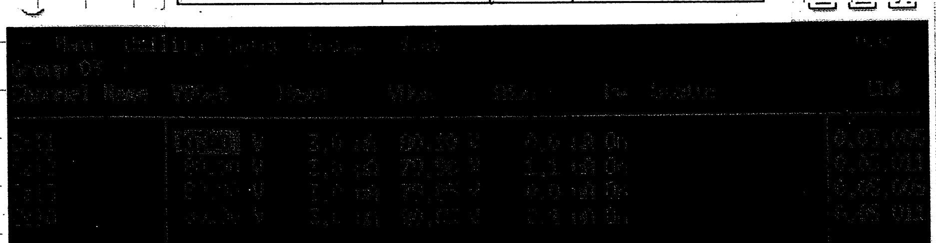
8:10 am, 10/20/07
Vacuum still ~ 1×10^{-5} torr
Had to reset Sparky & VME - power briefly off,
Vacuum → $9.6 \cdot 10^{-6}$ torr immediately.
Back up when power back on.
Also, when 2nd Cryo on, dropped quickly to ~ $8.5 \cdot 10^{-6}$. Turned off again until needed.

Needed to spend time trying to find a working MB setup file and refinding thresholds; the most current file was overwritten.

Making serious MB control changes sends a lot of noise into system. We had to unplug the Big Brother from the CsI interlock otherwise we tripped the interlock with this noise

Bias check @ 8:45 am 10/20/07

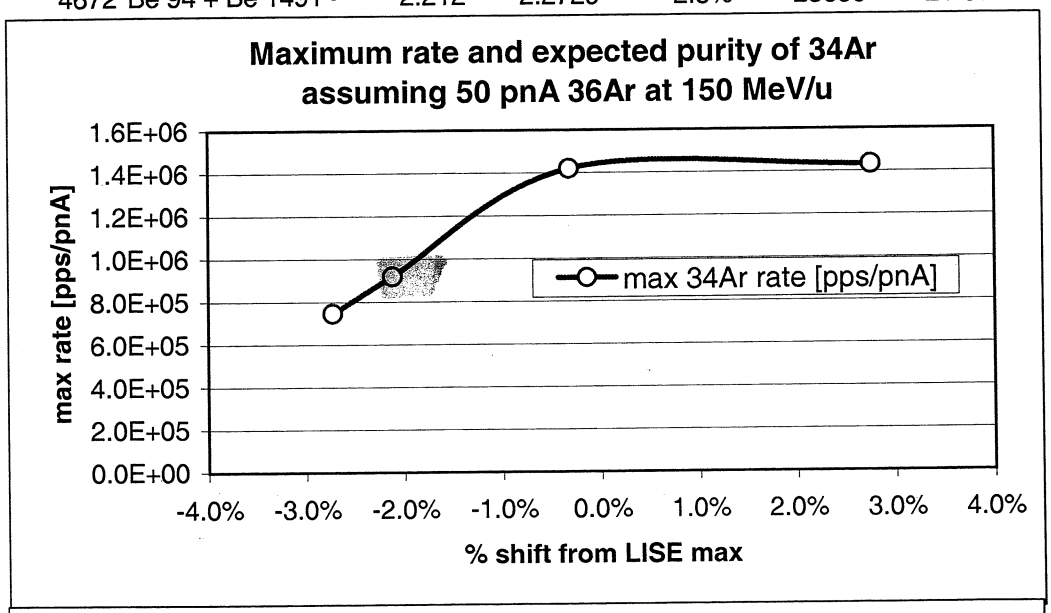
	Vbias(V)	I(μA)
Back 0	100.1	4.05
Back 1	100.2	5.49
Back 2	100.0	5.36
Back 3	100.1	6.23

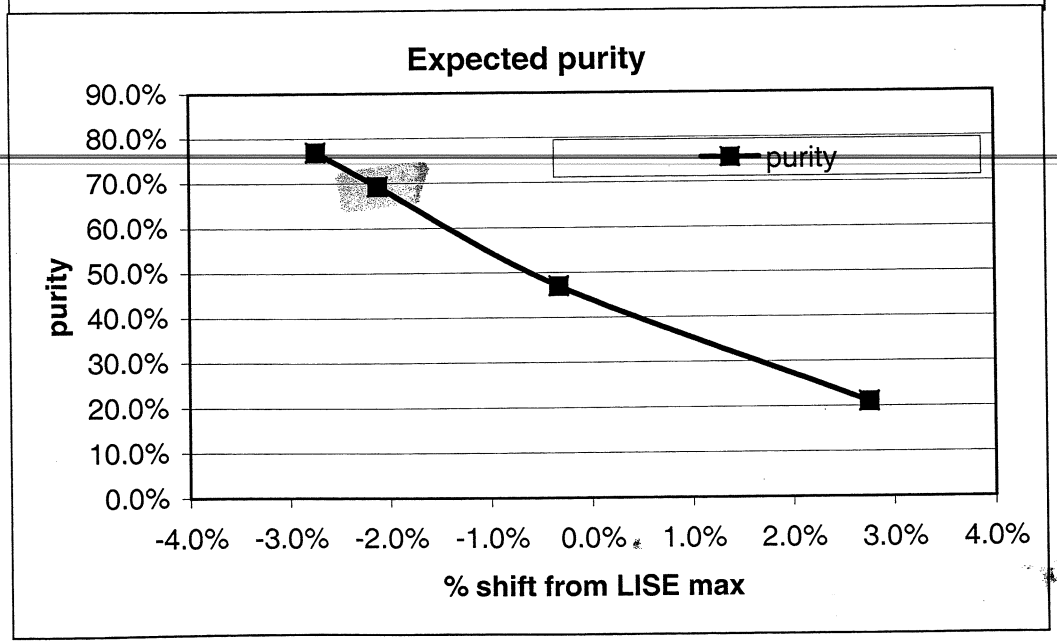


50 pnA - Beam list

Brho34 = 1.623 T-m (fixed for 35/u 34Ar)
LISE max

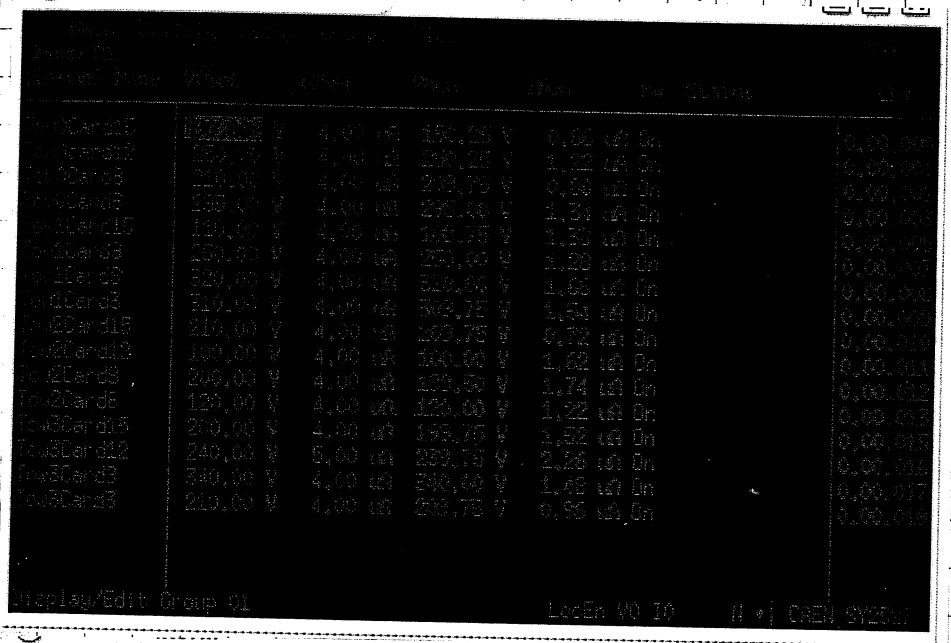
Run #		LISE max Brho12 [T-m]	actual Brho12 [T-m]	shift from LISE max	rate [pps/pnA]	purity	max 34Ar rate
4670	Be 1491 + Al 34	2.3368	2.2729	-2.7%	14900	77.0%	745000
	Be 47 + Be 1491	2.3221	2.2729	-2.1%	18349	69.3%	**917458**
4671	Be 47 + Be 1491 -	2.2803	2.2729	-0.3%	28400	47.0%	1E+06
4672	Be 94 + Be 1491 -	2.212	2.2729	2.8%	28650	21.0%	1E+06

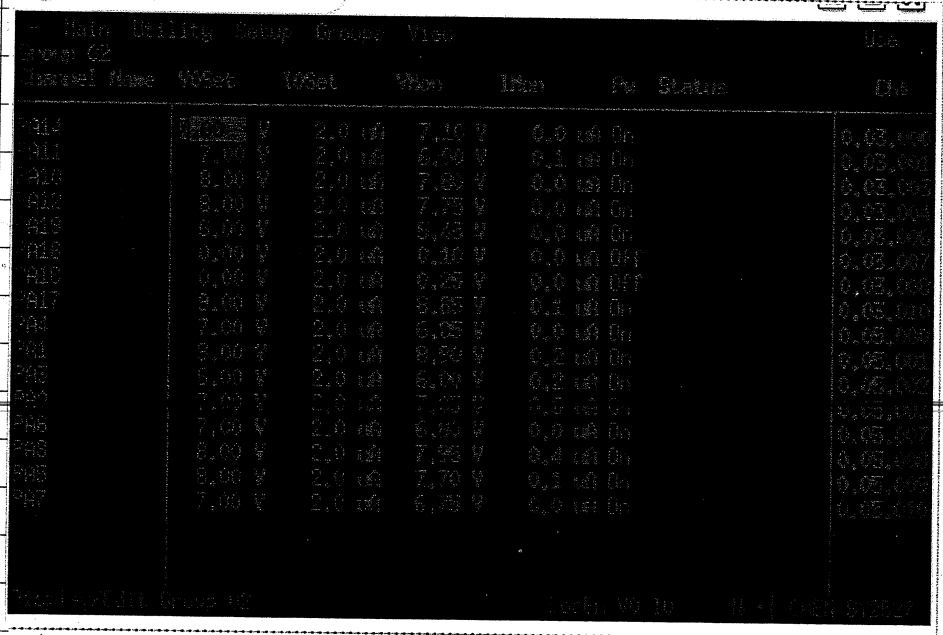




Green highlighted is target Betty & Mauricio agreed on purity can be better with slits but you'll lose counts

Bias check @ 8:45 am 10/20/07, continued from p.13

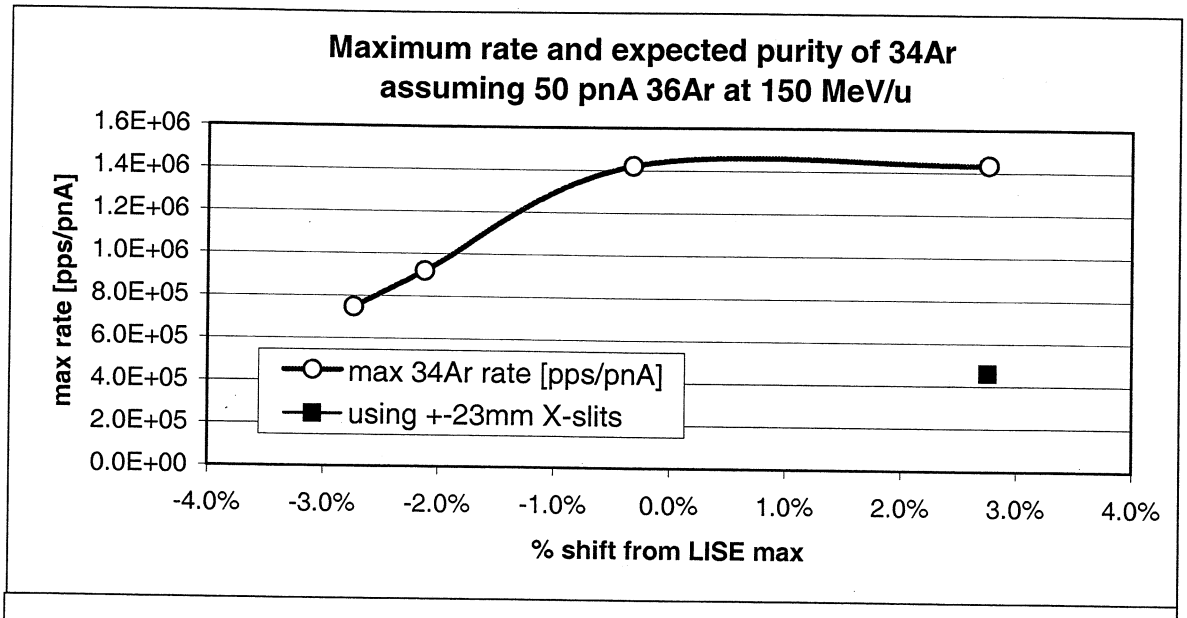


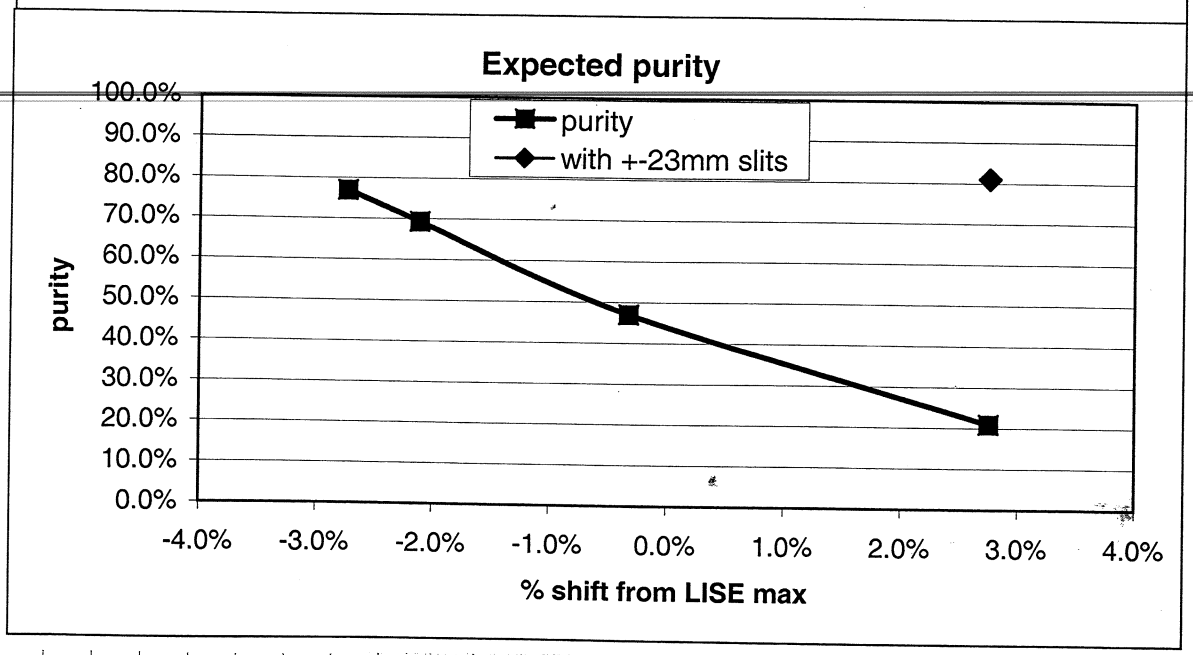


50 pnA - Beam list

Brho34 = LISE max 1.623 T-m (fixed for 35/u 34Ar)

Run #		LISE max Brho12 [T-m]	actual Brho12 [T-m]	shift from LISE max	rate [pps/pnA]	purity	max 34Ar rate [pps/pnA]
4670	Be 1491 + Al 34	2.3368	2.2729	-2.7%	14900	77.0%	7.45E+05
	Be 47 + Be 1491	2.3221	2.2729	-2.1%	18349	69.3%	**9.17E+05**
4671	Be 47 + Be 1491 -	2.2803	2.2729	-0.3%	28400	47.0%	1.42E+06
4672	Be 94 + Be 1491 -	2.212	2.2729	2.8%	28650	21.0%	1.43E+06
4673	Be 94 + Be 1491 -	2.212	2.2729	2.8%	9230	81.0%	4.62E+05





TDC timing check for MCP

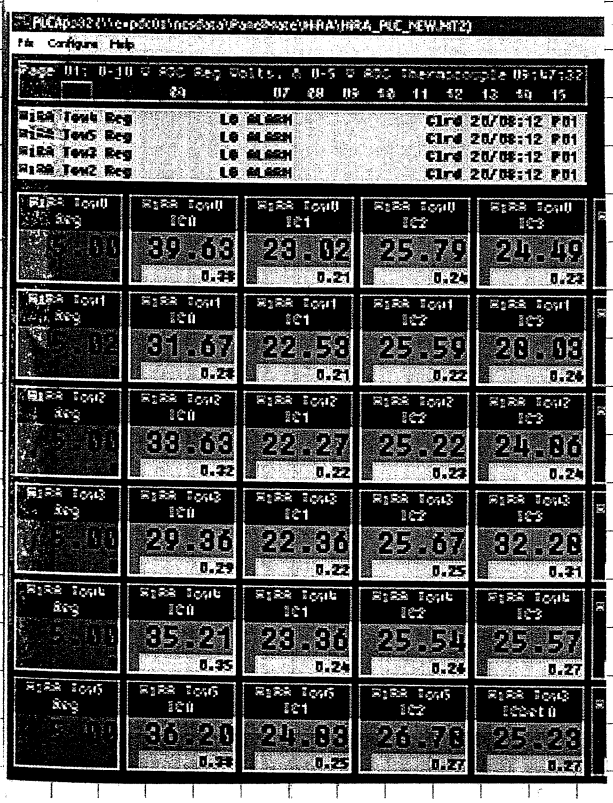
relative timing with HIRA + S800 coinc.

EOR ... 0
XFP ... 184ns
hovay ... 726ns
S800 ... 220ns
MCP start ... 270ns → delay XFP by 170ns
HIRA + S800 coinc. in MCP rack (MCP removed)
S800 by 170ns
EOR by 350ns

TDC channels: 1 MCP — TDC range ~ 350 ns
2 MCP
3 MCP
4 XFP
5 S800
6 HIRA

at ~9:40 am, opened up to 2nd Cryo,
Vacuum dropped to ~8.6 $\cdot 10^{-6}$ Torr
Lots of fluctuation, all over ~ 9 $\times 10^{-6}$
→ something bubbling / boiling / outgassing

Brought HV motor cables patched to data V



→ 9:47 am

9:55 10/20/07
put in foils for mcp 0 & mcp 1

In SpecTcl, flipped calibrations for tele 16&17 (which were physically flipped a few days ago)

EF_max vs EB_max got better, but PID still bad.

Page 02: 0-5 V ADC Thermocouple Temp 09:59:13

04 07 08 09 10 11 12 13 14 15

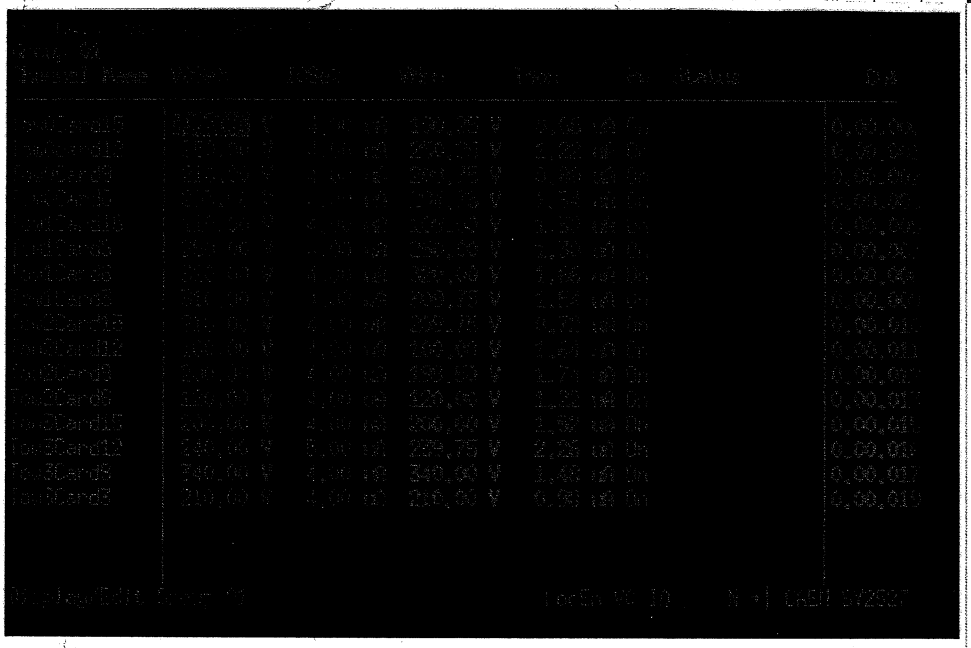
HiRA Tow4 Reg	LO ALARM	Clrd 20/08:12 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/08:12 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/08:12 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/08:12 P01

Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.34	27.24	25.51	25.53
0.22	0.27	0.24	0.26
Tower 0 Upper	**Tower 1 Upper**	**Tower 2 Upper**	**Tower 3 Upper**
24.99	26.21	24.14	24.25
0.24	0.26	0.22	0.25

Beam back into vault at 10:43 am. after MCP work in vault.

Finally got thresholds reset. Backed up as ASIC_IN. setup & 05133. setup

11:30 ac
10/20/07



Lots of time debugging MCP & trigger.
We do not have a good HiRA singles run to analyze

They want to take HiRA out of coincidence for a while in order to test MCP. The MCP is outputting very few counts right now.

1:20 pm found that the second cryo was ~35K
shut gate valve to rt
went back to $9 \cdot 10^{-6} \rightarrow 1 \cdot 10^{-5}$ range

Patch delays Label #
E_OR 0

Run# 133	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar (36Ar)	HiRA	S800	Coin.		On shift: McCoh
E/A=35 MeV					Bill, Betty, Sun,
Alpha source	Target : (CH2)n; 1 mg; 2mg				Dan, Dan S, Lee

Comments: 15 min, taking data for MCP debug

Barney printed at _____**h**_____
Detectors Biases and Current file _____
Scalers (rate):
CsI 18: 0_____**; 1**_____**; 2**_____**; 3**_____
CsI 19: 0_____**; 1**_____**; 2**_____**; 3**_____
Big brother_____ **Event accepted**_____
Master.live_____ **Master**_____ **Live_time**_____
ratio Plastic$_{XFP}$/Plastic$_{OBJ}$ _____

2:00 pm 10/20/07
Put in Carbon target (reduce beam intensity to be sure)
close off to focal plane (vacuum improves)
turn off MCP
play with mcp trigger
~~switch to HiRA singles trigger~~ didn't save

need to reduce beam intensity to be sure raw momentum distribution from target doesn't impact fp too fast.
Still seeing strange vacuum fluctuations

Unplug big brother so we don't trip during change

Plug Big Brother back in.

with no beam, Big Brother still firing ~ 500 Hz
enable target drives - kicks up to ~1000 Hz
& CsI monitor goes very high!
notice mostly Big Brother for T1

Unplugged target drive - no change

~~1. turn off MCP~~

~~2. Scotch~~

Change to HiRA Settings for real this time (was still on S800)

Now Big Bertha just ~50
Live. Trigger ~150 . .

still no change from plugging/unplugging target drives

There is some pickup noise on the E-OR's ~ 500/s when not in the trigger ΔE-OR have rate ~ 30k

When E-OR's are in the trigger rate decreased to 146/s . This is not deadtime deadtime is 400 μs / event => $\frac{\text{deadtime}}{\text{Ratio}} = 146 \times 4\times10^{-4} = 6\times10^{-2}$

=> we can live with this, but this could be eliminated by raising the E_T thresholds

with the beam increased on the target of Carbon, the rate is 4~~6~~ events/s

Typical Busy signal is 400 μs - 700 μs with occasional long dead times for buffer transfer —

Assum Δt = 550 μsec deadtime ratio = $5.5\times10^{-4} \cdot 4.17\times10^{2} = .26$

=> Live time ratio ~ .74 From scalers $\times$ .62 ± .02 ~ 38% dead

clone need to scale? XFP XFP.Live down stairs?

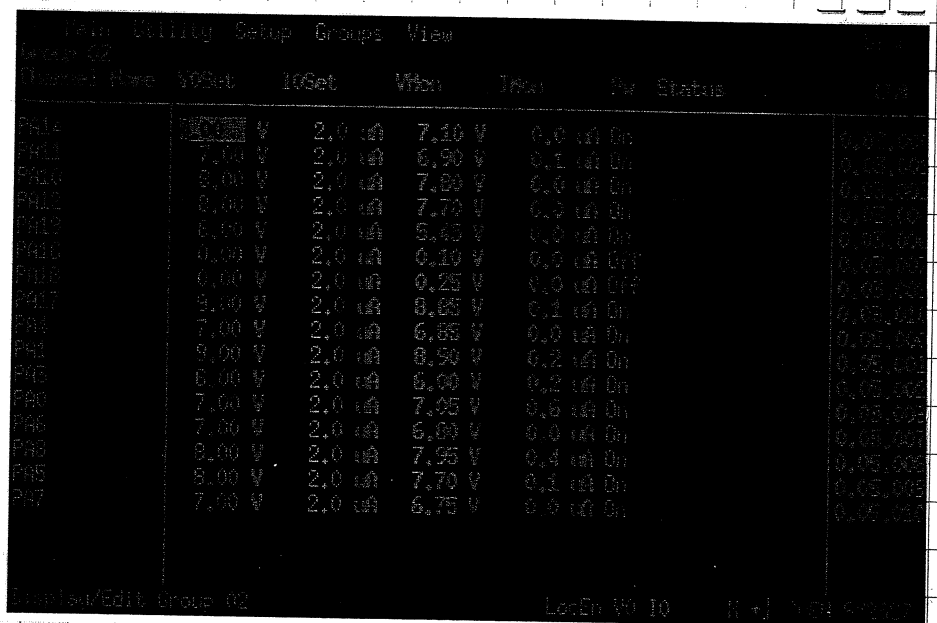
we saw a lot of noise in ~~E-E at 40~~ silicon spectra — we found the bias supply for the backs had tripped for Towers 1 and 3.

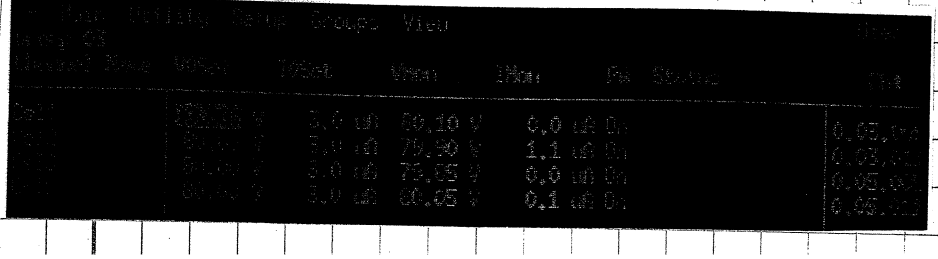
Rebiase Tower 1 to 100 V on E_R I = 5.94 mA

After resetting the biases, restarting MB control crashed spdaq 20. When we restarted, we saw much more noise than previously.

this all seems to be coming from T1 S1 S Ch1 raised threshold on all strips on that ~~chip~~ chip and it looks ok.

4:00 pm 10/20/2007





	Vbias(V)	I(μA)
Back 0	100.1	3.95
Back 1	100.1	5.80
Back 2	100.0	5.21
Back 3	100.1	6.12

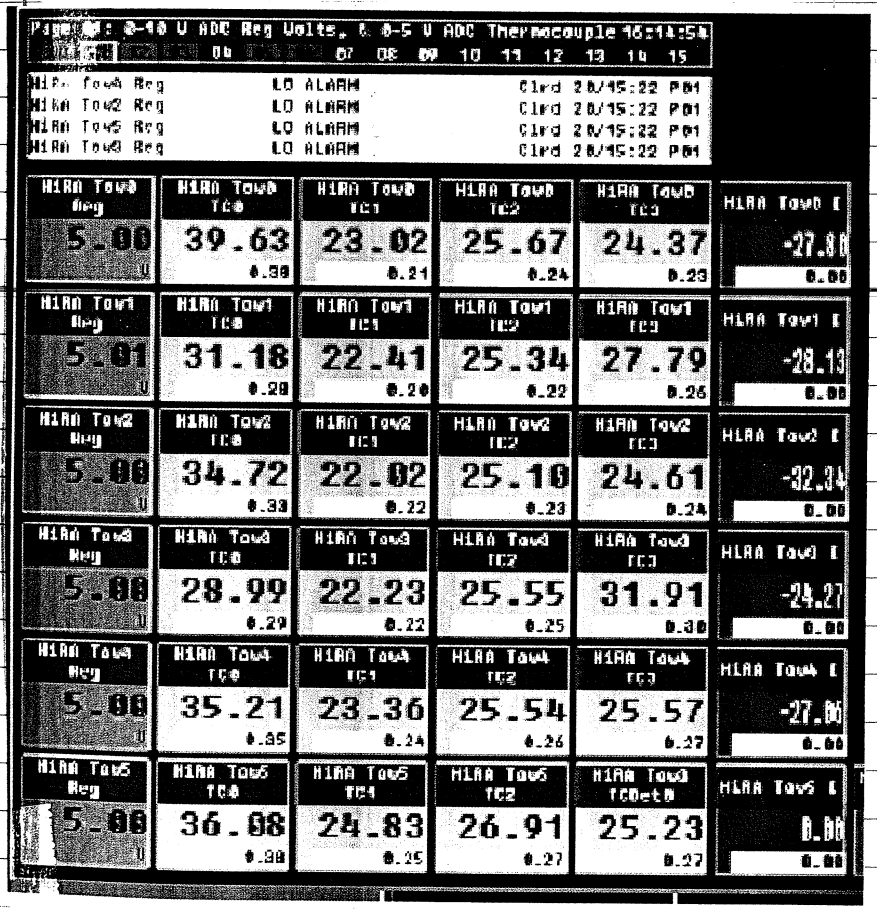
4:15 pm 10/20/2007

Page 02: 0-5 V ADC Thermocouple Temp 16:17:35

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
24.98	26.87	25.14	25.16
0.22	0.26	0.23	0.26
Tower 0 Upper	**Tower 1 Upper**	**Tower 2 Upper**	**Tower 3 Upper**
24.74	25.84	23.90	24.01
0.23	0.26	0.22	0.25



* When using carbon target, close the focal plane valve. (P.7 in Panelmate) before moving target in position.

Run# 134	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	^{36}Ar 150 MeV	HiRA	S800	Coin.	On shift:
		Target : (CH2)n; 1 mg; 2mg C 250 μm			

Comments: Atten:100. Later noticed T1&T3 ED biases tripped

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live time

Run# 135	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source		HiRA	S800	Coin.	On shift:
		Target : (CH2)n; 1 mg; 2mg			

Comments: Same as previous

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 136	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	^{36}Ar 150 MeV	HiRA	S800	Coin.	On shift:
		Target : (CH2)n; 1 mg; 2mg C 250 μm			

Comments: Good HiRA singles, with reset ED biases

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 137	Trigger				Date:10/__/2007
Beam: ^{40}Ar; ^{38}Ar ^{36}Ar	HiRA	S800	Coin.		On shift: Jenny, Ali, Bill, Sun, Betty, Dan, Micha, Andy, Andy et al
E/A=35 MeV	Target : (CH2)n; 1 mg; 2mg				
Alpha source					

Comments:_____

_____

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 138	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar (36 Ar)	HiRA	S800	Coin.		On shift: Jenny, Alisher, Bill, Betty, Andy, Sun, Dan, Micha et al
E/A=35 MeV	Target : (CH2)n; 1 mg; 2mg				
Alpha source					

Comments: C target MCP & Hira, no S800 ; Atten 100 Beam intensity below measu. thr on Z1 cup.

Barney printed at 6___h 32 pm

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

10/20/2007 6:35 pm

	Vbias(V)	I(μA)
Back 0	100.1	4.02
Back 1	100.1	5.89
Back 2	100.0	5.3
Back 3	100.1	6.24

Main Utility Setup Groups View User

Group 01

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Chs
Tow0Card15	190.00 V	4.00 uA	190.25 V	0.66 uA	On		0,00,000
Tow0Card12	250.00 V	4.00 uA	250.50 V	1.22 uA	On		0,00,001
Tow0Card9	210.00 V	4.00 uA	209.75 V	0.80 uA	On		0,00,002
Tow0Card6	295.00 V	4.00 uA	295.00 V	1.32 uA	On		0,00,003
Tow1Card15	110.00 V	4.00 uA	108.75 V	1.36 uA	On		0,00,005
Tow1Card9	250.00 V	4.00 uA	250.00 V	1.26 uA	On		0,00,007
Tow1Card6	320.00 V	4.00 uA	320.00 V	1.66 uA	On		0,00,008
Tow1Card3	310.00 V	4.00 uA	309.75 V	1.50 uA	On		0,00,009
Tow2Card15	210.00 V	4.00 uA	209.75 V	0.72 uA	On		0,00,010
Tow2Card12	100.00 V	4.00 uA	100.00 V	1.60 uA	On		0,00,011
Tow2Card9	200.00 V	4.00 uA	199.50 V	1.72 uA	On		0,00,012
Tow2Card6	120.00 V	4.00 uA	120.00 V	1.20 uA	On		0,00,013
Tow3Card15	200.00 V	4.00 uA	199.75 V	1.50 uA	On		0,00,015
Tow3Card12	240.00 V	5.00 uA	239.75 V	2.24 uA	On		0,00,016
Tow3Card9	340.00 V	4.00 uA	340.00 V	1.46 uA	On		0,00,017
Tow3Card3	210.00 V	4.00 uA	210.00 V	1.00 uA	On		0,00,019

Main Utility Setup Groups View User

Group 02

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Chs
PA14	7.00 V	2.0 uA	7.10 V	0.0 uA	On		0,03,000
PA11	7.00 V	2.0 uA	6.90 V	0.1 uA	On		0,03,001
PA10	8.00 V	2.0 uA	7.80 V	0.0 uA	On		0,03,003
PA12	8.00 V	2.0 uA	7.75 V	0.0 uA	On		0,03,004
PA13	6.00 V	2.0 uA	5.45 V	0.0 uA	On		0,03,006
PA16	0.00 V	2.0 uA	0.10 V	0.0 uA	Off		0,03,007
PA15	0.00 V	2.0 uA	0.25 V	0.0 uA	Off		0,03,008
PA17	9.00 V	2.0 uA	8.85 V	0.1 uA	On		0,03,010
PA4	7.00 V	2.0 uA	6.85 V	0.0 uA	On		0,05,000
PA1	9.00 V	2.0 uA	8.90 V	0.2 uA	On		0,05,001
PA3	6.00 V	2.0 uA	6.00 V	0.2 uA	On		0,05,002
PA0	7.00 V	2.0 uA	7.05 V	0.6 uA	On		0,05,003
PA6	7.00 V	2.0 uA	6.80 V	0.0 uA	On		0,05,007
PA8	8.00 V	2.0 uA	7.95 V	0.4 uA	On		0,05,008
PA5	8.00 V	2.0 uA	7.70 V	0.1 uA	On		0,05,009
PA7	7.00 V	2.0 uA	6.75 V	0.0 uA	On		0,05,010

Main Utility Setup Groups View User

Group 03

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Chs
PA11	80.00 V	3.0 uA	80.10 V	0.0 uA	On		0,03,00
PA12	80.00 V	3.0 uA	79.90 V	1.1 uA	On		0,03,01
PA13	80.00 V	3.0 uA	79.85 V	0.0 uA	On		0,05,00
PA10	80.00 V	3.0 uA	80.05 V	0.1 uA	On		0,05,00

to make mask data — Daniel Bazin 337-1084

go to S800 singles

Insert mask one at a time

↳ "S800 drive" (panel page) → page 04

1) upstream mask CRDC1

2) downstream mask CRDC2

↳ more intensity (if FRA) can take ~7

↳ max = 5-6K in focal plane

↳ need to look at XY spectrum

↳ pattern of the mask should be seen (~10-15 minutes)

~~every few days should be performed mask~~ calibration

~~↳ should be done with reactions not beam~~

Hira Singles

Hira or MCP

normal trigger

2nd any

external

coinc

Todo mask calibration (analysis) → program:

/user/s800/Calibrate

./Calibrate_S800.tcl

Run# 139	Trigger				Date:10/20/2007
Beam: ~~^{40}Ar; ^{38}Ar~~	HiRA	S800	Coin.		On shift:
E/A=35 MeV					
Alpha source ~~Yes~~	Target : (CH2)n; 1 mg; 2mg				

Comments: Hira singles

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

8 pm 10/20/2007

MCP0 was set to Mask (200.6)

Target was set to mask (252.5)

Run# 140	Trigger				Date:10/20/2007
Beam: ~~^{40}Ar; ^{38}Ar~~	HiRA	S800	Coin.		On shift:
E/A=35 MeV					
Alpha source ~~Yes~~	~~Target : (CH2)n; 1 mg; 2mg~~				

Comments: MCP0 was set to mask (200.6)

Target was set to mask (252.5mm) ~~MCP~~ singles No Beam

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 141	Trigger				Date: 10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments: Same as 140, with beam

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

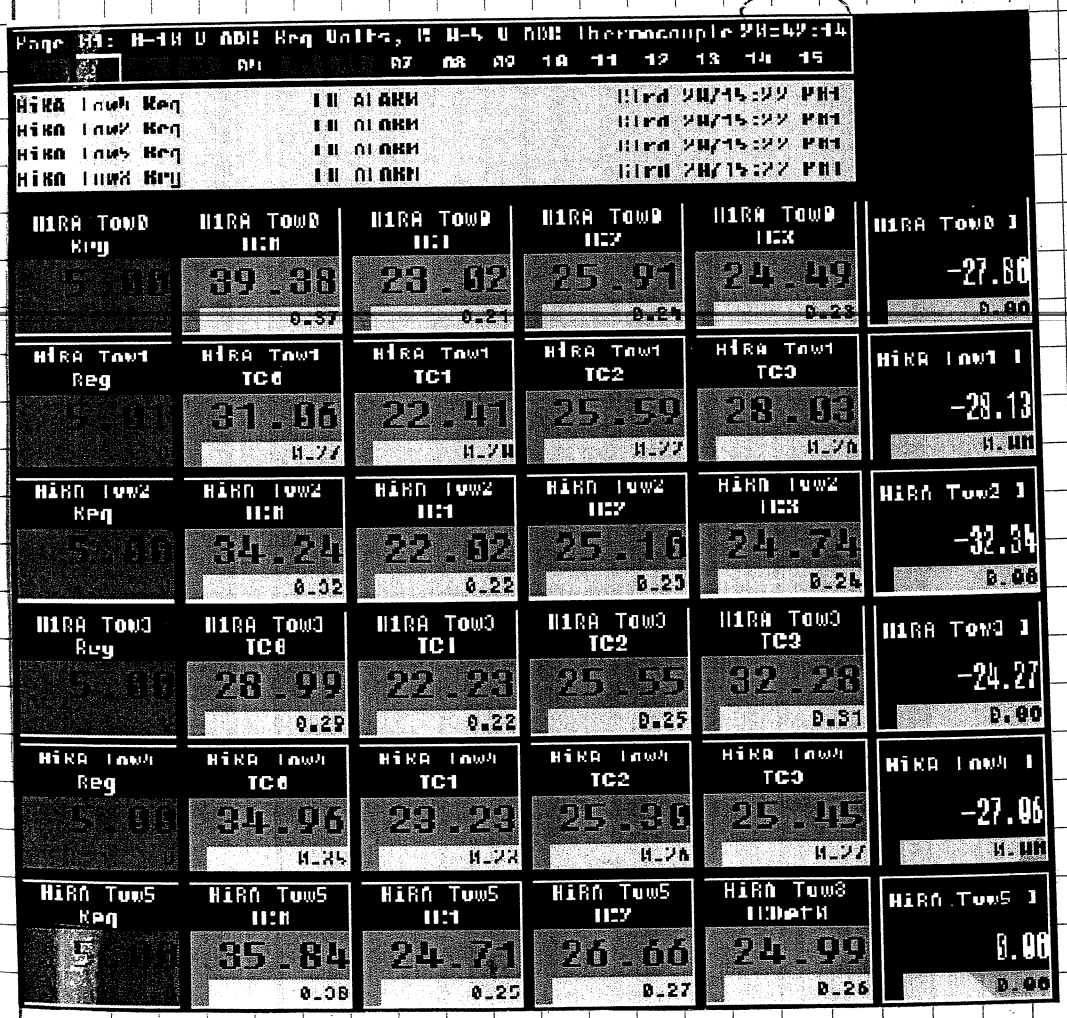
CsI 19: 0_____; 1_____; 2_____; 3_____

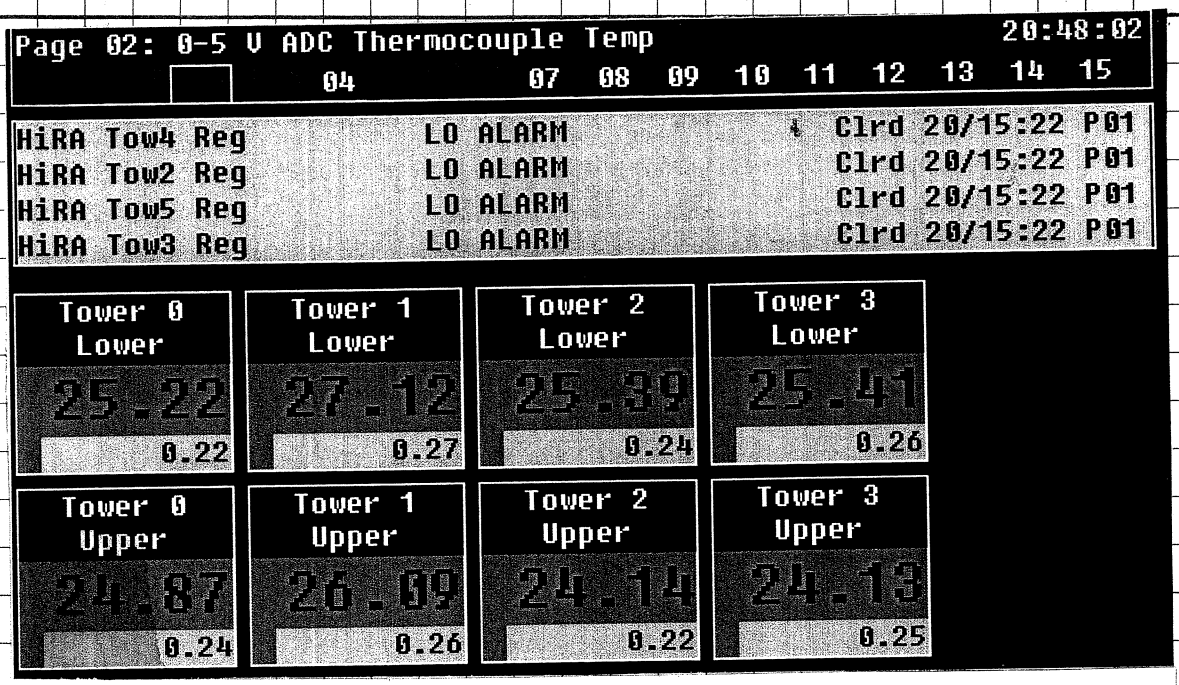
Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

10/20/07 20:48





Run# 142	Trigger				Date:10/__/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments: MCP singles.

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 143	Trigger				Date:10/__/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments: MCP singles

150 ns added to MCP singles.

Barney printed at 21 : h 35

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

16:35pm 10/20/07

Setup Groups View

VSet	ISet	VMon	IMon	Pw	Status	Ch#
4,00 V	4,00 uA	190,25 V	0,66 uA	On		0,00,000
4,00 V	4,00 uA	250,25 V	1,22 uA	On		0,00,001
4,00 V	4,00 uA	209,75 V	0,80 uA	On		0,00,002
4,00 V	4,00 uA	295,00 V	1,34 uA	On		0,00,003
4,00 V	4,00 uA	108,75 V	1,36 uA	On		0,00,005
4,00 V	4,00 uA	250,00 V	1,20 uA	On		0,00,007
4,00 V	4,00 uA	320,00 V	1,60 uA	On		0,00,008
4,00 V	4,00 uA	309,75 V	1,52 uA	On		0,00,009
4,00 V	4,00 uA	209,75 V	0,72 uA	On		0,00,010
4,00 V	4,00 uA	100,00 V	1,62 uA	On		0,00,011
4,00 V	4,00 uA	199,50 V	1,72 uA	On		0,00,012
4,00 V	4,00 uA	120,00 V	1,20 uA	On		0,00,013
4,00 V	4,00 uA	200,00 V	1,50 uA	On		0,00,015
5,00 V	5,00 uA	239,75 V	2,20 uA	On		0,00,016
4,00 V	4,00 uA	340,00 V	1,48 uA	On		0,00,017
4,00 V	4,00 uA	210,00 V	1,00 uA	On		0,00,019

Group 01 LocEn V0 I0 N +| CAEN SY3527

Setup Groups View

VSet	ISet	VMon	IMon	Pw	Status	Ch#
2,00 V	2,0 uA	7,10 V	0,0 uA	On		0,03,000
7,00 V	2,0 uA	6,90 V	0,1 uA	On		0,03,001
8,00 V	2,0 uA	7,80 V	0,0 uA	On		0,03,003
8,00 V	2,0 uA	7,75 V	0,0 uA	On		0,03,004
8,00 V	2,0 uA	5,45 V	0,0 uA	On		0,03,006
0,00 V	2,0 uA	0,10 V	0,0 uA	Off		0,03,007
0,00 V	2,0 uA	0,25 V	0,0 uA	Off		0,03,008
9,00 V	2,0 uA	8,85 V	0,2 uA	On		0,03,010
7,00 V	2,0 uA	6,85 V	0,0 uA	On		0,05,000
9,00 V	2,0 uA	8,90 V	0,2 uA	On		0,05,001
6,00 V	2,0 uA	6,00 V	0,2 uA	On		0,05,002
7,00 V	2,0 uA	7,05 V	0,5 uA	On		0,05,005
7,00 V	2,0 uA	6,80 V	0,0 uA	On		0,05,007
8,00 V	2,0 uA	7,95 V	0,5 uA	On		0,05,008
8,00 V	2,0 uA	7,70 V	0,1 uA	On		0,05,009
7,00 V	2,0 uA	6,75 V	0,0 uA	On		0,05,010

Group 02 LocEn V0 I0 N +| CAEN SY3527

Setup Groups View

VSet	ISet	VMon	IMon	Pw	Status	Ch#
80,00 V	3,0 uA	80,10 V	0,0 uA	On		0,07,000
80,00 V	3,0 uA	79,95 V	1,1 uA	On		0,07,001
80,00 V	3,0 uA	79,85 V	0,0 uA	On		0,07,002
80,00 V	3,0 uA	80,05 V	0,2 uA	On		0,07,003

	Vbias(V)	I(μA)
Back 0	100.1	4.03
Back 1	100.1	5.44
Back 2	100.0	5.32
Back 3	100.1	6.26

10:35pm
Changing MCP0 to Foil (123.85mm)
(Unplugged and plugged by Brother for position change.)

10:40 pm 10/20/07

Run# 144	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA (circled)	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments: Atten 30k

Barney printed at _____h_____
Detectors Biases and Current file _____
Scalers (rate):
CsI 18: 0_____; 1_____; 2_____; 3_____
CsI 19: 0_____; 1_____; 2_____; 3_____
Big brother_____ Event accepted_____
Master.live_____ Master_____ Live_time_____
ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 145	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA (circled)	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments: MCPO foil in. Atten 300 k

Barney printed at _____h_____
Detectors Biases and Current file _____
Scalers (rate):
CsI 18: 0_____; 1_____; 2_____; 3_____
CsI 19: 0_____; 1_____; 2_____; 3_____
Big brother_____ Event accepted_____
Master.live_____ Master_____ Live_time_____
ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

Run# 146	Trigger				Date:10/20/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	HiRA	S800	Coin.		On shift:
	Target : (CH2)n; 1 mg; 2mg				

Comments: Mcp0 mask in

Barney printed at _____h_____
Detectors Biases and Current file _____
Scalers (rate):
CsI 18: 0_____; 1_____; 2_____; 3_____
CsI 19: 0_____; 1_____; 2_____; 3_____
Big brother_____ Event accepted_____
Master.live_____ Master_____ Live_time_____
ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

11:15 pm MCP mask calibrations

Bill ~~Brady~~ changed trigger so we can do a mask run in coincidence with S800.

11:40 pm

~~Carbon~~ Target changed to carbon (26 mg/cm^2)

Target = viewer, mcp0 = mask, mcp1 = foil

12:12 pm

Mcp 0 foil in.

Target = viewer, mcp 0 = foil, mcp 1 = foil

gain mismatch on CsI crystals

tel.	CsI	max.	tel.	CsI	max
0	0	96	14	0	88
	1	90		1	86
	2	62		2	79
	3	90		3	76
1	0	69	15	0	80
	1	97		1	58
	2	94		2	61
	3	95		3	/
2	0	111	17	0	82
	1	65		1	86
	2	98		2	90
	3	92		3	85
3	0	95	16	0	94
	1	87		1	84
	2	103		2	99
	3	89		3	91
10	0	82	4	0	59
	1	83		1	87
	2	91		2	76
	3	59		3	63
11	0	81	5	0	58
	1	83		1	78
	2	94		2	81
	3	81		3	79
12	0	94	6	0	80
	1	82		1	92
	2	91		2	80
	3	89		3	87
13	0	78	19	0	86
	1	59		1	86
	2	60		2	77
	3	62		3	81

- but the max $E_d \sim 45$ MeV so despite the mismatch good gain we are fine
- note - looks like it is just gain setting on the shaper - no saturation in the shaper due to different preamp det. input gains

12:30 pm 10/21/07

target : Carbon target in

target: carbon ; mcp 0 : foil ; mcp 1 : foil

1:00 am 10/21/07

	Vbias(V)	I(μA)
Back 0	100.1	4.02
Back 1	100.1	5.96
Back 2	100.0	5.32
Back 3	100.1	6.29

→ increased from 5.86 at 6:35pm 10/20/07

1:30 ~~p~~am. 10/22/07

target : C, mcp0 : foil ; mcp1 foil

Run 147 mcp run with defocussed beam.

Run# 147	Trigger	Date:10/__/2007
Beam: ^{40}Ar; ^{38}Ar E/A=35 MeV Alpha source	~~HiRA~~ (S800) ~~Coin.~~ Target : (CH2)n; ~~1 mg; 2mg~~ 75 um	On shift:

Comments: defocused beam.

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

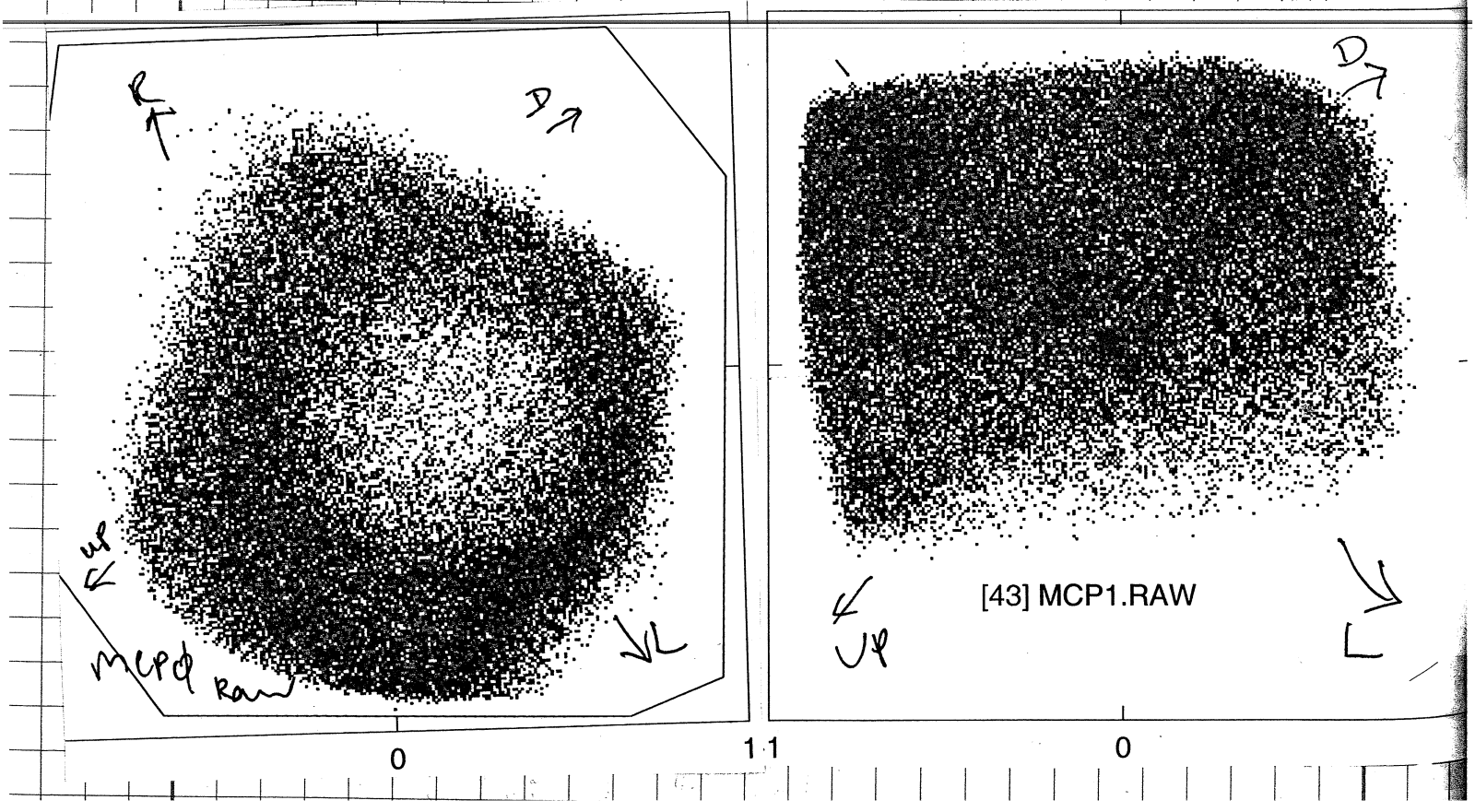
CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother 500 Event accepted 110 beta

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

```
                                        Print21Oct07_01h33.txt
A1900 "Print21Oct07_01h33.txt"    Sunday 01:33:32 2007-10-21  A1900
Moe V3   ***              Detune on MCPs at S800 target ***
Expt: 05133 "Neutron transf. rxns ... Ar isotopes" [Betty Tsang] Line: S800 [8]
Beam: 36 Ar 7+  13.06 MeV/nuc (K500) 18+ 150.00 MeV/nuc (K1200)
<Att   3M>  ECR, Apertures: SCECR 150.0; 25.0; 25.0 mm SHVBI: 23.2300 kV
K500 a,b:    594 A,    484 A K1200:    724 A,   -227 A RF:  23.83840 MHz
      A1900 Optics: L19S3I_Focus60x30HiRA.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  3.66957 Tm
Seg 1:  1.71790 Tm  0.55432 T  3.09882 m    3.09910 m   -0.00897 % (1.71775 Tm)
Seg 2:  1.71790 Tm  0.55385 T  3.10148 m    3.10175 m   -0.00878 % (1.71775 Tm)
Seg 3:  1.71790 Tm  0.55526 T  3.09397 m    3.09384 m    0.00398 % (1.71797 Tm)
Seg 4:  1.71790 Tm  0.55497 T  3.09547 m    3.09549 m   -0.00072 % (1.71789 Tm)
Seg 5:  1.66910 Tm
Seg 6:  1.66910 Tm
Seg 7:  1.66910 Tm
Seg 8:  1.57781 Tm
A116DS              0.53740 T  3.10539 m    3.10588 m   -0.01588 %
A132DS             -0.52180 T  3.19847 m    3.19874 m   -0.00819 %
A165DS              0.28240 T  5.91156 m    5.91041 m    0.01948 %
I200DS              0.00000 T  3.15281 m    0.00000 m  100.00000 %
I205DS              0.00000 T  3.14172 m    0.00000 m  100.00000 %
I223DS              0.00000 T  3.11277 m    0.00000 m  100.00000 %
I228DS              0.00000 T  3.22332 m    0.00000 m  100.00000 %
I265DS              0.56233 T  2.80630 m    2.80585 m    0.01635 %
I269DS              0.56238 T  2.80597 m    2.80560 m    0.01334 %
Z001TL: out, Z013TL: Be 47; Z014TL RW Al 13
Z015TL: Be 1904, Z016TL RW Al 34
Z030BC Beam Stop: -126.88 mm
Z037L,R:   -0.83,   3.50 mm or   -0.03,    0.12 width=   0.15 %; Z037DC:  out
Z057MS: out, Z061MS: out
Z059DC: out, Z062SC: out, Z059TL: out
Z082 XC,G,YG:    0.16, 203.25, 202.05 mm Z082TL: out
Z103DC: out, Z104DC: 5 mil BC400; Z106DC: out, Z107DC_U/_L: out/out
Z105TL: out, Slits: nothing installed; PPACs: gas on; Z107 outlim: Y
Z104 XC,G;YC,G:    0.00,  15.01;    -0.00,   10.00 mm
Slits: I181 XC,G,YC,G:    0.89,  99.29;   0.02,  98.34
I187: out, I188: out, I189: out, I190: out
I213: out, i214: out, I215: out, I216: out
I214DC Detector Drive: out
I259XM:   0.1096 XP:   0.0000 YM:   0.0000 YP:   1.7232
```



Run# 148

Beam: ~~40Ar; 38Ar~~ 36Ar

E/A=~~35~~ 33 MeV/A

Alpha source

Trigger

HiRA	S800	Coin.	

Target : (CH2)n; 1 mg; 2mg

On shift:

Comments: MCP0 HV 2200

MCP1 230V.

Barney printed at _____h_____ viewer image too high

Detectors Biases and Current file _____

Scalers (rate): XFP : 75k

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

Big brother 65 Event accepted 600.

Master.live_____ Master_____ Live_time_____

ratio $Plastic_{XFP}/Plastic_{OBJ}$ _____

2:05 am 10/21/07

Viewer is M. (Target).

(beam slightly below X)

2:20 pm

Carbon foil in (Target)

Run# 149	Trigger				Date:10/__/2007
Beam: ~~^{40}Ar; ^{38}Ar~~ ^{36}Ar	HiRA	S800	Coin.		On shift:
E/A=~~35~~ MeV 33					
Alpha source	Target : (CH2)n; 1 mg; 2mg 90 mm				

Comments: _____

_____

Barney printed at _____h_____

Detectors Biases and Current file _____

Scalers (rate):

CsI 18: 0_____; 1_____; 2_____; 3_____

CsI 19: 0_____; 1_____; 2_____; 3_____

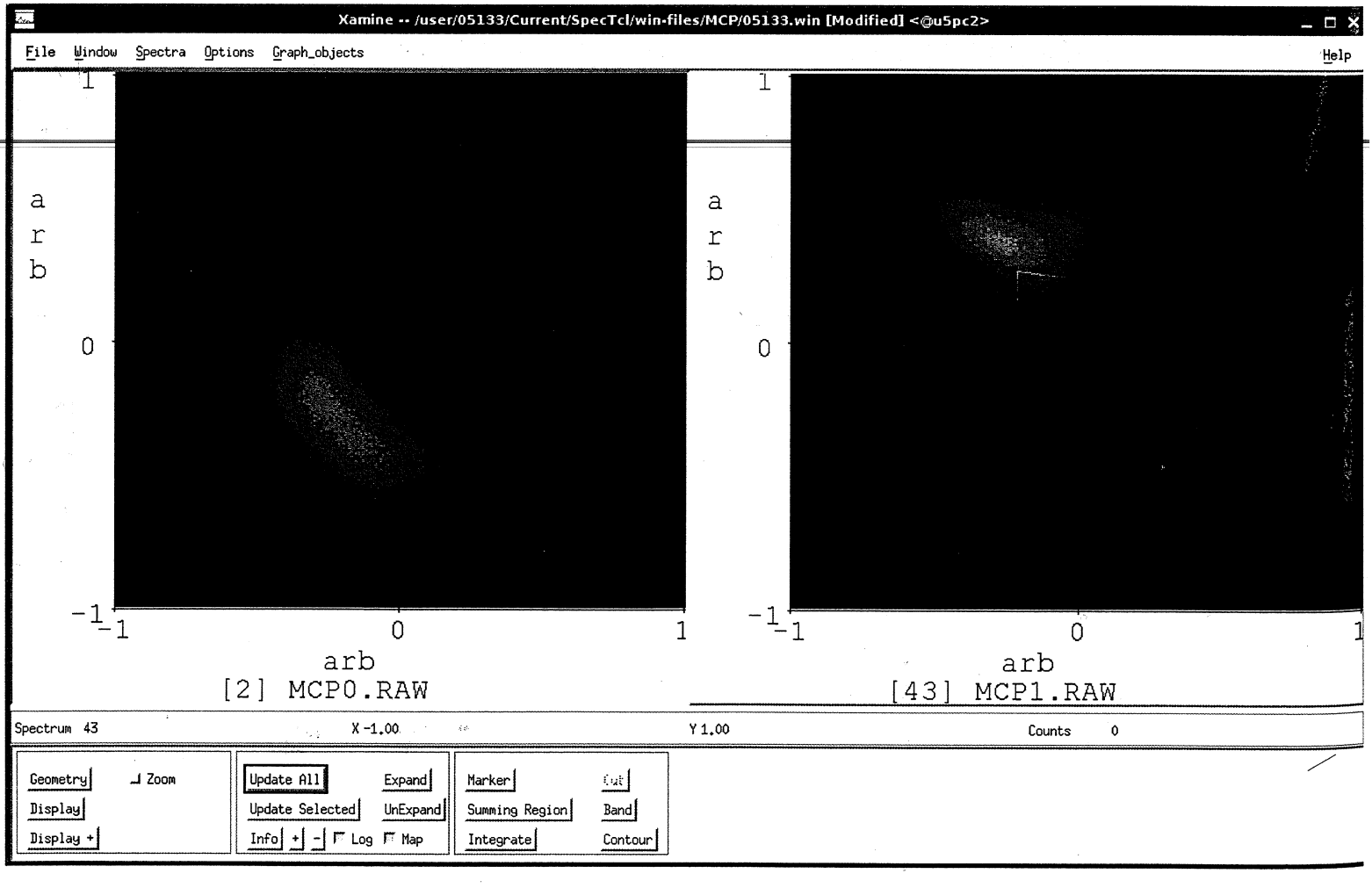
Big brother_____ Event accepted_____

Master.live_____ Master_____ Live_time_____

ratio Plastic$_{XFP}$/Plastic$_{OBJ}$ _____

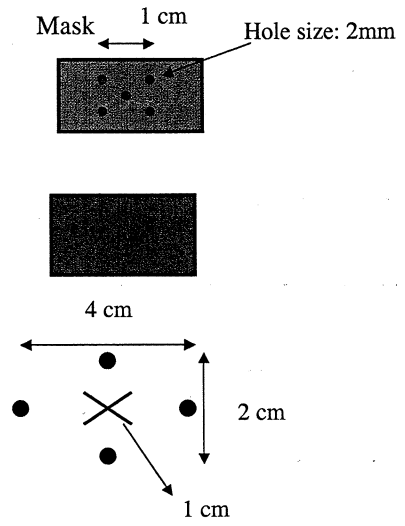
Change Target - $(CH_2)_n$ 75 mm $(CH_2)_n$ - 2nd one

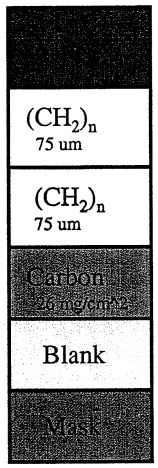
special position → 90 mm



Expt 05133 viewed by camera

I250X-R





0 mm
49.6 mm
90 mm
100.55 mm
111 mm
151.45 mm
202.15 mm
252.5 mm
(center hole)

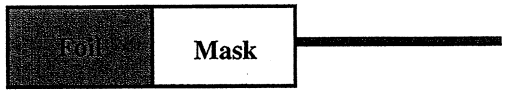
beam

Edge
24.2 mm
75
126.1
176.8

MCP 0

Mylar foil=1.9um

I251Y-R

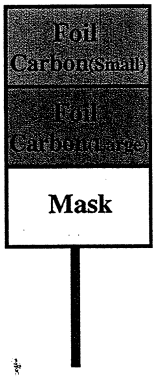


123.85 mm 200.6 mm

Edge
85.7, 162
163.2, 238

MCP 1

I250Y-R



77.25 mm Carbon foil: 50um

153.2 mm Carbon foil: ?? um

229.45 mm

Edge
39.5
45
191.4
267.5

Beam: ~~Ar~~; Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP +CsI mon	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				

Comments: With CsI monitor
no data from ADC 5 and 6 !!!

We observed that there are no CSI's from ADC 5 and 6 in data but ADC 4 looks OK
→ S3 entered and bad connection of gate cable found → fixed

We also raised threshold on dE's by 5 ticks and dE OR's drop down from ~ 15kHz to ~ 2kHz
E thresholds raised by 1 tick and E OR's dropped from 5-600Hz to 1 (with beam OFF there is still ~ 60Hz of E OR's)

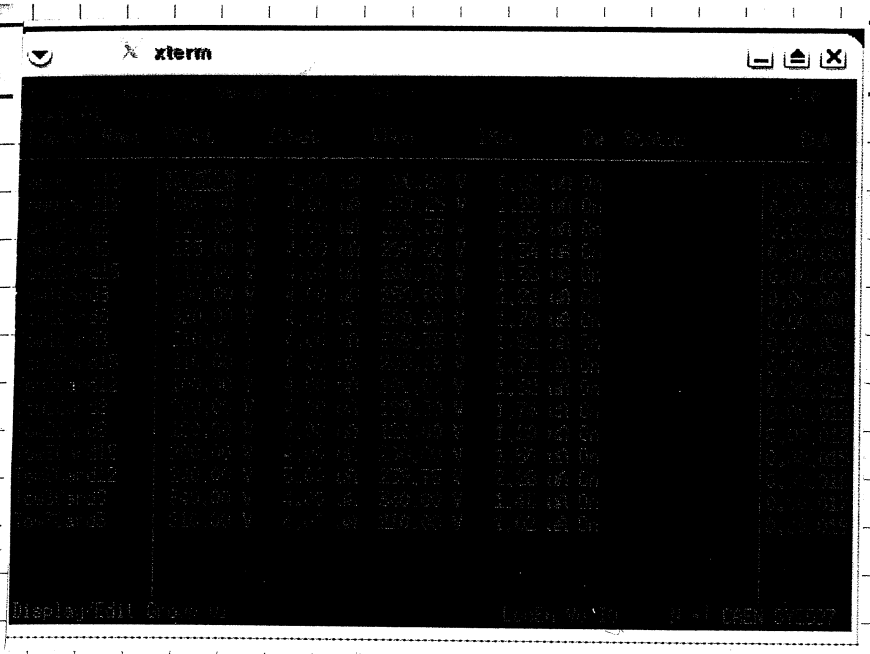
RUN 151 - we're taking data again

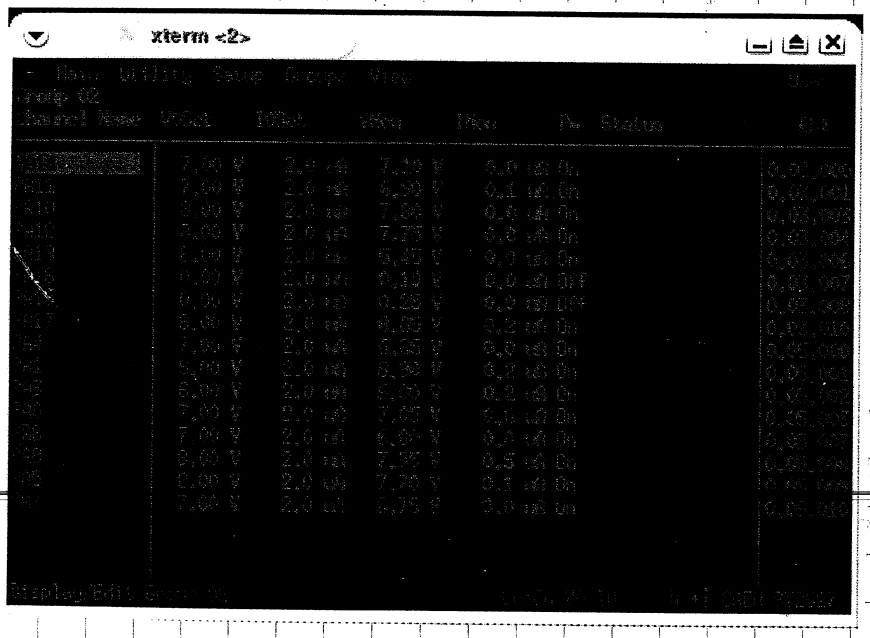
Run# 151	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP +CsI mon.	On shift: V+1)
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				

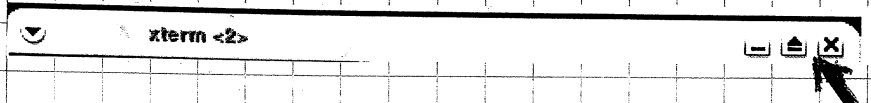
Comments:

Run# 152	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP +CsI mon	On shift: V+1)
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				

Comments: downscale
MCP driver pulser added, coinc. trigger dropped down to 2-3 counts per sec → decided to remove



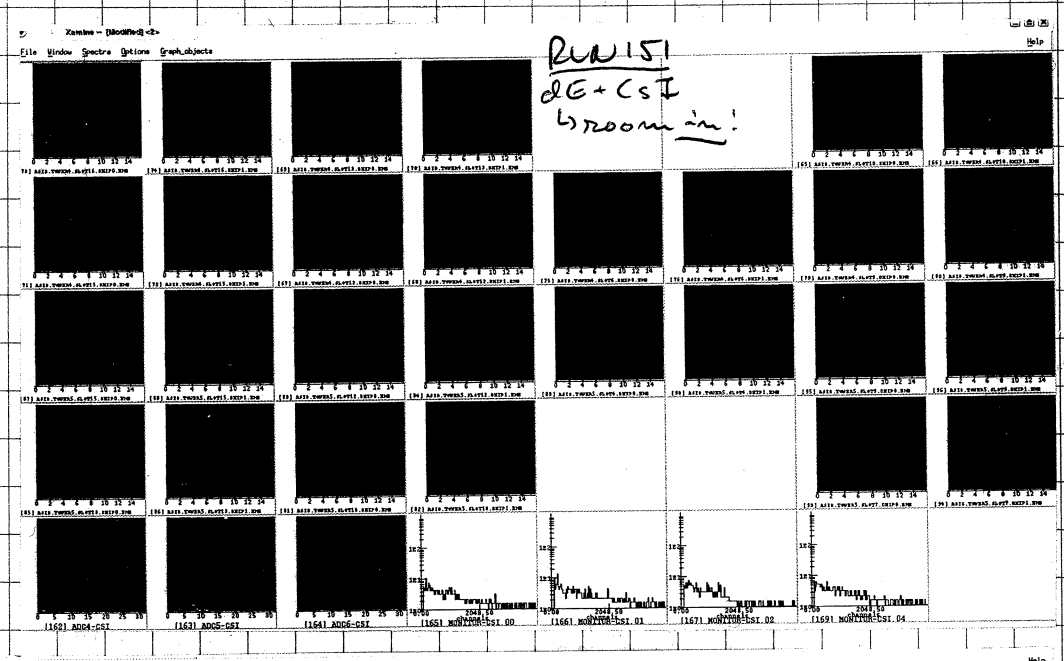


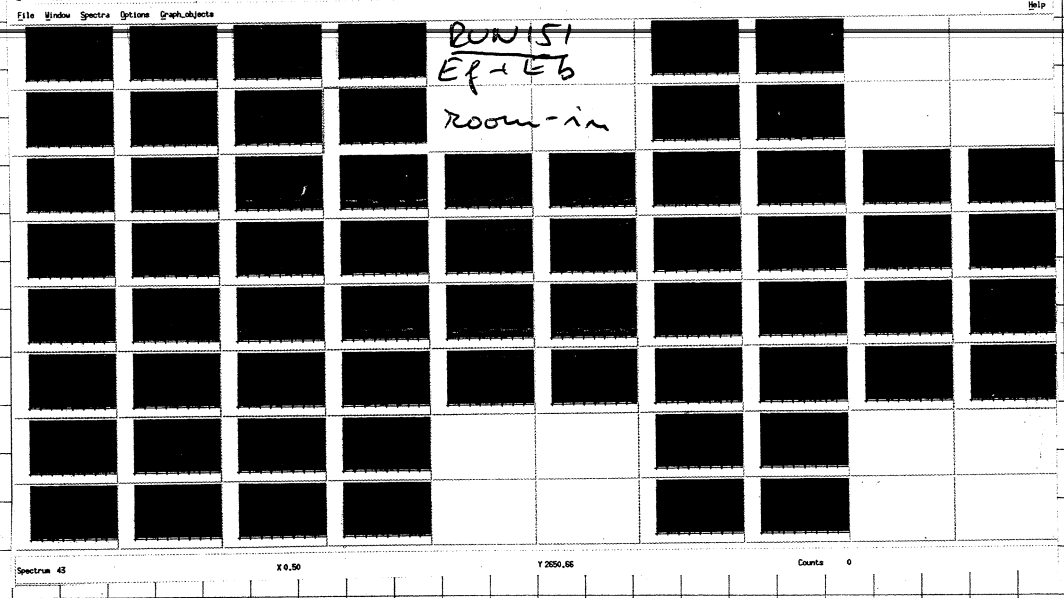


click to expand
for CsI bias

Run# 113	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP +CRT mesu	On shift: V+D
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mesu				

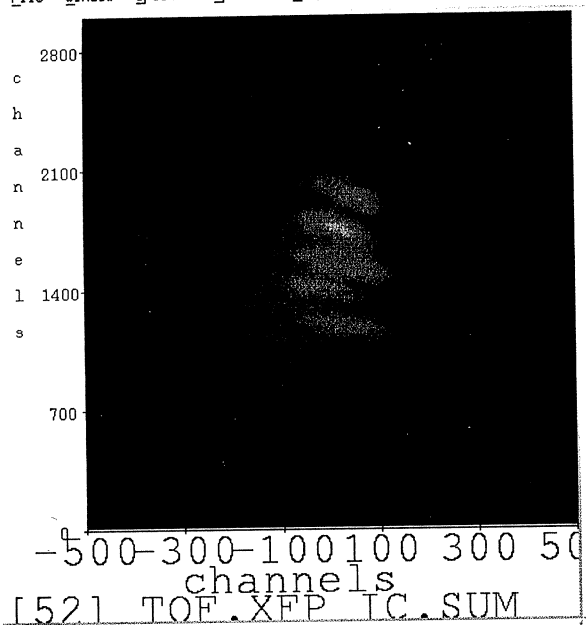
Comments: _____

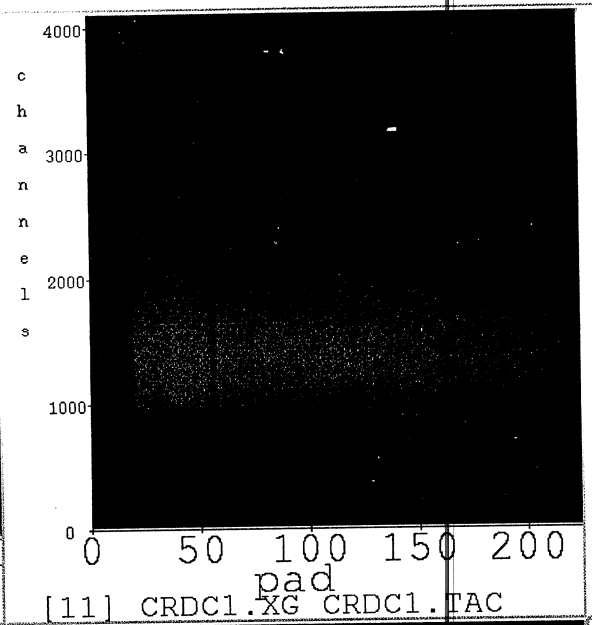


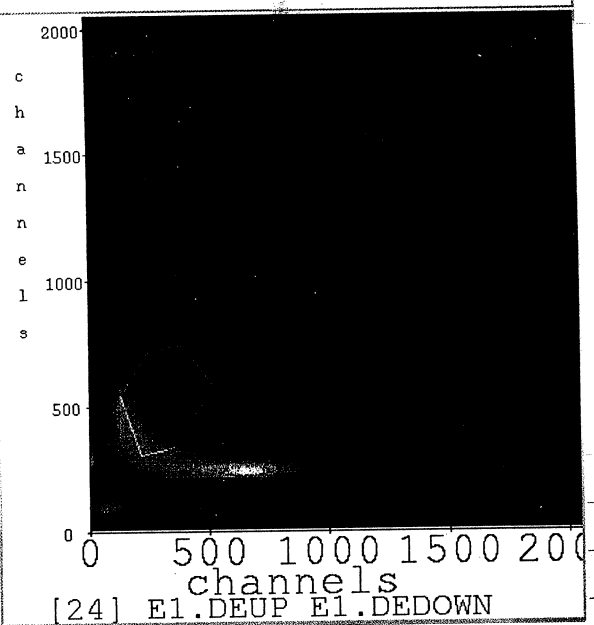


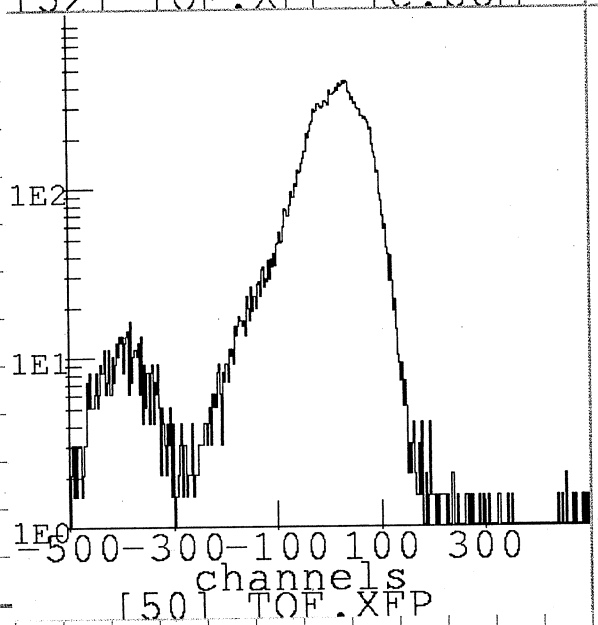
File Window Spectra Options Graph_objects

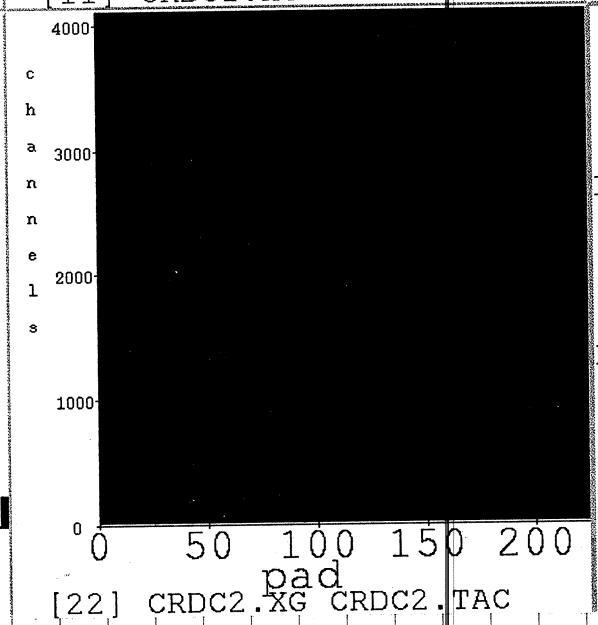
Help

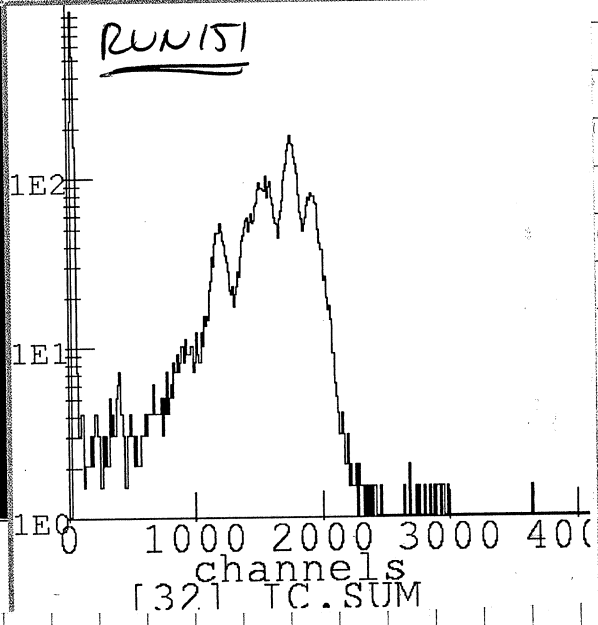












Run# 154	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift: U+D
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: JUNK					

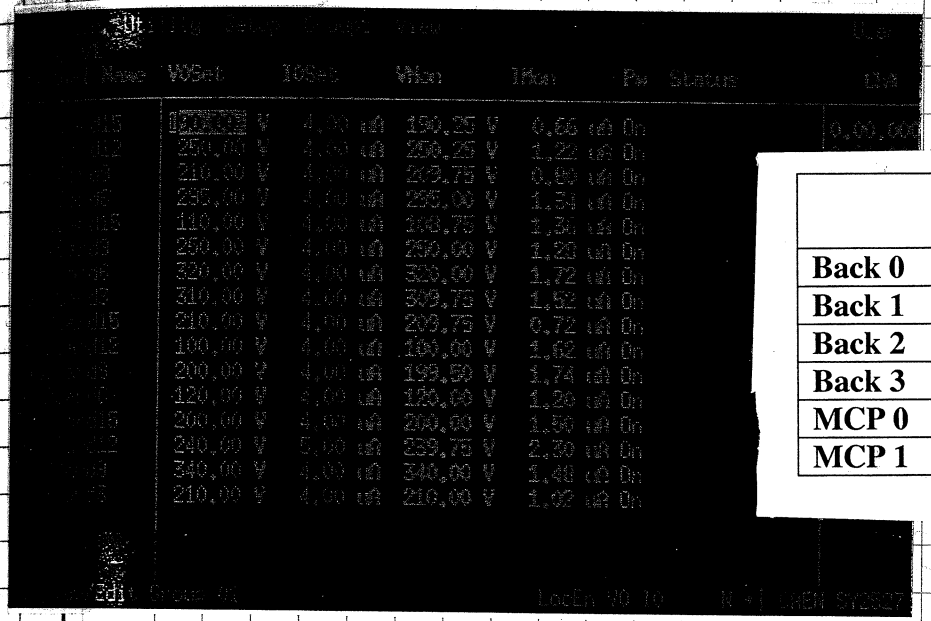
Run# 155	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP +CsI	On shift: U+D
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				
Comments:					

Run# 156	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP +CsI	On shift: U+D
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				
Comments:					

Run# 157	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV 150 nA Alpha source	HiRA 1/5	S800	Coin.	MCP test	On shift: Dan, Micha, Sun
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				
Comments: Continuing data run					

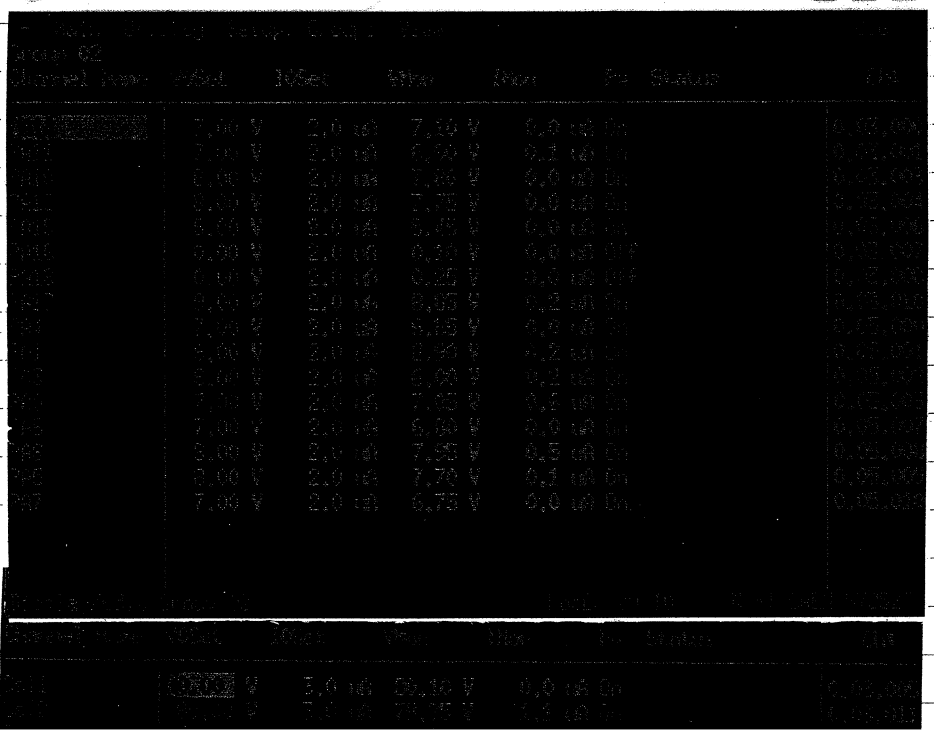
8:00 AM - we observe few hot channels on dE's so we adjust thresholds for them, then rate of dE OR's is lower than E OR's, so we raise most of dE thresholds back a bit (3 ticks)
↳ now dE and E OR rate compatible and all should be fine

8:45 am 10/21/07: Leakage & temperature check



	Vbias(V)	I(μA)
Back 0	100.1	4.04
Back 1	100.1	5.99
Back 2	100.0	5.32
Back 3	100.1	6.33
MCP 0	2300	
MCP 1	2300	

Tower 3 Card 3 I leak up .94 → 1.02 μA since 2 days ago (10/19/07 14:40)



also seems to be noisiest chip

10/21/07

Page 02: 0-5 V ADC Thermocouple Temp 08:52:32

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.22	27.12	25.27	25.41
0.22	0.27	0.24	0.26
Tower 0 Upper	**Tower 1 Upper**	**Tower 2 Upper**	**Tower 3 Upper**
24.87	26.09	24.14	24.13
0.24	0.26	0.22	0.25

Page 01: 0-10 V ADC Reg Volts, & 0-5 V ADC Thermocouple 08:51:06

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.00 V	39.38	23.02	25.91	24.49
	0.37	0.21	0.24	0.23
HiRA Tow1 Reg	**HiRA Tow1 TC0**	**HiRA Tow1 TC1**	**HiRA Tow1 TC2**	**HiRA Tow1 TC3**
5.02 V	30.94	22.53	25.59	28.15
	0.27	0.21	0.22	0.26
HiRA Tow2 Reg	**HiRA Tow2 TC0**	**HiRA Tow2 TC1**	**HiRA Tow2 TC2**	**HiRA Tow2 TC3**
5.00 V	33.99	22.27	25.35	24.86
	0.32	0.22	0.23	0.24
HiRA Tow3 Reg	**HiRA Tow3 TC0**	**HiRA Tow3 TC1**	**HiRA Tow3 TC2**	**HiRA Tow3 TC3**
5.00 V	28.75	22.23	25.67	32.40
	0.28	0.22	0.25	0.31
HiRA Tow4 Reg	**HiRA Tow4 TC0**	**HiRA Tow4 TC1**	**HiRA Tow4 TC2**	**HiRA Tow4 TC3**
5.00 V	34.48	23.23	25.54	25.57
	0.35	0.23	0.26	0.27
HiRA Tow5 Reg	**HiRA Tow5 TC0**	**HiRA Tow5 TC1**	**HiRA Tow5 TC2**	**HiRA Tow3 TCDet0**
5.00 V	35.84	24.83	26.78	25.11
	0.38	0.25	0.27	0.27

Run# 158	Trigger				Date: 10/21/2007
Beam: ^{36}Ar, ^{34}Ar 180 bar	HiRA 1/5	S800	Coin.	MCP +CsI	On shift: Nicha Dan, Sun, outside Andy
E/A=33 MeV	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Alpha source					
Comments: same as prev.					

Run# 159	Trigger				Date: 10/21/2007
Beam: ^{36}Ar, ^{34}Ar	HiRA 1/5	S800	Coin.	MCP +CsI	On shift: Nicha Dan, Sun, other andy, Betty
E/A=33 MeV	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Alpha source					
Comments: same as prev.					

after run 159 (~ 11:00) handed beam back to operator for tuning. Had noticed XFP scalars slowly going down, and MCP down relative to that.

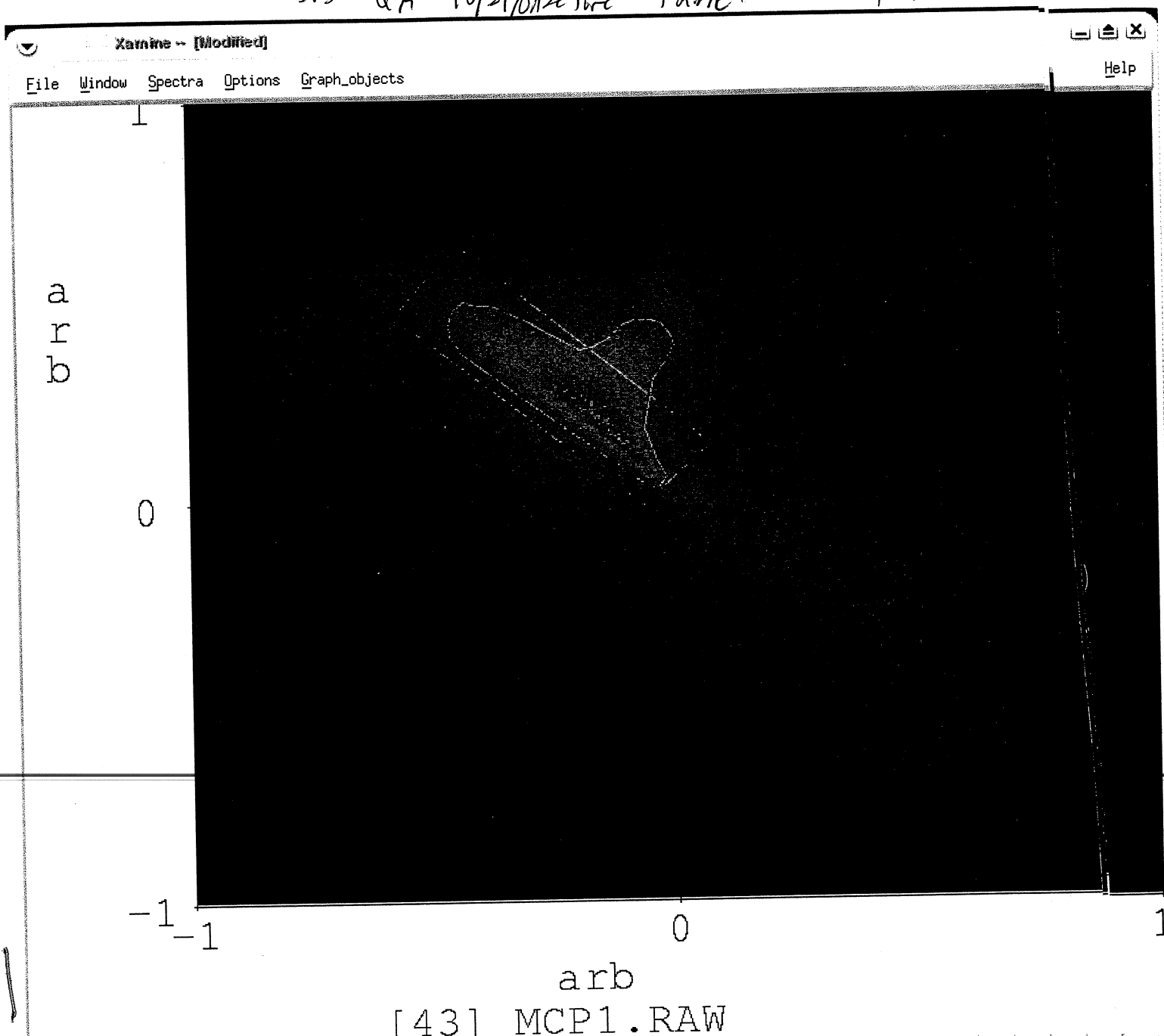
want to do CRDC mask calibration
(notice CRDC X range ~ −300 → 300
CRDC Y range ~ −100 → 3000
→ pulser my ~ −150 or −200

decide to take more data first, after operator tuned beam.

Also notice MCP shifted since printout on ^{38}P (I think around 2 am, 9 hours ago?)

Our counts in run 159 were very low. Fixed by cyclotron retuning. MCP still shifted.

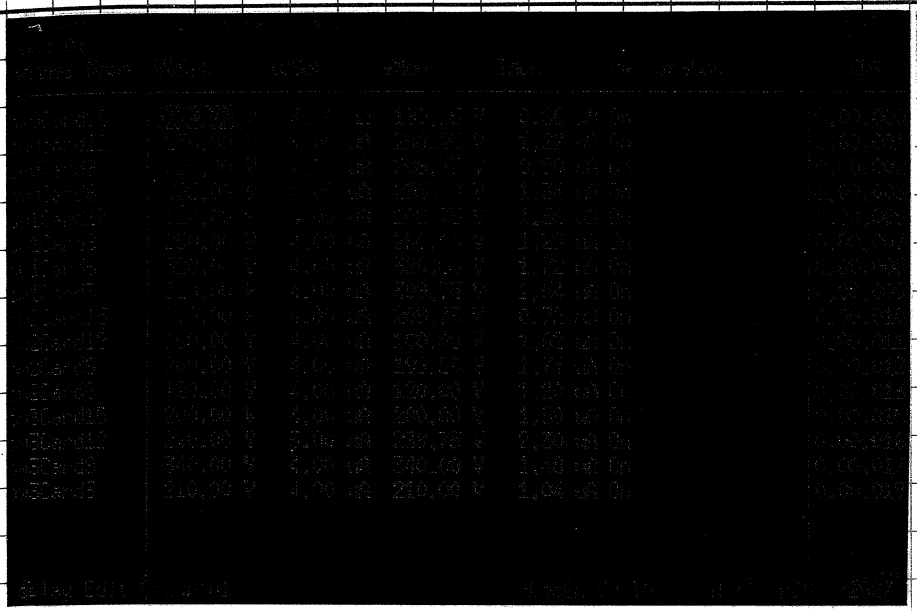
5:30 am 10/21/07 Before Tune: Run 153.



Compare to p 38.

Run# 160	Trigger				Date: 10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA V/S	S800	Coin.	MCP tCsi	On shift: Micha Dan Sun Betty
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: after cyclotron retune.



12:15 pm 10/21/07

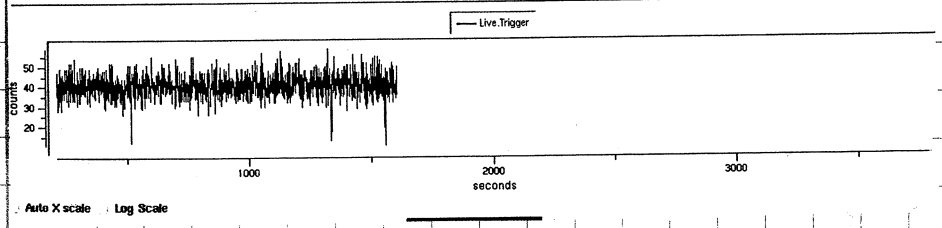
Run Number: 161 Run state: Active
Length of run: 0 00:26:46 Scaler interval: 1.000000
Title: >>Unknown<<

S800_All | S800_Some | S800_Alarm | HiRA_BigBrother | HiRA_All | HiRA_All_ratio | BettysTab

General Scalers

Numerator	Denominator	Rate(s)		Total(s)		Ratio [rate total]	
Live.Trigger	Raw.Trigger	43.0	45.0	57405	60705	0.956	0.946
S800.Trigger			0.0		0		
BigBrother			113.0		129858		
S800+HiRA			11.0		20604		
CsImonitor			1.0		4807		
CsImonitor_pulser_trigger			1.0		4809		
A1900_FP			2140.0		3191200		
XFP.Scint			499070.0		713547493		
MCP0.live	MCP0	92912.0	96301.0	132956314	138884527	0.965	0.957
MCP1.live	MCP1	98670.0	102289.0	140520300	146834783	0.965	0.957

Sample Scaler Display for later Comparison



Run# 166	Trigger				Date: 10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/3	S800	Coin.	MCP +CSI	On shift: Micha Dan Betty Sun
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: Continuing previous Barney printout at 1:29 pm

Handed beam to Marcio around 13:00

14:00 try to raise rate for CRDC calibration.
~~Lower attenuation factor~~ not done
change to S800 singles
Lower MCP & foil voltage

Beam rate still very low, and can't raise more for fear of burning plastic target.

Decide to wait until Daniel Bazin can come in.

Back to taking coincidence data
Turn MCP back up
still increase beam by factor of 3
(changing atten from 10k to 3k had no effect.
instead open slits between cyclotrons

ScalerDisplay.tcl

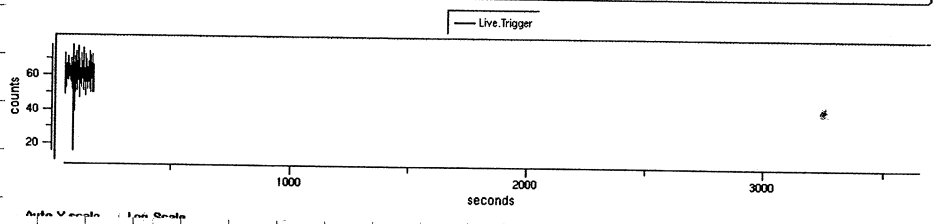
Run Number: 164 Run state: Active
Length of run: 0 00:02:56 Scaler interval: 1.000000
Title: >>Unknown<<

S800_All | S800_Some | S800_Alarm | HiRA_BigBrother | HiRA_All | HiRA_All_ratio | BettysTab

General Scalers

Numerator	Denominator	Rate(s)		Total(s)		Ratio [rate total]	
Live.Trigger	Raw.Trigger	61.0	64.0	7616	8096	0.953	0.941
S800.Trigger			0.0		0		
BigBrother			132.0		17954		
S800+HiRA			28.0		3077		
CsImonitor			3.0		507		
CsImonitor_pulser_trigger			3.0		507		
A1900_FP			15323.0		1921028		
XFP.Scint			958988.0		120128868		
MCP0.live	MCP0	154720.0	166431.0	19491400	21095961	0.930	0.924
MCP1.live	MCP1	155279.0	166904.0	19636731	21415525	0.930	0.917

example of new rates



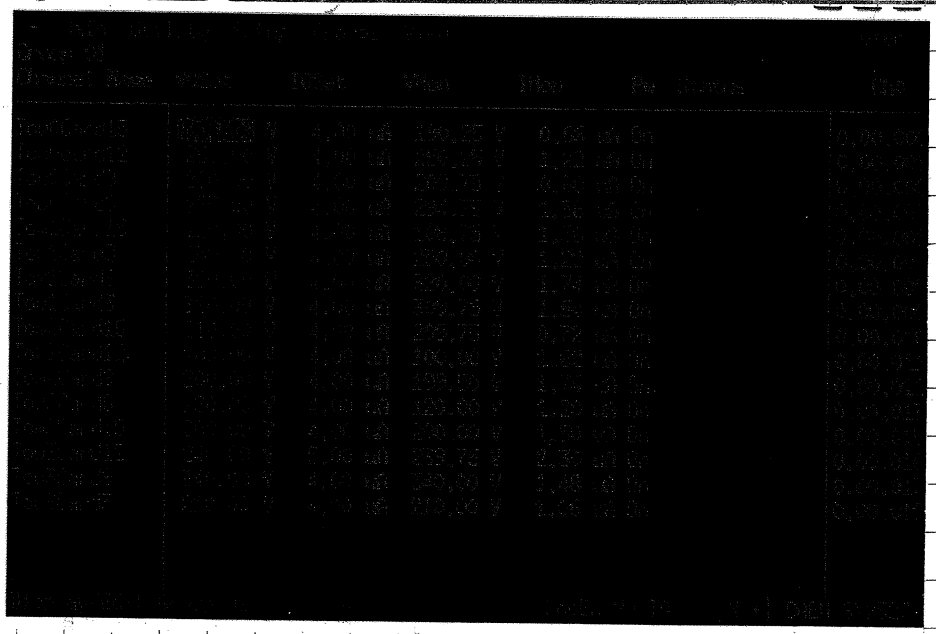
XFP shimmed to spot 2

Run# 162	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP tCsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: 4fb A1900 retune					

Run# 163	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90				
Comments: Brief run; too low rate for CRDC mask calibration					

Run# 164	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP tCsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: Higher beam rate. XFP scint scalar total overshot and became negative					

Noticed during run 164, beam intensity jumped up (~40 min into run, 15:00). XFP started $9 \cdot 10^5$, jumped towards $1.5 \cdot 10^6$ Hz, then operator closed some slits slightly to get us back toward $1 \cdot 10^6$. Operator not sure why this happened, but it was mirrored in our trigger rate.



15:00
10/2/07

Compared to first record, most dropping, few steady

T353	still
rising	slowly

Run# 165	Trigger	Date:10/2/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5 · S800 · Coin. · MCP +CsI Target : (CH2)n-1, (CH2)n-2, carbon → position= 40 mm	On shift:
Comments: Continue prev.		

Runs 166 & 167 are junk.

Run# 168	Trigger	Date:10/2/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5 · S800 · Coin. · MCP +CsI Target : (CH2)n-1, (CH2)n-2, carbon → position=	On shift:
Comments: Continue prev.		

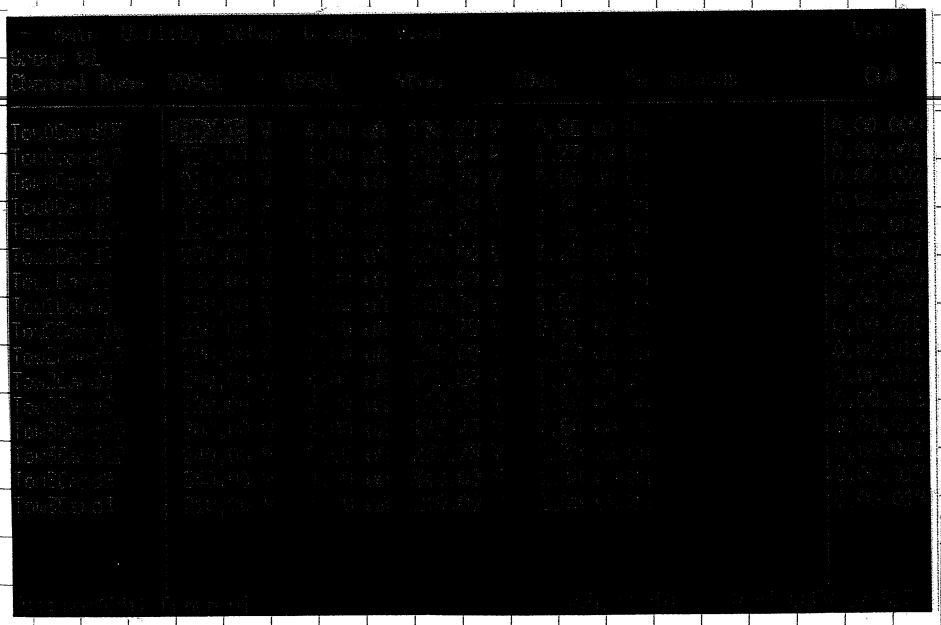
Run# 169	Trigger	Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5 · S800 · Coin. · MCP +CsI Target : (CH2)n-1, (CH2)n-2, carbon → position=	On shift: Bill, Betty, Alisher, Sun, Jenny, Mica, Dan, Andy, et al
Comments: Same as prev.		

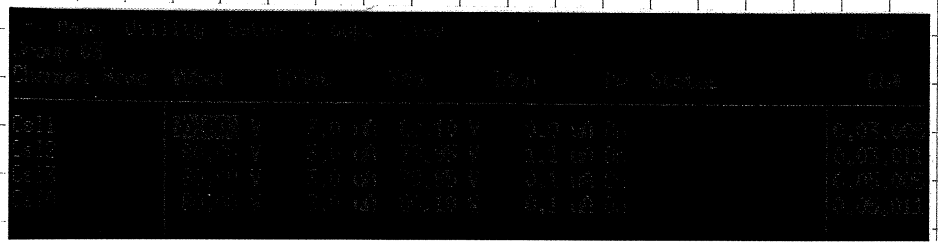
4:43 pm
Rate dropped off from 60 to 30.

Run# 60	Trigger				Date: 10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP +CSI	On shift: Bill, Betty, Alisher, Senny, Sun, Andy, Micha, Lee
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: Same as prev					

6:48 pm
10/21/2007

	Vbias(V)	I(μA)
Back 0	100.1	4.04
Back 1	100.1	6.04
Back 2	100.0	5.32
Back 3	100.1	6.38





6:55 pm 10/2/07

Main Utility Setup Groups View User

Group 02

Channel Name	V0Set	I0Set	VMon	IMon	Pw	Status	Ch#
PA14	7.00 V	2.0 uA	7.10 V	0.0 uA	On		0,03,00(
PA11	7.00 V	2.0 uA	6.90 V	0.1 uA	On		0,03,001
PA10	8.00 V	2.0 uA	7.80 V	0.0 uA	On		0,03,00:
PA12	8.00 V	2.0 uA	7.75 V	0.0 uA	On		0,03,00(
PA19	6.00 V	2.0 uA	5.45 V	0.0 uA	On		0,03,00(
PA16	0.00 V	2.0 uA	0.10 V	0.0 uA	Off		0,03,007
PA18	0.00 V	2.0 uA	0.25 V	0.0 uA	Off		0,03,00(
PA17	9.00 V	2.0 uA	8.85 V	0.2 uA	On		0,03,01(
PA4	7.00 V	2.0 uA	6.85 V	0.0 uA	On		0,05,00(
PA1	9.00 V	2.0 uA	8.90 V	0.2 uA	On		0,05,001
PA3	6.00 V	2.0 uA	6.00 V	0.2 uA	On		0,05,002
PA0	7.00 V	2.0 uA	7.05 V	0.6 uA	On		0,05,003
PA6	7.00 V	2.0 uA	6.80 V	0.0 uA	On		0,05,007
PA8	8.00 V	2.0 uA	7.95 V	0.5 uA	On		0,05,00(
PA5	8.00 V	2.0 uA	7.70 V	0.1 uA	On		0,05,009
PA7	7.00 V	2.0 uA	6.75 V	0.0 uA	On		0,05,01(

Display/Edit Group 02 LocEn V0 I0 N + CAEN SY2527

6:58 pm

Page 01: 0-10 V ADC Reg Volts, & 0-5 V ADC Thermocouple 18:59:15

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow1 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.05 V	39.38	23.14	26.03	24.61
	M.17	M.21	M.24	M.21
HiRA Tow1 Reg	HiRA Tow1 TC0	HiRA Tow1 TC1	HiRA Tow1 TC2	HiRA Tow1 TC3
5.02 V	30.94	22.53	25.71	28.15
	0.27	0.21	0.22	0.26
HiRA Tow2 Reg	HiRA Tow2 TC0	HiRA Tow2 TC1	HiRA Tow2 TC2	HiRA Tow2 TC3
5.06 V	33.99	22.27	25.35	24.86
	0.32	0.22	0.23	0.24
HiRA Tow3 Reg	HiRA Tow3 TC0	HiRA Tow3 TC1	HiRA Tow3 TC2	HiRA Tow3 TC3
5.06 V	28.87	22.36	25.80	32.40
	0.28	0.22	0.25	0.31
HiRA Tow4 Reg	HiRA Tow4 TC0	HiRA Tow4 TC1	HiRA Tow4 TC2	HiRA Tow4 TC3
5.00 V	34.48	23.23	25.54	25.57
	M.3?	M.24	M.24	M.27
HiRA Tow5 Reg	HiRA Tow5 TC0	HiRA Tow5 TC1	HiRA Tow5 TC2	HiRA Tow3 TCDet0
5.06 V	35.71	24.83	26.91	25.23
	0.38	0.25	0.27	0.27

Run# 171, 172, 173	Trigger				Date: 10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP CsI	On shift: Bill, Betty, Alij, Jenny, Andy, Micha.
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 90 mm				

Comments: Same as previous.
At the end of 173, we changed target spot to (CH_2)-2-111 mm.

Run# 174, 175	Trigger				Date: 10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP CsI	On shift: Same
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 111 mm.				

Comments: Same as previous
Target position changed.

XFP becomes negative when it reaches 2.14 Bn $= 2^{31}$
So to take this into account, we take this negative value X_n and do the following operation:
X_p (positive, correct number.

$$X_p = 2147484000 + (2147484000 - |X_n|) =$$
$$= 4294967000 - |X_n|$$
$$= 2^{32} - |X_n| ,$$

Even more correctly,

$$X_n = 2^{32} + X_n$$

9:00 pm 10/21/2007

Requirement for the channel plate was MCP1 & Hira & S800. (until now.
Now it is MCP1 & S800.

9:02 pm
Target was changed to carbon. For doing CRDC mask calibration and background. (Run 176)

Run# 176	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP CsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: carbon target in, CRDC1 mask					

9:36 pm.
Run 177 is for CRDC2 mask.

Run# 177	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP CsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: CRDC 2 mask					

9:55 pm. Mask is in. | 10:01 pm Blank in.

Run# 178	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments:					

Run# 179	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= blank				202.5
Comments: MCP on, Bf = beam Bf.					

10:23 pm | mask in. | (target)

Run# 180	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= mask				252.5
Comments: MCP on, Bf = beam Bf.					

Run# 181	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= blank				
Comments: MCP1 mask.					

10:37 pm.

MCP1 mask in, target blank.

10:50 pm

MCP1 at foil (77.25 mm)

MCP0 at mask (200.6 mm)

Run# 182	Trigger				Date:10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift: Bill, Betty, Ali, Jenny, Andy
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 202.15				
Comments: Target blank mcp1 foil (77.25 mm)					

Run# 183	Trigger				Date:10/2/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: MCP 0 mask, mcp1 new foil (57.2mm					

Run# 184	Trigger				Date:10/2/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 151.45				
Comments: MCP 0 Foil, carbon target (151.45)					

12:23 am 10/21/07

	Vbias(V)	I(μA)
Back 0	100.1	4.04
Back 1	100.1	6.05
Back 2	100.0	5.32
Back 3	100.1	6.42
MCP 0		

Page 01: 0-10 V ADC Reg Volts, & 0-5 V ADC Thermocouple 00:26:28

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.00 V	39.63	23.02	25.79	24.49
	0.38	0.21	0.24	0.23
HiRA Tow1 Reg	HiRA Tow1 TC0	HiRA Tow1 TC1	HiRA Tow1 TC2	HiRA Tow1 TC3
5.02 V	31.06	22.53	25.59	28.03
	0.27	0.21	0.22	0.26
HiRA Tow2 Reg	HiRA Tow2 TC0	HiRA Tow2 TC1	HiRA Tow2 TC2	HiRA Tow2 TC3
5.00 V	34.11	22.27	25.22	24.74
	0.32	0.22	0.23	0.24
HiRA Tow3 Reg	HiRA Tow3 TC0	HiRA Tow3 TC1	HiRA Tow3 TC2	HiRA Tow3 TC3
5.00 V	28.75	22.23	25.67	32.16
	0.28	0.22	0.25	0.31
HiRA Tow4 Reg	HiRA Tow4 TC0	HiRA Tow4 TC1	HiRA Tow4 TC2	HiRA Tow4 TC3
5.00 V	34.48	23.23	25.42	25.57
	0.35	0.23	0.26	0.27
HiRA Tow5 Reg	HiRA Tow5 TC0	HiRA Tow5 TC1	HiRA Tow5 TC2	HiRA Tow3 TCDet0
5.00 V	35.84	24.83	26.78	25.11
	0.38	0.25	0.27	0.27

Page 02: 0-5 V ADC Thermocouple Temp 00:25:22

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

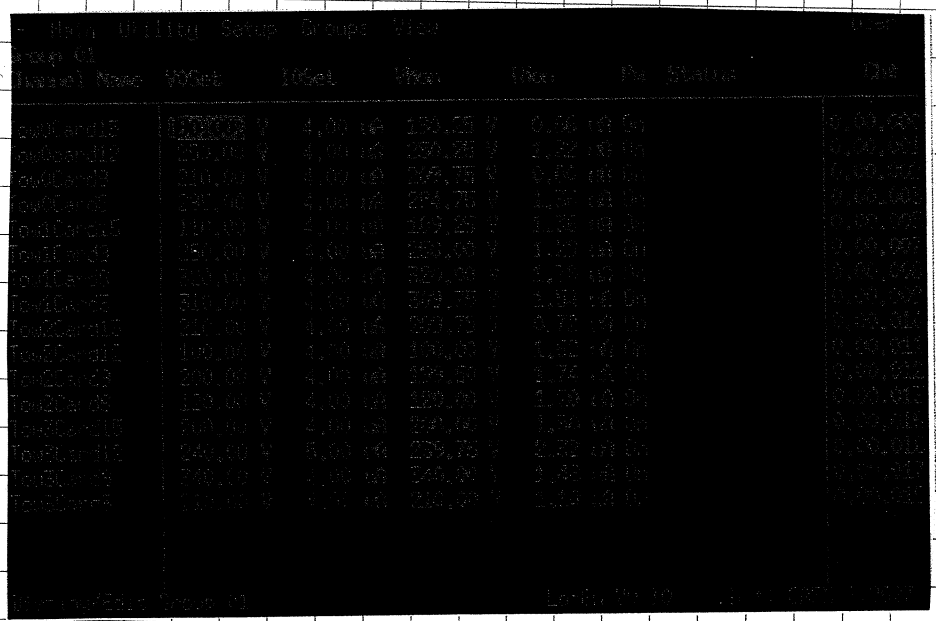
Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.34	27.12	25.39	25.41
0.22	0.27	0.24	0.26

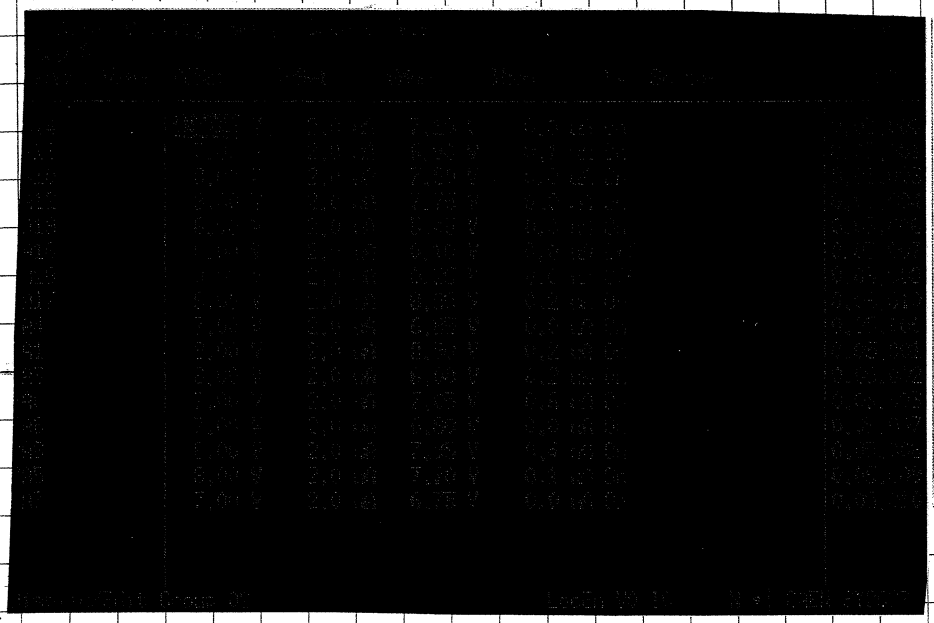
Tower 0 Upper	Tower 1 Upper	Tower 2 Upper	Tower 3 Upper
24.87	26.09	24.14	24.13
0.24	0.26	0.22	0.25

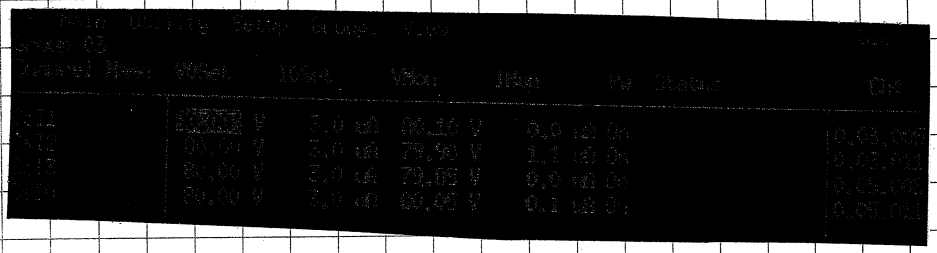
Run# 185	Trigger				Date: 10/21/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP	On shift: Bill, Betty, Andy, Alisker, Jenny, Vlad, Daniela, Lee
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: Data run
mcp1.mcp & data swapped Bρ: 1.5778
probably not good

1:40 am 10/21/07



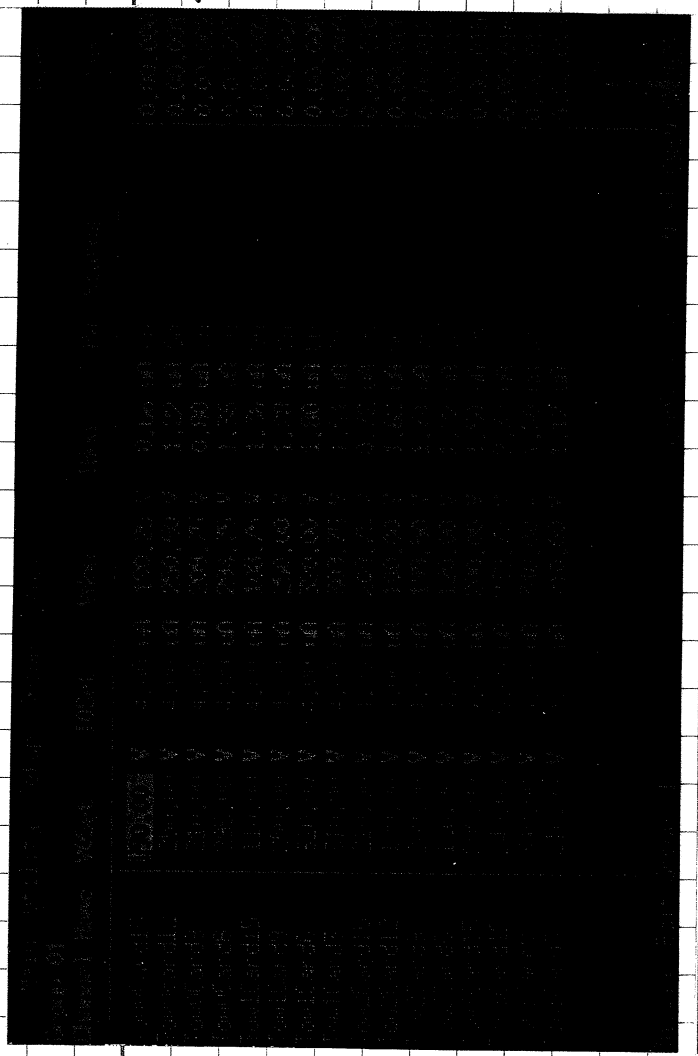


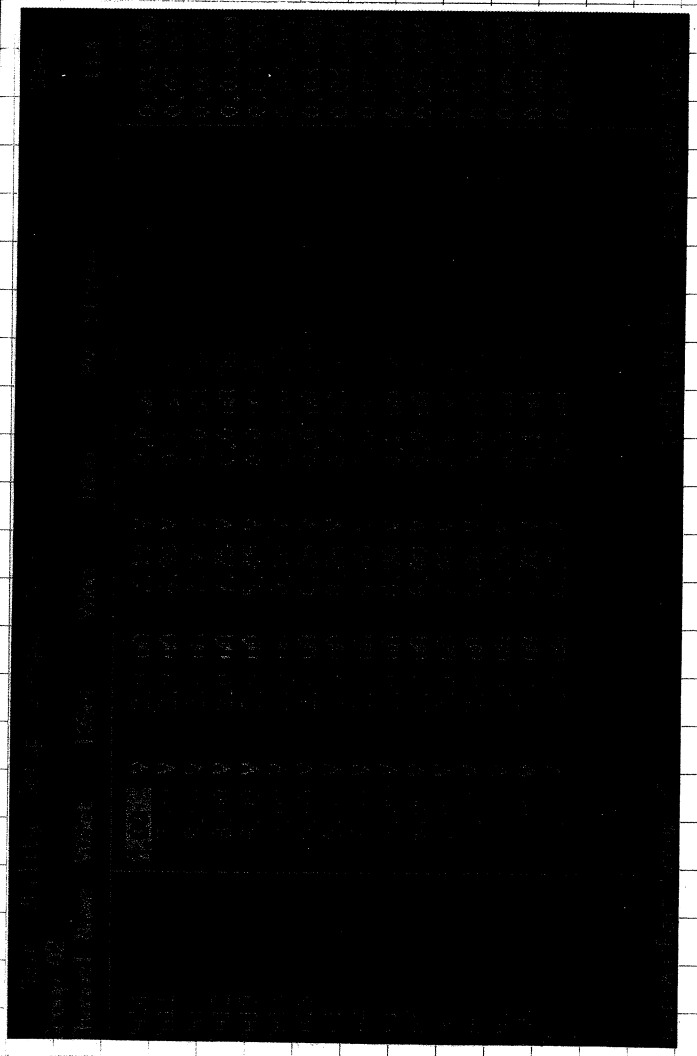


Run# 186, 187, 188, 189	Trigger				Date: 10/22/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV				+GR	V+D
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position= 110mm				Leep Andy
Comments: Andy and Lee running with MCPs during these runs, otherwise data are free					

Run# 190	Trigger				Date: 10/22/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV	1/5			+GR	V+D
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position= 110mm				
Comments:					

Leakage currents at 5:50 AM (22/10/2007)



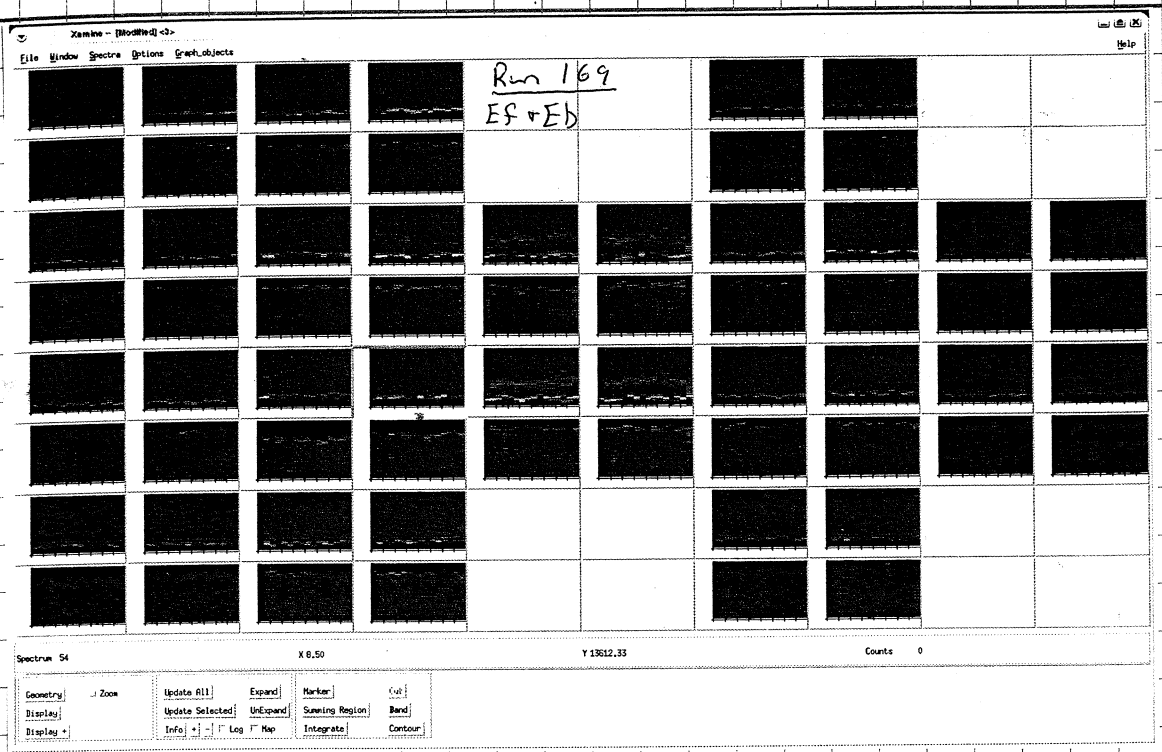


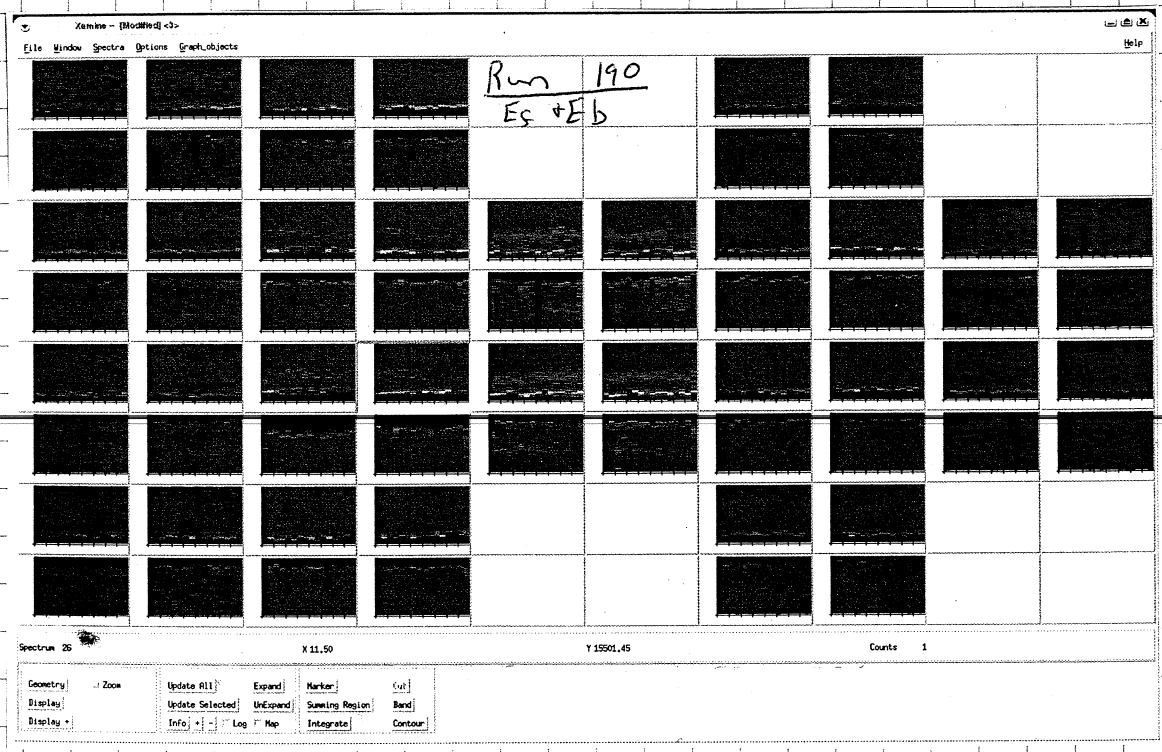
Run# 191, 192	Trigger	Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5 · S800 · Coin. · MCP +CsI Target : (CH2)n-1, (CH2)n-2, carbon → position= 110mm	On shift: V+D+Mike

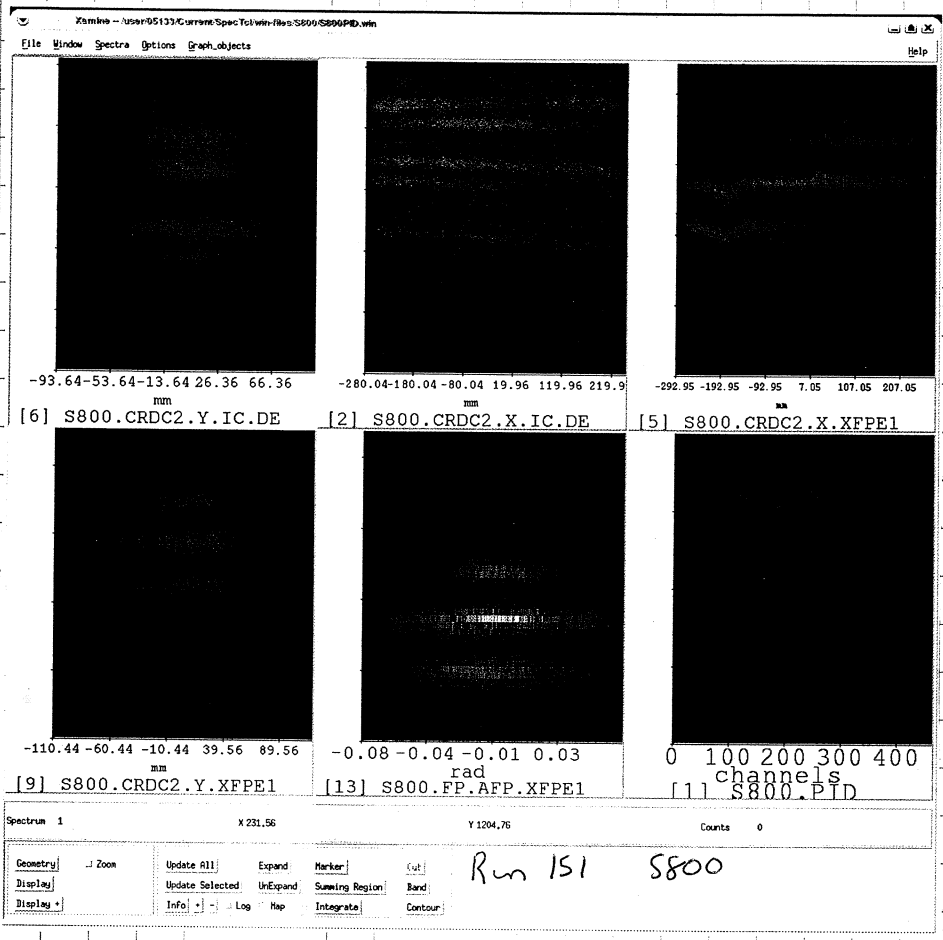
Comments: first beam data

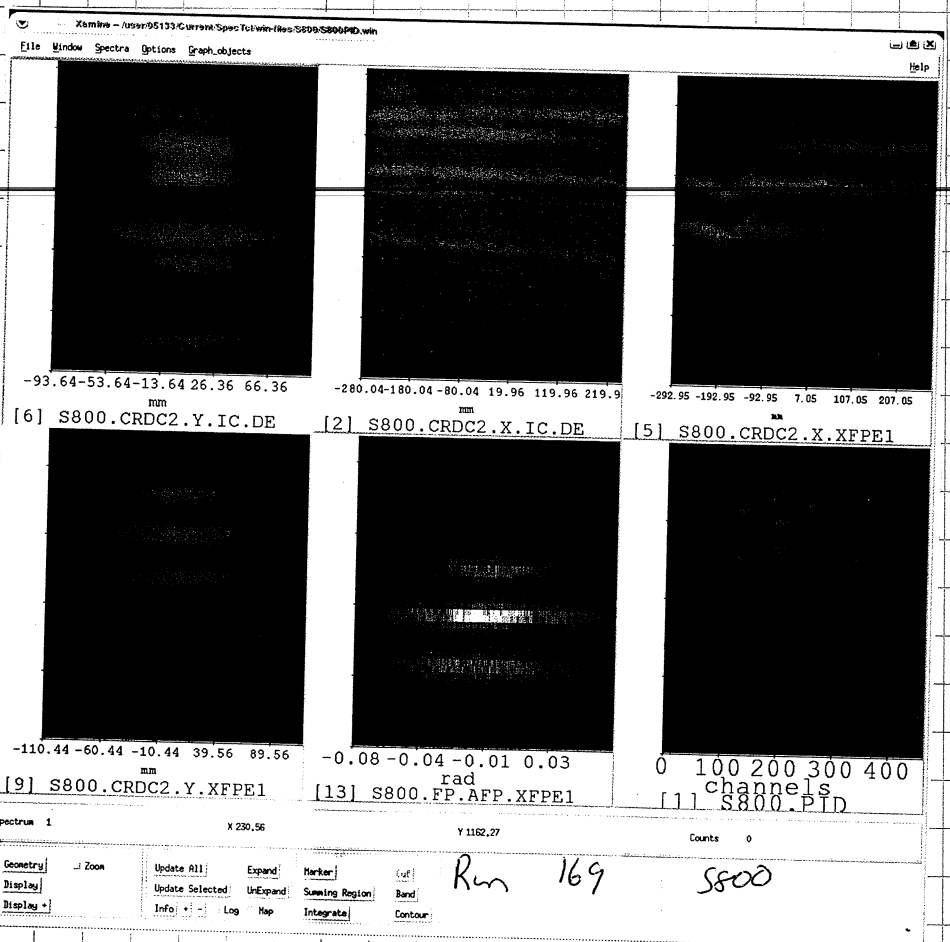
Run# 193, 194	Trigger	Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5 · S800 · Coin. · MCP Target : (CH2)n-1, (CH2)n-2, carbon → position= 110mm	On shift: D+V +Mike

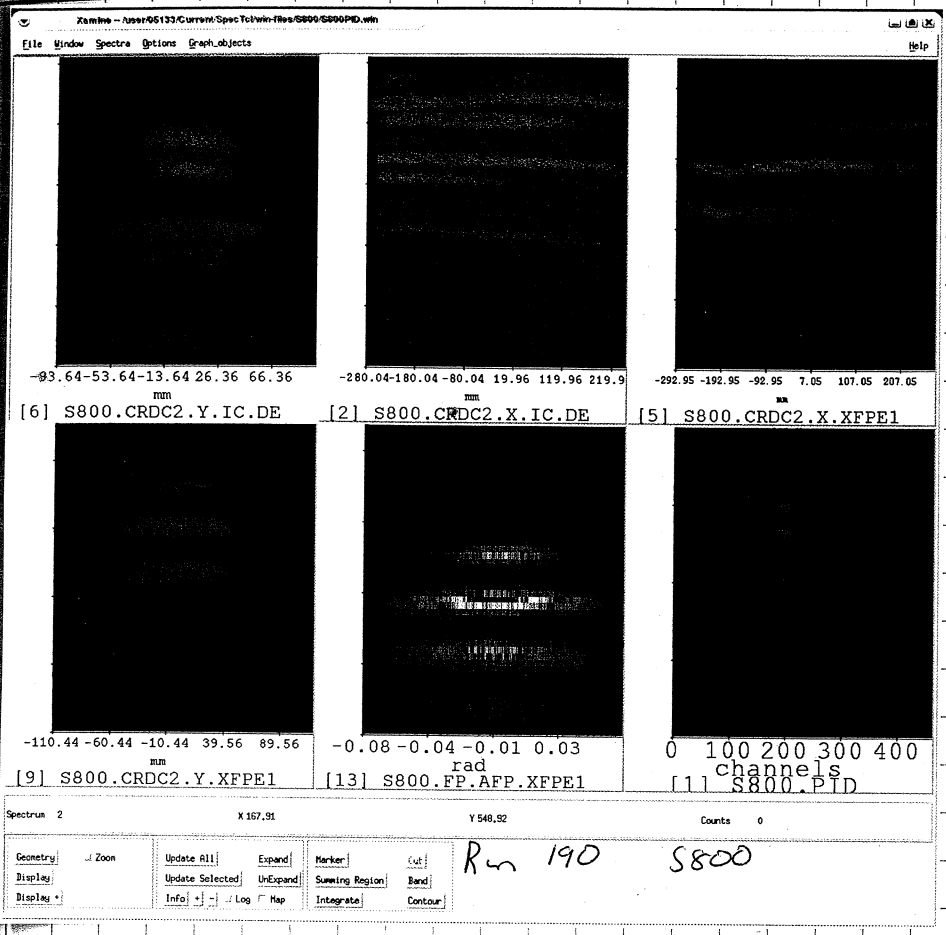
Comments: more data


Xamine - [ModWed] <3>
File Window Spectra Options Graph_objects
Help
Run 169
Es vs Eb
Spectrum 54
X 8.50
Y 13612.33
Counts 0
Geometry
Zoom
Display
Display +
Update All
Expand
Update Selected
UnExpand
Info + - Log Map
Marker
Cut
Summing Region
Band
Integrate
Contour


Xamine - [ModWed] <3>
File Window Spectra Options Graph_objects
Help
Run 190
Es vs Eb
Spectrum 26
X 11.50
Y 15501.45
Counts 1
Geometry
Zoom
Display
Display +
Update All
Expand
Update Selected
UnExpand
Info + - Log Map
Marker
Cut
Summing Region
Band
Integrate
Contour

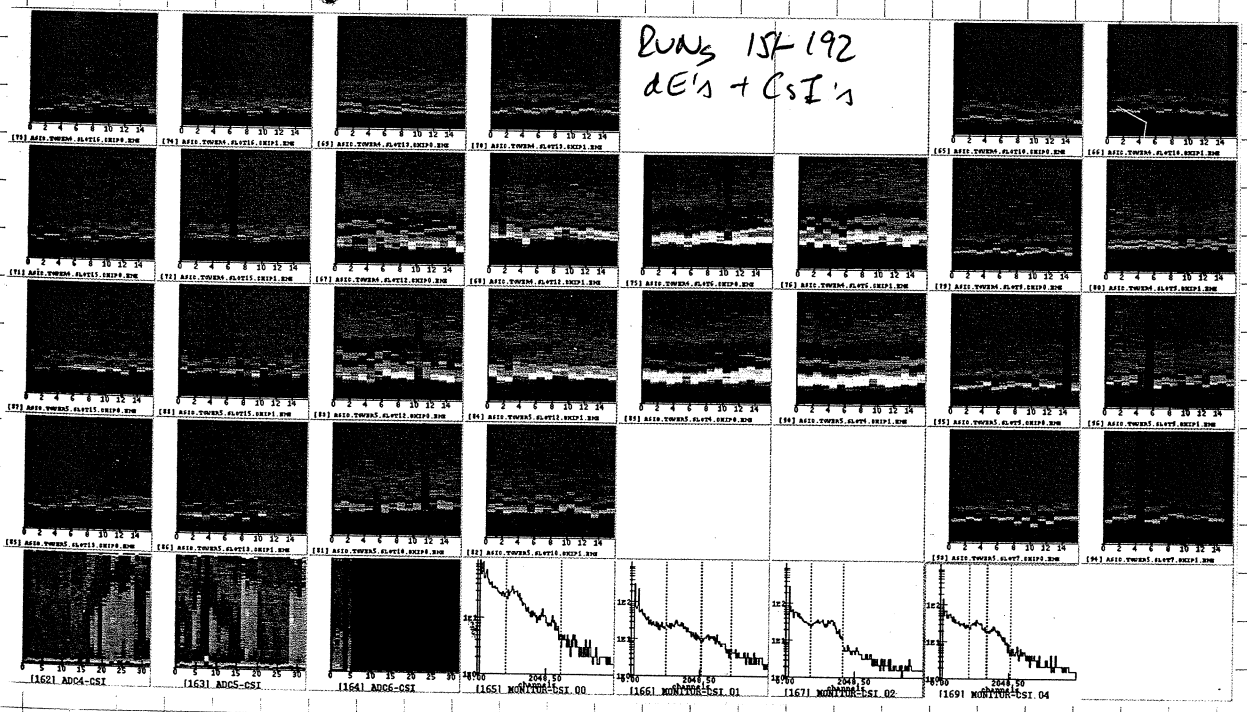

Xamine -- /user/05133/Current/SpecTcl/win-files/S800/S800PID.win
File Window Spectra Options Graph_objects
Help
-93.64 -53.64 -13.64 26.36 66.36
mm
[6] S800.CRDC2.Y.IC.DE
-280.04 -180.04 -80.04 19.96 119.96 219.9
mm
[2] S800.CRDC2.X.IC.DE
-292.95 -192.95 -92.95 7.05 107.05 207.05
mm
[5] S800.CRDC2.X.XFPE1
-110.44 -60.44 -10.44 39.56 89.56
mm
[9] S800.CRDC2.Y.XFPE1
-0.08 -0.04 -0.01 0.03
rad
[13] S800.FP.AFP.XFPE1
0 100 200 300 400
channels
[1] S800.PID
Spectrum 1
X 231.56
Y 1204.76
Counts 0
Geometry
Zoom
Display
Display +
Update All
Update Selected
Info + -
Log
Map
Expand
UnExpand
Marker
Summing Region
Integrate
Cut
Band
Contour
Run 151 S800

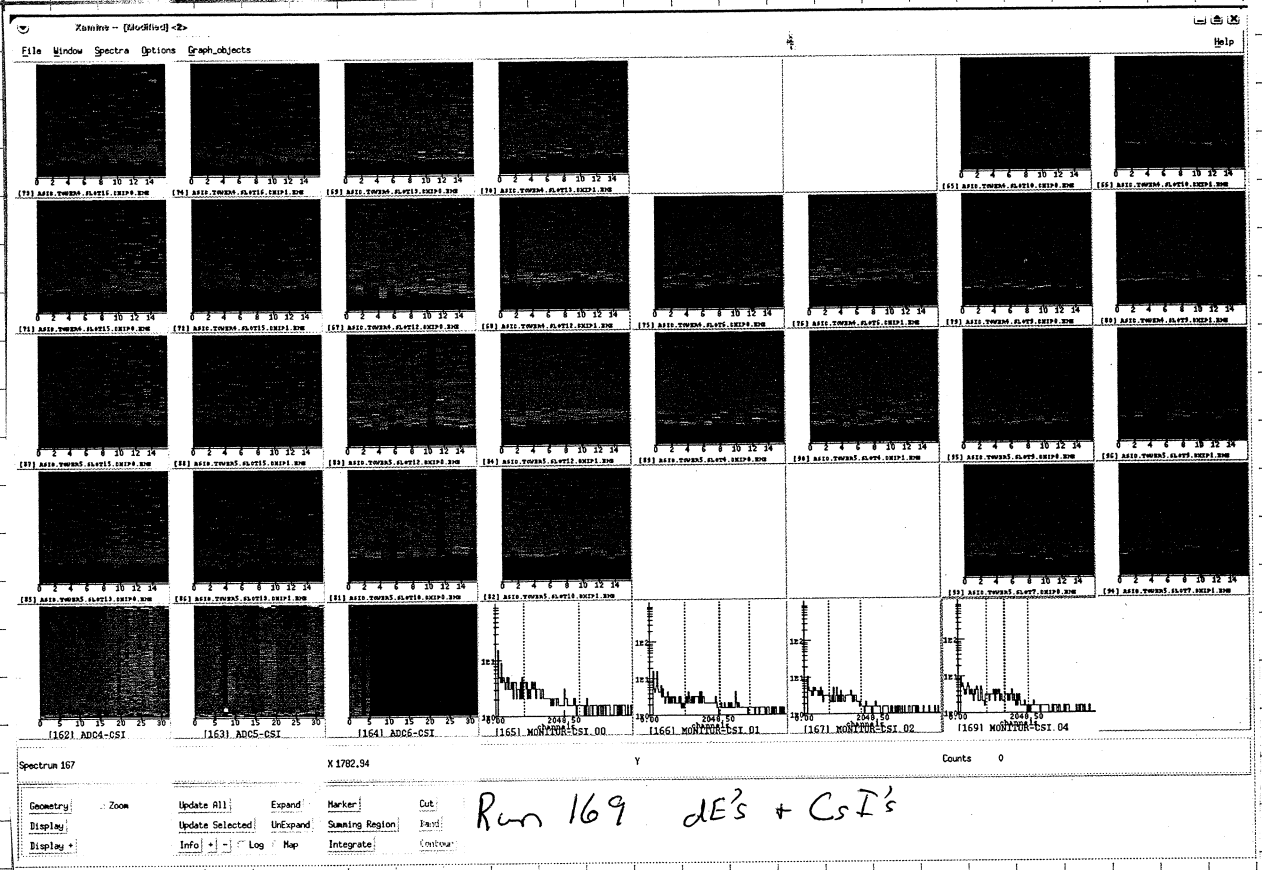

Xamine -- /user/05133/Current/SpecTcl/win-files/S800/S800PID.win
File Window Spectra Options Graph_objects
Help
-93.64 -53.64 -13.64 26.36 66.36
mm
[6] S800.CRDC2.Y.IC.DE
-280.04 -180.04 -80.04 19.96 119.96 219.9
mm
[2] S800.CRDC2.X.IC.DE
-292.95 -192.95 -92.95 7.05 107.05 207.05
mm
[5] S800.CRDC2.X.XFPE1
-110.44 -60.44 -10.44 39.56 89.56
mm
[9] S800.CRDC2.Y.XFPE1
-0.08 -0.04 -0.01 0.03
rad
[13] S800.FP.AFP.XFPE1
0 100 200 300 400
channels
[1] S800.PID
Spectrum 1
X 230.56
Y 1162.27
Counts 0
Geometry
Zoom
Display
Display +
Update All
Update Selected
Info + -
Log
Map
Expand
UnExpand
Marker
Summing Region
Integrate
Cut
Band
Contour
Run 169 S800



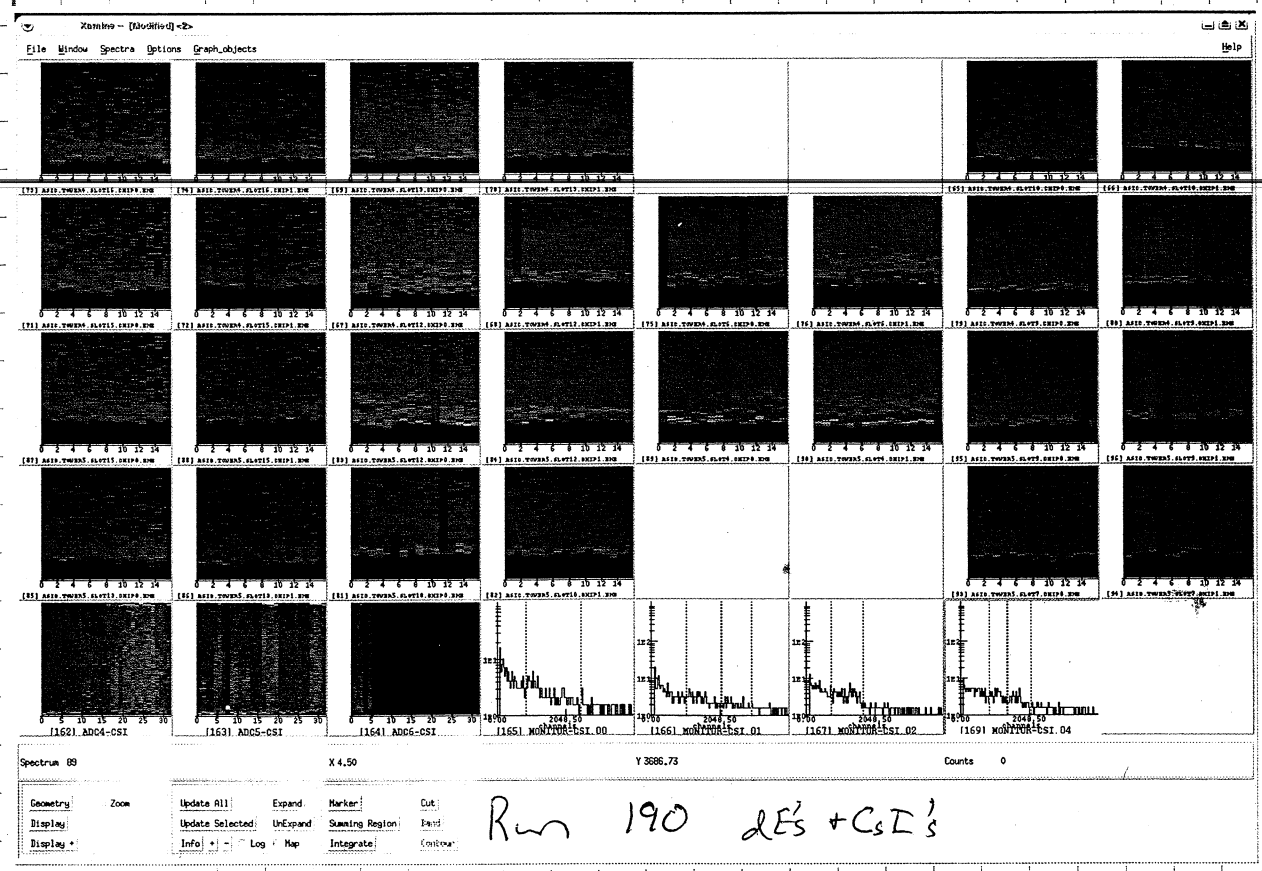
Run 190 S800

Data for CsI Tel 18 1D spectra sorted from RUNS 151-192 and ~~tracking~~ summing region have been set in SpecTcl for proton recoils





Run 169 dE's + CsI's



Run 190 dE's + CsI's

Page 01: 0-5 V ADC Thermocouple 08:13:46

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.00 V	39.38 0.37	23.14 0.21	26.03 0.24	24.61 0.23
HiRA Tow1 Reg	HiRA Tow1 TC0	HiRA Tow1 TC1	HiRA Tow1 TC2	HiRA Tow1 TC3
5.02 V	31.06 0.27	22.65 0.21	25.71 0.22	28.15 0.26
HiRA Tow2 Reg	HiRA Tow2 TC0	HiRA Tow2 TC1	HiRA Tow2 TC2	HiRA Tow2 TC3
5.00 V	33.87 0.32	22.27 0.22	25.35 0.23	24.86 0.24
HiRA Tow3 Reg	HiRA Tow3 TC0	HiRA Tow3 TC1	HiRA Tow3 TC2	HiRA Tow3 TC3
5.00 V	28.75 0.28	22.36 0.22	25.80 0.25	32.52 0.31
HiRA Tow4 Reg	HiRA Tow4 TC0	HiRA Tow4 TC1	HiRA Tow4 TC2	HiRA Tow4 TC3
5.00 V	34.48 0.35	23.36 0.24	25.54 0.26	25.57 0.27
HiRA Tow5 Reg	HiRA Tow5 TC0	HiRA Tow5 TC1	HiRA Tow5 TC2	HiRA Tow3 TCDet0
5.00 V	35.71 0.37	24.95 0.25	26.91 0.27	25.23 0.27

Page 02: 0-5 V ADC Thermocouple Temp 08:15:24

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.47 0.22	27.24 0.27	25.39 0.24	25.41 0.26
Tower 0 Upper	Tower 1 Upper	Tower 2 Upper	Tower 3 Upper
24.99 0.24	26.21 0.26	24.14 0.22	24.13

10/22/07

Due to problems w/ MCP, trying to find vertical size of beam. changed to target mask, tuned very attenuated beam directly onto S800 fp, and take several short runs

Run# 196	Trigger				Date:10/22/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP +CsI	On shift: VTD Micha, Dan, Sun, Bobby
	Target : (CH2)n-1, (CH2)n-2, carbon → position= mask				

Comments: mask @ 0.0 mm (253.5)

Run# 197	Trigger				Date:10/22/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/5	S800	Coin.	MCP +CsI	On shift: same
	Target : (CH2)n-1, (CH2)n-2, carbon → position= mask				

Comments: mask @ 1.0 mm (253.5)

Run# 198	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift: same
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ 2.0 mm (254.5)

Run# 199	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift: Sam
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ 3.0 mm (255.5)

Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	Trigger: HiRA	S800	Coin.	MCP	Date:10/__/2007 On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ 4 mm (256.5), same.

When trying to start run 201, Readout gave a string exception and would not start. Exiting the shell and logging back in worked.

Run# 201	Trigger: HiRA	S800	Coin.	MCP	Date:10/22/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source					On shift: VtD
	Target : (CH2)n-1, (CH2)n-2, carbon → position= mask				

Comments: mask @ −2 mm (250.5) same.

Run# 202	Trigger: HiRA	S800	Coin.	MCP	Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source					On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ −4 mm (248.5). Same.

Run# 203	Trigger: HiRA	S800	Coin.	MCP	Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source					On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ −1 mm (251.5), otherwise same

Run# 204	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ −3mm (249.5). Continue mask runs.

Run# 205	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ −5mm (247.5) Continue mask runs

Run# 206	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	**S800**	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ 0mm (252.5). Change to HiRA singles

Run# 207	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	**S800**	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ 2mm (254.5)
(big brother tripping in run @ 5000 Hz)

Run# 208	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	**S800**	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ 4mm (256.5). Inconsistently high big brother.

Run# 209	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ -2mm (250.5)

Run# 210	Trigger				Date:10/__/2007
Beam: (36Ar); 34Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ -4mm (248.5)

Run# 211	Trigger				Date:10/__/2007
Beam: (36Ar); 34Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ -6 (246.5). Title is wrong.

Run# 212	Trigger				Date:10/__/2007
Beam: (36Ar); 34Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ -5 (247.5). Again spikes on Es & Big Brother.

Run# 213	Trigger				Date:10/__/2007
Beam: (36Ar); 34Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ -3 mm (249.5)

Run# 214	Trigger				Date:10/__/2007
Beam: (36Ar); 34Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: mask @ -1 mm (251.5)

10:10 · 10/22/07

Blow up beam to test MCP 1. Start by looking with mask & S800 singles until we can see 2 holes from mask

When we were tripping the Big Bro the scalers ~5000, we were getting nearly the same rate as on the XFP. Scint ~ 8500. Most of this came from T1. It came in spurts.

The Big Brother rate that will trip the RF is 25,000.

Run# 215	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	(S800)	Coin.	(MCP +CsI)	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: Beam blown up to test MCP, blank target. Changing attenuation. Noise in Big Brother at beginning, suddenly dropped off. Noise in lab?

testing

more beam → .1 M attenuating factor — BB noise goes away
.3 M attenuating factor — BB noise strong

Looks like a hole in MCP D (known)
a big cavity in side of MCP 1 (not known)

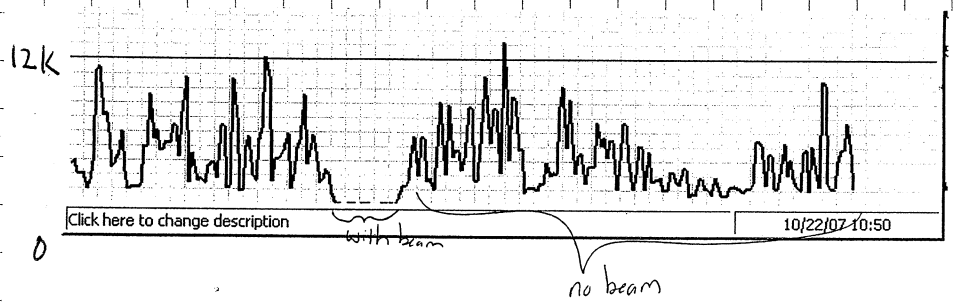
→ although previously, noise with no beam, and the profile was different

put stop in
.1M — Large noise, spiky. around 1000 Hz
1 M — no change
3 M — no change
.3M — no change
take stop back out — major decrease
but M — increase

Run# 216	Trigger				Date:10/22/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP +CsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= blank				

Comments: Beam still blown up to est mcp, mcp1 mask in

graph of Big Bottle with beam stop in and out



Run# 217, 222, 221, 220	Trigger				Date:10/22/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP +CsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= blank				

Comments: Continue previous; mcp1 mask.

Run# 218	Trigger				Date:10/22/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP +CsI	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: MCP0 mask instead of previous MCP1. otherwise like previous

dE rate drifting up in Run 217
others not steady in 218.

Readout string exception again tryng to start run 218. Exit & restart shell.

Run #	Tower	DE	EF	EB	Range	steps
223	0	✓	✓		0–10V	51
224	1	✓	✓		"	"
225	2	✓	✓		"	"
226	3	✓	✓		"	"

slot 2, chip 0 – only every other channel works.

6:49 pm 10/22/07

Page 01: 0-10 V ADC Reg Volts, & 0-5 V ADC Thermocouple 18:49:07

04 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.00	39.63	23.02	25.79	24.49
	0.38	0.21	0.24	0.23
HiRA Tow1 Reg	HiRA Tow1 TC0	HiRA Tow1 TC1	HiRA Tow1 TC2	HiRA Tow1 TC3
5.02	31.55	22.53	25.59	28.03
	0.28	0.21	0.22	0.26
HiRA Tow2 Reg	HiRA Tow2 TC0	HiRA Tow2 TC1	HiRA Tow2 TC2	HiRA Tow2 TC3
5.00	34.72	22.27	25.22	24.74
	0.33	0.22	0.23	0.24
HiRA Tow3 Reg	HiRA Tow3 TC0	HiRA Tow3 TC1	HiRA Tow3 TC2	HiRA Tow3 TC3
5.00	28.99	22.36	25.80	32.28
	0.29	0.22	0.25	0.31
HiRA Tow4 Reg	HiRA Tow4 TC0	HiRA Tow4 TC1	HiRA Tow4 TC2	HiRA Tow4 TC3
5.09	34.48	23.36	25.54	25.76
	0.35	0.24	0.26	0.27
HiRA Tow5 Reg	HiRA Tow5 TC0	HiRA Tow5 TC1	HiRA Tow5 TC2	HiRA Tow3 TCDet0
5.01	35.84	24.95	26.91	25.23
	0.38	0.25	0.27	0.27

Page 02: 0-5 V ADC Thermocouple Temp 18:51:26

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.34	27.24	25.39	25.53
0.22	0.27	0.24	0.26

Tower 0 Upper	Tower 1 Upper	Tower 2 Upper	Tower 3 Upper
24.99	26.21	24.14	24.25
0.24	0.26	0.22	0.25

7:00 pm 10/22/07

- Main Utility Setup Groups View User

Group 01

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Chs
Tow0Card15	200.00 V	4.00 uA	190.25 V	0.66 uA	On		0,00,000
Tow0card12	250.00 V	4.00 uA	250.25 V	1.22 uA	On		0,00,001
Tow0Card9	210.00 V	4.00 uA	209.75 V	0.80 uA	On		0,00,002
Tow0Card6	295.00 V	4.00 uA	294.75 V	1.36 uA	On		0,00,003
Tow1Card15	110.00 V	4.00 uA	108.75 V	1.38 uA	On		0,00,004
Tow1Card9	250.00 V	4.00 uA	250.00 V	1.30 uA	On		0,00,007
Tow1Card6	320.00 V	4.00 uA	320.00 V	1.84 uA	On		0,00,008
Tow1Card3	310.00 V	4.00 uA	309.75 V	1.54 uA	On		0,00,009
Tow2Card15	210.00 V	4.00 uA	209.75 V	0.72 uA	On		0,00,010
Tow2Card12	100.00 V	4.00 uA	100.00 V	1.62 uA	On		0,00,011
Tow2Card9	200.00 V	4.00 uA	199.50 V	1.74 uA	On		0,00,012
Tow2Card6	120.00 V	4.00 uA	120.00 V	1.22 uA	On		0,00,013
Tow3Card15	200.00 V	4.00 uA	200.00 V	1.50 uA	On		0,00,015
Tow3Card12	240.00 V	5.00 uA	239.75 V	2.34 uA	On		0,00,016
Tow3Card9	340.00 V	4.00 uA	340.00 V	1.50 uA	On		0,00,017
Tow3Card3	210.00 V	4.00 uA	210.00 V	1.20 uA	On		0,00,019

Display/Edit Group 01 LocEn VO IO N | CAEN SY527

Tow3Card has increased from 1.10 to 1.20 μA since 6 pm.

- Main Utility Setup Groups View User

Group 02

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Chs
PA14	9.00 V	2.0 uA	7.10 V	0.0 uA	On		0,03,000
PA11	7.00 V	2.0 uA	6.90 V	0.1 uA	On		0,03,001
PA10	8.00 V	2.0 uA	7.80 V	0.0 uA	On		0,03,003
PA12	8.00 V	2.0 uA	7.75 V	0.0 uA	On		0,03,004
PA19	6.00 V	2.0 uA	5.45 V	0.0 uA	On		0,03,005
PA16	0.00 V	2.0 uA	0.10 V	0.0 uA	Off		0,03,007
PA18	0.00 V	2.0 uA	0.25 V	0.0 uA	Off		0,03,008
PA17	9.00 V	2.0 uA	8.85 V	0.2 uA	On		0,03,010
PA4	7.00 V	2.0 uA	6.85 V	0.0 uA	On		0,05,000
PA1	9.00 V	2.0 uA	8.90 V	0.2 uA	On		0,05,001
PA3	6.00 V	2.0 uA	6.00 V	0.2 uA	On		0,05,002
PA0	7.00 V	2.0 uA	7.05 V	0.6 uA	On		0,05,003
PA6	7.00 V	2.0 uA	6.80 V	0.0 uA	On		0,05,007
PA8	8.00 V	2.0 uA	7.95 V	0.5 uA	On		0,05,008
PA5	8.00 V	2.0 uA	7.70 V	0.1 uA	On		0,05,009
PA7	7.00 V	2.0 uA	6.75 V	0.0 uA	On		0,05,011

[redacted]

	Vbias(V)	I(μA)
Back 0	100.1	4.05
Back 1	100.0	6.15
Back 2	100.0	5.33
Back 3	100.1	6.56
MCP 0	1097	0.00
MCP 1	1081	0.00

→ increased from 6:42 at 12am.

962. ^{34}Ar beam purity.

Run# 219	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: ~~Control~~

Run# 220, 221, 222	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 202.15				

Comments: MCP 1 mask calibration

Run# 224	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: pulser

Run# 225	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: pulser

Run# 226	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: pulser

Run# 227	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments:

Run# 228	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Comments: Change MCP1 signals to new config. with 2X QDC channels.					

Run# 231	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 202.15				
Comments: ~~Bρ 1.3741~~ Target is at blank Bρ 1.3741 Barney printout at 9:07pm					

Run# 232	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA	S800	Coin.	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 49.6 mm				
Comments: AC coupled channel 3 MCP1 corner signal New Bρ setting 1.49 Target back to (CH2)n-1					

XFP Scintillator shimmed during Ar^{34} tuning

Run# 233	Trigger				Date:10/__/2007
Beam: ^{36}Ar; (^{34}Ar)	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: Very Very short run, courtesy of Andy
Secondary trigger in S1

Run# 234	Trigger				Date:10/__/2007
Beam: ^{36}Ar; (^{34}Ar)	HiRA	S800	(Coin.)	MCP	On shift:
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position= 49.6 mm.				

Comments: Can't see half the CsI
Data run
secondary trigger only

Found the CSI's in ~~slots~~ ADC 5 and ADC 6 were not working while

Run# 235	Trigger				Date:10/__/2007
Beam: ^{36}Ar; (^{34}Ar)	(HiRA)	S800	(Coin.)	MCP	On shift: Bill Betty, Andy, Jenny Alisher
E/A=33 MeV					
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position= 49.6				

Comments: Hira singles No downscaler
External and secondary trigger
+ coin

	Vbias(V)	I(μA)
Back 0	100.1	4.06
Back 1	100.0	6.18
Back 2	100.0	5.35
Back 3	100.1	6.61
MCP 0	~~[illegible]~~	~~[illegible]~~
MCP 1	100.1	

increased from 6.56 at 7pm

11:12 pm
10/22/07

Run# 236	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift: Bill, Betty, Vlad, Daniela, Jenny, Alisher, other
E/A=33 MeV	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Alpha source					

Comments: Continuation of prev.

Data = Coin + secondary + External 2

Run# 237	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP	On shift:
E/A=33 MeV	Target : ~~(CH2)n-1~~, (CH2)n-2, carbon → position= 49.6 mm				
Alpha source					

Comments: ~~Trigger Coincidence → secondary + Coinc External 2~~
Beam increased by 20% (tuned)

Note: threshold on dE of Tel 15 raised by 1 bit between runs 236 and 237.

Cyclotron frequency is about 23.84 MHz $\Rightarrow T = \frac{1}{23.84 \times 10^6} = 41.95$ ns

Run# 238, 239	Trigger				Date:10/27/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP +CAT	On shift: V+D
E/A=33 MeV	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Alpha source					

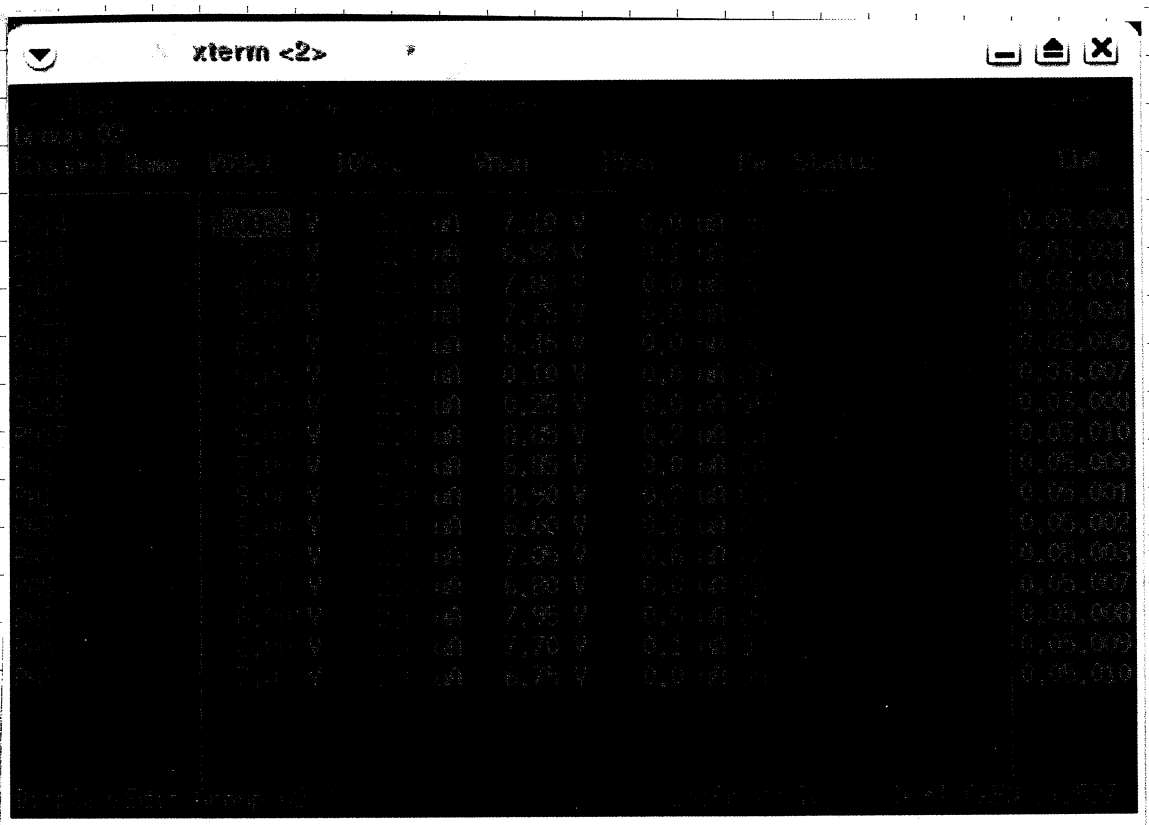
Comments: 238 short, before 239 set ADC threshold for channel 0 in all three ADCs to 0, to allow checking of pile up signal pressure

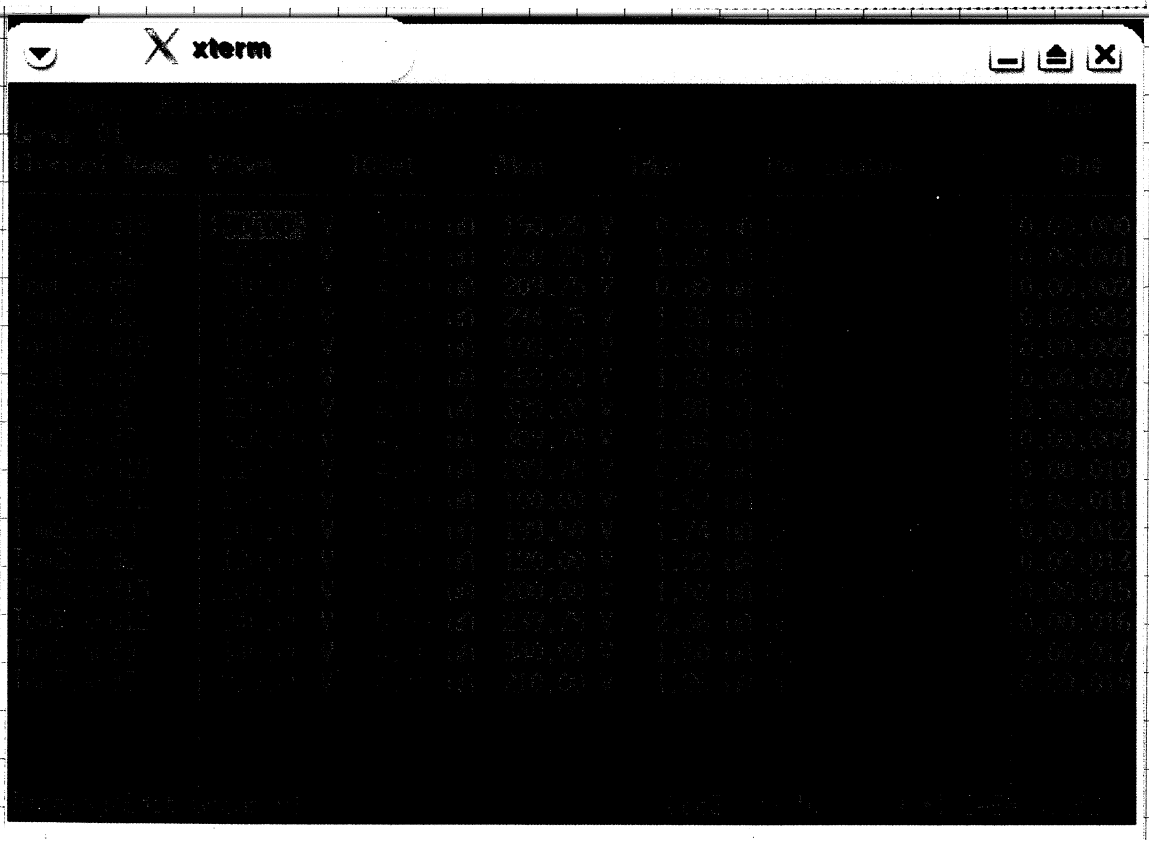
Run# 240	Trigger				Date:10/__/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP +CAT	On shift: V+D
E/A=33 MeV	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Alpha source					

Comments:

Run# 241	Trigger				Date: 10/23/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP +CoI	On shift:
E/A=33 MeV					V+D
Alpha source	Target : (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: _____





Taken at around 5:05 AM on Tue 10/23/07

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.00 V	39.14 0.37	23.02 0.21	26.03 0.24	24.61 0.23
HiRA Tow1 Reg	HiRA Tow1 TC0	HiRA Tow1 TC1	HiRA Tow1 TC2	HiRA Tow1 TC3
5.02 V	31.31 0.28	22.53 0.21	25.59 0.22	28.15 0.26
HiRA Tow2 Reg	HiRA Tow2 TC0	HiRA Tow2 TC1	HiRA Tow2 TC2	HiRA Tow2 TC3
5.00 V	34.11 0.32	22.27 0.22	25.35 0.23	24.86 0.24
HiRA Tow3 Reg	HiRA Tow3 TC0	HiRA Tow3 TC1	HiRA Tow3 TC2	HiRA Tow3 TC3
5.00 V	28.75 0.28	22.36 0.22	25.80 0.25	32.40 0.31
HiRA Tow4 Reg	HiRA Tow4 TC0	HiRA Tow4 TC1	HiRA Tow4 TC2	HiRA Tow4 TC3
5.00 V	34.48 0.35	23.36 0.24	25.66 0.26	25.70 0.27
HiRA Tow5 Reg	HiRA Tow5 TC0	HiRA Tow5 TC1	HiRA Tow5 TC2	HiRA Tow3 TCDet0
5.00 V	35.84 0.38	24.95 0.25	26.91 0.27	25.23 0.27

Page 02: 0-5 V ADC Thermocouple Temp 04:59:35

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15

HiRA Tow4 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow2 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow5 Reg	LO ALARM	Clrd 20/15:22 P01
HiRA Tow3 Reg	LO ALARM	Clrd 20/15:22 P01

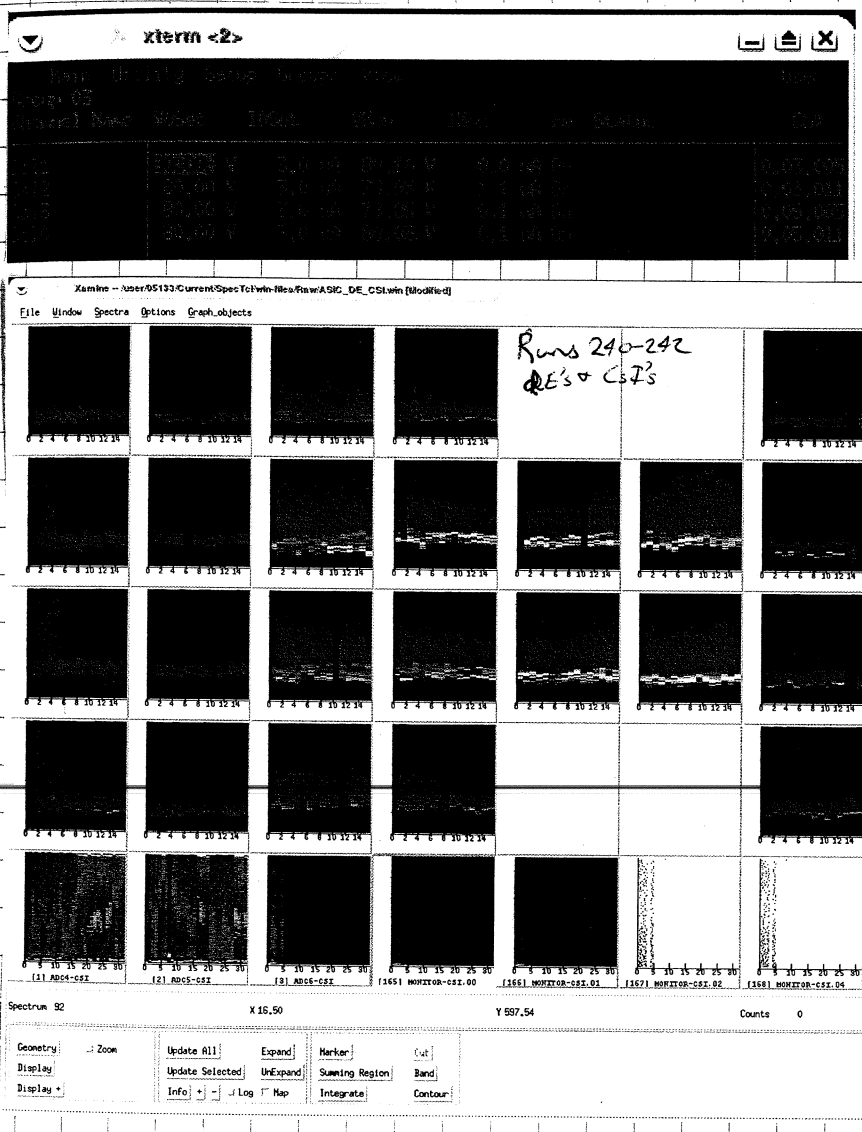
Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.34 0.22	27.24 0.27	25.39 0.24	25.53 0.26
Tower 0 Upper	Tower 1 Upper	Tower 2 Upper	Tower 3 Upper
24.99 0.24	26.21 0.26	24.27 0.22	24.25 0.25

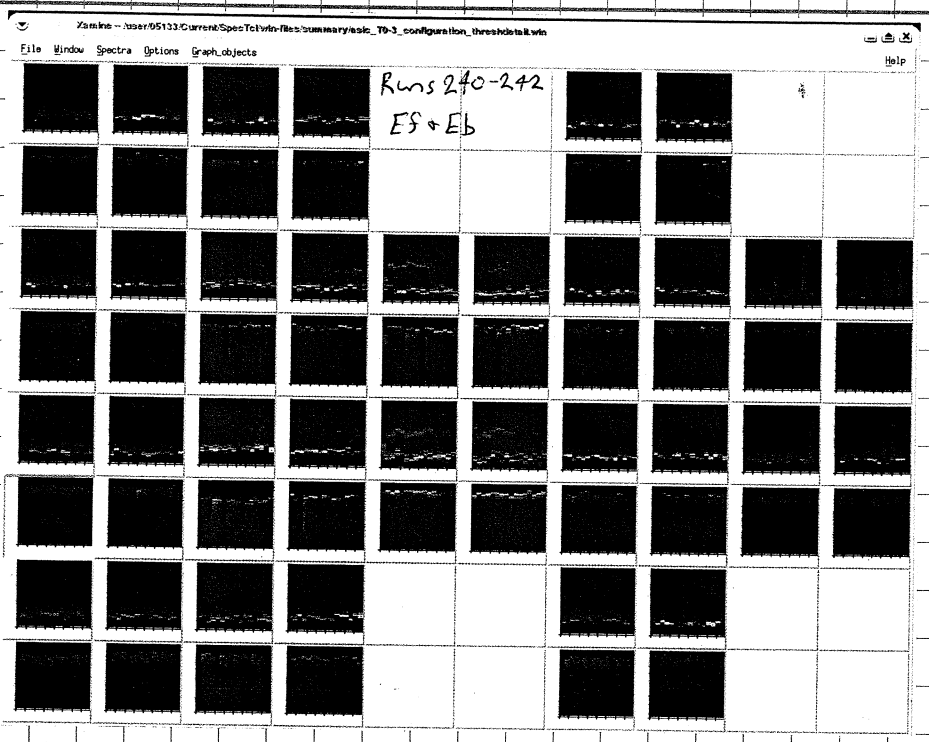
	Vbias(V)	I(μA)
Back 0	100.1	4.07
Back 1	100.0	6.22
Back 2	100.0	5.35
Back 3	100.1	6.66
MCP 0	2300	~1/8
MCP 1	2300	~1/8

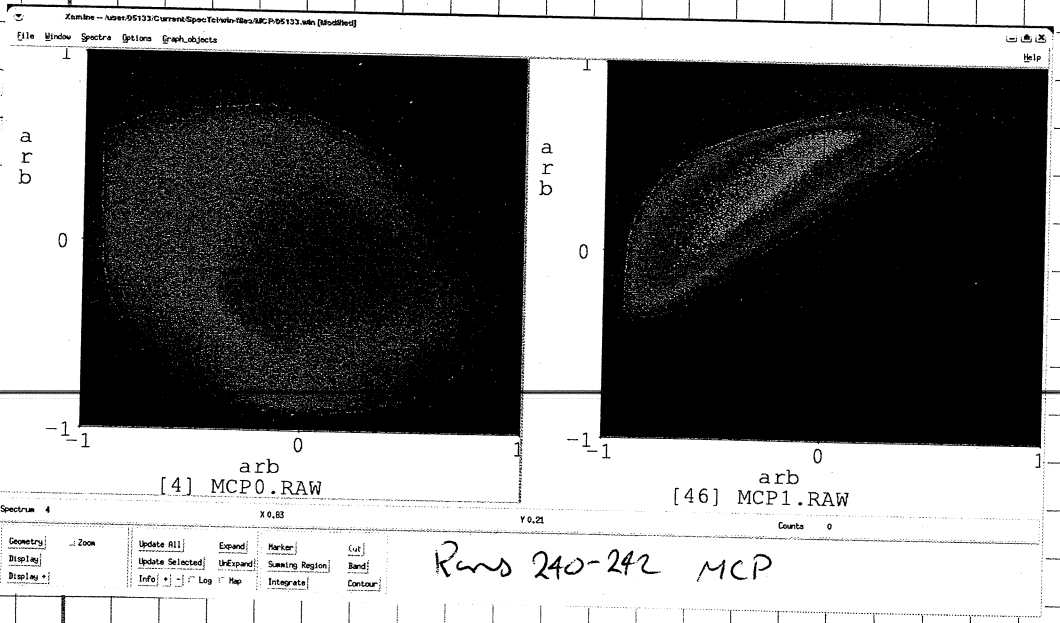
Taken at about 5:20 AM
Tuesday 10/23/07

up from 6.18

up from 6.61







Run# 243, 244, 245, 246, 247	**Trigger**	**Date:** 10/23/2007
Beam: ^{36}Ar; ^{34}Ar **E/A=33 MeV** **Alpha source**	HiRA ✓ S800 ✓ Coin. ✓ MCP ✓	**On shift:** V vs D, Mike
	Target : (CH2)n-1, (CH2)n-2, carbon → position=	

Comments: More data.

S3AT

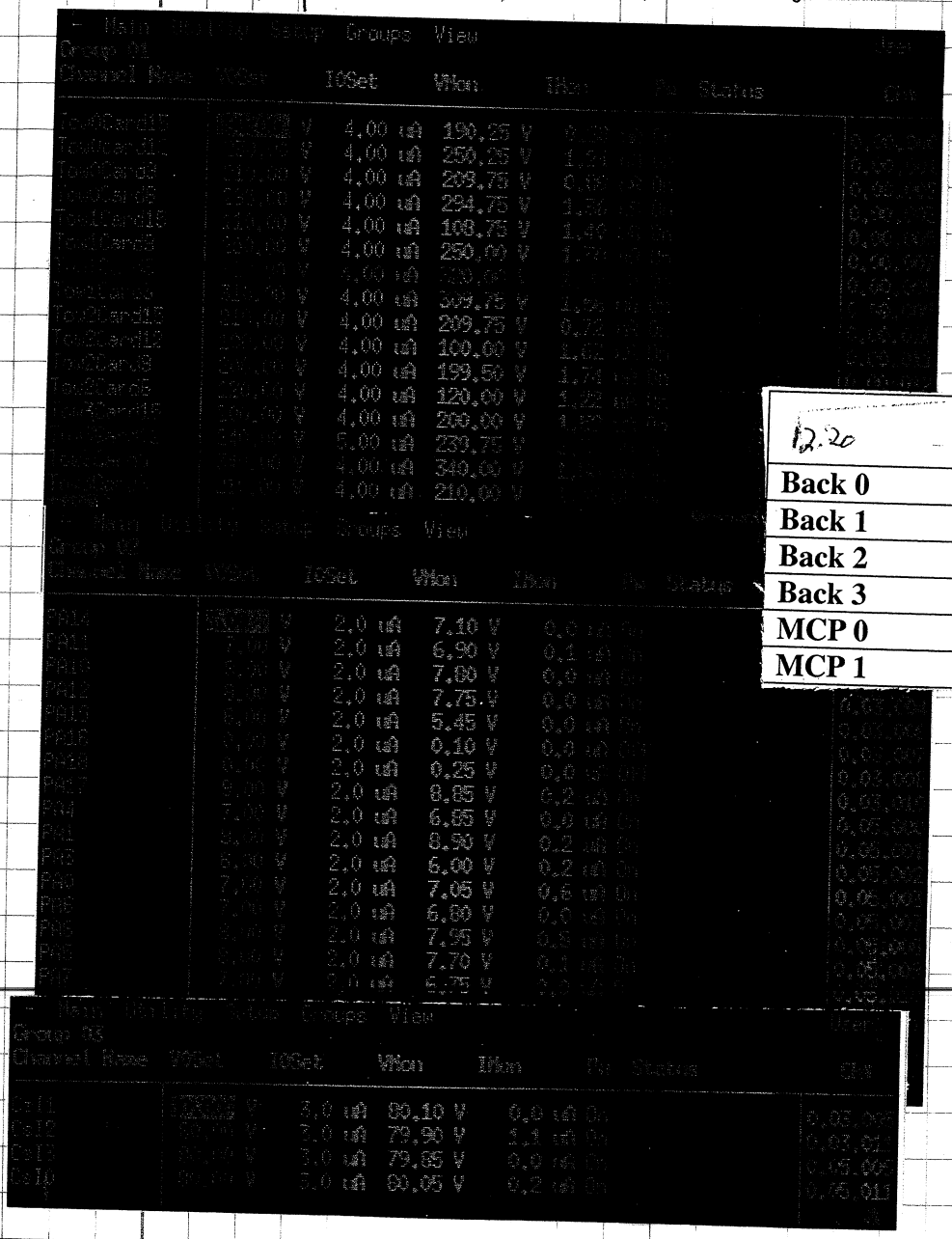
Noticed Hira Singles were not downscaled. Downscales
↳ HiRA singles were not supposed to be downscaled!!
For comparison w/ ^{34}Ar secondary beam
note 24/10/07
0:10AM

A1900 "Print23Oct07_04h58.txt" Tuesday 04:58:05 2007-10-23 A1900
Moe V3 *** 05133 ***
Expt: 05133 "Neutron transf. rxns ... Ar isotopes" [Betty Tsang] Line: S800 [8]
Beam: 36 Ar 7+ 13.06 MeV/nuc (K500) 18+ 150.00 MeV/nuc (K1200)
tt 1> ECR, Apertures: SCECR 150.0; 25.0; 25.0 mm SHVBI: 23.2300 kV
K500 a,b: 594 A, 484 A K1200: 724 A, -227 A RF: 23.83840 MHz
A1900 Optics: L19S3I_Focus60x30HiRA.data

	Rigidity	Field	Radius	(live)	Difference	(Field*Radius)
Seg 0:	3.66957 Tm					
Seg 1:	2.27293 Tm	0.73353 T	3.09882 m	3.09862 m	0.00644 %	(2.27308 Tm)
Seg 2:	2.27293 Tm	0.73288 T	3.10148 m	3.10138 m	0.00320 %	(2.27300 Tm)
Seg 3:	1.62300 Tm	0.52453 T	3.09397 m	3.09421 m	-0.00778 %	(1.62287 Tm)
Seg 4:	1.62300 Tm	0.52433 T	3.09547 m	3.09540 m	0.00250 %	(1.62304 Tm)
Seg 5:	1.57410 Tm					
Seg 6:	1.57410 Tm					
Seg 7:	1.57410 Tm					
Seg 8:	1.49000 Tm					
A116DS		0.50700 T	3.10539 m	3.10473 m	0.02104 %	
A132DS		-0.49200 T	3.19847 m	3.19939 m	-0.02866 %	
A165DS		0.26635 T	5.91156 m	5.90989 m	0.02825 %	
I200DS		0.49890 T	3.15484 m	3.15514 m	-0.00953 %	
I205DS		0.50109 T	3.14172 m	3.14135 m	0.01162 %	
I223DS		0.51833 T	3.03688 m	3.03687 m	0.00040 %	
I228DS		0.48646 T	3.23519 m	3.23583 m	-0.01961 %	
I265DS		0.53105 T	2.80630 m	2.80576 m	0.01931 %	
I269DS		0.53106 T	2.80597 m	2.80571 m	0.00929 %	

Z001TL: out, Z013TL: Be 47; Z014TL out
Z015TL: Be 1480, Z016TL out
Z030BC Beam Stop: -126.88 mm
Z037L,R: -17.00, 17.00 mm or -0.58, 0.58 width= 1.15 %; Z037DC: out
057MS: .5%, Z061MS: out
Z059DC: out, Z062SC: out, Z059TL: Al 375
Z082 XC,G,YG: 0.16, 203.25, 202.05 mm Z082TL: out
Z103DC: out, Z104DC: 5 mil BC400; Z106DC: out, Z107DC_U/_L: out/out
Z105TL: out, Slits: nothing installed; PPACs: gas on; Z107 outlim: Y
Z104 XC,G;YC,G: -0.00, 10.00; 0.00, 6.00 mm
Slits: I181 XC,G,YC,G: 0.95, 99.29; 0.01, 49.94
I187: out, I188: out, I189: out, I190: out
I213: out, i214: out, I215: out, I216: out
I214DC Detector Drive: out
I259XM: 0.1096 XP: 0.0000 YM: 0.0000 YP: 1.7182

12:20 pm 10/23/07 bias check



12.20	Vbias(V)	I(μA)
Back 0	100.1	4.08
Back 1	100.0	6.25
Back 2	100.0	5.36
Back 3	100.1	6.74
MCP 0	1092	
MCP 1	1091	

since start of expt. tdc

T156	+	.34	6 12
T3512	+	.24	5
T353	+	.42	19

Worrying.

Run#248	Trigger				Date:10/23/2007
Beam: ^{36}Ar; ^{34}Ar	HiRA	S800	Coin.	MCP +CsI	On shift: Mocha Dan, Sun Betty
E/A=33 MeV	Target : (CH2)n-1, (CH2)n-2, carbon → position=				
Alpha source					

Comments: increased momentum acceptance in image 2, decreased S800 slits

Run#249	Trigger	Date:10/23/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA 1/3 · S800 · Coin. · MCP Target : (CH2)n-1, (CH2)n-2, carbon → ~~position~~=	On shift:

Comments: Downscaled HiRA

Run#250→256	Trigger	Date:10/23/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA · S800 · Coin. · MCP Target : (CH2)n-1, (CH2)n-2, carbon → position=	On shift:

Comments: did not downscale HiRA. Welding in lab throughout 252, 255.

Run# 257	Trigger	Date:10/23/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	HiRA · S800 · Coin. · MCP Target : (CH2)n-1, (CH2)n-2, carbon → position=	On shift: Dan Micha, Betty, Sun, Bill

Comments: retuned beam befor 257

Run# 258-263	Trigger	Date:10/24/2007
Beam: ^{36}Ar; ~~^{34}Ar~~ E/A=33 MeV Alpha source	~~HiRA~~ · S800 · Coin. · ~~MCP~~ Target : (CH2)n-1, (CH2)n-2, carbon → position= 49.6	On shift:

Comments: Data. Same as previous after Beam tuning.

88

6:00 pm 10/23/07 AG

Main Utility Setup Groups View User

Group 01

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Ch#
Tow0Card15	200.00 V	4.00 uA	190.25 V	0.66 uA	On		0.00.00
Tow0Card12	250.00 V	4.00 uA	250.25 V	1.24 uA	On		0.00.00
Tow0Card9	210.00 V	4.00 uA	209.75 V	0.80 uA	On		0.00.00
Tow0Card6	295.00 V	4.00 uA	294.75 V	1.36 uA	On		0.00.00
Tow1Card15	110.00 V	4.00 uA	109.25 V	1.40 uA	On		0.00.00
Tow1Card9	250.00 V	4.00 uA	250.00 V	1.30 uA	On		0.00.00
Tow1Card6	320.00 V	4.00 uA	320.00 V	1.90 uA	On		0.00.00
Tow1Card3	310.00 V	4.00 uA	309.75 V	1.56 uA	On		0.00.00
Tow2Card15	210.00 V	4.00 uA	209.75 V	0.72 uA	On		0.00.00
Tow2Card12	100.00 V	4.00 uA	100.00 V	1.62 uA	On		0.00.01
Tow2Card9	200.00 V	4.00 uA	199.50 V	1.74 uA	On		0.00.01
Tow2Card6	120.00 V	4.00 uA	120.00 V	1.22 uA	On		0.00.01
Tow3Card15	200.00 V	4.00 uA	200.00 V	1.52 uA	On		0.00.01
Tow3Card12	240.00 V	5.00 uA	239.75 V	2.38 uA	On		0.00.01
Tow3Card9	340.00 V	4.00 uA	340.00 V	1.50 uA	On		0.00.01
Tow3Card3	210.00 V	4.00 uA	210.00 V	1.36 uA	On		0.00.01

Display/Edit Group 01 LocEn VO IO N +| CAEN SY2527

Main Utility Setup Groups View User

Group 02

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Ch#
HA14	7.00 V	2.0 uA	7.10 V	0.0 uA	On		0.03.000
HA11	7.00 V	2.0 uA	6.90 V	0.1 uA	On		0.03.001
HA10	8.00 V	2.0 uA	7.80 V	0.0 uA	On		0.03.003
HA12	8.00 V	2.0 uA	7.70 V	0.0 uA	On		0.03.004
HA19	6.00 V	2.0 uA	5.45 V	0.0 uA	On		0.03.006
HA16	0.00 V	2.0 uA	0.10 V	0.0 uA	Off		0.03.007
HA18	0.00 V	2.0 uA	0.25 V	0.0 uA	Off		0.03.008
HA17	8.00 V	2.0 uA	8.85 V	0.1 uA	On		0.03.010
HA4	7.00 V	2.0 uA	6.85 V	0.0 uA	On		0.05.000
HA1	9.00 V	2.0 uA	8.90 V	0.2 uA	On		0.05.001
HA3	6.00 V	2.0 uA	6.00 V	0.2 uA	On		0.05.002
HA0	7.00 V	2.0 uA	7.05 V	0.6 uA	On		0.05.003
HA6	7.00 V	2.0 uA	6.80 V	0.0 uA	On		0.05.007
HA8	8.00 V	2.0 uA	7.95 V	0.4 uA	On		0.05.008
HA5	8.00 V	2.0 uA	7.70 V	0.1 uA	On		0.05.009
HA7	7.00 V	2.0 uA	6.75 V	0.0 uA	On		0.05.010

Display/Edit Group 02 LocEn VO IO N +| CAEN SY2527

Main Utility Setup Groups View User

Group 03

Channel Name	VOSet	IOSet	VMon	IMon	Pw	Status	Ch#
HA11	80.00 V	3.0 uA	80.05 V	0.0 uA	On		0.03.005
HA12	80.00 V	3.0 uA	79.90 V	1.1 uA	On		0.03.011
HA13	80.00 V	3.0 uA	79.85 V	0.0 uA	On		0.05.005
HA14	80.00 V	3.0 uA	80.05 V	0.1 uA	On		0.05.011

CRDC calibrations

CRDC 1	Run # 176		CRDC 2	Run # 177	
5 points	Y	Hole #	5 points ⇒	Y	Hole #
0.99684	1393.2	33		1493.3	33
corr: ~~0.88863~~ −0.11106	1399.5	34	Corr: 0.99989	1487.4	34
slope: ~~0.05757~~	1192.4	57	slope: 0.082466	950	45
offset: ~~[illegible]~~ 154.1817	1982.1	28	offset: −137.8988	2038.4	28
	1147.8	36		1899.7	58

Note: For CRDC 1, the ~~map~~ is upside down. So one should pick the hole #'s as if it's upside down. The ~~number~~ Y values are correct. See Andy.

Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	Trigger				Date: 10/22/2007 On shift:
	HiRA	S800	Coin.	~~MCP~~	
	Target: (CH2)n-1, (CH2)n-2, carbon → position= 9, 6				

Comments: All EB + Foils (MCP) Biases are tripped (When??) CAEN ~~for for freeze~~, ~~Rst~~ froze, restart everything. Went to the vault and restart the CAEN

* File = Oct23.dat - the last motherboard control file (before we reloaded) were saved as Oct23.dat

10/23/07 11:06 pm

	Vbias(V)	I(μA)
Back 0	100.0	3.82
Back 1	100.2	5.82
Back 2	100.0	5.05
Back 3	100.1	6.50
MCP 0	1000	
MCP 1	1000	

Run# 765 Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	Trigger				Date: 10/23/2007 On shift: B, Ll,
	HiRA	S800	Coin.	MCP	
	Target: (CH2)n-1, (CH2)n-2, carbon → position=				

Comments: Restarted everything → Data coming back
The motherboard control file (before we reloaded the program) was saved as "05133_10232007-2200.setup".

We could not discover the reason why the biases tripped. We put the interlock signal into a latch and a beeper. If it was an interlock trip the beeper will go off.

Just now, the interlock did trip off again. It occurred right as we inserted the key into the red box. There seems to be a sensitivity to static electricity

We think this might be a factor, but are not sure.

Run# 266	Trigger				Date: 10/24/2007
Beam: ^{36}Ar; ^{34}Ar E/A=33 MeV Alpha source	(HiRA)	S800	(Coin.)	MCP	On shift:
	Target : (CH2)n-1, (CH2)n-2, carbon → position= 49.6mm				
Comments:					

We checked coincidence rate and compared it to the numbers for ^{36}Ar:

Coincidence RATE/Mcp.Live

^{36}Ar : Run 153 — $\frac{\text{Coincidence rate}}{\text{Mcp.Live}} = \frac{5.6\times10^{4}/1}{4.2\times10^{8}} = 1.3\times10^{-4}$

^{34}Ar Run 265 : $\frac{\text{Coincidence}}{\text{Mcp Live}} = \frac{3.6\times10^{-5}}{4.7\times10^{8}} = 7.9\times10^{-5}$

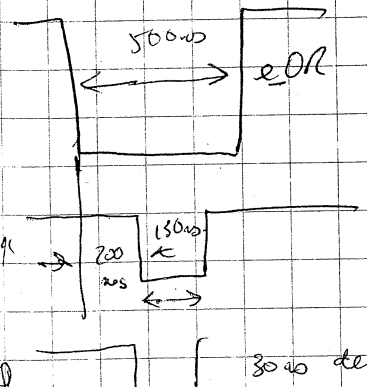
the ratio of for 265 $\frac{\text{Mcp.Live}}{\text{xfp}} = \frac{1}{2.2}$ so the rate with

$\frac{\text{Mcp}}{\text{xfp}} = .65$

the ratio of $\frac{\text{Mcp.}}{\text{xfp}} = \frac{1.26\times10^{5}}{5.82\times10^{5}} = .22$

trigger : coincidence, ext 2 secondary (divisor = 1)

We checked the Mcp coincidence circuit The time relationship



with a rate of 2×10^{5}/s

the random coincidence rate in the gated is

about 230 ns $\times$ 2×10^{-5} = 6.6×10^{-2} or 6.6%

useful to have in order to correct for ~~bad beam~~ dead time

Run# 267	Trigger				Date: 10/22/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Csl	ON shift: 24 V+1)
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments:					

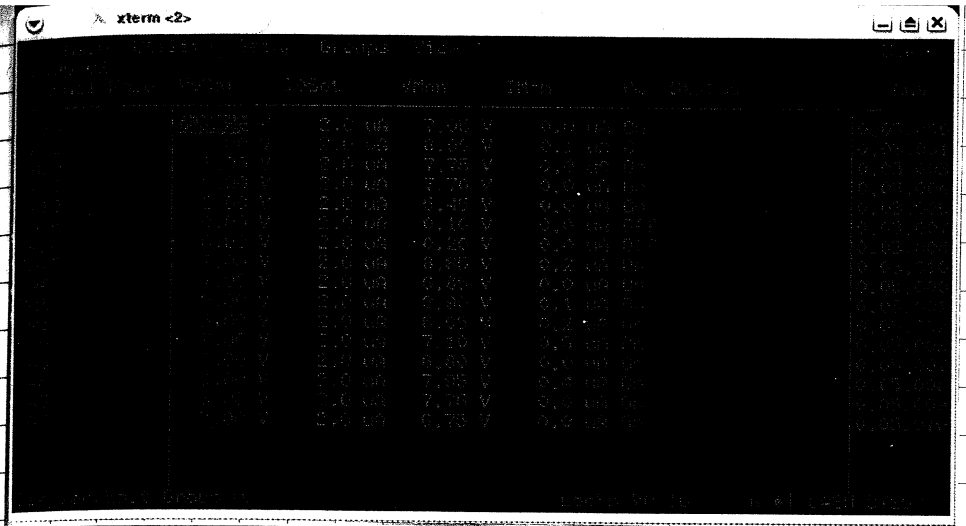
Run# 268	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Csl	ON shift: 24 V+1)
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments:					

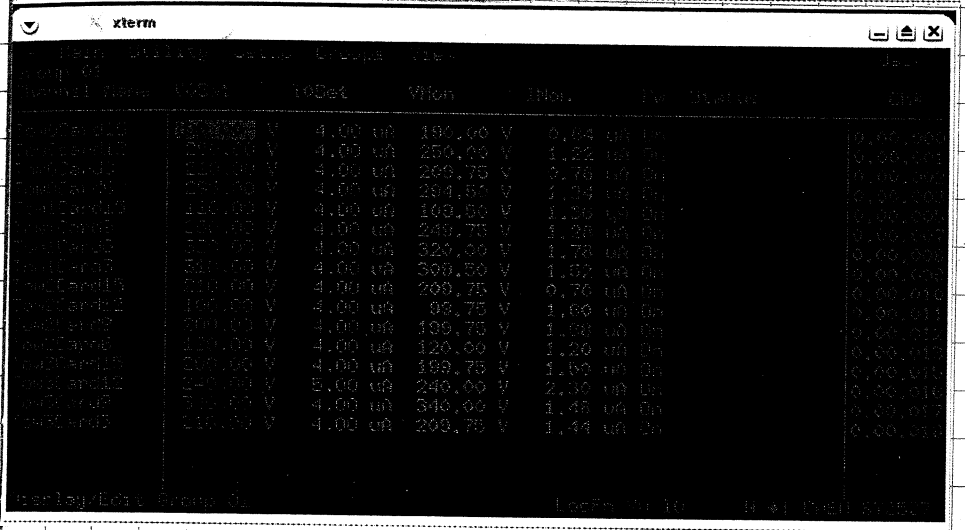
~3:15 • beam to operator for tuning → beam intensity at K200 started to exceed radiation limits, operator exchanged foil + restarted beam

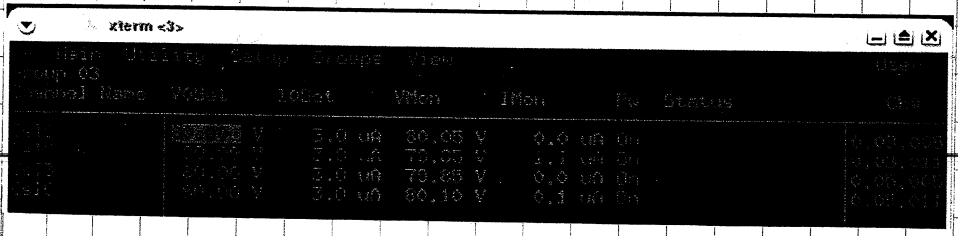
• 1Hz pulser added into CsI + cold E_f and E_b

Run# 269	Trigger				Date: 10/23/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Csl	ON shift: 24 V+1)
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: continuation of data taking after restarting pulser in CsI, E_f, E_b cables					

Run# 270	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Csl	ON shift: 24 V+1)
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: continuation of data taking					







Taken at 5:30 AM 10/24/07

	Vbias(V)	I(μA)
Back 0	100.1	4.03
Back 1	100.2	6.08
Back 2	100.0	5.29
Back 3	100.1	6.80
MCP 0	2300	~1/8
MCP 1	2300	~1/8

Run# 271, 272, 273	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: V+D, Mike
	target :(CH2)n-1,(CH2)n-2 carbon->position=				
comments: same data taking as last run					

Note, Recoil crossfeed on Run 273.

Note: checked E_OR all vs. T0_E_OR to T3_E_OR everything looks fine, for every E_OR there is a T0 OR T3 at least one of T0-T3

Page 01: 0-5 V ADC Reg Volts, & 0-5 V ADC Thermocouple 05:20:04

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15

HiRA Tow5 Reg	LO ALARM	Clrd 23/23:18 P01
HiRA Tow3 Reg	LO ALARM	Clrd 23/23:18 P01
HiRA Tow2 Reg	LO ALARM	Clrd 23/23:18 P01
HiRA Tow0 Reg	LO ALARM	Clrd 23/23:18 P01

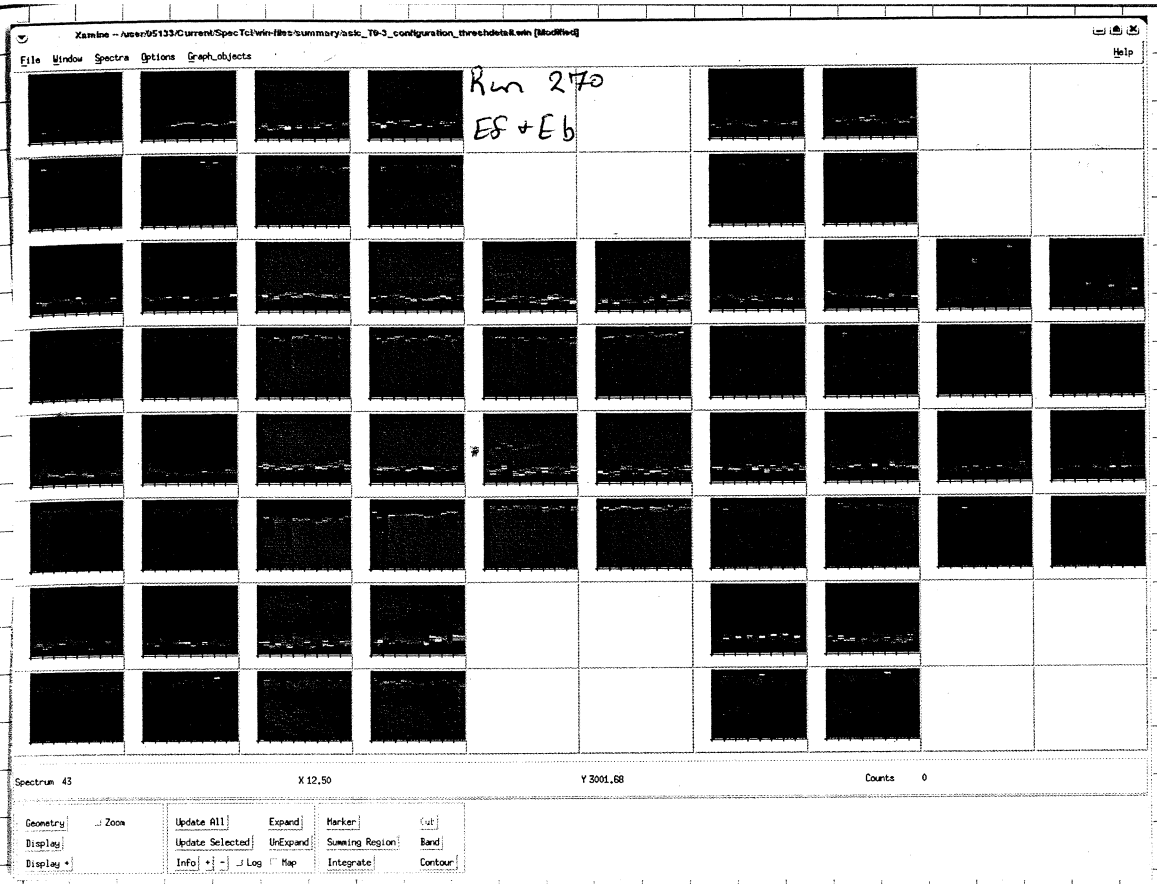
HiRA Tow0 Reg	HiRA Tow0 TC0	HiRA Tow0 TC1	HiRA Tow0 TC2	HiRA Tow0 TC3
5.00 V	39.14 0.37	23.02 0.21	25.91 0.24	24.49 0.23
HiRA Tow1 Reg	HiRA Tow1 TC0	HiRA Tow1 TC1	HiRA Tow1 TC2	HiRA Tow1 TC3
5.01 V	31.43 0.28	22.53 0.21	25.59 0.22	28.03 0.26
HiRA Tow2 Reg	HiRA Tow2 TC0	HiRA Tow2 TC1	HiRA Tow2 TC2	HiRA Tow2 TC3
5.00 V	34.36 0.33	22.27 0.22	25.22 0.23	24.74 0.24
HiRA Tow3 Reg	HiRA Tow3 TC0	HiRA Tow3 TC1	HiRA Tow3 TC2	HiRA Tow3 TC3
5.00 V	28.87 0.28	22.23 0.22	25.80 0.25	32.28 0.31
HiRA Tow4 Reg	HiRA Tow4 TC0	HiRA Tow4 TC1	HiRA Tow4 TC2	HiRA Tow4 TC3
5.00 V	34.48 0.35	23.36 0.24	25.54 0.26	25.70 0.27
HiRA Tow5 Reg	HiRA Tow5 TC0	HiRA Tow5 TC1	HiRA Tow5 TC2	HiRA Tow3 TCDet0
5.00 V	35.71 0.37	24.95 0.25	26.91 0.27	25.23 0.27

Page 02: 0-5 V ADC Thermocouple Temp 05:20:48

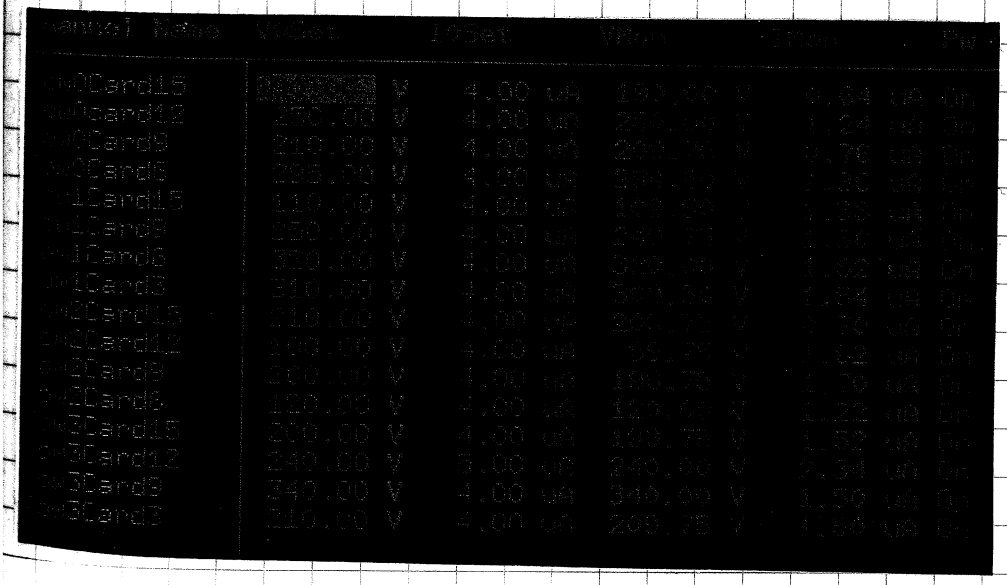
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15

HiRA Tow5 Reg	LO ALARM	Clrd 23/23:18 P01
HiRA Tow3 Reg	LO ALARM	Clrd 23/23:18 P01
HiRA Tow2 Reg	LO ALARM	Clrd 23/23:18 P01
HiRA Tow0 Reg	LO ALARM	Clrd 23/23:18 P01

Tower 0 Lower	Tower 1 Lower	Tower 2 Lower	Tower 3 Lower
25.34 0.22	27.12 0.27	25.39 0.24	25.41 0.26
Tower 0 Upper	Tower 1 Upper	Tower 2 Upper	Tower 3 Upper
24.99 0.24	26.09 0.26	24.14 0.22	24.13 0.25



Run# 274	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+CsI	ON shift: D+V, Dan, Mike, Micha, Betty
	target : (CH2)n-1, (CH2)n-2 carbon->position=				
comments: More data after Readout crashed in Run 273.					



back up to I_{leak} ≈ before bias reset last night. During that time, out of the channels to watch, T156 & T3512 decreased (T556 not back up all the way yet)

T353 still increasing even after bias reset

Now up 0.5V since beginning of expt.

Beam: 34Ar 276, 279 E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: Betty Dan, Sun.
	target : (CH2)n-1,(CH2)n-2 carbon->position=				

comments: Readout crashed at end of run. Data run

Eric Kasten attached the debugger to the readout and DAQ is no longer crashing ~~when the crash.~~

Run# 278 ~~279~~	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: Dan, Betty
	target : (CH2)n-1,(CH2)n-2 carbon->position= 49.6				

comments: ~~Readout~~ DAQ did not crash after 1 hr.. Stop run & ~~re~~start Run 279.

Run# 279	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: ~~Dan~~, Betty
	target : (CH2)n-1,(CH2)n-2 carbon->position= 49.6.				

comments: ~~DAQ~~ crashed after 40 min of data
Run is here

Ron said crashes is due to over sized buffer ?!
and he put a trap in the program.

Run# 280	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: ~~Dan~~ Betty
	target : (CH2)n-1,(CH2)n-2 carbon->position= 49.6				

comments: ~~DAQ~~ crashed.

Run# 281	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+CsI	ON shift: Sue, Betty
	target : (CH2)n-1,(CH2)n-2 carbon->position= 151.45mm.				
comments: CRDC mask calibration same Bf setting as Data taking = 1.46 does not matter					

Run# 282	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+CsI	ON shift: Sue, Betty
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: CRDC2 mask calib. Bf 1.46 (does not matter)					

Run# 283	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+CsI	ON shift: Sue, Betty, Dan, Bill
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: MCP1 mask calibration; 229.45					

Run# 284 285	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+CsI	ON shift:
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: MCP mask calibration 200.6 mm.					

Run# 286 287	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	Coin HiRA	secondary S800	Coinc.	external 2 MCP+Cs	ON shift: Betty
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: ~~Target~~ Motor Die I250X-R : 151.45 F251Y-L: 123.85 I250Y-R 153.2					S800 value closed for Cobkgd run

Run# 288	Trigger				Date: 10/24/2007
Beam: ~~34Ar~~ E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: Bill. Betty. Dan. Sam. Jenny
	target : (CH2)n-1,(CH2)n-2 carbon->position= 49.6mm				
comments: Back to plastic target, Coin + Secondary + external 2					

Run# 289	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc.	MCP+Cs	ON shift: Bill, Betty, Jenny, Andrew, Alisher, Zhiyu
	target : (CH2)n-1,(CH2)n-2 carbon->position=				
comments: Problems with data Ron said the run was "squirrely"					

5

	Vbias(V)	I(μA)
Back 0	100.1	4.04
Back 1	100.2	6.23
Back 2	100.0	5.32
Back 3	100.1	6.97

Run 290, 291 (Data?) ?

Run# 292 / 293	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc. (Secondary)	MCP+CsI	ON shift: Betty, Andy, Jen, Patrick
	target : (CH2)n-1,(CH2)n-2 carbon->position= 151.45				

comments: background, Stop because the EB bias tripped. Restart ~~any of~~ another run

	Vbias(V)	I(μA)
Back 0	100.1	4.1
Back 1	100.2	6.28
Back 2	100.1	5.37
Back 3	100.1	7.05
MCP 0		
MCP 1		

Run# 294	Trigger				Date: 10/24/2007
Beam: 34Ar E/A=33MeV alpha source	HiRA	S800	Coinc. (Secondary + extend 2)	MCP+CsI	ON shift:
	target : (CH2)n-1,(CH2)n-2 carbon->position=				

comments: Carbon, background.

~10PM chamber vented and opened to exchange targets
(ask SUN + ANDY + BETTY for details)

↳ door frame + O'rings cleaned before closing

~11PM pumping again
~12PM vacuum ~ 5.0E-5 Torr

3AM vacuum ~ 1.0E-5 Torr

Run# 295	Trigger					Date:10/27/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source pulser	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____

Bρ: _____ Attenuation:_____

Comments: pulser ramp on T4,5

Run# 296	Trigger					Date:10/27/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source pulser	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____

Bρ: _____ Attenuation:_____

Comments: pulser ramp on T3

Run# 297	Trigger					Date:10/27/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source pulser	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____

Bρ: _____ Attenuation:_____

Comments: pulser ramp on T2

Run# 298	Trigger					Date:10/27/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source pulser	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____

Bρ: _____ Attenuation:_____

Comments: pulser ramp on T1

Run# 299						Date: 10/21/2007
Beam: ^{46}Ar E/A=33 MeV Alpha source pulser	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					
MCP 1: _____ XFP: _____ Live trigger: _____						
Bρ: _____ Attenuation: _____						
Comments: pulser ramp on TO						

Run# 300						Date: 10/21/2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					
MCP 1: _____ XFP: _____ Live trigger: _____						
Bρ: _____ Attenuation: _____						
Comments: α- calibration						

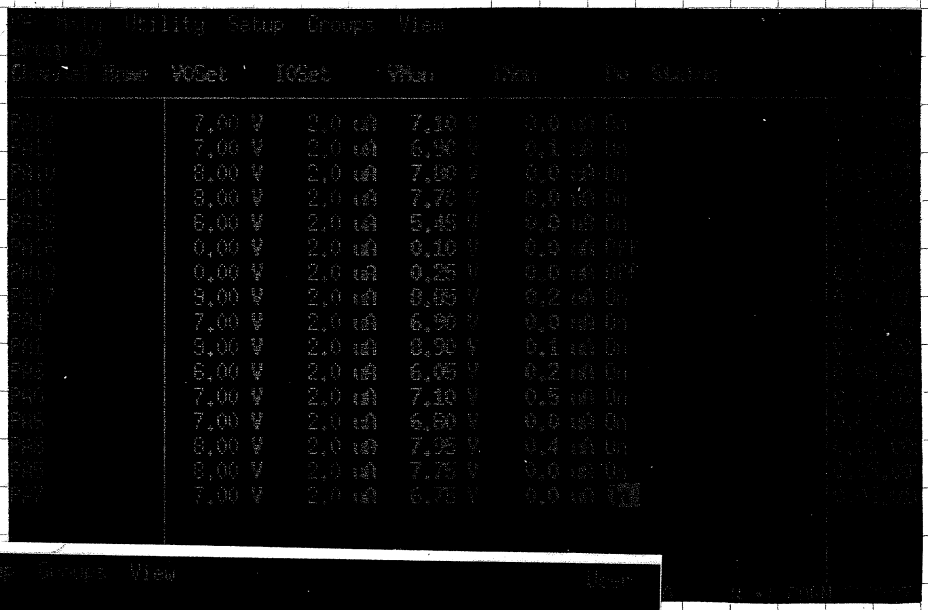
Run# 301						Date: 10/21/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					
MCP 1: _____ XFP: _____ Live trigger: _____						
Bρ: _____ Attenuation: _____						
Comments:						

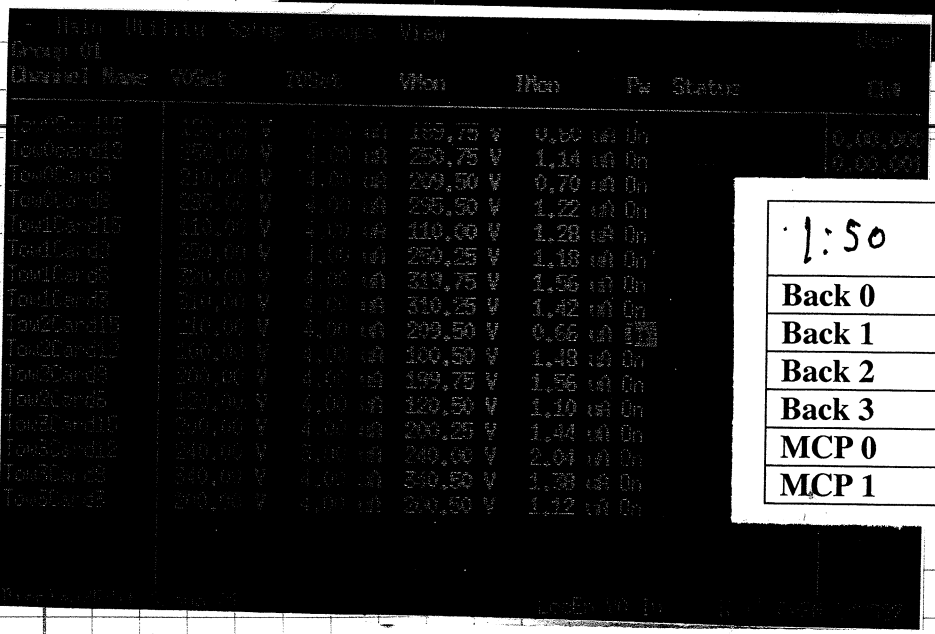
Run# 302						Date: 10/21/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					
MCP 1: _____ XFP: _____ Live trigger: _____						
Bρ: _____ Attenuation: _____						
Comments:						

Note: Tel19 should be from NOW on biased to 300Volts only instead of original 310V
↳ resolution and overall performance should improve

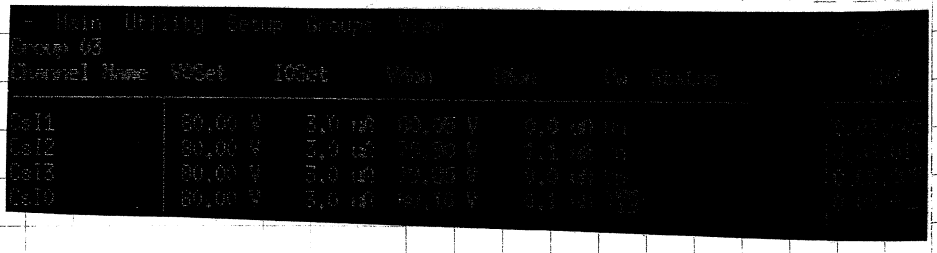
10/25/07 12:00 noon.
Bill tried to use a voltmeter on the rack with the MCP and EB bias supplies, and the EB's tripped. Watch for shocks, discharge yourself before touching.

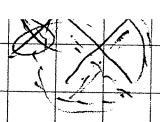
1:45 pm





1:50	Vbias(V)	I(μA)
Back 0	100.0	3.75
Back 1	100.02	5.60
Back 2	100.8	4.88
Back 3	100.8	6.10
MCP 0		
MCP 1		



beam is anyway off to the left  beam, 90% of view X.

Run# 303	Trigger					Date:10/25/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	(S800)	On shift: everyone
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: 49.6 Target drive (if moved) :					
MCP 1: 153.471 XFP: 123,837 Live trigger: 280.0						
Bρ: 2.128 Attenuation: 1k						
Comments: beam at S800 focal plane, calibration						

Run# 304	Trigger					Date:10/25/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	(S800)	On shift: everyone
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					
MCP 1: 153.471 XFP: 123.837 Live trigger: 268.00						
Bρ: 2.128 Attenuation: 1k						
Comments: beam at S800 focal plane, calibration						

Run# 305	Trigger					Date:10/25/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	~~Ext 2~~	(Ext 1)	(S800)	On shift: everyone
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, (mask), blank → position: 27.6 Target drive (if moved) :					
MCP 1: 153.471 XFP: 123,837 Live trigger: 100						
Bρ: 2.1308 Attenuation: 1						
Comments: Mask gun central hole (Trigger S800) calibration						

Run# 306	Trigger					Date: 10/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: 262.5 mm (shown in program)					
MCP 1: _____ XFP: _____ Live trigger: _____ Bρ: _____ (segment 8) Attenuation: _____ Comments: Target mask (upper one) 5mm down (162.5mm)					I250X-R Reaction	I251Y-R MCP0
					I250Y-R MCP1	

Run# 307	Trigger					Date: 10/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: 267.5 mm (shown in program)					
MCP 1: _____ XFP: _____ Live trigger: _____ Bρ: _____ (segment 8) Attenuation: _____ Comments: Mask calibration after beam is turned.					I250X-R Reaction	I251Y-R MCP0
					I250Y-R MCP1	

Run# 308	Trigger					Date: 10/
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)					
MCP 1: _____ XFP: _____ Live trigger: _____ Bρ: _____ (segment 8) Attenuation: _____ Comments: Mask calibration upper 2 holes.					I250X-R Reaction	I251Y-R MCP0
					I250Y-R MCP1	

Run# 309	Trigger					On shift:
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	
	Target = (CH2)n: ~~25um~~; 75um; 100um, carbon, viewer, mask, blank → ~~position: 300.6~~ (shown in program)					
MCP 1: _____ XFP: _____ Live trigger: 125 Bρ: 2.069 (segment 8) Attenuation: 3 Comments: MCP0 mask calibration					I250X-R ~~Reaction~~ 49.6	I251Y-R MCP0 800.6
					I250Y-R MCP1	153.9

10/25

Run# 310	**Trigger**					**Date:10/__/07**
Beam: ^{46}**Ar** **E/A=33 MeV** **Alpha source**	~~Coin~~	~~Secondary~~	~~Ext 2~~	**Ext 1**	**S800**	**On shift:** Betty, Jean Patrick, Bill, Andy
Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ **(shown in program)**						
MCP 1: _____ **XFP:** _____ **Live trigger:** ~~270~~ 270 **Bρ:** 2.069 **(segment 8) Attenuation:** 1 **Comments:** MCP1 mask calibration						

	I250X-R Reaction	I251Y-R MCP0
49.6	49.6	123.85
	I250Y-R MCP1	~~229.44~~
	229.44	

~~7~~ 7.40 pm	Vbias(V)	I(μA)
Back 0	100	4.02
Back 1	100	5.98
Back 2	100	5.26
Back 3	100	6.45
MCP 0	~~100~~	~~8~~
MCP 1	~~100~~	~~8~~

Run# 311	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → ~~position:~~ _____ (shown in program)					
MCP 1: _____ XFP: _____ Live trigger: 72 Bρ: 2.0696 (segment 8) Attenuation: 1 Comments: data run					I250X-R Reaction	I251Y-R MCP0
					I250Y-R MCP1	123.85

```
A1900 "Print25Oct07_18h45.txt"  Thursday 18:45:43 2007-10-25  A1900
Moe V3   ***                    46Ar +18 secondary beam ***
Expt: 05133 "Neutron transf. rxns ... Ar isotopes" [Betty Tsang] Line: S800 [8]
Beam: 48 Ca 8+  12.30 MeV/nuc (K500) 20+ 140.00 MeV/nuc (K1200)
<Att    3>  ECR, Apertures: RTECR 150.0; 50.0; 25.0 mm RHVBI: 25.6500 kV
K500 a,b:    664 A,    618 A K1200:    814 A,    -15 A RF:  23.15950 MHz
       A1900 Optics: L19S3I_Focus60x30HiRA.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.25870 Tm
Seg 1:  2.89580 Tm  0.93450 T  3.09882 m    3.09878 m    0.00125 % (2.89584 Tm)
Seg 2:  2.89580 Tm  0.93368 T  3.10148 m    3.10149 m   -0.00040 % (2.89579 Tm)
Seg 3:  2.18010 Tm  0.70460 T  3.09397 m    3.09410 m   -0.00417 % (2.18001 Tm)
Seg 4:  2.18010 Tm  0.70425 T  3.09547 m    3.09565 m   -0.00589 % (2.17997 Tm)
Seg 5:  2.13080 Tm
Seg 6:  2.13080 Tm
Seg 7:  2.13080 Tm
Seg 8:  2.06964 Tm
A116DS              0.68640 T  3.10539 m    3.10431 m    0.03461 %
A132DS             -0.66640 T  3.19847 m    3.19748 m    0.03110 %
A165DS              0.36070 T  5.91156 m    5.90740 m    0.07042 %
I200DS              0.67533 T  3.15484 m    3.15520 m   -0.01133 %
I205DS              0.67806 T  3.14172 m    3.14249 m   -0.02475 %
I223DS              0.73520 T  2.89822 m    2.89826 m   -0.00136 %
I228DS              0.64995 T  3.27820 m    3.27841 m   -0.00615 %
I265DS              0.73719 T  2.80630 m    2.80748 m   -0.04178 %
I269DS              0.73749 T  2.80597 m    2.80633 m   -0.01300 %
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 1763, Z016TL out
Z030BC Beam Stop: -127.01 mm
Z037L,R:  -18.00,  18.00 mm or   -0.61,    0.61 width=   1.22 %; Z037DC:  out
Z057MS: out, Z061MS: 1.0%
Z059DC: out, Z062SC: out, Z059TL: Al 375
Z082 XC,G,YG:    0.16, 203.25, 202.05 mm Z082TL: out
Z103DC: out, Z104DC: 5 mil BC400; Z106DC: out, Z107DC_U/_L: out/out
Z105TL: out, Slits: nothing installed; PPACs: gas on; Z107 outlim: Y
Z104 XC,G;YC,G:    0.00,  10.00;     0.00,    6.00 mm
Slits: I181 XC,G,YC,G:    0.95,  99.29;  -0.04,  50.05
I187: out, I188: out, I189: out, I190: out
I213: out, i214: out, I215: out, I216: out
```

E/A=33 MeV
Alpha source

Coin | Secondary | Ext 2 | Ext 1 | S800

Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)

MCP 1: _____ XFP: _____ Live trigger: _____

Bρ: _____ (segment 8) Attenuation: _____

Comments: continuation of prev At 9pm run stopped for beam tuning

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	

Run 313 → junk

Run# ~~313~~ 314 | Date: 10/__

Beam: ^{46}Ar
E/A=33 MeV
Alpha source

Trigger: Coin | Secondary | Ext 2 | Ext 1 | S800

On shift:

Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)

MCP 1: 237995 XFP: 709877 Live trigger: 83

Bρ: _____ (segment 8) Attenuation: 1

Comments: After beam tuned

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	

Run# 315 | Date: 10/__

Beam: ^{46}Ar
E/A=33 MeV
Alpha source

Trigger: Coin | Secondary | Ext 2 | Ext 1 | S800

On shift:

Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)

MCP 1: 203402 XFP: 598300 Live trigger: 72

Bρ: 2.0696 (segment 8) Attenuation: 1

Comments: Continuation of prev. Run

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	

Run# 316 | Date: 10/__

Beam: ^{46}Ar
E/A=33 MeV
Alpha source

Trigger: Coin | Secondary | Ext 2 | Ext 1 | S800

On shift:

Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)

MCP 1: 209818 XFP: 637580 Live trigger: 96

Bρ: 2.0696 (segment 8) Attenuation: 1

Comments: Continuation of the prev. run

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	

Run# 317 | Date: 10/__

Beam: ^{46}Ar
E/A=33 MeV
Alpha source

Trigger: Coin | Secondary | Ext 2 | Ext 1 | S800

On shift:

Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)

MCP 1: 710990 XFP: 649391 Live trigger: 83

Bρ: 2.0696 (segment 8) Attenuation: 1

Comments: Continuation of prev. run.

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	

Run# 318	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data taking pulser into E$_a$, E$_b$ turned back ON

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

Run# 319	Trigger					Date:10/26/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data

I250X-R Target 49.599	I251Y-R MCP 0 122.837
I250Y-R MCP 1 153.173	Position (mm)

Run# 320	Trigger					Date:10/26/07 2007
Beam: ^{46}Ar E/A=33 MeV	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
Alpha source	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____
Bρ: _____ Attenuation:_____
Comments: continuation of data

Run# 321	Trigger					Date:10/26/07 2007
Beam: ^{46}Ar E/A=33 MeV	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
Alpha source	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____
Bρ: _____ Attenuation:_____
Comments: continuation of data taking

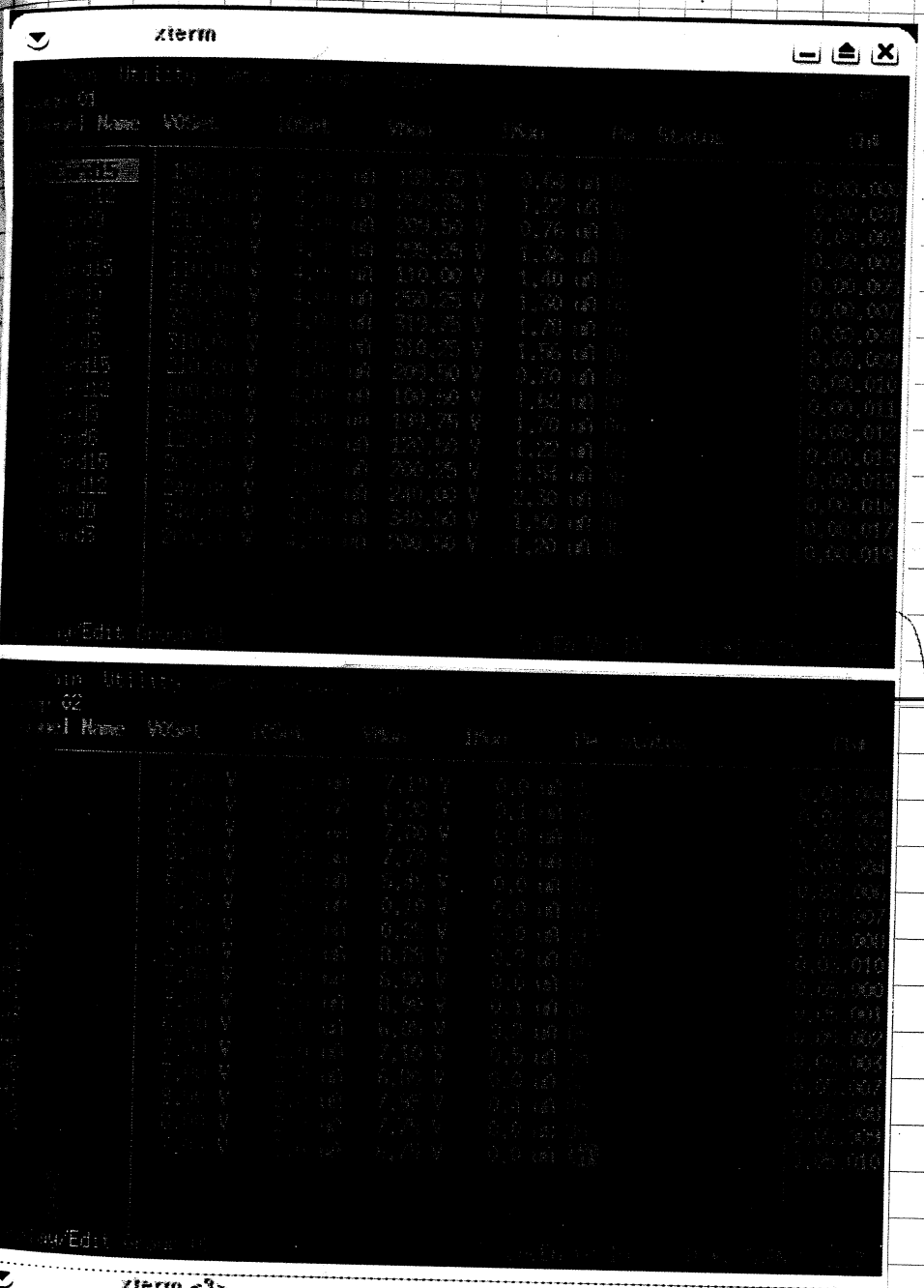
Run# 322	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+J T Mike
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP: _____ ; Live trigger: _____

Bρ: _____ (segment 8); Attenuation: _____

Comments: _____

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)



	Vbias(V)	I(μA)
Back 0	100.0	4.07
Back 1	100.2	6.17
Back 2	100.0	5.34
Back 3	100.1	6.62
MCP 0	2300	~1/8
MCP 1	2300	~1/8

Currents taken at 5:30 AM on Friday 10/26/07

All channels see an increased leakage current from 1:45 pm yesterday. (See page 102)

6:30 am – beam to operator for ramping up the intensity

7:00 am – beam back

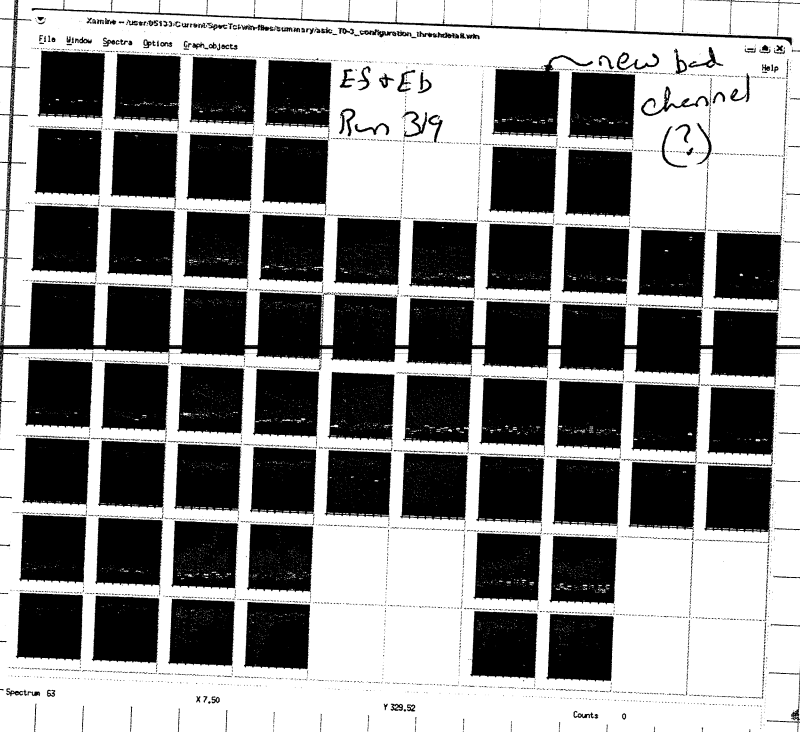
Run# 323, 324, 325, 326	Trigger				Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D, Mike
Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank						

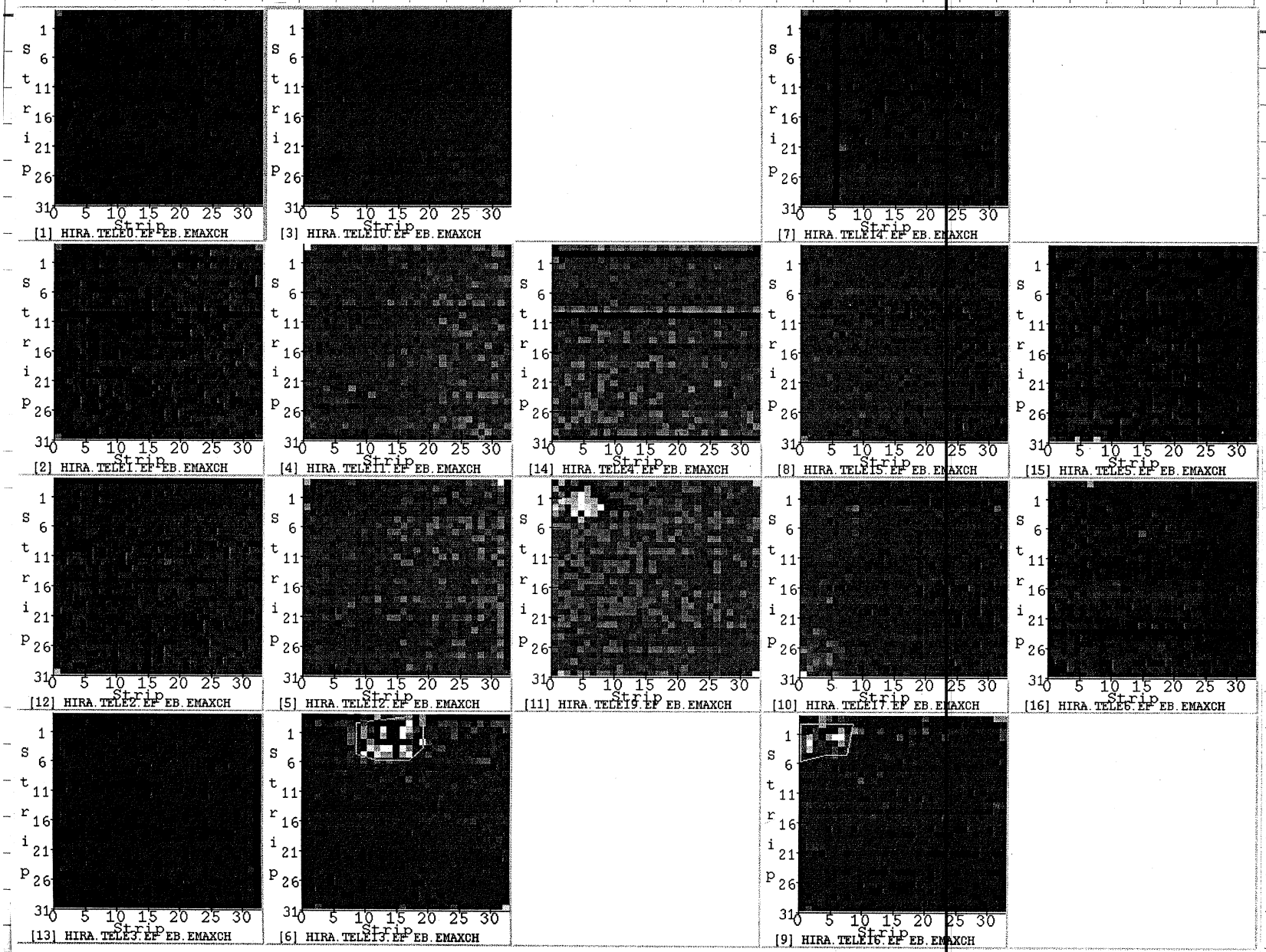
MCP 1: _____ ; XFP:_____; Live trigger: _____

Bρ: _____(segment 8); Attenuation:_____

Comments: continuation

I250X-R Target 49.799	I251Y-R MCP 0 123.837
I250Y-R MCP 1 173.173	Position (mm)




Strip
Strip
[1] HIRA.TELE0.EF EB.EMAXCH
[3] HIRA.TELE10.EF EB.EMAXCH
[7] HIRA.TELE14.EF EB.EMAXCH
[2] HIRA.TELE1.EF EB.EMAXCH
[4] HIRA.TELE11.EF EB.EMAXCH
[14] HIRA.TELE4.EF EB.EMAXCH
[8] HIRA.TELE15.EF EB.EMAXCH
[15] HIRA.TELE5.EF EB.EMAXCH
[12] HIRA.TELE2.EF EB.EMAXCH
[5] HIRA.TELE12.EF EB.EMAXCH
[11] HIRA.TELE19.EF EB.EMAXCH
[10] HIRA.TELE17.EF EB.EMAXCH
[16] HIRA.TELE6.EF EB.EMAXCH
[13] HIRA.TELE3.EF EB.EMAXCH
[6] HIRA.TELE13.EF EB.EMAXCH
[9] HIRA.TELE16.EF EB.EMAXCH

Ask the operator for a factor of 2 more beam. Operator (Ken) retune the cyclotron (K500) so that it can take more beams later. After retuning, beam intensity did not increase. Operator will beat up even to get more beam from source and will take a couple more iterations in tuning.

Betty

Run# 327	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

Scaler rate
MCP 1: 181C ; XFP: 62K ; Live trigger: .80
Bρ: 2.07 (segment 8); Attenuation: 1
Comments: ECR source even heating up

I250X-R Target 49.6	I251Y-R MCP 0 123.8
I250Y-R MCP 1 153.2	Position (mm)

Stop run to retune!

Run# 328	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: morning shift, Patrick
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP: _____ ; Live trigger: 28.04
Bρ: _____ (segment 8); Attenuation: 1
Comments: first run after a day of tuning

I250X-R Target 49.6	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

Run# 329	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Andy, Jenny, Alisher, Billy, Betty
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 537 ; XFP: 1241 ; Live trigger: 211.29
Bρ: _____ (segment 8); Attenuation: _____
Comments: Carbon target uniformity

I250X-R Target 243.88	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

Run# 330	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~~29861~~ 29851 ; XFP: 75063 ; Live trigger: 210

Bρ: 2.0357 (segment 8); Attenuation: 1

Comments: Data taking

I250X-R Target	I251Y-R MCP 0
151.45	123.85
I250Y-R MCP 1	Position (mm)
153.2	

```
A1900 "Print26Oct07_17h43.txt"     Friday 17:43:52 2007-10-26  A1900
Moe V3    ***                        46Ar_100um target ***
Expt: 05133 "Neutron transf. rxns ... Ar isotopes" [Betty Tsang] Line: S800 [8]
Beam: 48 Ca 8+  12.30 MeV/nuc (K500) 20+ 140.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 150.0; 50.0; 25.0 mm RHVBI: 25.6500 kV
K500 a,b:    664 A,    619 A K1200:    814 A,    -15 A RF:  23.15950 MHz
      A1900 Optics: L19S3I_Focus60x30HiRA.data
      Rigidity        Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.25870 Tm
Seg 1:  2.89580 Tm  0.93449 T  3.09882 m    3.09879 m    0.00097 % (2.89583 Tm)
Seg 2:  2.89580 Tm  0.93365 T  3.10148 m    3.10160 m   -0.00380 % (2.89569 Tm)
Seg 3:  2.18010 Tm  0.70463 T  3.09397 m    3.09398 m   -0.00053 % (2.18009 Tm)
Seg 4:  2.18010 Tm  0.70426 T  3.09547 m    3.09558 m   -0.00350 % (2.18002 Tm)
Seg 5:  2.13080 Tm
Seg 6:  2.13080 Tm
Seg 7:  2.13080 Tm
Seg 8:  2.03573 Tm
A116DS              0.68640 T  3.10539 m    3.10431 m    0.03461 %
A132DS             -0.66640 T  3.19847 m    3.19748 m    0.03110 %
A165DS              0.36050 T  5.91156 m    5.91068 m    0.01493 %
I200DS              0.67529 T  3.15484 m    3.15539 m   -0.01725 %
I205DS              0.67808 T  3.14172 m    3.14240 m   -0.02180 %
I223DS              0.73519 T  2.89822 m    2.89830 m   -0.00272 %
I228DS              0.65002 T  3.27820 m    3.27805 m    0.00462 %
I265DS              0.72602 T  2.80630 m    2.80396 m    0.08377 %
I269DS              0.00000 T  2.80597 m    0.00000 m  100.00000 %
Z001TL: out, Z013TL: out; Z014TL out
Z015TL: Be 1763, Z016TL out
Z030BC Beam Stop: -127.01 mm
Z037L,R:  -18.00,  18.00 mm or   -0.61,    0.61 width=   1.22 %; Z037DC:  out
Z057MS: out, Z061MS: 1.0%
Z059DC: out, Z062SC: out, Z059TL: Al 375
Z082 XC,G,YG:    0.16, 203.25, 202.05 mm Z082TL: out
Z103DC: out, Z104DC: 5 mil BC400; Z106DC: out, Z107DC_U/_L: out/out
Z105TL: out, Slits: nothing installed; PPACs: gas on; Z107 outlim: Y
Z104 XC,G;YC,G:    0.00,  10.00;     0.00,    6.00 mm
Slits: I181 XC,G,YC,G:    0.95,  99.29;  -0.04,  50.05
I187: out, I188: out, I189: out, I190: out
I213: out, i214: out, I215: out, I216: out
I214DC Detector Drive: out
I259XM:   0.1096 XP:   0.0000 YM:   0.0000 YP:   1.7182
```

Run# 331	Trigger					Date:10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: 209
Bρ: 5___(segment 8); Attenuation: 4
Comments: Data taking stopped for XFP efficiency optimization

I250X-R Target 151.45	I251Y-R MCP 0 183.85
I250Y-R MCP 1 153.2	Position (mm)

	Vbias(V)	I(μA)
Back 0	100.1	4.06
Back 1	100.2	6.20
Back 2	100.0	5.32
Back 3	100.1	6.71
MCP 0	2,280	71
MCP 1	2,280	85

Run# 332	Trigger					Date:10/__/2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: 23949 XFP: 732370 Live trigger: 218
Bρ: 2.0357 Attenuation: 1
Comments: Data run after XFP is moved

Run# 333	Trigger					Date:10/26/2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP: 653167 Live trigger: 200
Bρ: _____ Attenuation: _____
Comments: Data Run

Run# 334	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP: _____ ; Live trigger: ~~2000~~

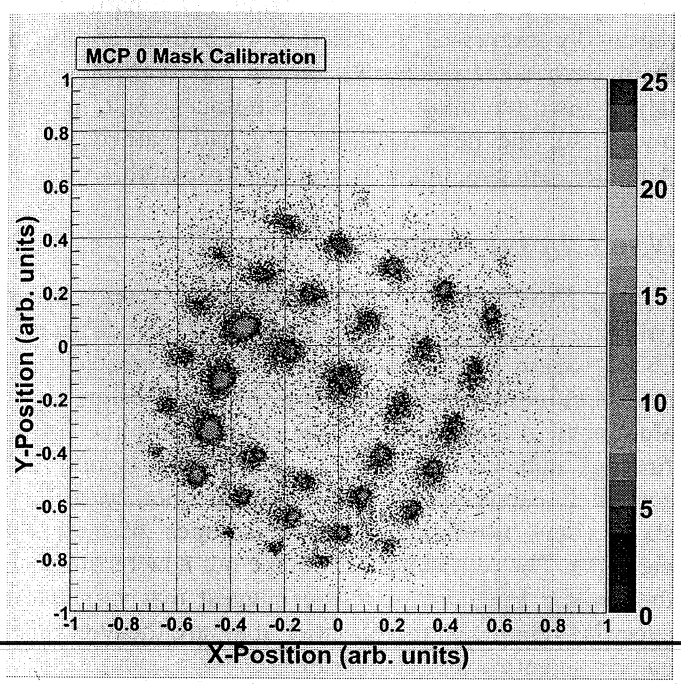
Bρ: _____ (segment 8); Attenuation: _____

Comments: continuation of data taking. Was ~~given~~ stopped for Beam tune.

I250X-R Target 161.45	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

10:00 pm 10/26/07

NSCL green sheet of the week.



The mask pattern used to calibrate the two microchannel plate for Experiment 05133.

Run# 335	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)					

MCP 1: _____ XFP: _____ Live trigger: _____

Bρ: _____ (segment 8) Attenuation: _____

Comments: first data run after beam tune.

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	same

Run# 336	Trigger					Date: 10/24/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~~337~~ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: Bill made something and entered in the notes (elog). (5 min)

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 337	Trigger					Date: 10/24/2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____
Bρ: _____ Attenuation:_____
Comments:_____

Run# 338	Trigger					Date: 10/27/07 2007
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: Target drive (if moved) :					

MCP 1: _____ XFP:_____ Live trigger: _____
Bρ: _____ Attenuation:_____
Comments: Increase the threshold on Tel5 DEs, raised by one tick before this run. Data

Run# 339, 340	Trigger					Date: 10/27/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+J
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data

I250X-R Target	I251Y-R MCP 0
151.449	123.837
I250Y-R MCP 1	Position (mm)
152.127	

Added TTL signals into channels 16-20 of the Peaksensing ADC at slot 6. and Lowered the thresholds of channels 16-31 to 250. This was done during Run 336 But we don't see any bits there yet (as of Run 339) we we need to go downstairs to see what is wrong.

- before run 341 added 5 TTL signals into ADC in slot 6

channel	signal
16	S800
17	HiRA
18	S800 + HiRA coince. - counts too high, seems had to tether right thing plugged in
19	External 2
20	MCP gate

Run# 340	Trigger					Date: 10/27/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data; 5 TTL signal added

I250X-R Target	I251Y-R MCP 0
151.449	123.837
I250Y-R MCP 1	Position (mm)
152.172	

- reset Sparky to see if it helps to improve bit pattern we tele 0 and 10

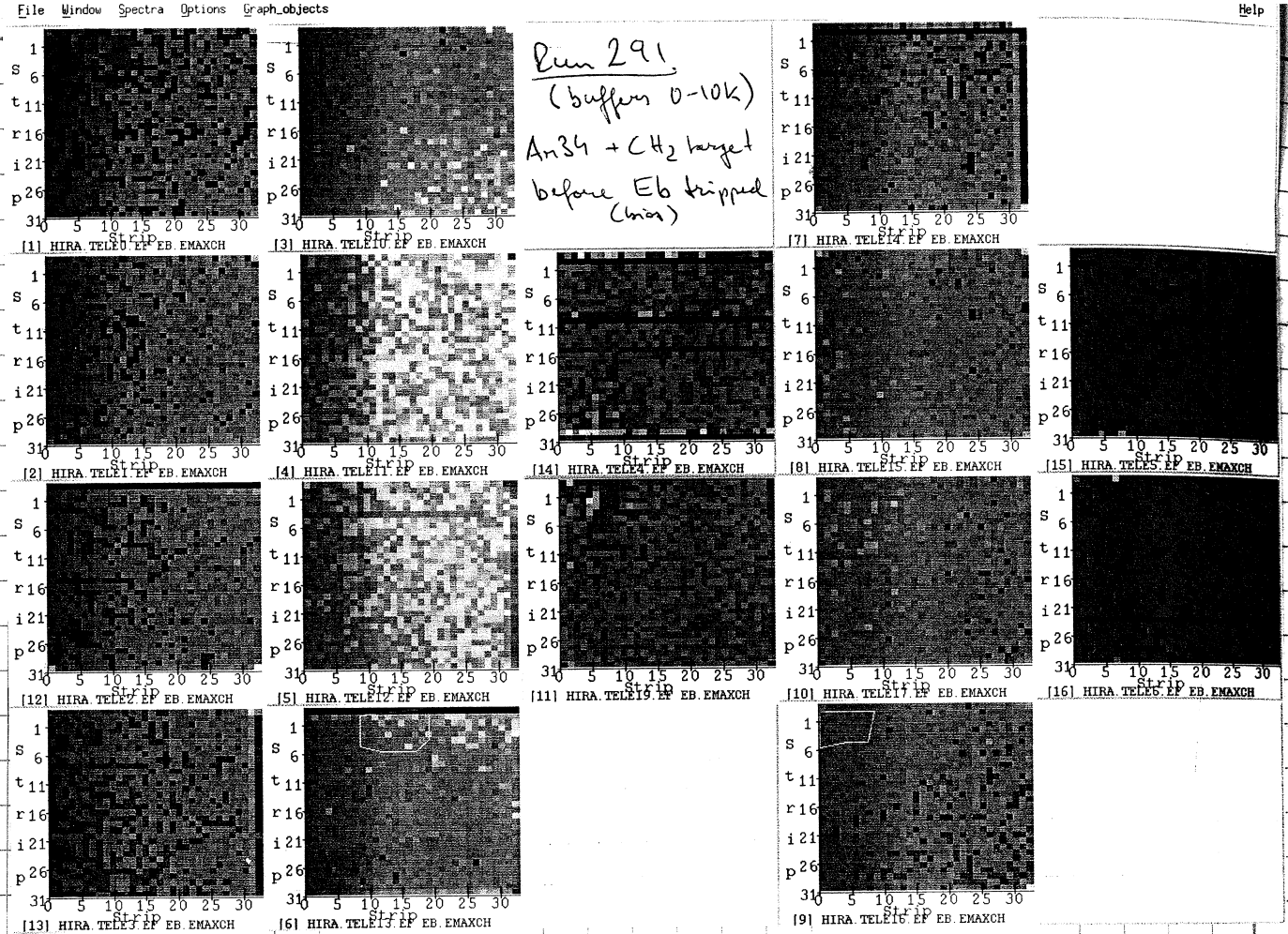
Run# 342	Trigger					Date: 10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data after Sparky reset

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

File Window Spectra Options Graph_objects Help

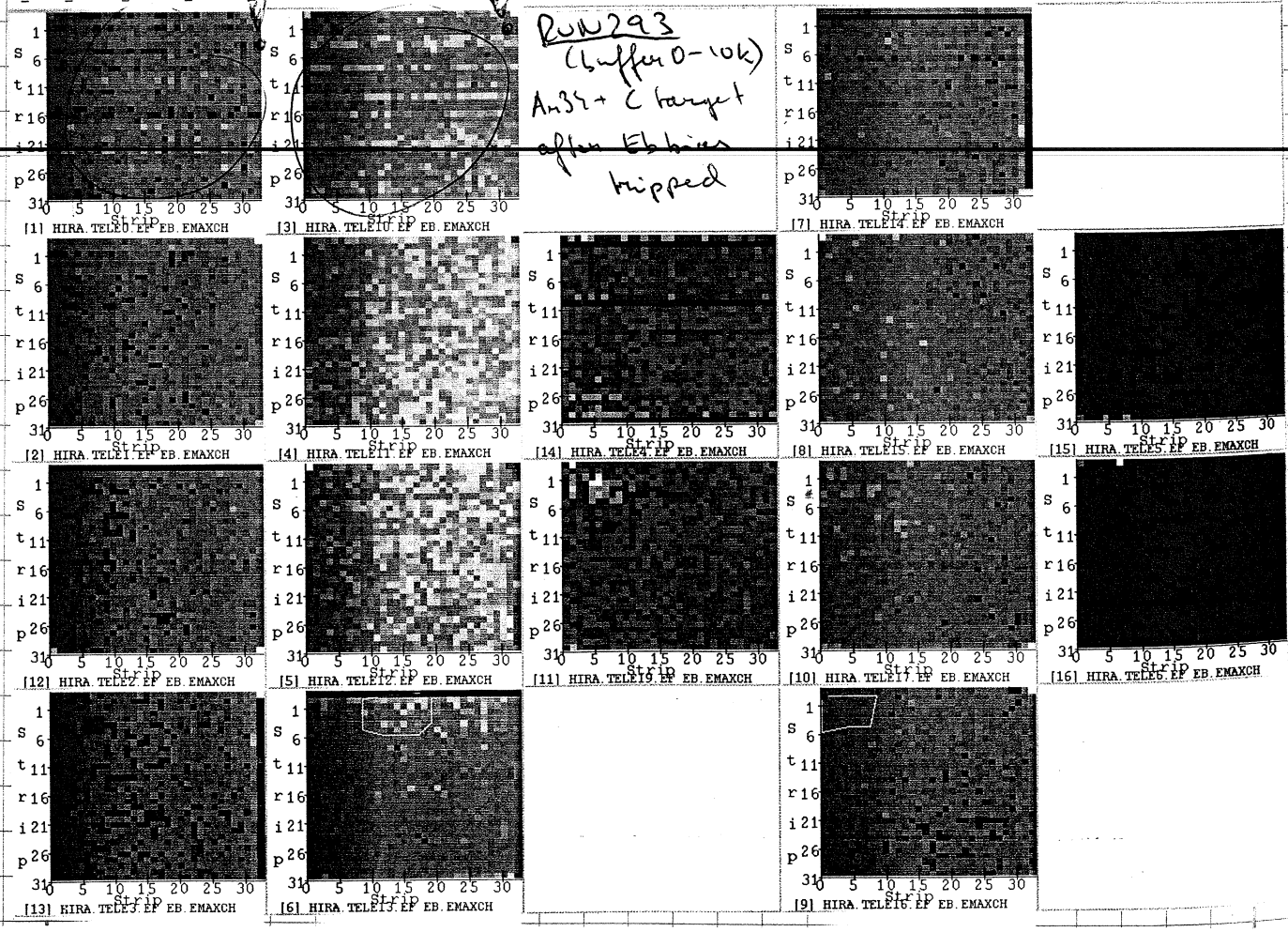
Run 291
(buffers 0-10k)
An34 + CH_2 target
before Eb tripped
(twice)

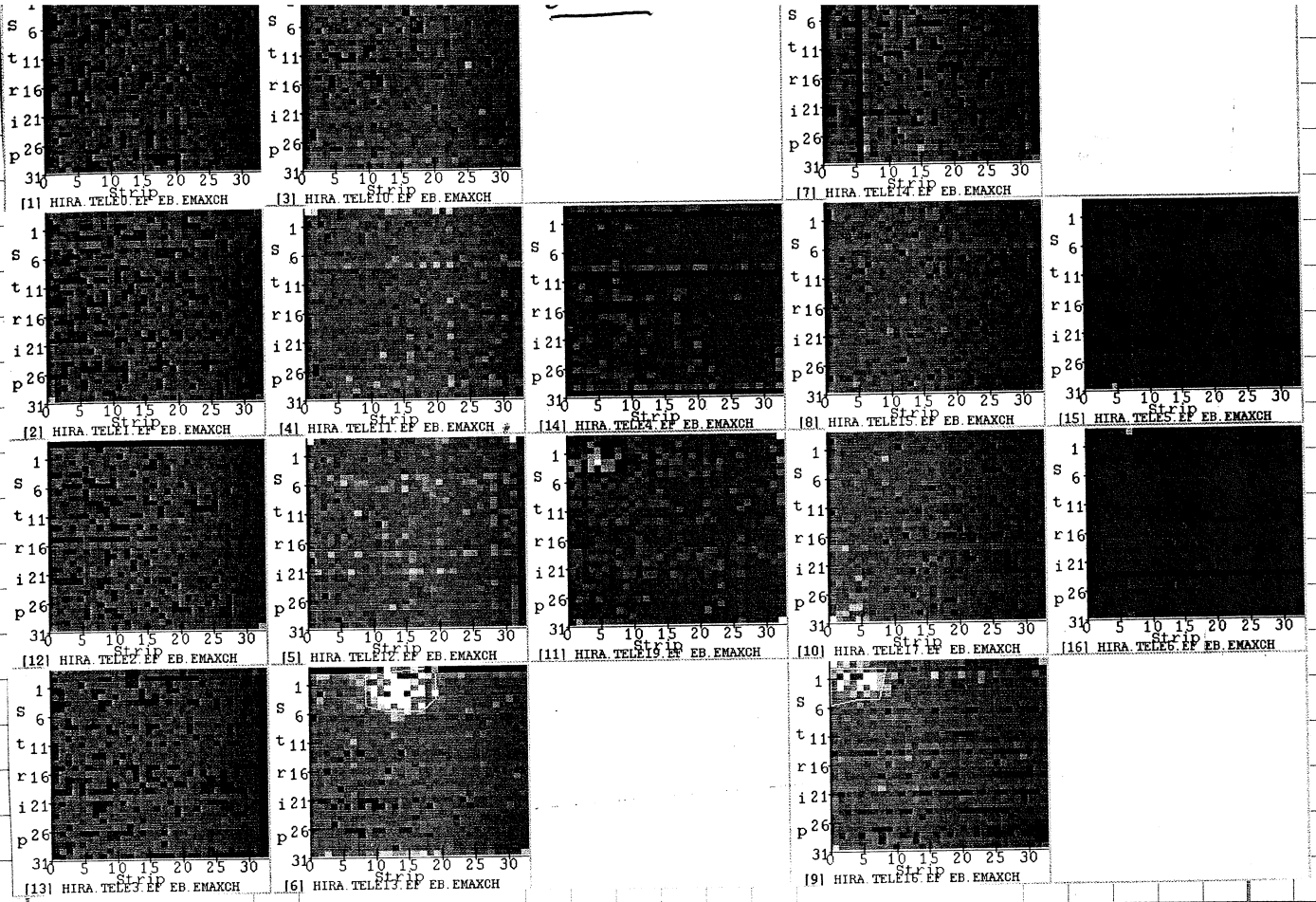


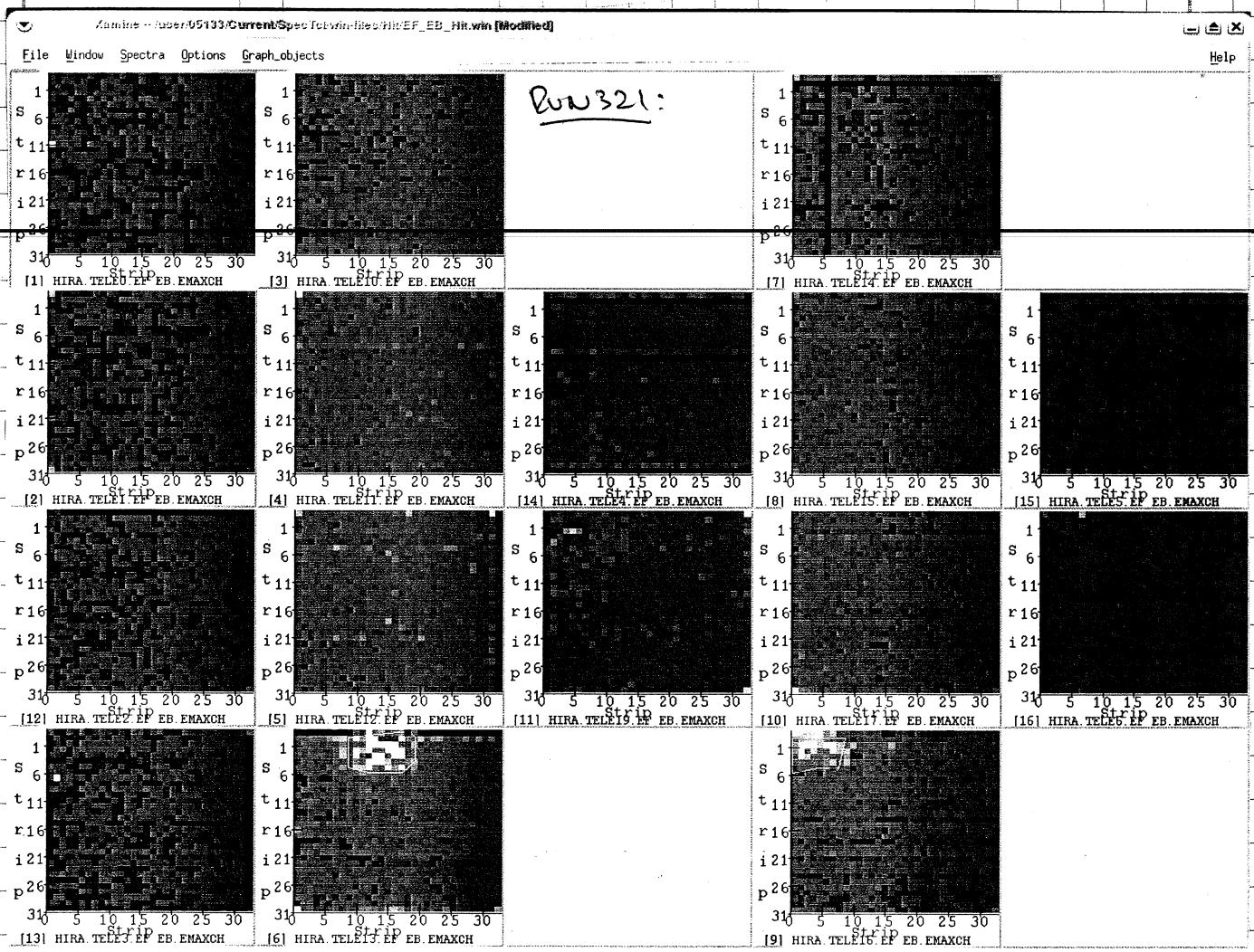
Xamine - /user/05/00/current/SpecTcl/win-files/HIRA_EF_EB_nit.win [Modified]

File Window Spectra Options Graph_objects Help

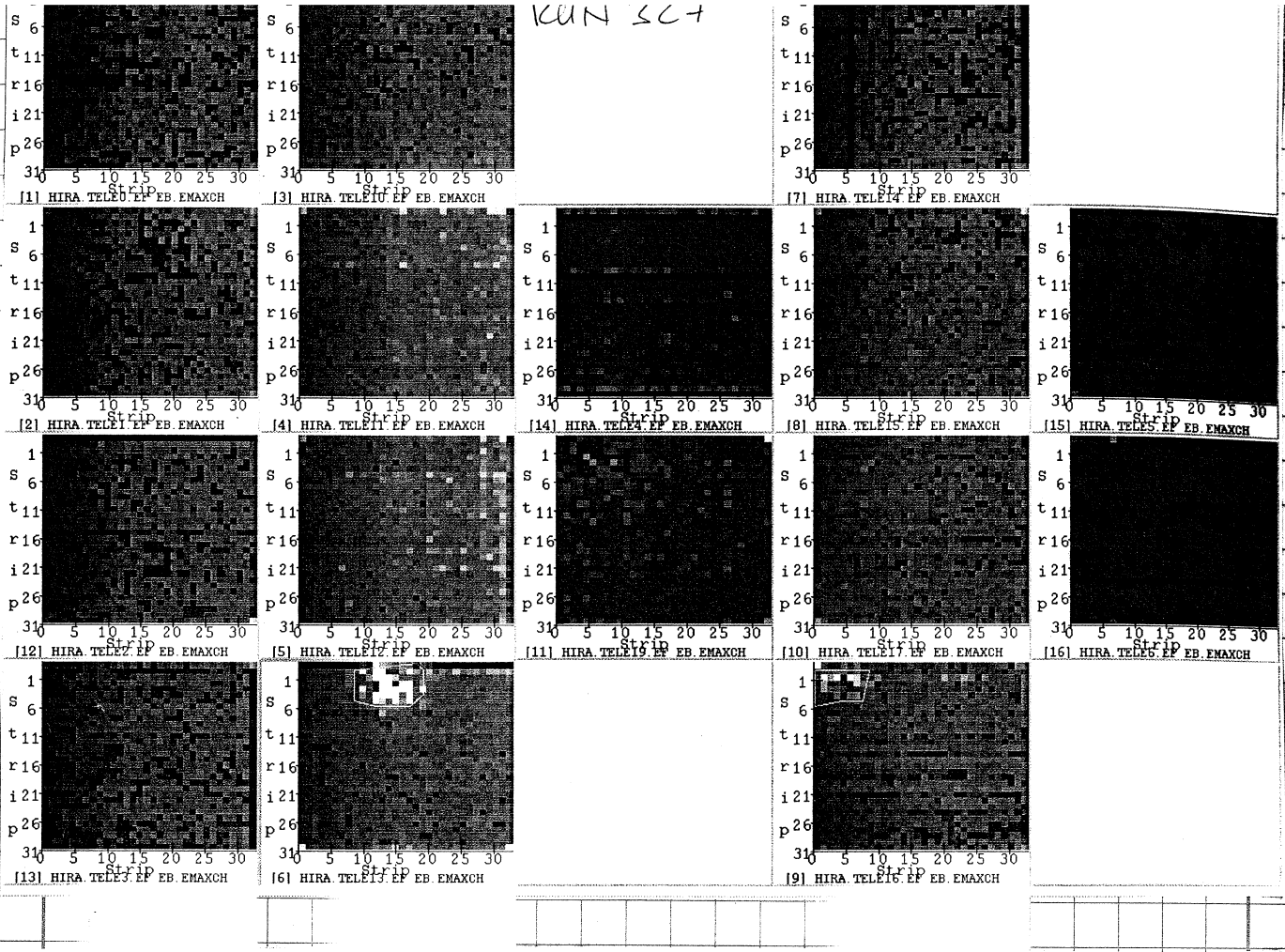
RUN293
(buffer 0-10k)
An34 + C target
after Eb twice
tripped




[1] HIRA.TELE0.EF EB.EMAXCH
[3] HIRA.TELE10.EF EB.EMAXCH
[7] HIRA.TELE14.EF EB.EMAXCH
[2] HIRA.TELE1.EF EB.EMAXCH
[4] HIRA.TELE11.EF EB.EMAXCH
[14] HIRA.TELE4.EF EB.EMAXCH
[8] HIRA.TELE15.EF EB.EMAXCH
[15] HIRA.TELE5.EF EB.EMAXCH
[12] HIRA.TELE2.EF EB.EMAXCH
[5] HIRA.TELE12.EF EB.EMAXCH
[11] HIRA.TELE19.EF EB.EMAXCH
[10] HIRA.TELE17.EF EB.EMAXCH
[16] HIRA.TELE6.EF EB.EMAXCH
[13] HIRA.TELE3.EF EB.EMAXCH
[6] HIRA.TELE13.EF EB.EMAXCH
[9] HIRA.TELE16.EF EB.EMAXCH

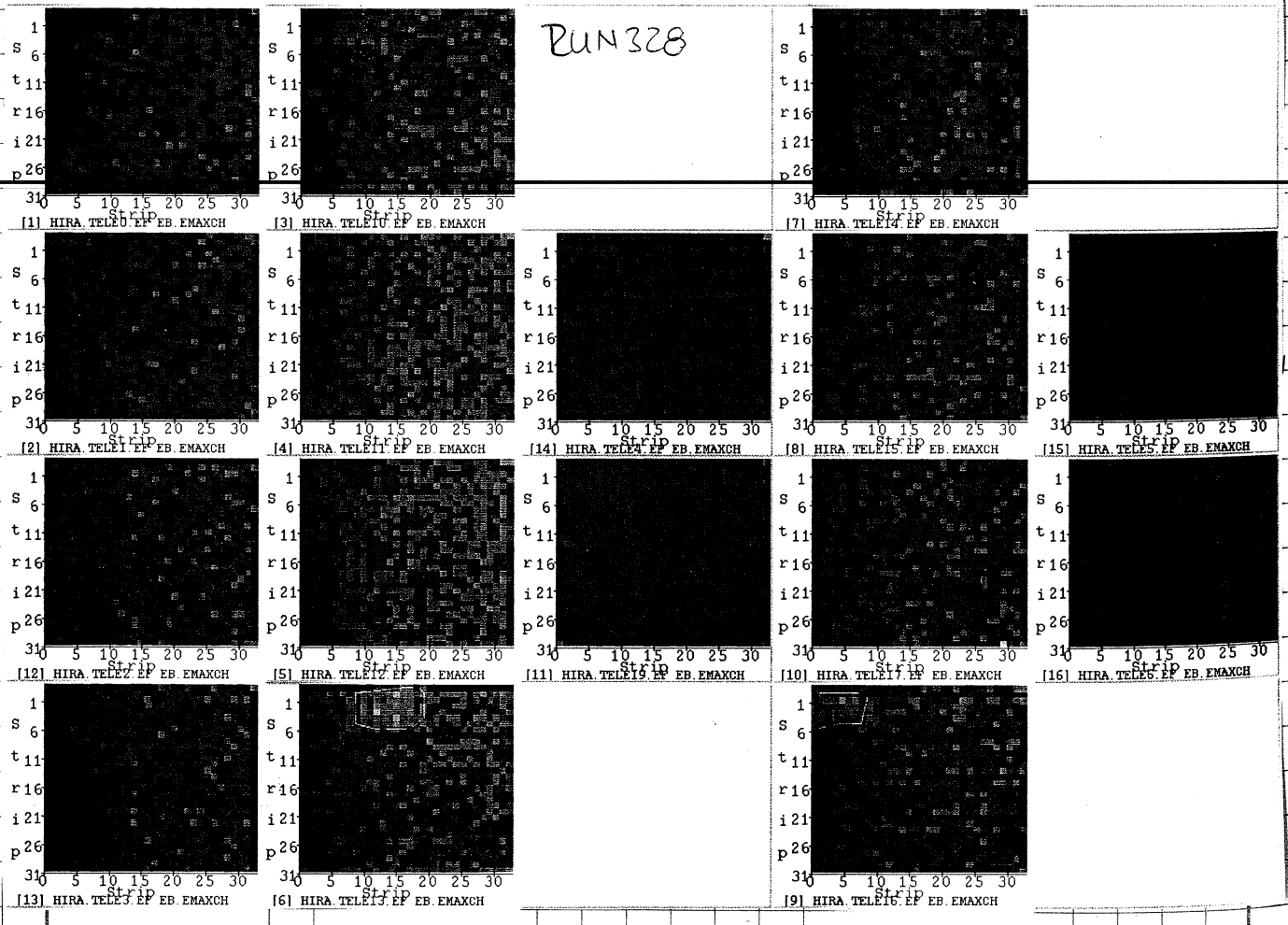

Xamine -- /user/05133/Current/Spectcl/win-files/HR/EF_EB_HR.win [Modified]
File Window Spectra Options Graph_objects Help
RUN321:
[1] HIRA.TELE0.EF EB.EMAXCH
[3] HIRA.TELE10.EF EB.EMAXCH
[7] HIRA.TELE14.EF EB.EMAXCH
[2] HIRA.TELE1.EF EB.EMAXCH
[4] HIRA.TELE11.EF EB.EMAXCH
[14] HIRA.TELE4.EF EB.EMAXCH
[8] HIRA.TELE15.EF EB.EMAXCH
[15] HIRA.TELE5.EF EB.EMAXCH
[12] HIRA.TELE2.EF EB.EMAXCH
[5] HIRA.TELE12.EF EB.EMAXCH
[11] HIRA.TELE19.EF EB.EMAXCH
[10] HIRA.TELE17.EF EB.EMAXCH
[16] HIRA.TELE6.EF EB.EMAXCH
[13] HIRA.TELE3.EF EB.EMAXCH
[6] HIRA.TELE13.EF EB.EMAXCH
[9] HIRA.TELE16.EF EB.EMAXCH

RUN 304



File Window Spectra Options Graph_objects Help

RUN 328



Run# 343, 344	Trigger					Date: 10/17/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	(Coin)	~~Secondary~~	~~Ext 2~~	Ext 1	S800	On shift: V+D Jerry, Bill, Betty
	Target =(CH2)n: 25um; 75um; (100um), carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: 343: More data
344: No pulser or beam. Background Blob investigation

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 345, 346	Trigger					Date: 10/17/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	(Coin)	~~Secondary~~	~~Ext 2~~	Ext 1	S800	On shift: V+D Jerry, Bill, Betty
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

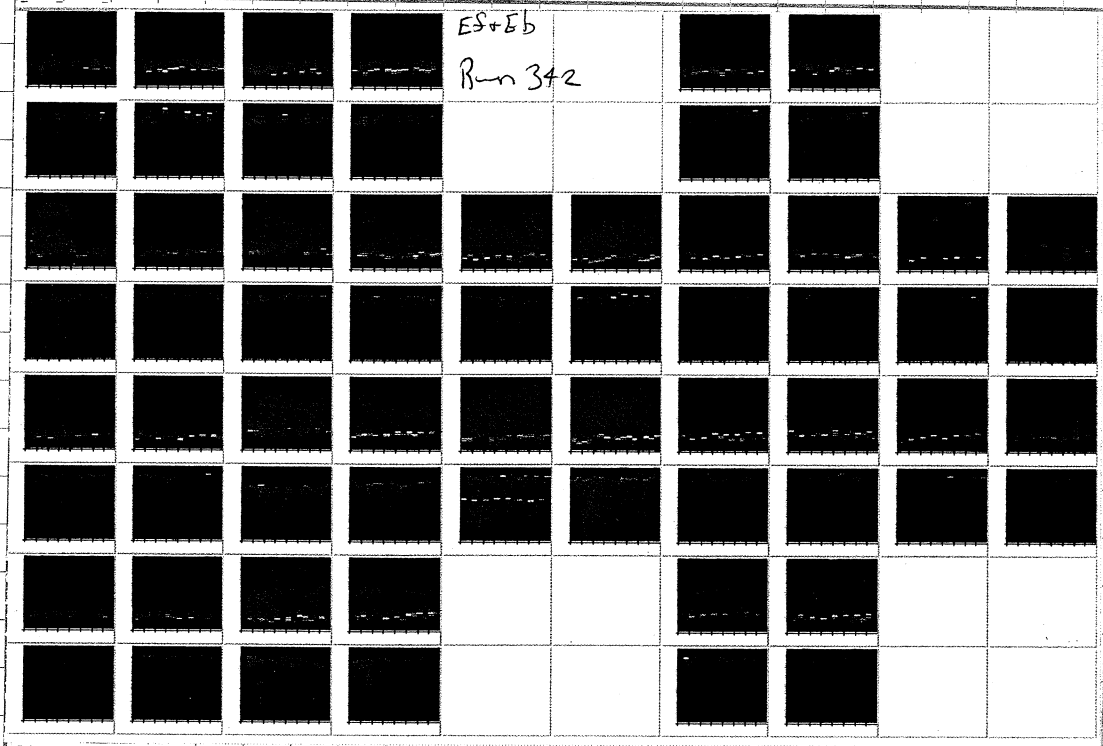
MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: 345: More data
347: Acquisition Changes (Back to original before Run)

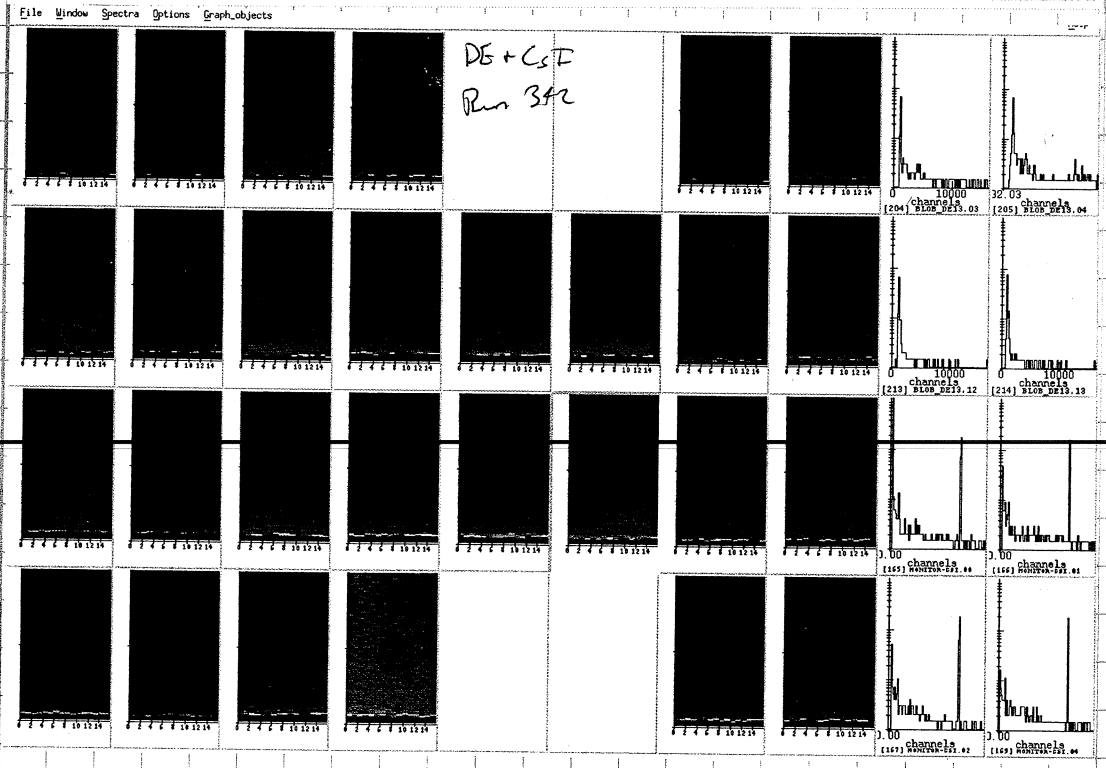
I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 348, 349, 350	Trigger					Date: 10/17/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	(Coin)	~~Secondary~~	~~Ext 2~~	Ext 1	S800	On shift: V+D, Betty, Jerry, Mike
	Target =(CH2)n: 25um; (75um); 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: Back to Rory's acquisition + more data

I250X-R Target 100.55	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.20	Position (mm)


ES+Eb
Run 342


File Window Spectra Options Graph_objects
DE+CsF
Run 342
channels
[204] BLOB_DE13.03
[205] BLOB_DE13.04
[213] BLOB_DE13.12
[214] BLOB_DE13.13
[165] MONITOR-DE1.00
[166] MONITOR-DE1.01
[167] MONITOR-DE1.02
[169] MONITOR-DE1.04

~ 8:30 AM 10/27/07
gave beam to operator for tuning cyclotron buckle. Need to replace RF tube.

Run# 351	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=~~33~~ MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Betty, Dan, Micha, Sun.
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

Target position = 267

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: 2.069 (segment 8); Attenuation:_____
Comments:_____

I250X-R Target	I251Y-R MCP 0
267	123.85
I250Y-R MCP 1	Position (mm)
153.2	

At 3pm. change Segment 8 magnet to run target @ Bρ 2.069 by Micha per instruction over phone with Daniel Bazin

Estimate to ~6pm ~~for~~ to fix cyclotron

Run# 352 ~~to~~ ,353 ,354 ,355 Trigger , 356 ,357						Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Jenny, Sun, Betty
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: 2.069 (segment 8); Attenuation:_____
Comments: Continue of RUN 351.

I250X-R Target	I251Y-R MCP 0
267	123.85
I250Y-R MCP 1	Position (mm)
153.2	

10/28/07 12:20 ~~pm~~ am

	Vbias(V)	I(μA)
Back 0		~~0~~ 4.06
Back 1		6.34
Back 2		~~0~~ 5.31
Back 3		6.86
MCP 0	2280	~~0~~ 70
MCP 1	2280	85

E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank				

MCP 1: 113,000; XFP: 370000 → 190K Live trigger: 70
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Cyclotron fixed, Beam tuned!
Data Run! Threshold for tele 15 dE adjusted!

I250X-R Target 49.6	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

During RUN 358 the intensity of beam on XFP gradually decreases from 350K to ~190K (within hours)
↳ operator claims beam from K1200 is OK
↳ Thomas Baumann called to check yesterday tuning

Run# 359	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D+Betty+Bill
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~70K ; XFP: ~180K ; Live trigger: 50-60
Bρ: _____(segment 8); Attenuation: 1
Comments: weak beam still getting weaker

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

↳ very short run 359 -> Tom Baumann takes the key (@ ~1:45 AM)

Beam back from operators at ~2:25 AM (beam finally satisfactory ~600K at XFP)

Run# 360	Trigger					Date: 10/26/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D+B+B
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 250K ; XFP: 675K ; Live trigger: ~80
Bρ: _____(segment 8); Attenuation: 1
Comments: beam newly tuned

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

↳ run stopped after ~18 minutes at Bill's request
new run started immediately

Run# 361	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V + B + B
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 220K ; XFP: ~620K ; Live trigger: ~80
Bρ: _____(segment 8); Attenuation: 1
Comments: more data taking

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

Run# 362	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V + D + B (ill)
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

5 min run

MCP 1: ~215K ; XFP: ~600K ; Live trigger: ~80
Bρ: _____(segment 8); Attenuation: 1
Comments: OR's of dE Tel 13 turned off to see effect on Tel B blob => no effect
↳ otherwise data OK

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

Run# 363	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V + D + B
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

5 min run

MCP 1: _____ ; XFP: ~610K ; Live trigger: ~80
Bρ: _____(segment 8); Attenuation: 1
Comments: OR's on dE of Tel 13, 19, 16 turned off to look for blob => no effect observed
↳ otherwise data OK

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

Run# 364	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V + D + B
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP: _____ ; Live trigger: _____

I250X-R Target	I251Y-R MCP 0

Run# 365	Trigger					Date: 10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D+Bill
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~210K ; XFP: 620K ; Live trigger: ~80
Bρ: _____(segment 8); Attenuation: 1
Comments: all OR's and Discs of Tm 5 back ON running like normal

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Things to do. (when beam being resumed)

1. Check scaler wiring for MCP1 and MCP0 ✓
2. Put MCP thsc into the ADC as a bit #8 use the splitter plus 50Ω terminator. ← doesn't work
3. Check the QDC gate for DSSC vs QDC gate for MCP doesn't work
   15 ns patched in ✓
4. Do a ramp of Xfp, MCP0, MCP1 vs Tnsersky
   Should get a drawing of the signal shape for each discriminator
5. Check MCP stop ~~vs.~~ gated on Focal plane. see that it equal Focal plane
6. Put the beam on the focal plane and compare ET vs MCP0, MCP1
7. Xfp delay is wrong into the TDC. It should be fixed ← doesn't work

Run# 366	Trigger					Date: 10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D+Bill
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~200K ; XFP: 585K ; Live trigger: ~75
Bρ: _____(segment 8); Attenuation: 1
Comments: some more data with reasonable beam

I250X-R Target 49.599	I251Y-R MCP 0 123.837
I250Y-R MCP 1 153.173	Position (mm)

Run# 367	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Bill Dan Micha
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 9.3E5 ; XFP: 7.1E5 ; Live trigger: ____
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Mono data. After beam tuning, Bill patched up cables, and put MCP into ADC 6#8

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 368	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 2.2E5 ; XFP: 6.9E5 ; Live trigger: 80
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Mono data

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 369	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 2.2E5 ; XFP: 6.7E5 ; Live trigger: ____
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Continue

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 370	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.75E5 ; XFP: 6.3E5 ; Live trigger: 80
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Continue data taking

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)

Run# 371	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha, Dan
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.8E5 ; XFP: 6.2E5 ; Live trigger: 80
Bρ: 2.069 (segment 8); Attenuation: 1

I250X-R Target	I251Y-R MCP 0

Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan, Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.65ES ; XFP: 5.6ES ; Live trigger: 80
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Data

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 373	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan Betty Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.7ES ; XFP: 6.3ES ; Live trigger: 80
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Data. After beam tune.

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 374	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan Betty Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.8ES ; XFP: 6.7ES ; Live trigger: 80
Bρ: _____ (segment 8); Attenuation: _____
Comments: Continue same.

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position

Run# 375	Trigger					Date:10/ /07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.65ES ; XFP: 6.3ES ; Live trigger: 80
Bρ: _____ (segment 8); Attenuation: _____
Comments: _____

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 376	Trigger					Date:10/28/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 2.0ES ; XFP: 7.0ES ; Live trigger: 80
Bρ: _____ (segment 8); Attenuation: _____
Comments: Beam boosted. Rest same.

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 377	Trigger					On shift:
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.1ES ; XFP: 7.7ES ; Live trigger: 90
Bρ: _____(segment 8); Attenuation: _____
Comments: Same as previous

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 378	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.9ES ; XFP: 7.7x10^5; Live trigger: 90
Bρ: Same (segment 8); Attenuation: 1
Comments: Same Previous Run

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

We see that the dead time numbers disagree

	Before CSI pulser	After
CSI ON	.625	.898
" 10R	.834	.908
" 20R	.305	.285
30R	.894	.906
CSI ON	.816	.893 ~~.892~~
MCP 0	.896	.894 ~~.892~~
MCP 1	.899	.903
MCP ONSC	.899	

Question? Does the pulser mess up these numbers?

So the MCP deadtimes are right all along

Things to do

1. turn off CSI pulser EF-EB pulser subtracted deadtimes – Bob
2. check ratios of MCP1 / Scoreboard MCP1 / coincidence MCP1 / Ext-2 vs run#
3. Fix gate on MCP downscale

Found that the coincidence C + D were set on as requirement for producing an output from the MCP downscale gate

Run# 380	Trigger					Date: 10/[illegible] 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Everyone
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)					

MCP 1: 200c XFP: 760K Live trigger: 82
Bρ: 2.069 (segment 8) Attenuation: 1
Comments: Data Run
MCP down scaler working

I250X-R Reaction	I251Y-R MCP0
I250Y-R MCP1	

Down scaled factor = 500 x 500.

Run# 381	Trigger					Date: 10/28/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Everyone
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank → position: _____ (shown in program)					

MCP 1: 600K XFP: 200K Live trigger: 60
Bρ: 2.069 (segment 8) Attenuation: 3
Comments: after reduced to 3 to do MCP 1 research

I250X-R Reaction 316	I251Y-R MCP0 123.8
I250Y-R MCP1 153.2	

Run# 382	Trigger					Date: 10/28/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Everyone
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 196 k ; XFP: 760 k ; Live trigger: 90
Bρ: _____ (segment 8); Attenuation: 1
Comments: _____

I250X-R Target 49.6 mm	I251Y-R MCP 0 123.8
I250Y-R MCP 1 153.2	Position (mm)

coincidence with MCP

1. There are many more randoms with ~~MCP~~ higher beam intensity.

2. RANDOM rate is ~~rather~~ not too small, The signal is 150 ns wide

The incident rate is 250k ⇒ dead time ~ 3.7%

3. However the efficiency could be as ~~low~~ large as 20%, This was examined by opening on ~~history~~ E-OR-5800 and at the MCP-E-OR, There ~~were~~ were about 4/0 good events and ~~about~~ 7 ~~events~~ looking with MCP + randoms

4. The background rate of the MCP is about 20/s — negligible

5. The gate for the MCP is aligned with the MCP OR even with a rather large time jitter of 240 ns $t_{MCP} - t_{E OR-} \leq 340$ ns, Ie the MCP can be 340 ns earlier than the true coincidence and be OK and it can be up to 240 ns later.

6. While downstairs, I turned off the CSI pulser — Jayed the deadtime problem

7. I pushed the gate of the MCP into the bin better
set DNSC factor to 7.5×10^5

8. Found Cal 0 well set to coincidence A was in and B was out
(B was the Berry)

---

9. MCP downscale bit comes in

item MCP DNSC.Live = 2690 DNSC.Raw = 2967

~ 382

Some thoughts about the efficiency

1. we lose — ~~5~~ % in electronics deadtime. We need to test this by running with a reduced rate

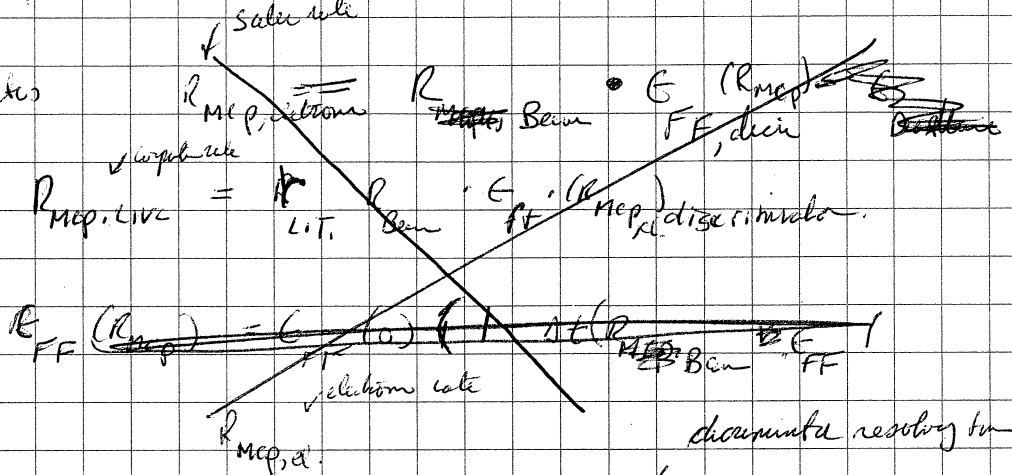
2. We have a loss in efficiency. $\frac{1}{2}$ loss in triggers ← loss in corners

~~5~~ the loss in corners can be assessed by internal analyses ~~# triggers~~ # 4 corners MCP events (MCP-Inc
— loss of triggers — effects data add normalization the same way
— random rate should not be included in the computation, but this is tricky
~~use clear~~ RANDOMS = Gates — self times stops ? no.
- gates — HIRA - MRP peak and

1. check whether HFP and HRA ~~and~~ go into the TDC for S800

2. Check whether $Counts_{THg} = Count\_Stop$.

Q.



$$R_{Mcp,RAW} = R_{Input} \cdot \epsilon_{FF}(R=0)\,(1 - \Delta t\, R_{Mcp,RAW})$$

$R_{Input} = R_{Beam} + R_{Back}$ if $R_{BACK} << R_{Beam}$, we are ok

Then $R_{Mcp,RAW} = R_{Beam}\,\epsilon_{FF}(R=0)\,(1 - \Delta t\, R_{Mcp,RAW}) \Rightarrow R_{Beam} = \frac{1}{\epsilon_{ff}}$.

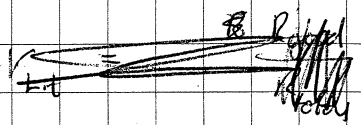
$$\text{DATA RATE} = R_{Mcp,RAW} \cdot \frac{d\sigma}{d\Omega}\,\Delta\Omega \cdot \frac{t_{tgt}}{m_p} \cdot \epsilon_{L.t.}$$

If not we several factor 1 – computer 2 – electronics

Check this by changing the beam rate

$$\Rightarrow \frac{\text{DATA RATE}}{R_{Mcp,RAW}} = \frac{d\sigma}{d\Omega}\,\Delta\Omega\,\frac{t_{tgt}}{m_p}\,\epsilon_{L.t.}$$

$\epsilon_{L.t.}$ ← eks is beam rate dependent as we can put a down with a beam rep.



10:04pm	Vbias(V)	I(μA)
Back 0	100	4.08
Back 1	100	6.47
Back 2	100	5.84
Back 3	100	6.97
MCP 0	2280	71
MCP 1	2290	86

Run# 385	Trigger					Date:10/__/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1755; XFP: 7521; Live trigger: 90
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Continuation of prev. run

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

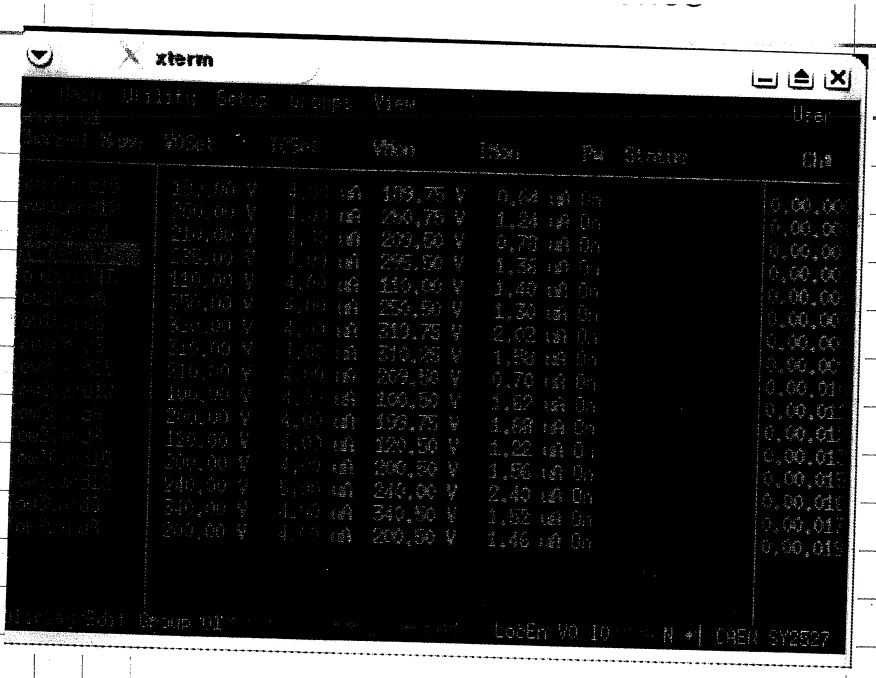
11:35 beam to operator -- water leak @ ARTEMIS, Dallas Cole coming
-Vlad and Paul checking Table 9 CSA noise
01:45am beam back

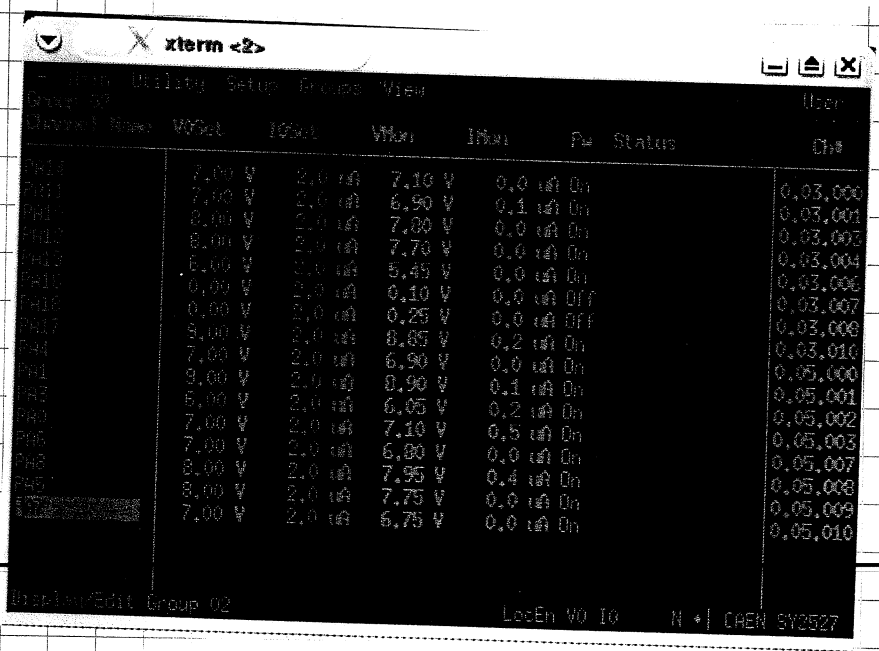
Run# 386	Trigger					Date:10/29/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

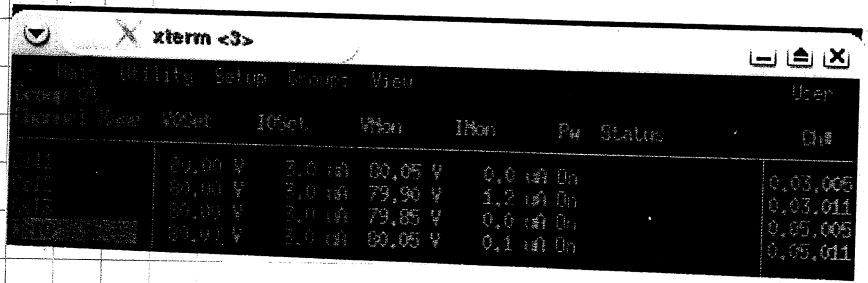
MCP 1: 2000 ; XFP: 730-690k; Live trigger: 95
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Continuation after leak repair

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

- beam intensity dropped down to ~ 570k during this run, giving key to operators for retune
- beam returned - quick low source adjustment - see whether the beam is stable now


xterm
Utility Setup Groups View
Channel Name VOSet ISet VMon IMon Pw Status Chs
LocEn V0 I0 N +| CAEN SY2527


xterm <2>
Utility Setup Groups View
Channel Name VOSet ISet VMon IMon Pw Status Chs
LocEn V0 I0 N +| CAEN SY2527


xterm <3>
Utility Setup Groups View
Channel Name VOSet ISet VMon IMon Pw Status Chs

File Window Spectra Options Graph_objects Help

RUN384, 385

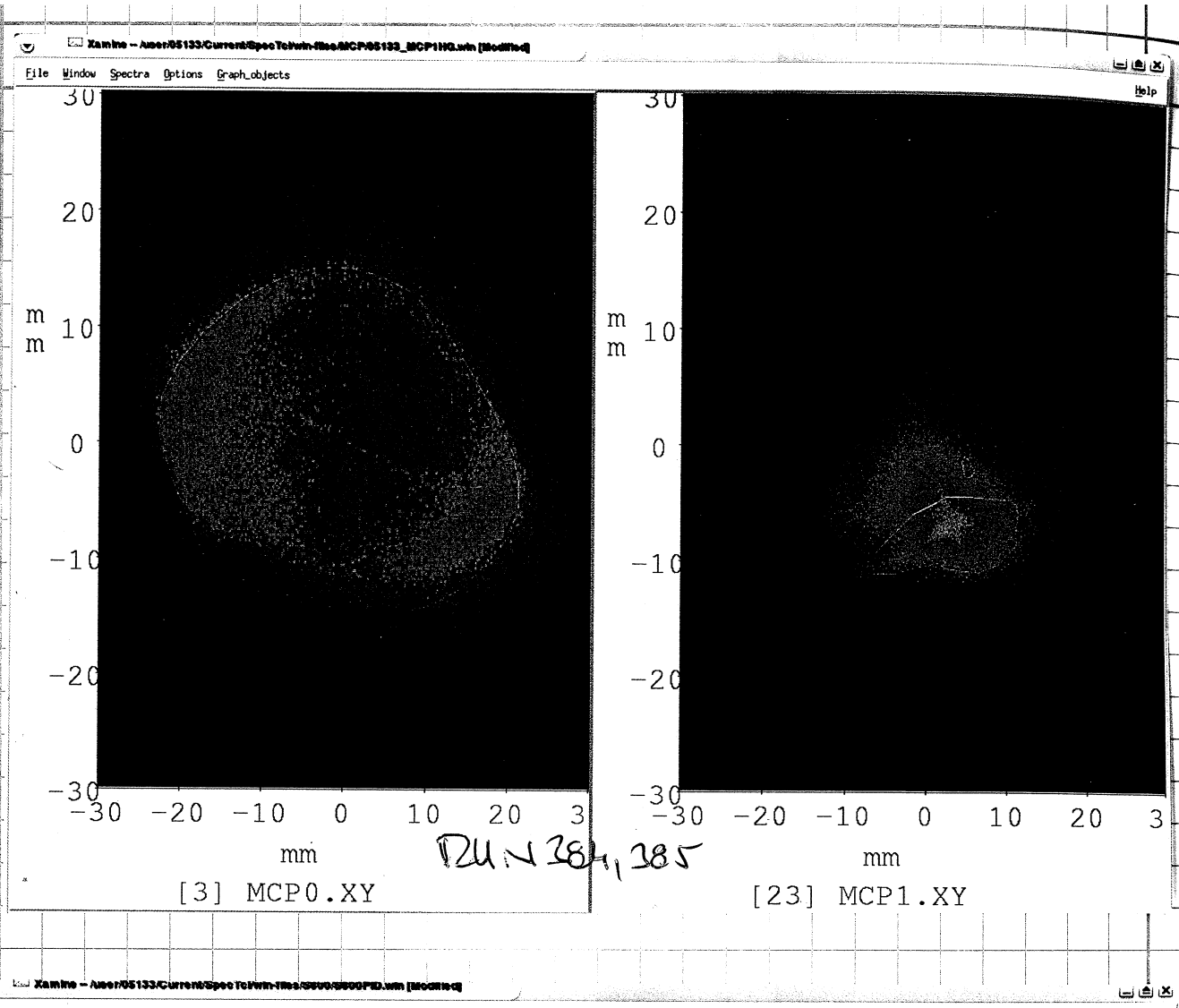
[1] ADC4-CSI [2] ADC5-CSI [3] ADC6-CSI [165] MONITOR-CSI.00 [166] MONITOR-CSI.01 [167] MONITOR-CSI.02 [169] MONITOR-CSI.04

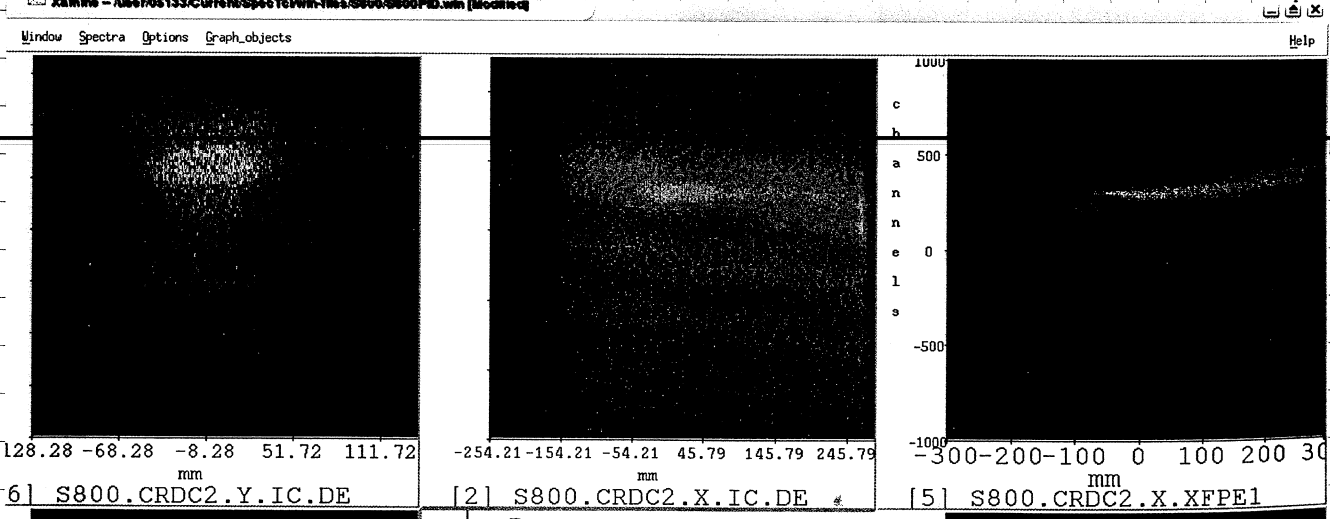
Xamine – /user/05133/Current/SpecTcl/win-files/HR/EF_EB_HR.win [Modified]

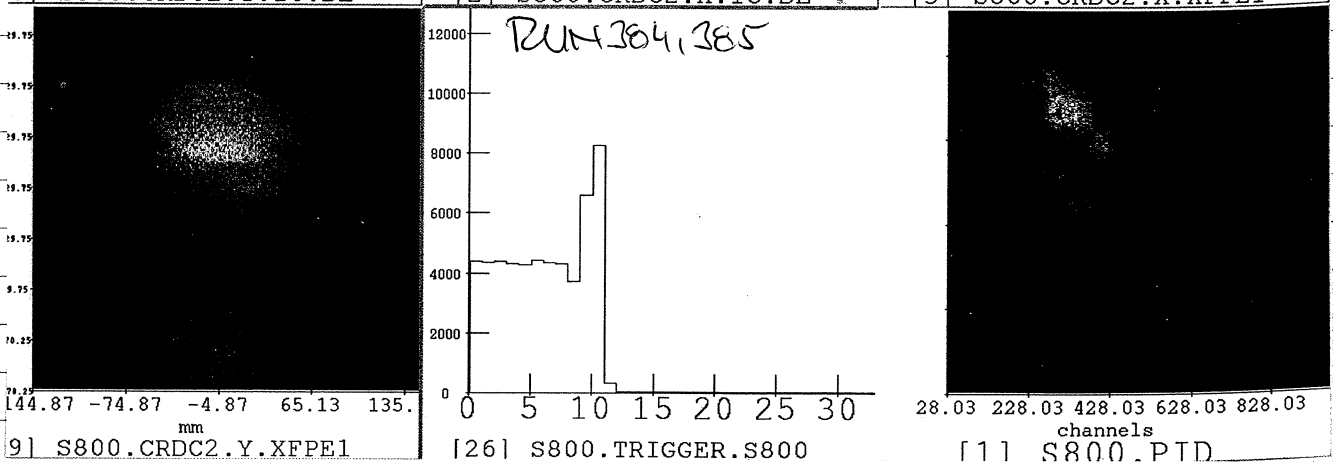
File Window Spectra Options Graph_objects Help

RUN 384, 385

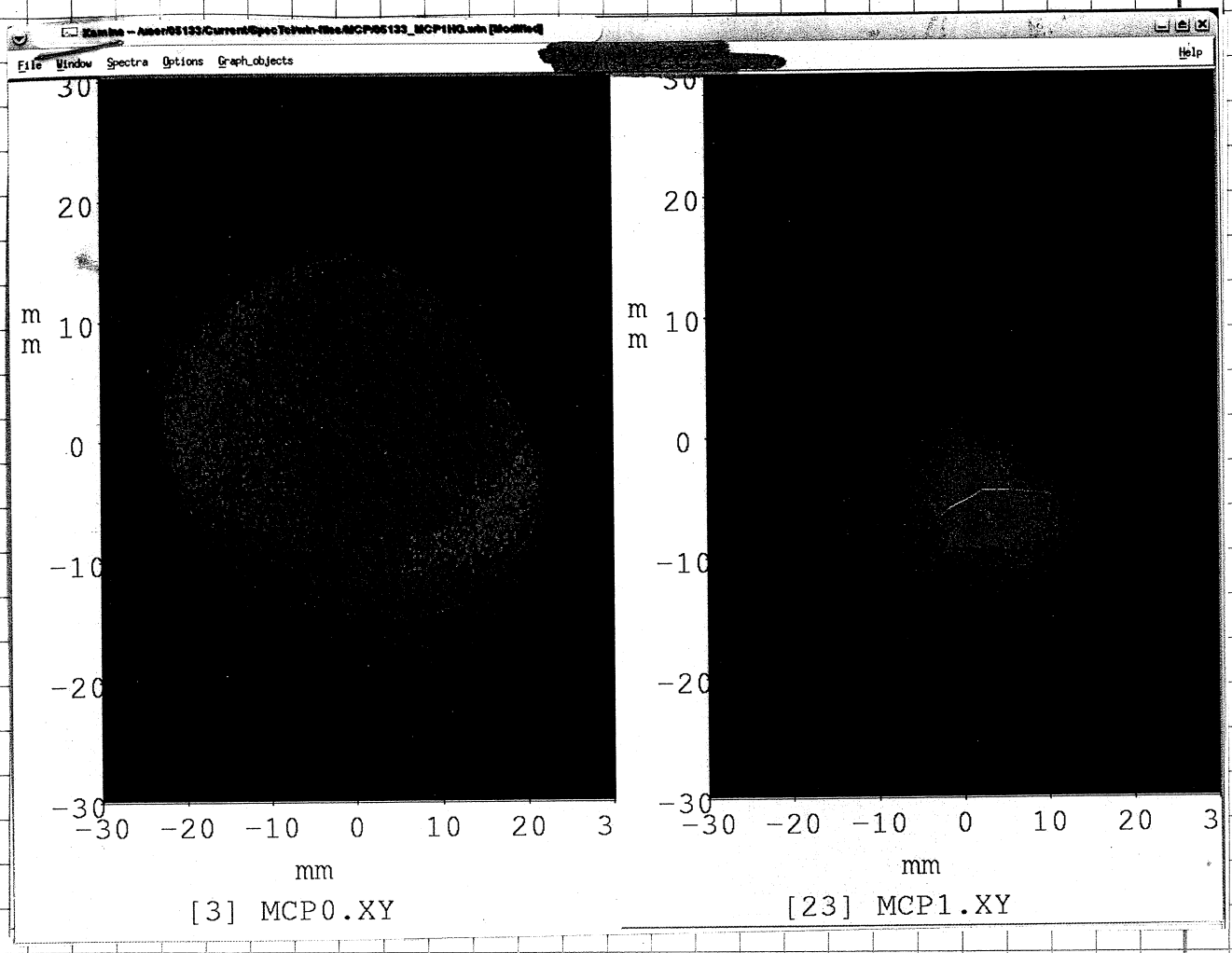
[1] HIRA.TELE0.EF.EB.EMAXCH [3] HIRA.TELE10.EF.EB.EMAXCH [7] HIRA.TELE14.EF.EB.EMAXCH
[2] HIRA.TELE1.EF.EB.EMAXCH [4] HIRA.TELE11.EF.EB.EMAXCH [14] HIRA.TELE4.EF.EB.EMAXCH [8] HIRA.TELE15.EF.EB.EMAXCH [15] HIRA.TELE5.EF.EB.EMAXCH
[12] HIRA.TELE2.EF.EB.EMAXCH [5] HIRA.TELE12.EF.EB.EMAXCH [11] HIRA.TELE13.EF.EB.EMAXCH [10] HIRA.TELE17.EF.EB.EMAXCH [16] HIRA.TELE6.EF.EB.EMAXCH
[13] HIRA.TELE3.EF.EB.EMAXCH [6] HIRA.TELE13.EF.EB.EMAXCH [9] HIRA.TELE16.EF.EB.EMAXCH


Xamine -- Anser/05133/Current/SpecTclwin-files/MCP/05133_MCP1HG.win [Modified]
File Window Spectra Options Graph_objects
Help
mm
mm
[3] MCP0.XY
[23] MCP1.XY
RUN 384, 385


Xamine -- Anser/05133/Current/SpecTclwin-files/S800/S800PID.win [Modified]
Window Spectra Options Graph_objects
Help
mm
[6] S800.CRDC2.Y.IC.DE
[2] S800.CRDC2.X.IC.DE
channels
[5] S800.CRDC2.X.XFPE1


RUN 384, 385
mm
[9] S800.CRDC2.Y.XFPE1
[26] S800.TRIGGER.S800
channels
[1] S800.PID

BEAM SPOT CHANGE
track down:



- beam spot changed between RUN 378 and 379, no record of tuning in Cyclotron, no changes in Ramey between these two runs ...

→ since the main spot still within the gate and MCP0 is the same window we can keep on running

Run# 387	Trigger					Date: 10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V + D
	Target = (CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 2102 ; XFP: 7702 ; Live trigger: 90
Bρ: 2.069 (segment 8); Attenuation: _____
Comments: control measure of data taking after beam return (source adj)

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 388	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1916 ; XFP: 7306 ; Live trigger: 92
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: continuation of data taking

I250X-R Target	I251Y-R MCP 0
49.799	123.837
I250Y-R MCP 1	Position (mm)
153.173	

	Vbias(V)	I(μA)
Back 0	100	4.08
Back 1	100	6.49
Back 2	100	5.35-5
Back 3	100	6.99-7.02
MCP 0	2280	71
MCP 1	2290	0.86

Run# 389	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D+Mike
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

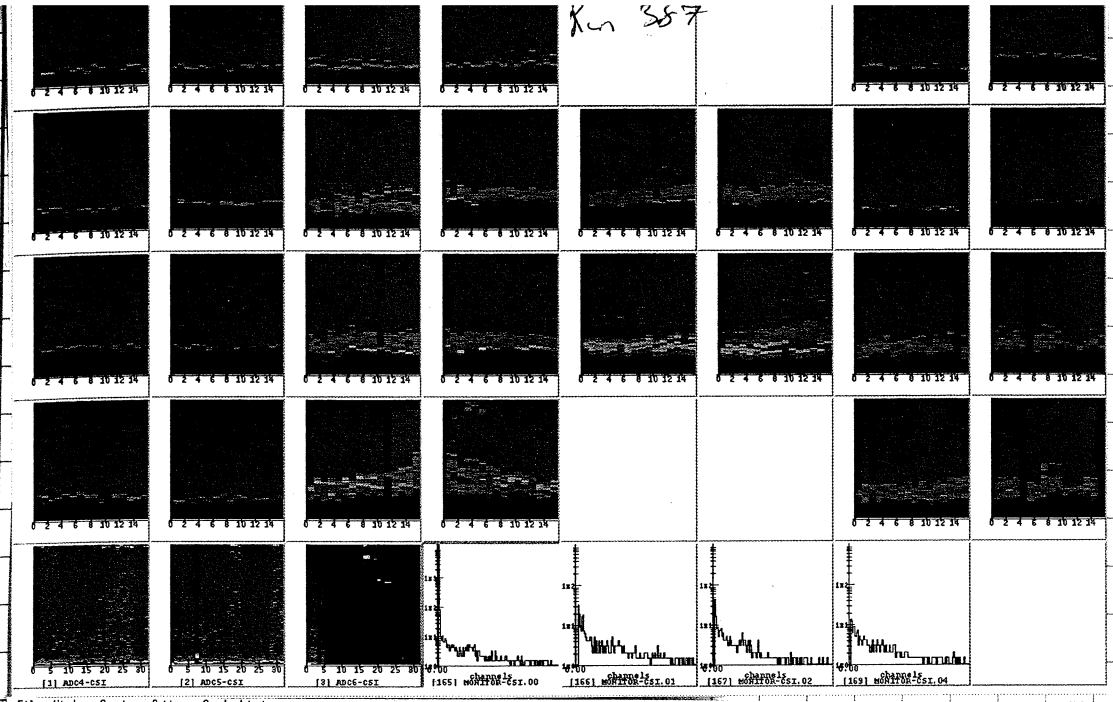
MCP 1: 1906 ; XFP: 7306 ; Live trigger: 89
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: continuation of data taking

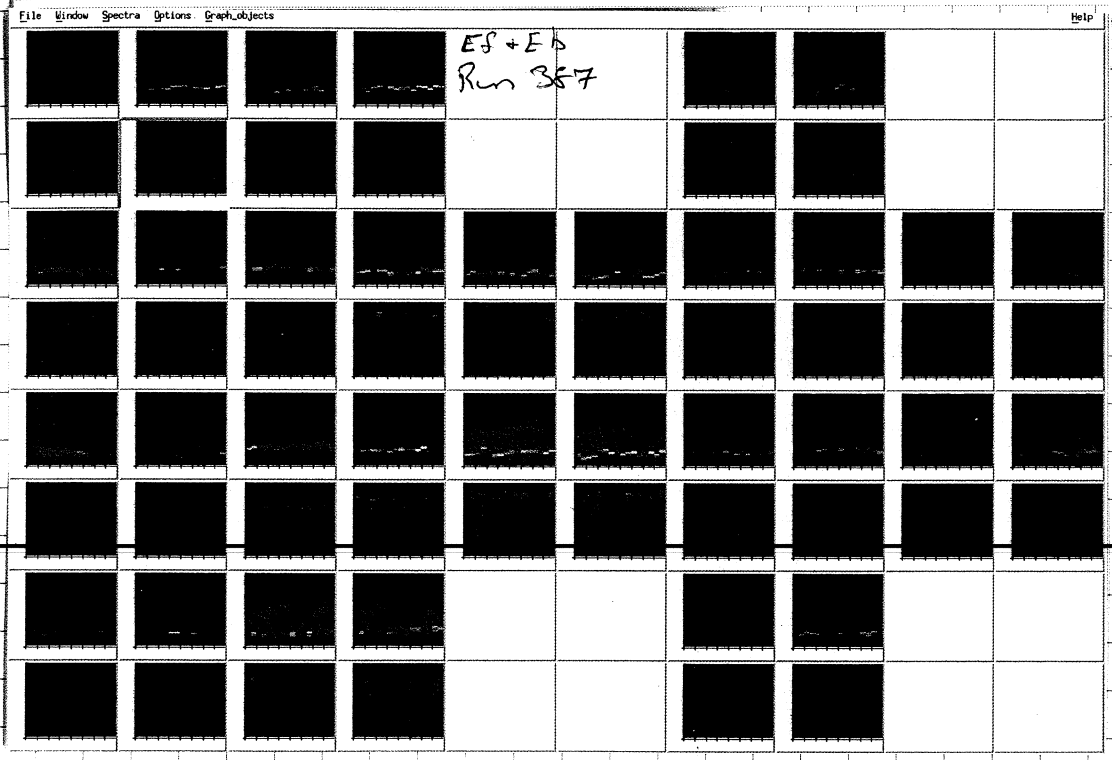
I250X-R Target	I251Y-R MCP 0
49.799	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 390	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D+Me(Mike)
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 190,000 ; XFP: 730,000; Live trigger: 89
Bρ: _____(segment 8); Attenuation: 1
Comments: continuing to take data

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	





Run# 391	Trigger					Date: 10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D+Mike
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 190K ; XFP: 730K; Live trigger: 90

Bρ: _____(segment 8); Attenuation: 1

Comments: More data. More data. More data.

I250X-R Target	I251Y-R MCP 0
49.599	173.837
I250Y-R MCP 1	Position (mm)
153.173	

- operater takes the key to fix problem with foil source

Run# 392	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D etal
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data taking after ion source fix

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

8:38am - beam gone, ion source problem - Larry Tobos called

9:06 am - key back from operators

Run# 393	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D etal
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: _____(segment 8); Attenuation:_____
Comments: continuation of data taking after ion source fix

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 394	Trigger					Date:10/31/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Dan Micha Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.6ES ; XFP: 7.2ES ; Live trigger: 90
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Data

I250X-R Target	I251Y-R MCP 0
49.599	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 395	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Dan Micha Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.6ES ; XFP: 6.8ES ; Live trigger: 85
Bρ: _____(segment 8); Attenuation:_____
Comments: continue previous

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Talk to Dan Mapira, decide to raise MCP1 voltage by 50V.

Run# 396	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Betty Dan Micha Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.8 ES ; XFP: 6.5 ES ; Live trigger: 85
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: increased MCP1 voltage. Data. MCP1/MCP0 ratio improves

I250X-R Target	I251Y-R MCP 0
49.594	123.837
I250Y-R MCP 1	Position (mm)
153.173	

Run# 397	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 2.0 ES ; XFP: 6.5 ES ; Live trigger: 90
Bρ: _____ (segment 8); Attenuation: _____
Comments: Raised MCP1 voltage to 2400 V. Rest same. MCP0/MCP1 ~1.1

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 398	Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 2.0 ES ; XFP: 6.2 ES ; Live trigger: 80
Bρ: _____ (segment 8); Attenuation: _____
Comments: Raised MCP1 voltage to 2450 V. Rest is same

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

when you raise voltage, MCP0/MCP1 ratio and efficiency both immediately increase

Run# 400	399. Trigger					Date:10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Micha Dan Sun
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 1.5 2.5 ES ; XFP: 7.8 ES ; Live trigger: 100 80
Bρ: 2.069 (segment 8); Attenuation: 1
Comments: Continue.

77.25

I250X-R Target	I251Y-R MCP 0
49.594	123.837
I250Y-R ~~MCP 1~~	Position (mm)
153.173	

Run 400 I noticed that towards the end of the run, the MCP and Live Trigger drop in efficiencies but the XFP beam intensities remain the same.

Change back to large C foil

Run# 401, 402	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 155K ; XFP: 7.5x10^5 Live trigger: 75
Bρ: 2.069 (segment 8); Attenuation: x1
Comments: see note above

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Background Measurements

Run# 403	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Betty Micha.
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP: 1200 ; Live trigger: 236
Bρ: 2.069 (segment 8); Attenuation: 1K
Comments: Transmission is only ~20% (Bazin)

I250X-R Target 243.88	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

Daniel Bazin & Tom Ginter are investigating what happens to the tune.

Run# 406	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Betty, Micha
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

blank target
MCP 1: _____ ; XFP: _____ ; Live trigger: 1K
Bρ: _____ (segment 8); Attenuation: _____
Comments: S800 trigger

I250X-R Target 202.15	I251Y-R MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

Run# 406	Trigger (changed to MCP trigger)				Date: 10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800 (circled)	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank (blank circled)				

MCP 1: 300 ; XFP: 1100 ; Live trigger: 252
Bρ: _____ (segment 8); Attenuation: _____
Comments: dipole set to 65% S800 transmi beam spot on MCP0 changed to be higher. (for ^{34}Ar settings)

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 407	Trigger ~~Ane~~ MCP trigger				Date: 10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank				

MCP 1: 243 ; XFP: 1100 ; Live trigger: 235
Bρ: 2.1308 (segment 8); Attenuation: 1k .
Comments: _____

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 408	Trigger MCP trigger				Date: 10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon (circled), viewer, mask, blank				

beam blips
MCP 1: 254 ; XFP: 1100 ; Live trigger: _____
Bρ: 2.0708 (segment 8); Attenuation: _____
Comments: _____

~~I250X-R~~ Target 243.88	~~I251Y-R~~ MCP 0 123.85
I250Y-R MCP 1 153.2	Position (mm)

Bρ = reaction Bρ = 2.08 Carbon target

Run			Live trigger	XFP	MCP 0	MCP 1
~~407~~ 409		No beam	500	0	0	0
410	1k	^{46}Ar	500	1100	326	300.
411						

Cannot do rate ramp due to α source near the detectors

6:15 pm

Run# 411, 412	Trigger					Date: 10/29/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	(Coin)	(Secondary)	(Ext 2)	Ext 1	S800	On shift: everyone
	Target =(CH2)n: 25um; 75um; 100um, (carbon), viewer, mask, blank					

MCP 1: ~~120k~~ ; XFP: 650k ; Live trigger: 580
Bρ: 2.0100 (segment 8); Attenuation: _____
Comments: Carbon background Trigger mostly on alpha, see α's in CsI monitors

I250X-R Target	I251Y-R MCP 0
243.8	123.85
I250Y-R MCP 1	Position (mm)
229.45	

th.

Run# 413	Trigger					Date: 10/__/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	(Coin)	(Secondary)	~~Ext 2~~	Ext 1	(S800)	On shift:
	Target =(CH2)n: 25um; 75um; 100um, (carbon), viewer, mask, blank					

MCP 1: _____ ; XFP: _____ ; Live trigger: _____
Bρ: _____ (segment 8); Attenuation: _____
Comments: Carbon Target, ~~CRDC~~ CRDC1 mask

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 414	Trigger					Date: 10/__/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	(Coin)	Secondary	Ext 2	Ext 1	(S800)	On shift:
	Target =(CH2)n: 25um; 75um; 100um, (carbon), viewer, mask, blank					

MCP 1: 3611 ; XFP: 7491 ; Live trigger: 55
Bρ: _____ (segment 8); Attenuation: _____
Comments: Carbon Target CRDC 2 Mask

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 415	Trigger					Date: 10/__/ 07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	(S800)	On shift:
	Target =(CH2)n: 25um; 75um; 100um, (carbon), viewer, mask, blank					

MCP 1: 13k ; XFP: 28k ; Live trigger: 113
Bρ: _____ (segment 8); Attenuation: _____
Comments: MCP ϕ mask calibration

I250X-R Target	I251Y-R MCP 0
293.9	200.6
I250Y-R MCP 1	Position (mm)
153.2	

Run# 416	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: 2.0709 (segment 8); Attenuation:_____
Comments: MCP1 mask calibration

I250X-R Target	I251Y-R MCP 0
243.9	123.85
I250Y-R MCP 1 229.45	Position (mm)

Run# 417	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 7200 ; XFP:7000 ; Live trigger: 183
Bρ: 2.0709 (segment 8); Attenuation:_____
Comments: MCP1 mask calibration
deflected beams in progress

I250X-R Target	I251Y-R MCP 0
243.9	123.85
I250Y-R MCP 1 229.45	Position (mm)

Run# 418	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary (HIRA)	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: 2.0709 (segment 8); Attenuation: 10
Comments: HIRA trigger, deprimated
by α's (MCP1 mask in by mistake

~~I250X-R Target~~	~~I251Y-R MCP 0~~
I250Y-R MCP 1	Position (mm)

Run# 419	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: _____ ; XFP:_____; Live trigger: _____
Bρ: 2.0709 (segment 8); Attenuation:_____
Comments: ~~S800~~ trigger HIRA
MCP1 mask in by mistake

I250X-R Target	I251Y-R MCP 0
I250Y-R MCP 1	Position (mm)

Run# 421	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800 (circled)	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask (circled), blank					

MCP 1: 2850 ; XFP: 7000 ; Live trigger: 133
Bρ: 2.0709 (segment 8); Attenuation: 100
Comments: mask (target) calibration

I250X-R Target	I251Y-R MCP 0
267.65	123.84
I250Y-R MCP 1	Position (mm)
153.2	

Run# 422	Trigger					Date:10/__/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800 (circled)	On shift:
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask (circled), blank					

MCP 1: 7000 ; XFP: 2500 ; Live trigger: 131
Bρ: 2.0709 (segment 8); Attenuation: 100
Comments: target mask calib.
slits 6.5, some beam in CRDC

I250X-R Target	I251Y-R MCP 0
262.65	123.85
I250Y-R MCP 1	Position (mm)
153.2	

(CH2)n target; run trigger; screen

Run# 423	Trigger					Date:10/__/07
Beam: ^{46}Ar ~~E/A=33 MeV~~ Alpha source	Coin (circled)	Secondary (circled)	Ext 2 (circled)	Ext 1	S800	On shift: Bill, Betty, Andy, Jenny, Alisor
	Target =(CH2)n: 25um (circled); 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 300k ; XFP: ~~8.6x10^5~~ ; Live trigger: 94
Bρ: 2.0709 (segment 8); Attenuation:
Comments: 59.7 (4.6) beam in CRDC in the beginning of the run Data

I250X-R Target	I251Y-R MCP 0
49.60	123.85
I250Y-R MCP 1	Position (mm)
153.2	

Run #	Ramp.
425	A10 beam
426	June 10
427	Att 3
428	Att 10
429	30
430	100

Run# 431	Trigger					Date: 10/30/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: Bill, Betty, Vlad, Daniela, Andy, Jenny, Alisa
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: 270k ; XFP: 650k ; Live trigger: 80
Bρ: _____(segment 8); Attenuation: 1
Comments: Data run

I250X-R Target	I251Y-R MCP 0
49.6	123.85
I250Y-R MCP 1	Position (mm)
153.2	

Run# 432	Trigger					Date: 10/30/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~300k ; XFP: ~700k ; Live trigger: ~85
Bρ: _____(segment 8); Attenuation: 1
Comments: more data taking

I250X-R Target	I251Y-R MCP 0
49.6	123.84
I250Y-R MCP 1	Position (mm)
153.17	

Run# 433	Trigger					Date: 10/30/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~300k ; XFP: ~700k ; Live trigger: ~85
Bρ: _____(segment 8); Attenuation: 1
Comments: more data taking

I250X-R Target	I251Y-R MCP 0
49.6	123.84
I250Y-R MCP 1	Position (mm)
153.17	

Run# 434	Trigger					Date: 10/30/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: U+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~300k ; XFP: ~700k ; Live trigger: ~85
Bρ: _____(segment 8); Attenuation: 1
Comments: more data taking

I250X-R Target	I251Y-R MCP 0
49.6	123.84
I250Y-R MCP 1	Position (mm)
153.17	

Run# 435	Trigger					Date:10/30/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~45k ; XFP: ~95K ; Live trigger: ~50
Bρ: _____(segment 8); Attenuation: 10 (!)
Comments: data taking with increased att. factor (≡ 10)

I250X-R Target 49.6	I251Y-R MCP 0 123.84
I250Y-R MCP 1 153.17	Position (mm)

Run# 436	Trigger					Date:10/30/07
Beam: ^{46}Ar E/A=33 MeV Alpha source	Coin	Secondary	Ext 2	Ext 1	S800	On shift: V+D
	Target =(CH2)n: 25um; 75um; 100um, carbon, viewer, mask, blank					

MCP 1: ~90k ; XFP: ~185K; Live trigger: ~65
Bρ: _____(segment 8); Attenuation: 3
Comments: data taking with increased att. factor (≡ 3)

I250X-R Target 49.6	I251Y-R MCP 0 123.84
I250Y-R MCP 1 153.17	Position (mm)

~~Run 435~~

5:00AM End of beamtime → key returned to operators

RUN 437 – 448 : background measurements (each ~5min)
trigger coin + secondary + Ext 2
target still at 49.6 (i.e. no alphas)

RUN 449 – T0
450 – T1
451 – T2
452 – T3
} pulser ramp (0–5V in 51 steps, 5sec)

453 – T4+5 – pulser ramp (0–1.2V in 61 steps)

} trigger on HiRA singles

RUN 454 – pink

RUN 455 – CsI pulser ramp 0–0.54V with 0.01 steps (1st part)
RUN 456 – " " (2nd part)
to double peak at 0.25 Volts

↓ 457 → alpha spectra → trigger Ef+dE (HIRA rings)
↳ target at 267.65 mm

↓ 458 — α-calibration continuation