

Experiment: PR 251 - $^{154}\text{Sm}(\alpha, \alpha')$

Principal researcher: LUNA PELLEGRINI

Date: 19/10/2016

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Daniel J. Marin-Lámbari

Date				
Weekend #				
Targets	#	Material	Thickness	Thickness measurement method
1				
2				
3				
4				
5				
6				
Target perpendicular to beam [°]				
Target perpendicular to camera [°]				

Additional Notes:

Beam	Energy [MeV]			
Pulse selection (yes/no)				
Injector (SPC1 or SPC2)				
SSC Transmission	FC 19J			
	FC 1X			
	FC 11X			
	FC 4P			
	FC 4S			
	FC Target			

Additional Notes:

Scattering chamber beamstop	In beam position		
	Out of beam position		

Additional Notes:

Detector Setup	Order of detectors	Detectors	Sketch
	VDC 1	X4	
	VDC 2	nothing	
	Paddle 1	b4" new paddle.	
	Paddle 2		
Focal Plane (HD or MD)		HD	
Kapton window (HD or MD)		HD	

Additional Notes:

Collimator Carousel	#	In perspex	In beam
1			used.
2			carousel
3			
4			0°
5			
6			
Configuration (not 0 deg/ =0 deg)			

Additional Notes:

Spectrometer Parameters	Angle	0°
Magnets settings	Q	
	D1	See starting suggestion
	H	PLC
	D2	
	K	
Superknob settings	Dipole 1	
	D1/D2	
	D1/Q	
	D1/K	
	D1/H	
SP Interlock control (Enable/ Disable)		

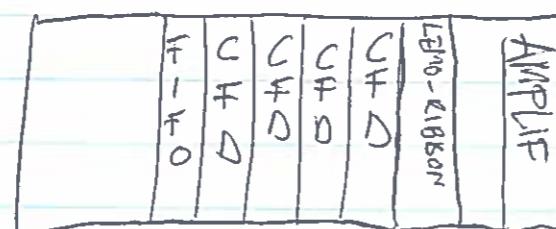
Additional Notes:

03/10

(Nim bins)

Among the 2 crates for BAGEL electronics

- Top crate: Bagel LEFT
- Bottom crate: Bagel RIGHT.
- The CAEN amplifiers have been placed on the right to reduce the cable-mess.



- Since the LEMO-Ribbon converter plate is numbered bottom to top, we have followed a bottom to top order in the CFD's as well.

3	7	11	15
2	6	10	14
1	5	9	13
0	4	8	12

- The ordering of the channels is inverse alphabetic order
 - RED
 - GREEN
 - Blue
 - Black

- Note that Patch panel numbers will be 1-16 while CAEN amp. numbers will be 0-15

- OBS:

- Bagel left:

- The channels 12-13 of the LEMO-Ribbon plate seem inverted

- Channel 12 of the CFD giving noisy ugly

signal. We weren't able to solve it playing with the threshold.

- Delays: - Most of the delays were done using the delay boxes, selecting 50 ms delay
- We didn't have enough cables of the right length, so we used some 50ms and 65 ms cables from apofide for Bagel Right

- The signals were checked using a positive 100mV, 100ms rising time and 40μs fall time signal from a pulser.

- Signals around 1.5 V were obtained for all channels
- The outputs of the FIFO for Bagel left that have to be used are the ones on the right side. The ones on the left give ugly signals. All the inputs work fine
- Problem to be taken addressed in channel 12 (L4 Red) of the CFD.

- The input numbering of the channels in the FIFOs

0	1
2	3

15	16
13	12
11	10
9	8
7	6
5	4
3	2

File Help, FAQ and Scientific Explanations

ION

Ion Type	He	4.003	amu
Ion Energy	100	MeV	
Ion Angle	0	degrees	
Completed	8714 of 9999		

SHOW LIVE DATA HELP

Plots

- PLOT Window
- 0 A - 4605870000 A
- Max Target Depth 460586995.1

COLLISION PLOTS

- XY Longitudinal All
- XZ Longitudinal None
- XY Ions Only Tile
- YZ Lateral Clear
- Background color White/Black

DISTRIBUTIONS

- Plot
- Ion Distribution
- Ion/Recoil Distribution
- Lateral Range
- Ionization
- Phonons
- Energy to Recoils
- Damage Events
- Integral Sputtered Ions
- Differential Ions
- Ion Ranges (3D data)
- Backscattered Ions
- Transmitted Ions
- Collision Details

File File, FAQ and Scientific Explanations

ION

Ion Type	He	4.003	amu
Ion Energy	100	MeV	
Ion Angle	0	degrees	
Completed	9999 of 9999		

SHOW LIVE DATA HELP

Plots

- PLOT Window
- 0 A - 92683390000 A
- Max Target Depth 926832995.1

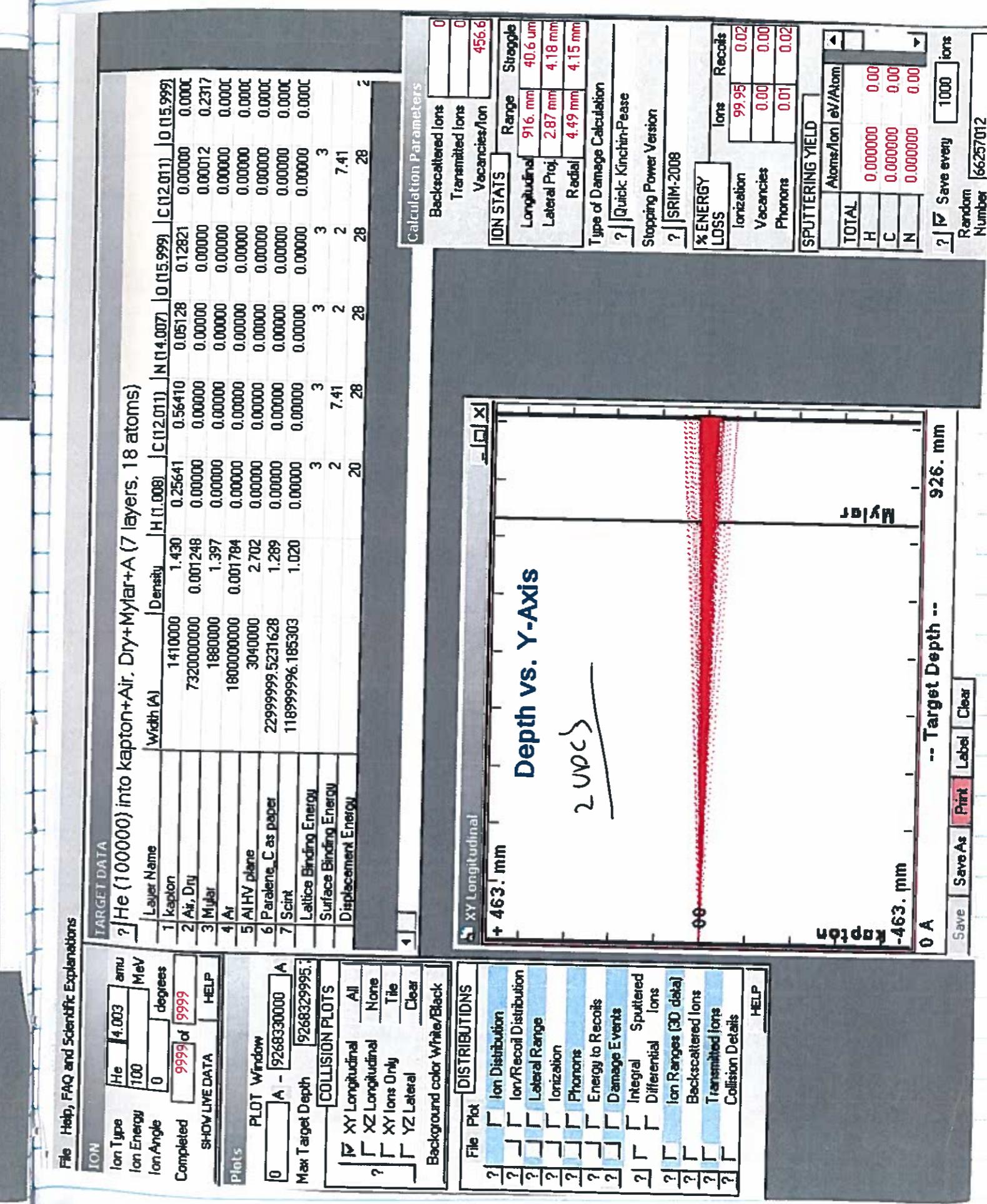
COLLISION PLOTS

- XY Longitudinal All
- XZ Longitudinal None
- XY Ions Only Tile
- YZ Lateral Clear
- Background color White/Black

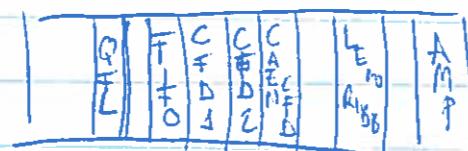
DISTRIBUTIONS

- Plot
- Ion Distribution
- Ion/Recoil Distribution
- Lateral Range
- Ionization
- Phonons
- Energy to Recoils
- Damage Events
- Integral Sputtered Ions
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- Transmitted Ions
- Collision Details

For 100 MeV & we need to use only 2 VPC
if we want to be safe in detecting al's in the
trigger detectors.



- The two CFD's on the right (corresponding to L3 & L4 clovers) had problems for setting the thresholds. They have been replaced by a single CAEN CFD. Now the crate looks like



	ORTEC CFD 1	ORTEC CFD 2	CAEN CFD
ch0	-0.910	ch0 -0.913	ch0 0.905
ch1	-0.908	ch1 -0.911	ch1 0.901
ch2	-0.911	ch2 -0.912	ch2 0.904
ch3	-0.911	ch3 -0.909	ch3 0.905
		ch4 0.904	ch4 0.904
		ch5 0.904	ch5 0.904
		ch6 0.902	ch6 0.902
		ch7 0.903	ch7 0.903

Threshold before adjustment of CAEN CFD (no signal)

ch0	0.093
ch1	0.092
ch2	0.091
ch3	0.094
ch4	0.091
ch5	0.090
ch6	0.093
ch7	0.095

CAEN LFD 1

LEFT

Adjusted threshold voltage of CAEN

ch0	0.021
ch1	0.026
ch2	0.021
ch3	0.022
ch4	0.022
ch5	0.023
ch6	0.022

Although the fast output signal is ~700 mV, no signal was seen with a 90 mV threshold.

When threshold went below ~60 mV signal was recovered. Thresholds were set to 80 mV.

[Is it possible that the threshold value is multiplied by 10???

- Switches in the CAEN CFD modules were modified so that both outputs have a modifiable width.

- Width of all CFD outputs set to 40 ns

- The ribbon - lens plate has the 10-11 channels of the input swapped. ^{Right} And the output ones as well.

→

-

L October.

Tuesday
18:00
Boyle left.

200 V on L1, L2, L3, L4

Looking at signals from crystals.

We see good signals mostly.

Little PT-100 noise (less than 5mV peak-to-peak)

To fix: L2 pt100_{noise(a)} detector; earth signal to be fixed

L4 ~~broken~~; either PT100 or test signal

ground is suspicious.

Also, only ^{black} red signals ~~are~~ noisy. (~~black~~)

Also, L4 red E signal (ch 25)
is dead.

R3 red ; negative signal
green, blue, black; all negative signals.

R4 red; sees pt 100 noise ; earth of pt 100 bad,
black, see pt 100 noise.

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Current HPGe Setup.

L1	Clover 41
L2	Clover 39
L3	Clover 38
L4	Clover 36

R1	Clover 63
R2	Clover (not in yet)
R3	Clover 40
R4	Clover 35

Left LaBr:Ce

Detector #2 TYPE: R10233-100 SEL1
NO. ZE7806

Detector #1 PMT TYPE: R10233-100 SEL
NO. 1064 EA

Crystal N89x203
S/N: A 10508

RIBBON CABLES AMP → ADC
CFD → TDC

• BAGEL LEFT

CAEN AMP → ADC

RIBBON CABLE S

CFD → TDC

" " Y

CABLES S → first 16 ch of ADC1 (slot 16)

" Y → 7th TDC D1 (first of total 32) (slot 10)

• BAGEL RIGHT

CAEN AMP → ADC CABLE V

CFD → TDC

CABLE R

CABLE V → 16-31 ch first ADC (n°1) (slot 16)

CABLE R → 7th TDC slot 16 D2 (ch 880-895)

• LABR

Labr Pro slow → ADC

CABLE H

" CFD → TDC

" F

CABLE H → 2nd ADC slot 17 first 16 ch

CABLE F → 7th TDC slot 16 #2

* CLOVERS & Labr positions:

BAGEL RIGHT

R1 in plane @ 45° ruler 25.6 cm
back

R4 32 45° off plane on ruler 9.6 cm
back

R3 324.5° off plane on ruler 6.9 cm
back

R2 in plane @ 135° on ruler 22.85 cm
back

Labr #1 in plane @ 45° on ruler 11.6 cm
back

Labr #2 $\approx 36.5^\circ$ off plane @ 90° on ruler ~~on the~~ front 15.75 cm

* R3 all the signal are negative (have - polarity)

* R2 Red, the value of the baseline which
is -

	Value of the baseline	Pole 0	Amplitude
R ₂ Red	-4 mV	0	25 mV
R ₂ Green	3 mV	0	20 mV
R ₂ Blue	0 mV	0	30 mV
R ₂ Black	0 mV	0	35 mV
R ₄ Red	-6 mV	0	20 mV
R ₄ Green	-4 mV	0	25 mV
R ₄ Blue	-10 mV	0	30 mV
R ₄ Black	-4 mV	0	25 mV

*Clover electronics:

Threshold (signal)

ch0 0,019 mV

ch1 0,040 mV

ch2 0,019 mV

ch3 0,023 mV

ch4 0,093 mV

ch5

ch6

ch7

ch8 0,025 mV → BAGEL LEFT

R1 Red Pole 0 1mV in 25

R1 Green Pole 0 1mV in 25

R1 Blue Pole 0 1mV in 30

R1 Black Pole 0 1mV in 30

Bagel Left Threshold (signal)

ch8 0,025 mV

ch9 0,023 mV

*ch15

SCALER - uninhibited

L1 rate - scaler 1 slot 2 channel 8

L2 rate - scaler 1 slot 2 channel 9

L3 rate - scaler 1 slot 2 channel 10

L4 rate - scaler 1 slot 2 channel 11

R1

R2

R3

R4

" ch 12

ch 13

ch 14

ch 15

LdB₀ #1

LdB₀ #2

Potmeter Pulser rates

ch 6

ch 7

ch 5

offset of channel: 0

-100 mV

+ 150 mV

1

2.

3

4

5

→ LabBr signal nr:

LabBr #2 11 mV @ 661 keV for V = -960 V

LabBr #2: 5 mV @ 661 keV for V = -960 V

↓
6 mV @ 661 keV for V = -980 V

	Value of baseline	Pole 0	Amplitude
R ₁ red	-13 mV	0	35 mV
R ₁ green	0 mV	0	40 mV
R ₁ blue	10 +10 mV	0	20 mV
R ₁ black	-28 mV	0	20 mV
R ₃ red	5 mV	0	100 mV
R ₃ green	9 mV	0	110 mV
R ₃ blue	4 mV	0	130 mV
R ₃ black	2 mV	0	170 mV

⇒ L₂ timer signal doesn't work
* Patch panel # 14 doesn't work.

	Value of baseline	Pole 0	Amplitude
L ₁ red	1 mV → signal/baseline is jumping between 1-2 mV	0	35 mV
L ₁ green	-2 mV	0	38 mV
L ₁ blue	-3 mV jumping between -2 and -3	0	30 mV
L ₁ black	1 mV	0	35 mV
L ₂ red	10 mV	0	28 mV
L ₂ green	-2 mV	0	25 mV
L ₂ blue	20 20 mV L ₂ timer signal doesn't work	0	Patch panel #14 doesn't work 20 mV
L ₂ black	-6 mV	0	20 mV
L ₃ red	-4 mV	0	30 mV
L ₃ green	5 -5 mV	0	30 30 mV
L ₃ blue	5 -5	0	25 mV
L ₃ black	-10 mV	0	35 mV

	Value of baseline	Pole 0	Amplitude
L4 red	-11 mV (^{No signal} _{Patch #25})	0	40 mV
L4 green	Noisy (both signal)		
L4 blue	-15 mV	0	35 mV
L4 black	2 mV		20 mV

the last of the amplifier (U5) with (U1) card in detector module 41

* ADC Channels:

we had problem with the first ADC. Ch 0, 11, 22 were zero
 \Rightarrow we are now going to use ADC #1 and #2 in slot 17 and 18

=> we cannot see channel # 0, 11 and 22

// checked channel offsets

Channels: 0 - 10

11

12, 13*, 14, 15

* → noisy, L4 Green

— 10/10/16

To test this dead output we swapped

the amplifier inputs

0 \leftrightarrow 1

11 \rightarrow 12

22 (of BR) \rightarrow 23

- Nothing!

- Putting the ribbon cable into another ADC solved problems in channels 0 and 22! ~~We can't~~

- We see that the offset of ch 11 is large (-40mV)
 regardless the input you connect, so we swap

BAGER LEFT ADC #1 ~~#1~~ slot 17 ch 0-15

" RIGHT ADC #1 ~~#1~~ slot 17 ch 16-31

In the DAQ this ADC is #0

Labr

ADC #2 ~~#1~~ slot 18 ch 0-1

In the DAQ this ADC is #1

Rate Labr:

Labr rate #1 \rightarrow Labr #1

Labr rate #2 \rightarrow OR Labr

VOLTAGE

Labr #1 - 981V
 Labr #2 - 961V

BAGEL

L1	CLOVER 41	+ 2500 V
L2	CLOVER 39	+ 2200 V
L3	CLOVER 38	+ 2500 V
L4	CLOVER 36	+ 2000 V
R1	CLOVER 63	+ 3000 V
R2	CLOVER 37	+ 3000 V
R3	CLOVER 40	+ 3000 V
R4	CLOVER 35	+ 2700 V

we replaced clover #36 (L4) since the green
 segment was really noisy \Rightarrow now CLOVER #34
 in position L4

L4 CLOVER 34 + 2500 V

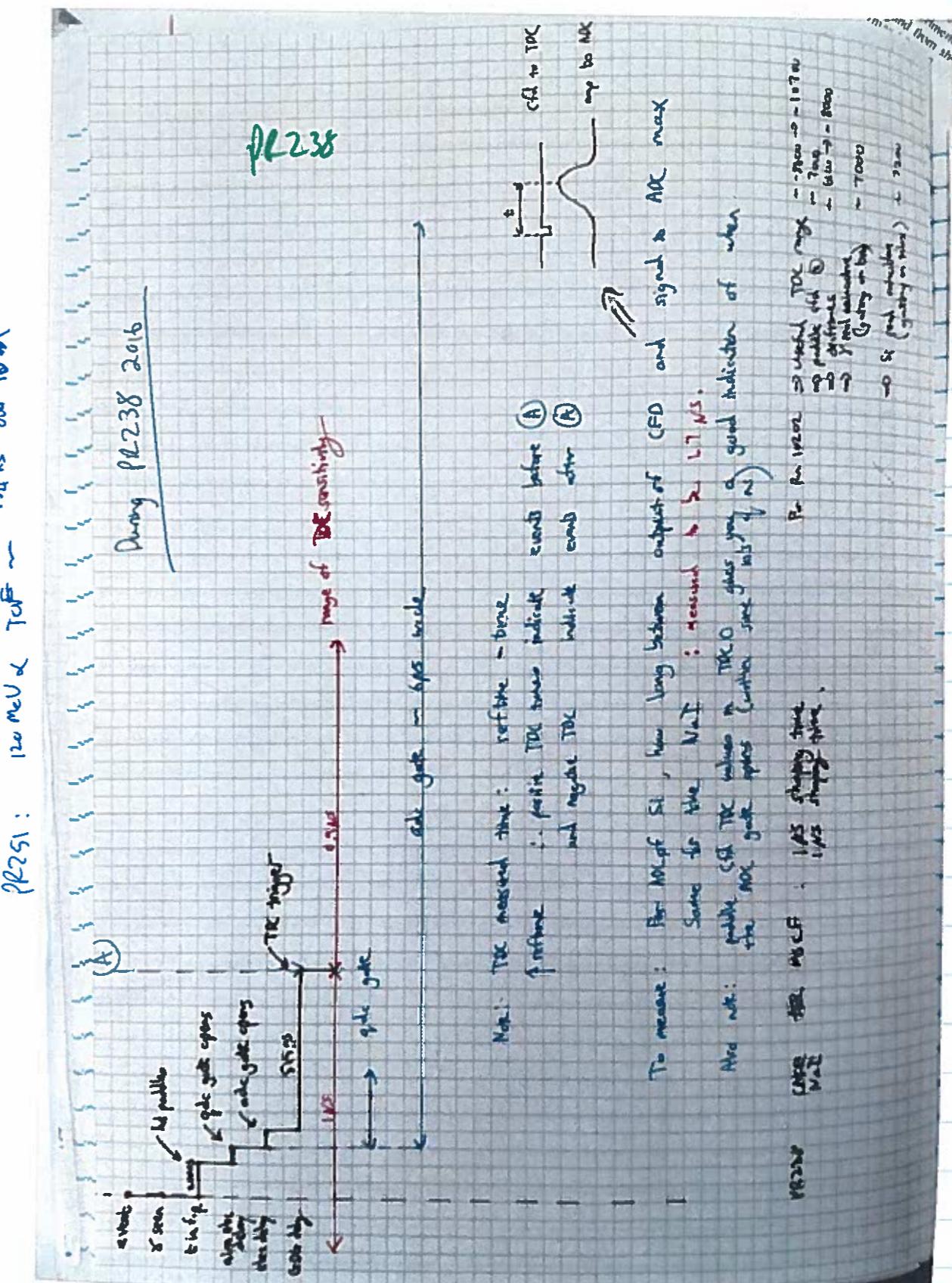
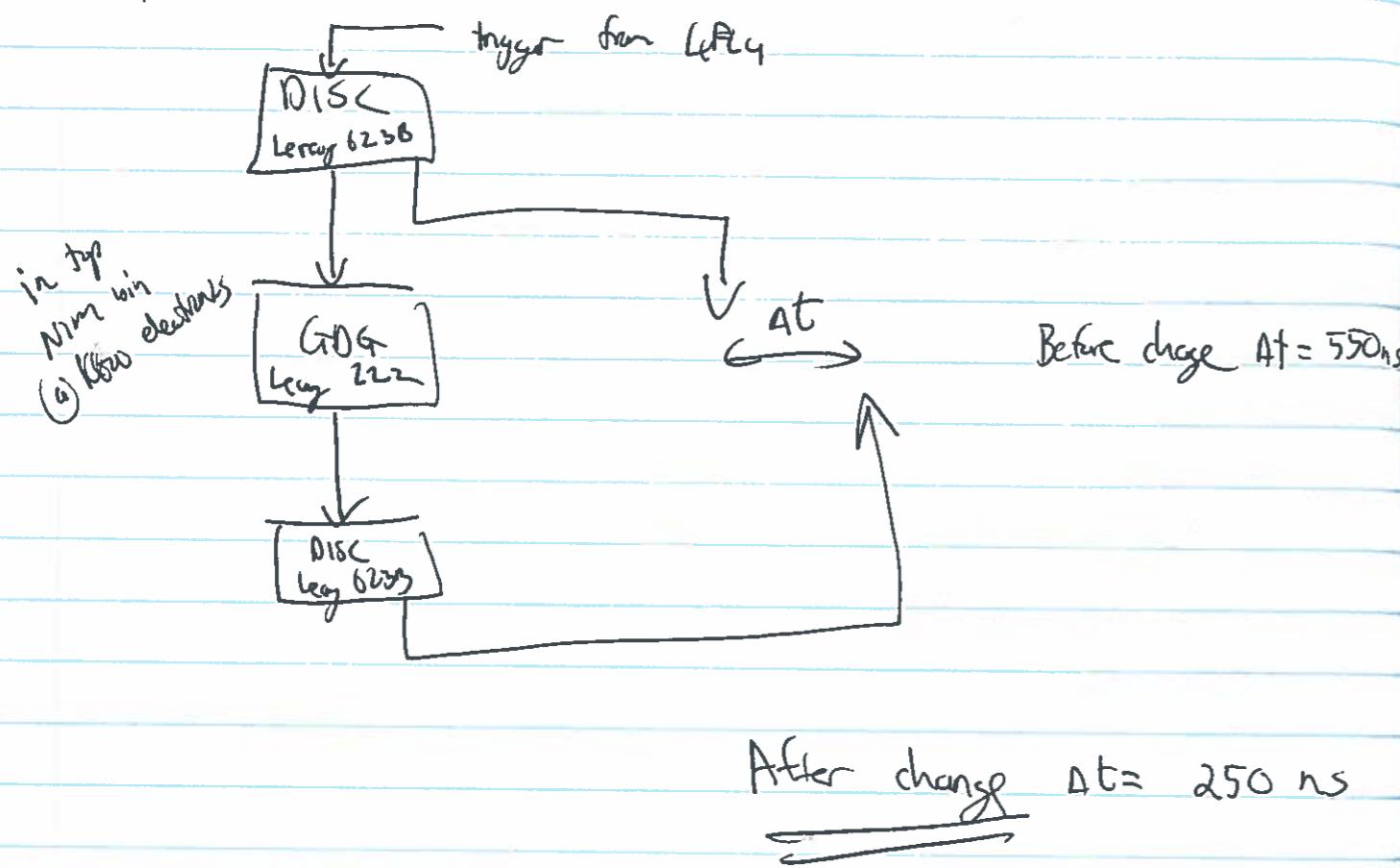
21

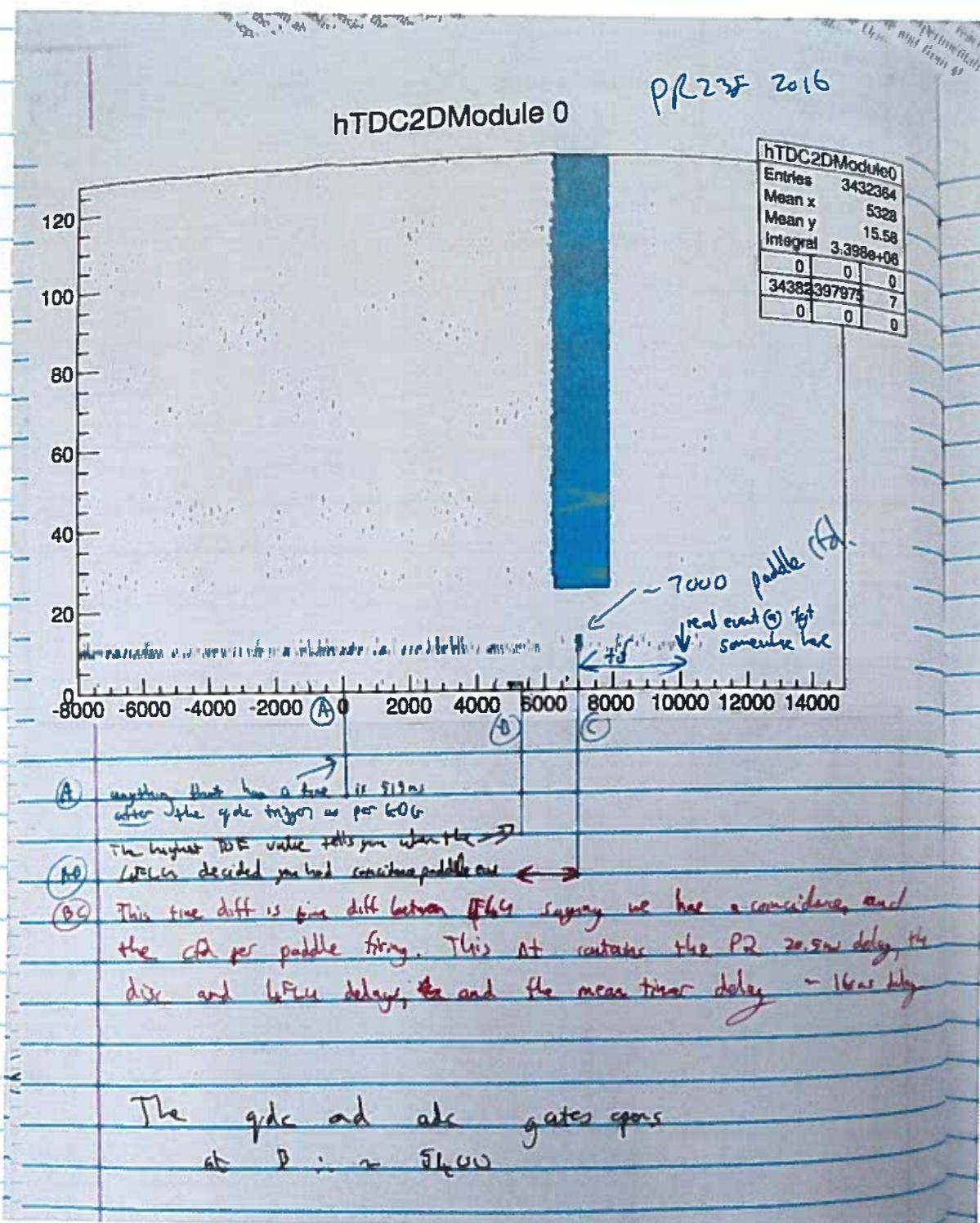
	Value of baseline	Pole 0	Amplitude
L4 red	@ -2 mV	0	25mV
L4 green	1 mV	0	40mV
L4 blue	2mV	0	30mV
L4 black	-2mV	0	40mV
L2 red	4mV	0	20 mV
L2 green			
L2 blue			
L2 black			
L1 red	2mV	0	20 mV
L1 green	-4mV	0	40 mV
L1 blue	-4 mV	0	25mV
L1 black	2 mV	0	30 mV

~~L2 red~~

14/10/2016
Friday

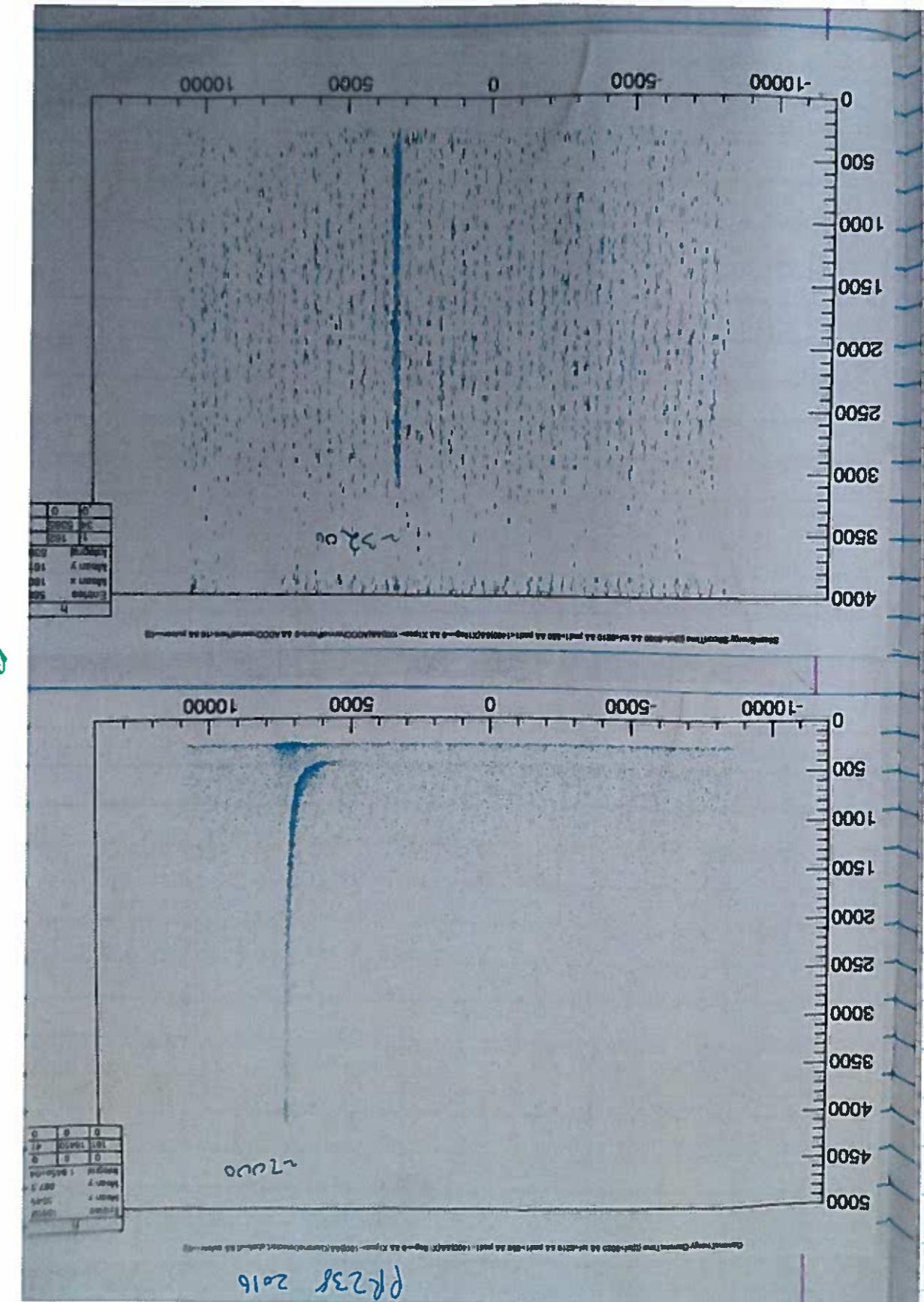
We decide to change the delay of the TDC trigger
before war





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PR238

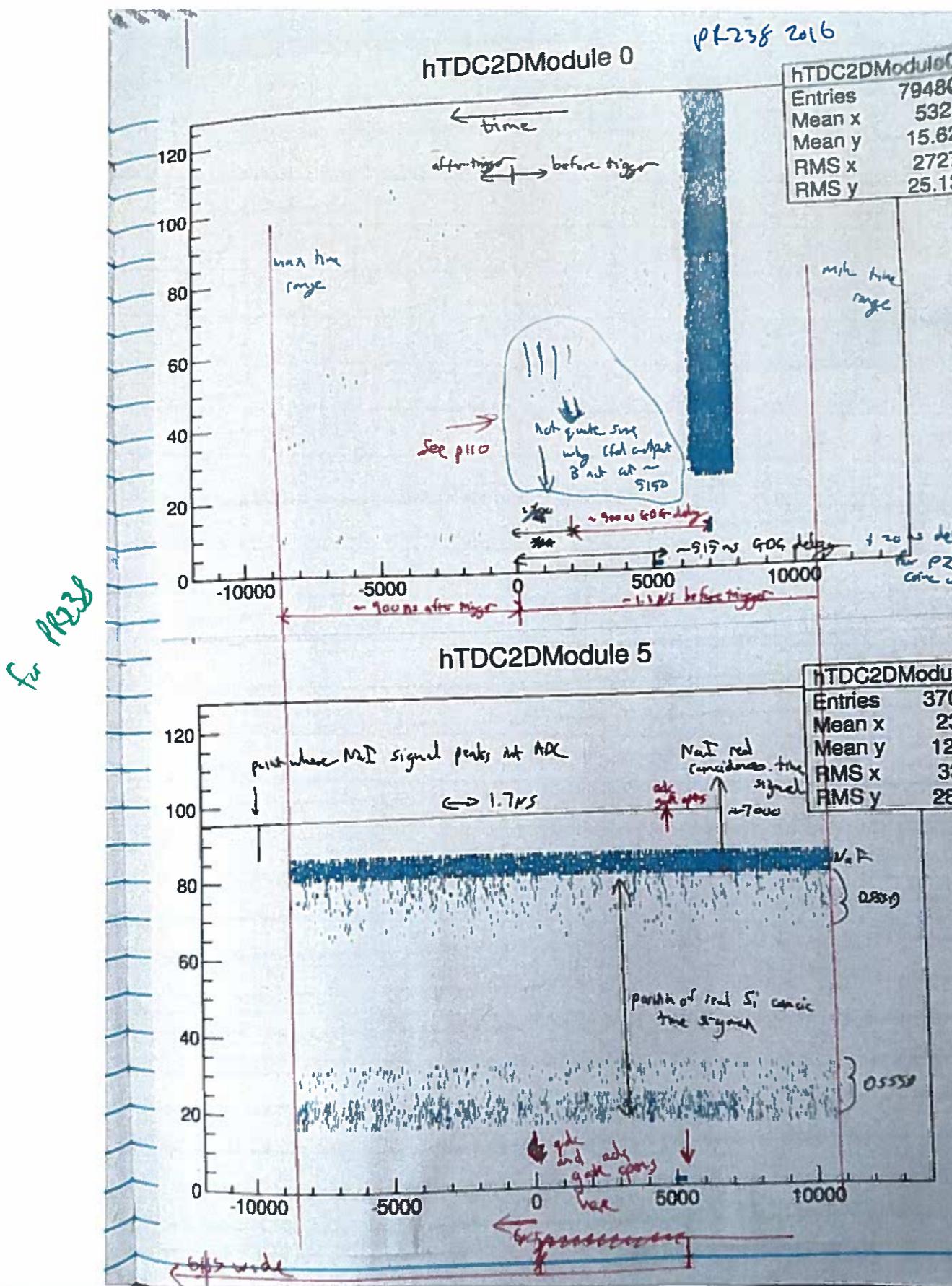


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Sat 15 Oct 2:24 pm

Run 1101 (still prescaled)	TDC/G chn	106	10045
	15 Hz	107	25635
		108	24388
		109	25847

Trigger on L3 black only



ADC 0 cha 16 24098
and without pedestal: ~200 counts

Run 1101

No prescaling ; 1 kHz.
Trigger on L3 black only → ADC 0 ch

RUN 1102 the same setup

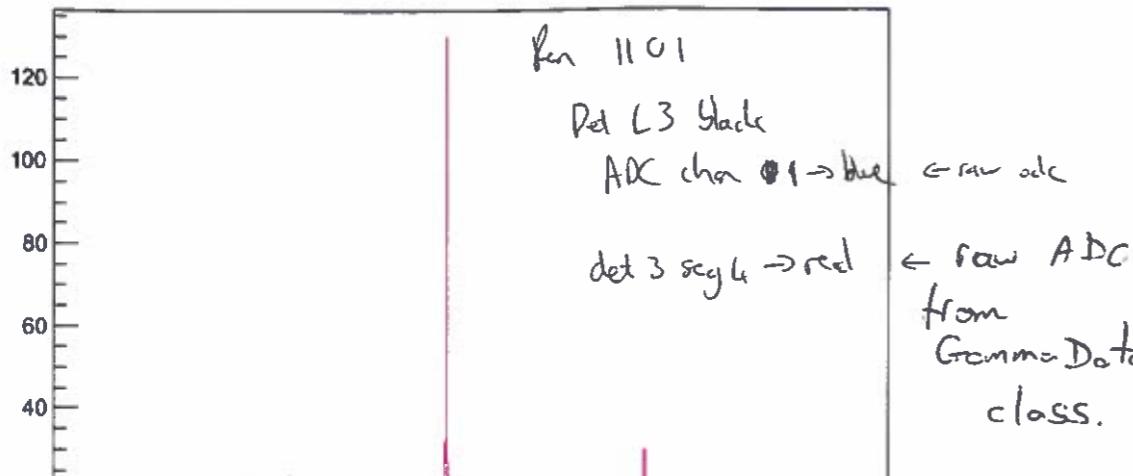
Run 1103	- trigger	L4 - black
1104	-	" " blue
1105	-	" " green
1106	L3 black	
1107	L4 red	
1108	L3 blue - didn't stop	
1109	on time	
	disregard this one	

1109 — * — L3 blue

1110 — + — L3 green

1111 — . — L3 red

1112 OR of all crystals.



Red:

```
DATA->Draw("GammaRawADC",
  "GammaDetectorLabel == 3" &&
  GammaDetectorSegm == 4");
```

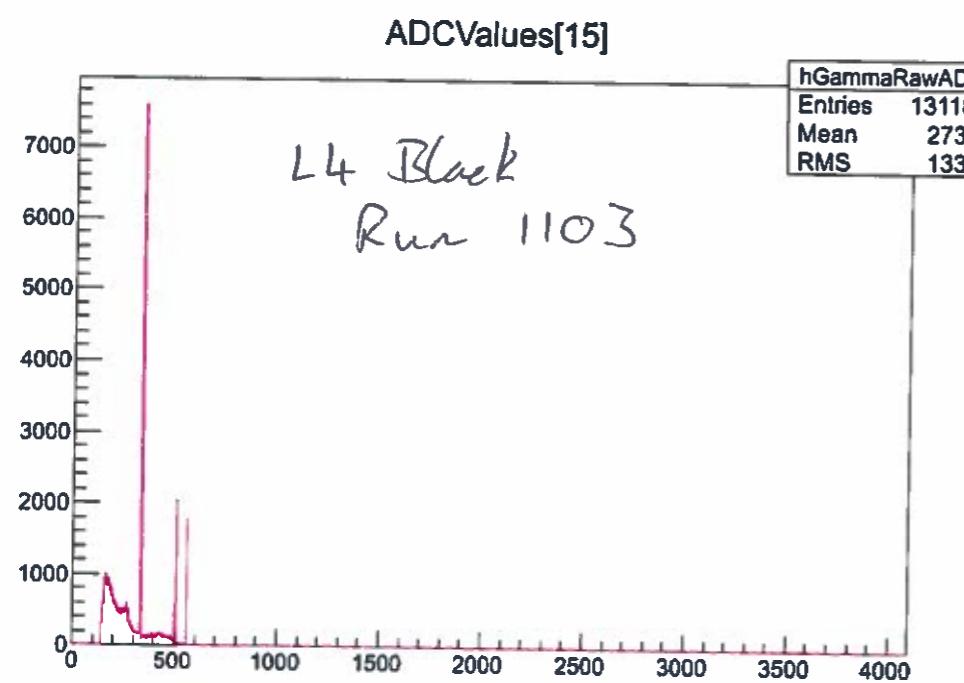
This is the Raw ADC + raw ADC
Raw Data Gamma Data

Requires good
TDC.

(FD) thresholds	L1	Black	0.92 V	R1	0.28
		Blue	0.92 V		0.55
		Green	0.92		0.60
		Red	0.95		0.33
L2	Black	0.95		R2	0.92
	Blue	0.94			0.93
	Green	0.93			0.93
	Red	0.92			0.95
L3	Black	0.28	R3	0.90	
	Blue	0.44			0.93
	Green	1.62			0.96
	Red	0.61			0.90
L4	Black	0.32	R4	0.93	
	Blue	0.83			0.93
	Green	3.56			0.95
	Red	6.28			0.93

Run 1113	L1 Black trigger	
1114	L1 Blue trigger	
1115	L1 Green; threshold = 0.57 V	~1160 Hz
1116	L1 Green	~930 Hz
1117	L1 Red	~800 Hz
1118	L2 Black	~4400 Hz
1119	L2 Blue	~470 Hz
1120	L2 Green	~730 Hz
1121	L2 Red	~550 Hz

We think we solved the problem.

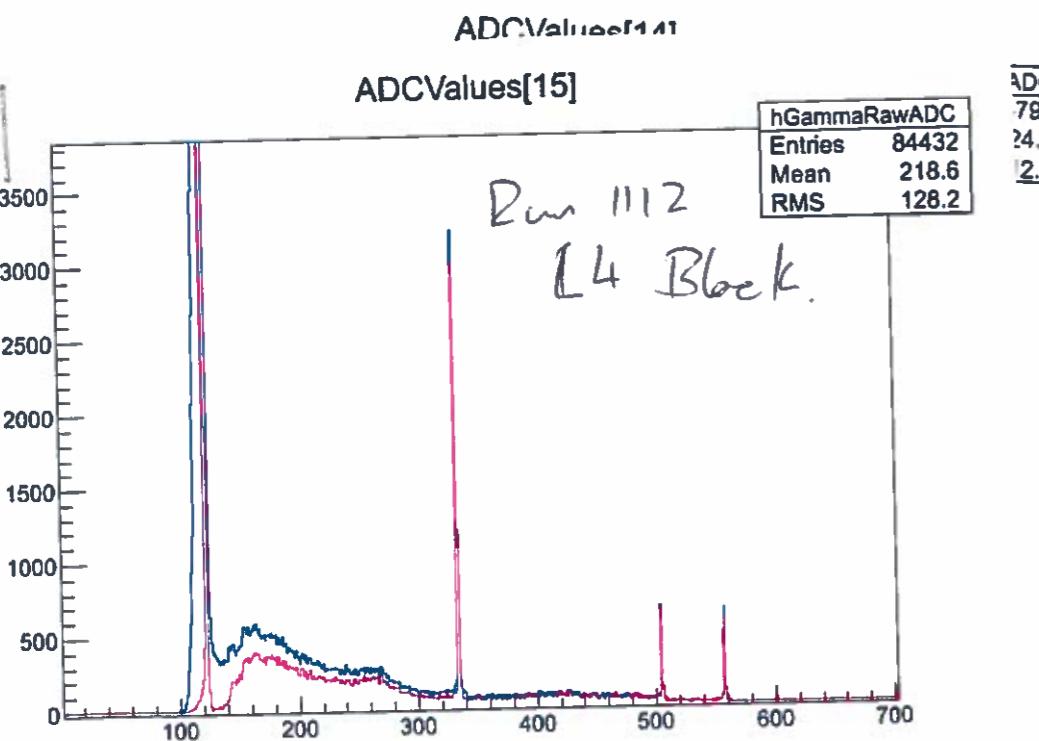


The $\text{Nim} \rightarrow \text{ECL}$ translation between the (CD) output and TDC input should be done properly (as Phil pointed out earlier this week...)

Once we used a proper Nim-ECL converter instead of the little "converter part" we no longer have the bad cross-talk between channels, and the time peak ~~is~~ when e.g. triggering only on 1 crystal looked good.

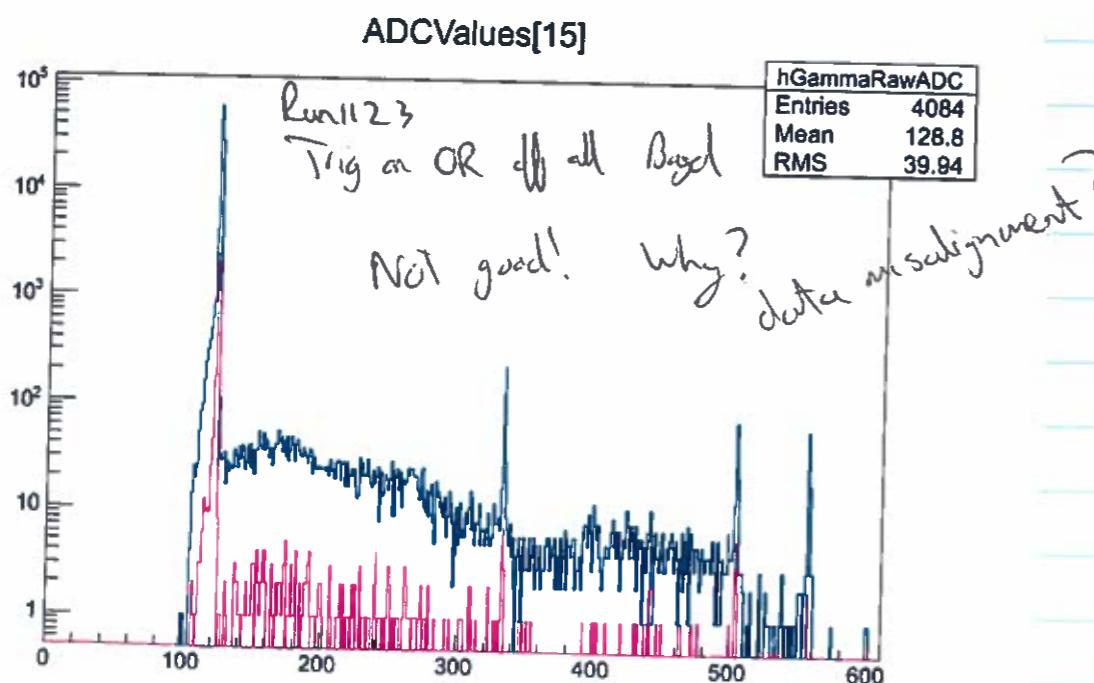
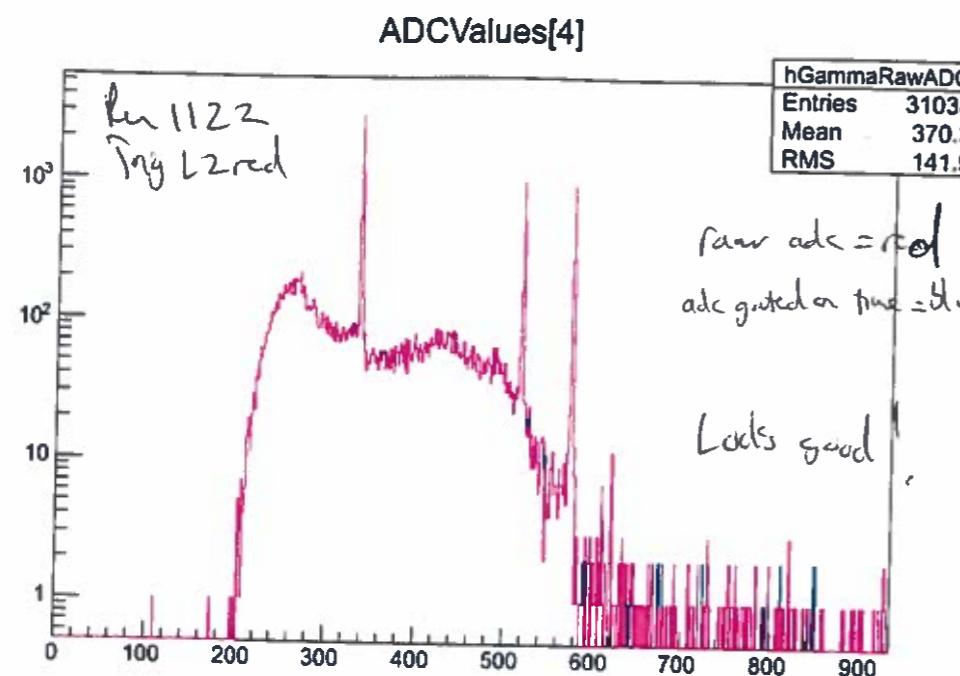
Run 1122 L2 red, no prescale, charged ECL Nim converter.
See paper single time peak for L2 red, no cross talk
seen in L1 black and L2 gray
(as was case in Run 1121)

Run 1123 OR trigger, prescaled,
Run 1124 OR triggered, prescaled'



NOTE: we only changed the left side.

Digital Right must still be changed!!!



Sunday 16 Oct.

Bagel Right CFD time signals to TDC
now also goes through proper MvtoECL
converter.

L1 and L2 HV module replaced. Ask Paul and
Luna for detail.

Suspicion: Data misaligned? Check ADC over end
underflow suppression.

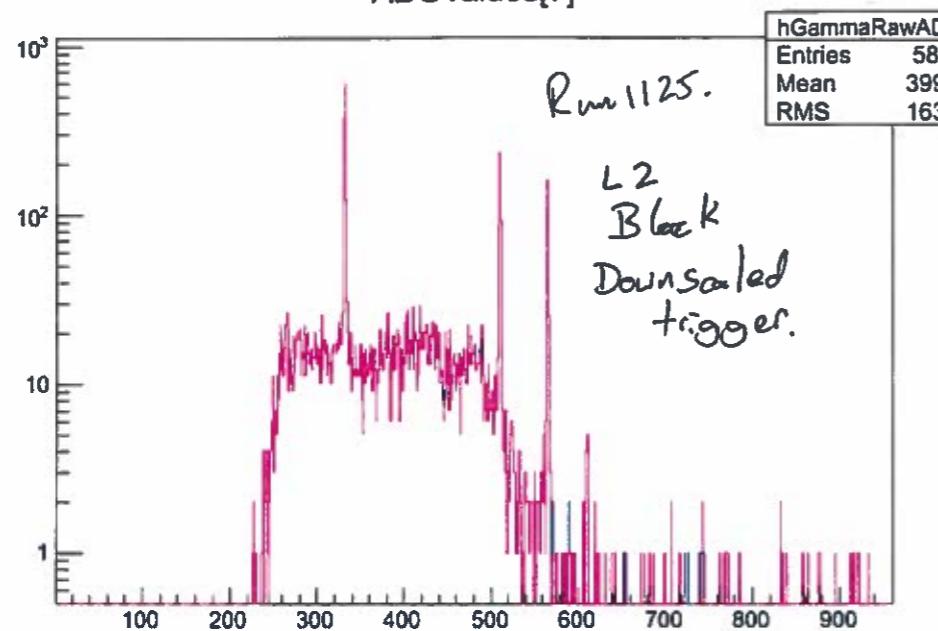
Put LaBr HV to unused V2 GW voltage
and U2 GW voltage.
Patchpanel under Beamline ch 3 → LaBr 1
ch 7 → LaBr 2

Run 1125 Trigger L2 black ~ 20 Hz
Prescaler used.

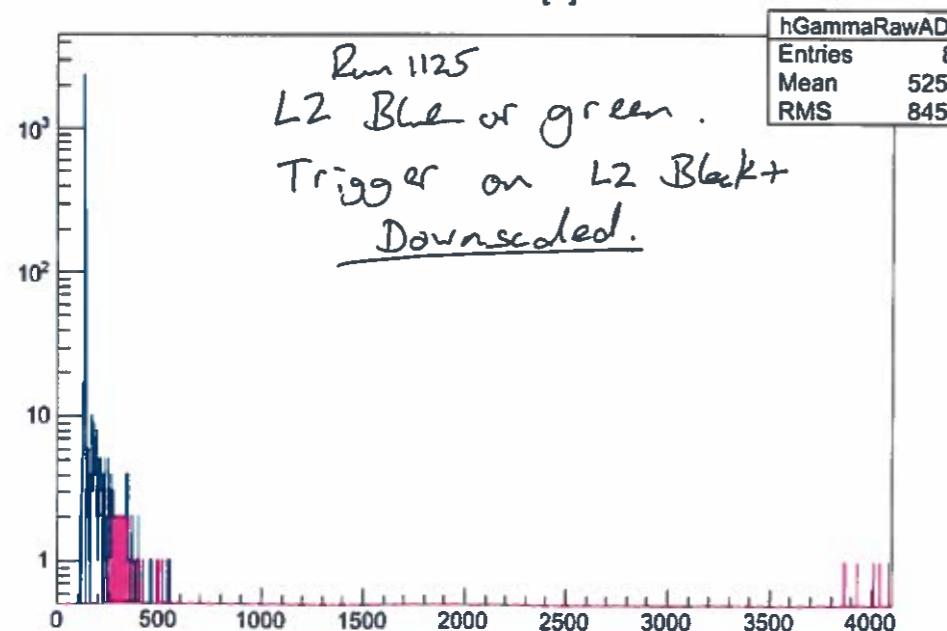
Run 1126 Trigger L2 red ~ 25 Hz
Prescaler used.

This proves the downscaler is not responsible for the missing TDC info as seen on p 32.

ADCValues[7]



ADCValues[6]



Remaining theory: TPC and ADC data is misaligned.

For the 7th TDC
For the histogram: TDCModule_006

Bagel LEFT Cable Y TDC connector D1

Detector	channel	color	TDC channel	Histogram bin
L1	1	red	96	97
L1	2	green	97	98
L1	3	blue	98	99
L1	4	black	99	100
L2	1	red	100	101
L2	2	green	101	102
L2	3	blue	102	103
L2	4	black	103	104
L3	1	red	104	105
L3	2	green	105	106
L3	3	blue	106	107
L3	4	black	107	108
L4	1	red	108	109
L4	2	green	109	110
L4	3	blue	110	111
L4	4	black	111	112

Bagel RIGHT Cable R TDC connector D2

Detector	channel	color	TDC channel	Histogram bin
R1	1	red	112	113
R1	2	green	113	114
R1	3	blue	114	115
R1	4	black	115	116
R2	1	red	116	117
R2	2	green	117	118
R2	3	blue	118	119
R2	4	black	119	120
R3	1	red	120	121
R3	2	green	121	122
R3	3	blue	122	123
R3	4	black	123	124
R4	1	red	124	125
R4	2	green	125	126
R4	3	blue	126	127
R4	4	black	127	128

New thresholds on CFDs so that they cut at 300 keV.

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	<u>CFD Th.</u>	CFD Th.	<u>CFD Th.</u>	CFD Th.
L1 black	-0.312 V	0.312	R1 - black	-0.318
blue	-0.308 V	0.308	blue	-0.310
green	-0.313 V	0.313	green	-0.313
red	-0.317 V	0.317	red	-0.333
L2 black	-0.300 V	0.300	R2 - black	-0.326
blue	-0.328 V	0.328	blue	-0.323
green	-0.320 V	0.320	green	-0.300
red	-0.330 V	0.330	red	-0.304
L3 black	-0.307 V	0.307	R3 black	-0.308
blue	-0.308 V	0.308	blue	-0.326
green	-0.284 V	0.284	green	-0.295
red	-0.302 V	0.302	red	-0.305
L4 black	-0.323 V	0.323	R4 black	-0.320
blue	-0.321 V	0.321	blue	-0.337
green	-0.325 V	0.325	green	-0.320
red	-0.327 V	0.327	red	-0.335

Also fixed the width of the CFD signals at ~~150~~

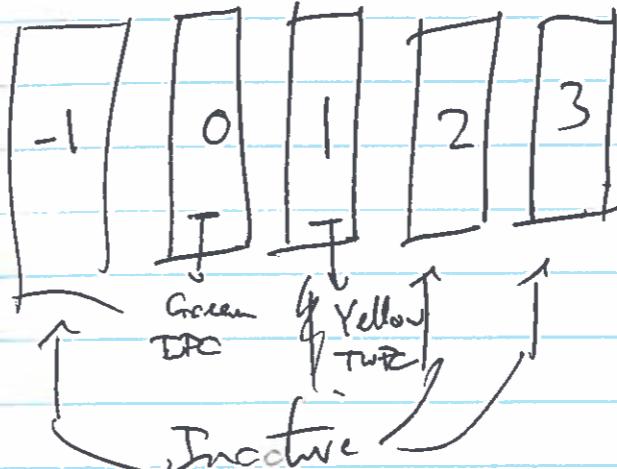
so we.

→ Run ... -117~~5~~: checked, by triggering on each CFD channel, that the energy threshold from the CFDs is at 300 keV

! it look like ADC corresp. to det R1 blue & black are swapped. → We found the wrong labeling at the level of the analog converter before the CFDs → DR~~1~~

PLJ: I think the vetos for the ADCs were taken from green (ADC Module 0) and the orange type which was not connected to anything but was next to ADC Module -1.

In VME crate



(this follows pattern on p12 when 1 ADC was removed)

(Veto changed before last few runs 1171-1174).

Run 1175 - OR trigger ~~CFD~~

We noticed that the CFDs of R3 are triggering sometimes two times. That's because the TPCs ~~introduce~~ introduce a ~~zero~~ wrong pole zero and in consequence CFDs trigger twice. Tried to change the cards inside the amplifier and it didn't help.

The issue is related to the problem seen in the analysis, where R3 has (too) many ADC hits without the corresponding TDC output.

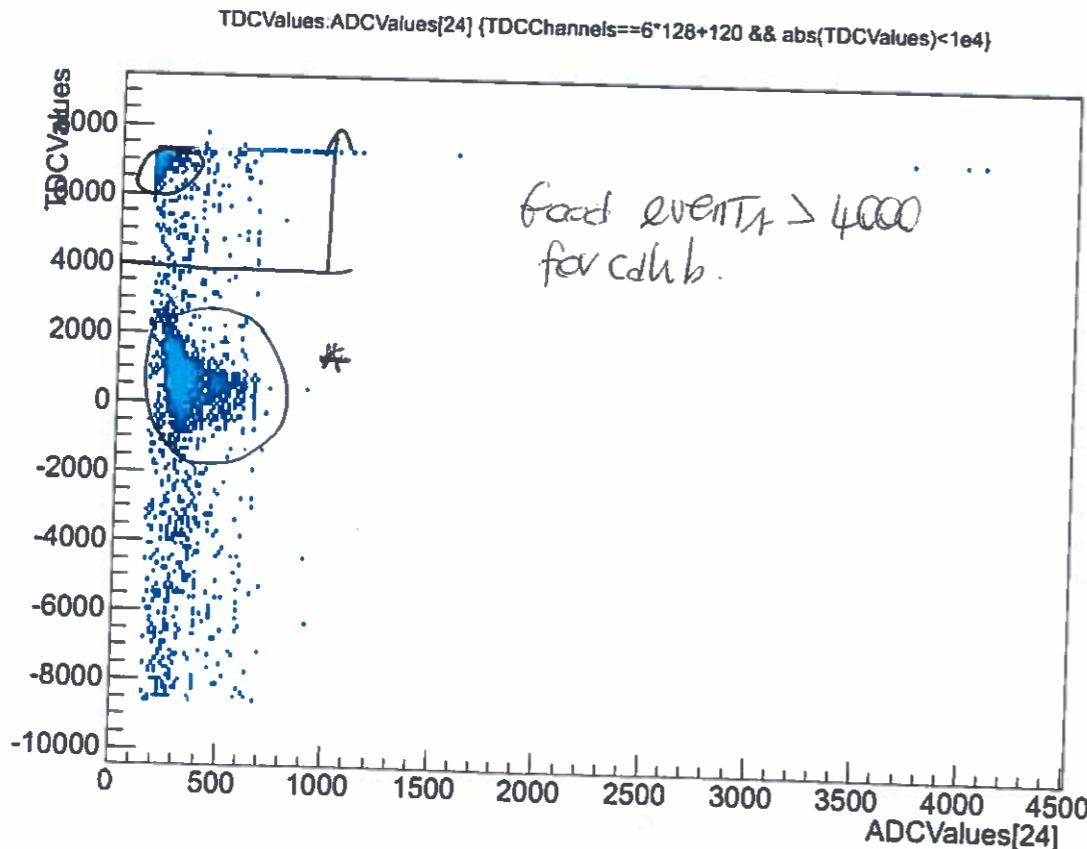
Note: the HV for the LaBr is coming ~~partly~~ from the HV module of the ~~top~~ wiper (VDC2)

⇒ LaBr #1 ch 3 - 980V

LaBr #2 ch 4 - 960V

Run # 1177 Calibration good. to check if it is still working. $^{137}\text{Cr} + ^{60}\text{Co}$

there are for R3 clover (all the segments) multiple hitr event
in the TDCs



the signal out of CFD for R3 ~~doe~~ have some events that have two hitr:



this it is translated in another pick in the TDC spectra *

Bagel LEFT			7 th TDC Cable Y, TDC connector D1			1 st ADC	Cable S, first 16 channels	
Detector	channel	color	TDC channel	TDC2DModule_006 Histogram bin	TDC channel for all TDCs	ADC channel	ADC2DModule_000 Histogram bin	
L1	1	red	96	97	864	0	1	
L1	2	green	97	98	865	1	2	
L1	3	blue	98	99	866	2	3	
L1	4	black	99	100	867	3	4	
L2	1	red	100	101	868	4	5	
L2	2	green	101	102	869	5	6	
L2	3	blue	102	103	870	6	7	
L2	4	black	103	104	871	7	8	
L3	1	red	104	105	872	8	9	
L3	2	green	105	106	873	9	10	
L3	3	blue	106	107	874	10	11	
L3	4	black	107	108	875	11	12	
L4	1	red	108	109	876	12	13	
L4	2	green	109	110	877	13	14	
L4	3	blue	110	111	878	14	15	
L4	4	black	111	112	879	15	16	

Bagel RIGHT			7 th TDC Cable R, TDC connector D2			1 st ADC	Cable V, last 16 channels	
Detector	channel	color	TDC channel	TDC2DModule_006 Histogram bin	TDC channel for all TDCs	ADC channel	ADC2DModule_000 Histogram bin	
R1	1	red	112	113	880	16	17	
R1	2	green	113	114	881	17	18	
R1	3	blue	114	115	882	18	19	
R1	4	black	115	116	883	19	20	
R2	1	red	116	117	884	20	21	
R2	2	green	117	118	885	21	22	
R2	3	blue	118	119	886	22	23	
R2	4	black	119	120	887	23	24	
R3	1	red	120	121	888	24	25	
R3	2	green	121	122	889	25	26	
R3	3	blue	122	123	890	26	27	
R3	4	black	123	124	891	27	28	
R4	1	red	124	125	892	28	29	
R4	2	green	125	126	893	29	30	
R4	3	blue	126	127	894	30	31	
R4	4	black	127	128	895	31	32	

LaBr			7 th TDC Cable F, TDC connector B2			2 nd ADC	Cable H, first 16 channels	
Detector			TDC channel	TDC2DModule_006 Histogram bin	TDC channel for all TDCs	ADC channel	Cable O, last 16 channels	ADC2DModule_000 ADC channel for all ADCs
1	low gain	48	49	816	816	0	1	32
2	low gain	49	50	817	817	1	2	33
1	high gain	48	49	816	816	16	17	48
2	high gain	49	50	817	817	17	18	49

Run # 1191 Calib. 10 MeV - $^{137}\text{Cr} + ^{60}\text{Co}$

Run # 1192 " 8 MeV - " "

Run # 1193 background (settings @ 8 MeV) no sources.

17/10/2016

Monday

- BACKGROUND RUN:

We ~~saw~~ saw strong peaks ~~around~~ at the same energies of ^{60}Co .

Most probably in the result of the neutron activation of the steel ~~in~~ around the scattering chamber.

(see report of PR #194)

LabR #1 (closer to the K600 hole)

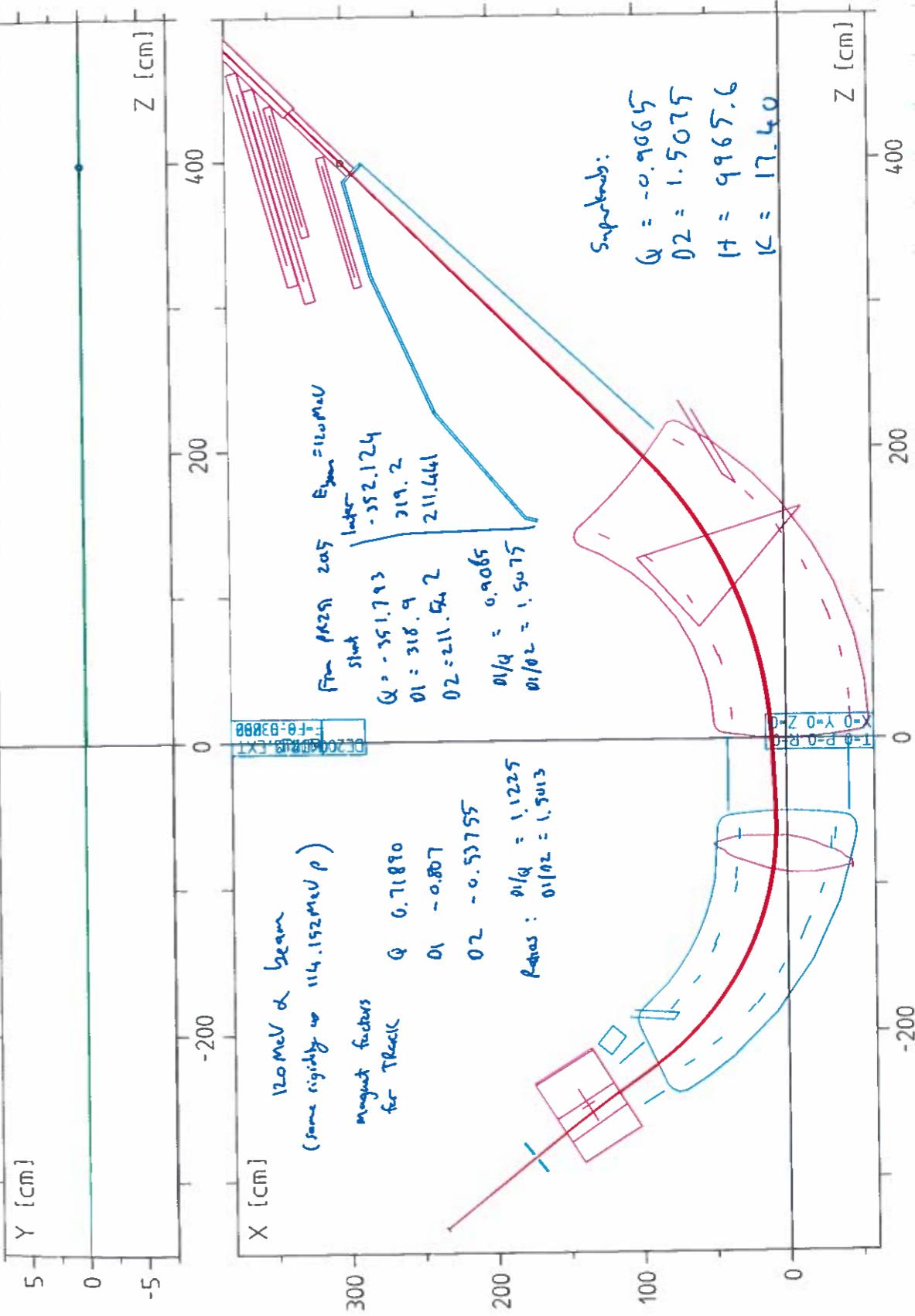
is the one that see the activation most. It's almost the same rate of the internal radioactivity, ~~for the~~

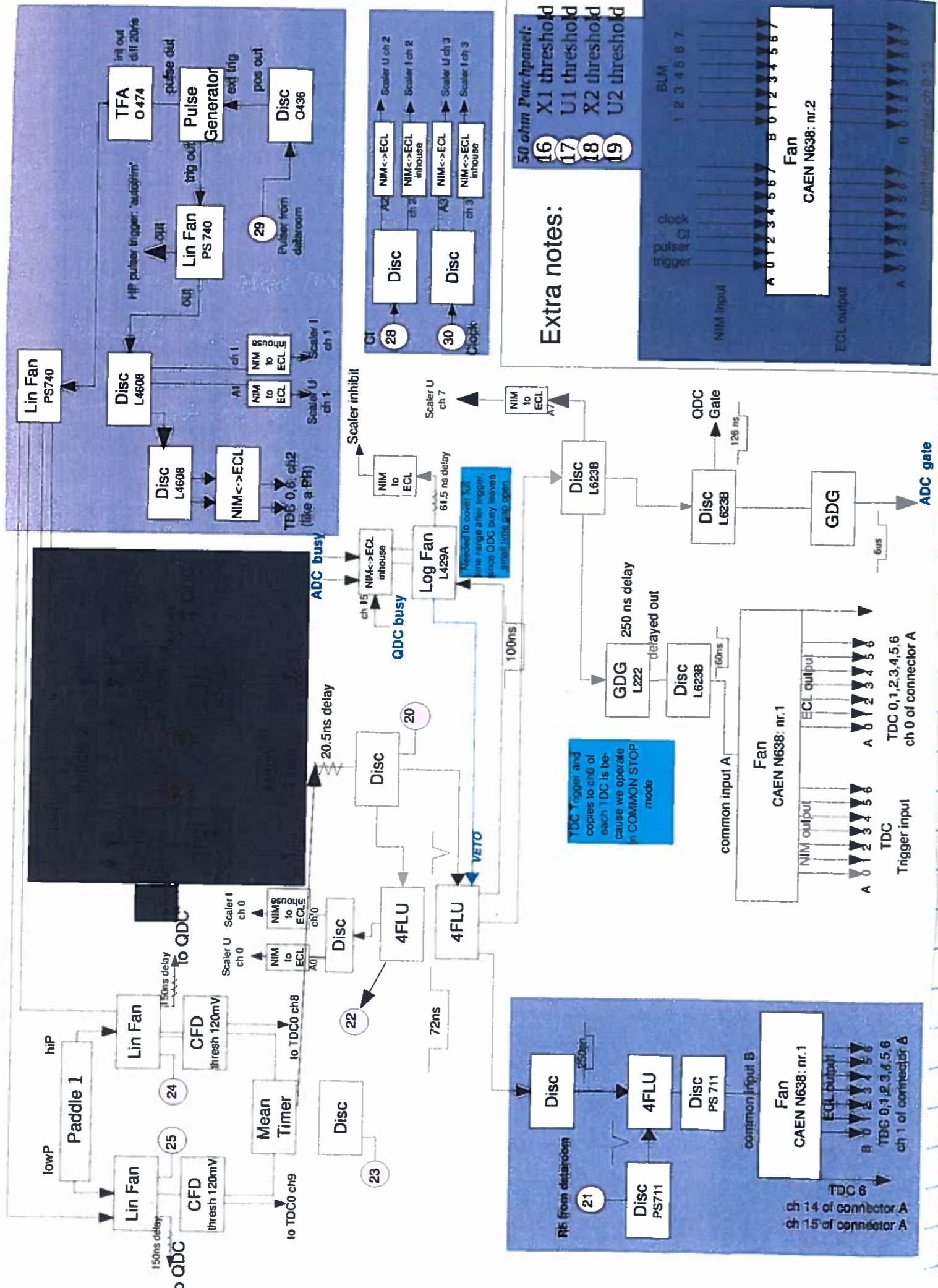
Note: The gain of the HPGe has been set also up to 12 MeV the LabR have drifted when we plugged in the other HV. \Rightarrow we have to do a new setting for the gain.

Run # 1211 Calibration with ^{the} new settings
12 MeV for HPGe
new for LabR
 $^{137}\text{Cr} + ^{60}\text{Co}$ source

FOCUS, 938cm MAXSTEP=0, 1cm
ELLIPSE, NRAY=2, NELPS=3, X=0, Y=-2mmian, Z=0, 65mmian TWIST=720deg
KINETIC, P=176.6990 MeV/c X0=234.88cm Y0=0 Z0=333.53cm ANG=308.6deg

T_R_A_C_K 8.6
17-OCT-2016/12:36:04



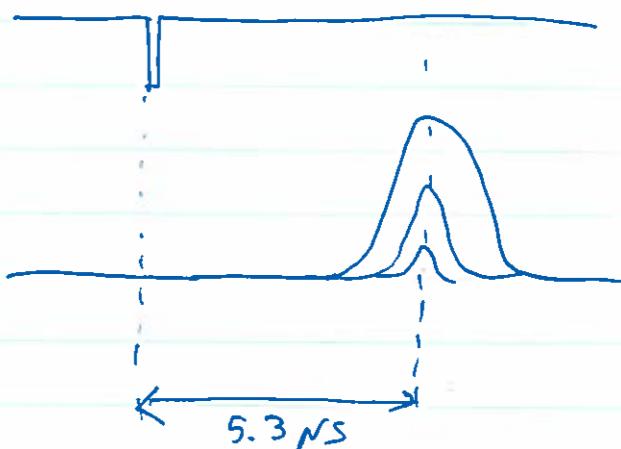


Single paddle trigger + ADCs for PR251 2016

For L1 red

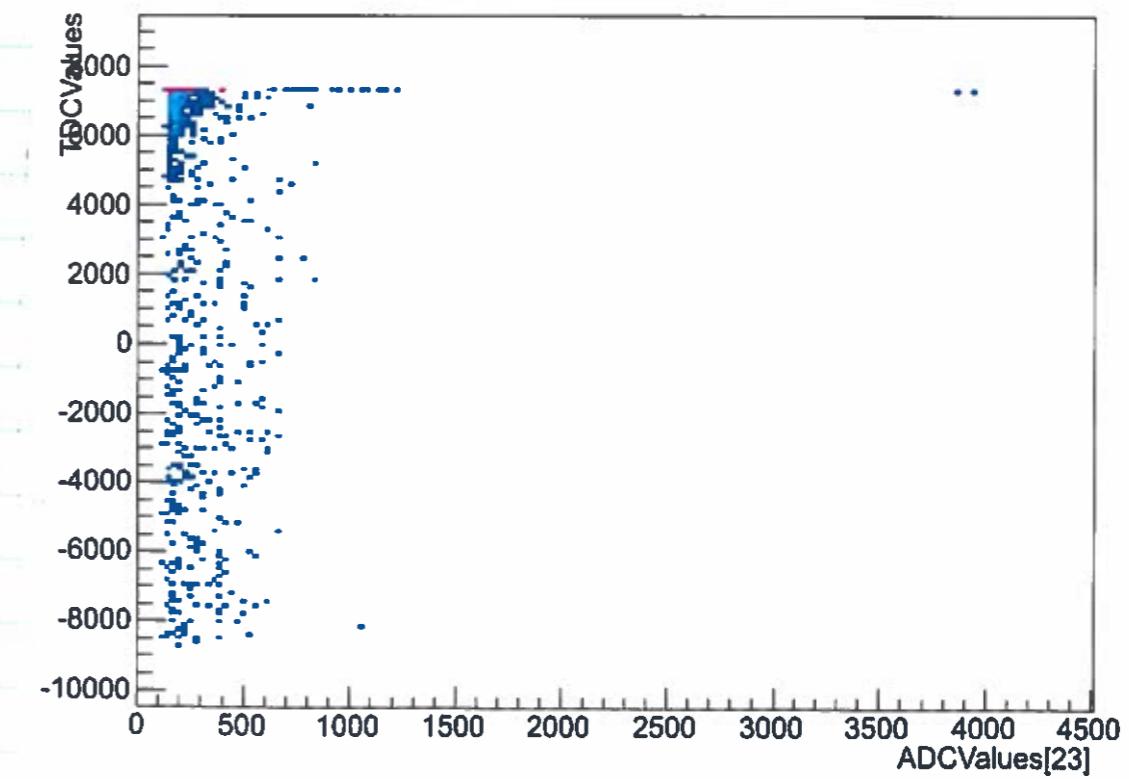
TDC signal into TDC

signal into ADC



final TIC value for their clover (see comment pag. 38)

`TDCValues:ADCValues]23] {TDCChannels==6*128+120-1 && abs(TDCValues)<1e4}`



Run #1230 : AmBe-Fe source in (+ ^{60}Co and ^{137}Cr)
on the RIGHT.
It's $\approx 80\text{cm}$ from ~~the~~ BAGEL.

We had to ~~adjust~~ modify the gain of Clover to get them

Run # around 11.5 - 12 MeV (n568- --- - 11MeV.bh)

↳ Run# 1236 $^{137}\text{Cr} + ^{60}\text{Co}$ calibration for their
set of gain.

- Pulser in the HPbe (not in R2, no test input)
 - ↳ triggered by pulser of k600 and trigger out going in TDC channel 14 (TDC-000)

Run # 1250 $^{137}\text{Cr} + ^{60}\text{Co}$ + pulser on RIGHT BAGEL

↙
100 Hz ~~test~~ self triggering

Run # 1256 BACKGROUND RUN

Run # 1258 NO SOURCES, BAGEL CLOSE

Calibration performed on Run # 1236

Calibration parameters for 11-12 MeV settings				
Channel:	Offset:	Gain:	Energy at Ch 3850:	FWHM (keV) Resolution of the lowest peak @ 661 keV
0	-337.263	3.16725	11857	1.969
1	-400.55	3.19492	11900	2.043
2	-348.93	3.28592	12302	2.285
3	-349.391	3.13542	11722	2.148
4	-320.932	3.22798	12107	2.125
5	-346.765	3.16725	11847	1.944
6	-394.16	3.19492	11906	2.292
7	-317.248	3.16249	11858	2.108
8	-417.863	3.25671	12121	2.030
9	-378.185	3.19492	11922	2.151
10	-426.69	3.27381	12178	2.270
11	-411.349	3.25671	12127	2.375
12	-399.484	3.21137	11964	2.593
13	-258.082	3.16725	11936	1.712
14	-461.652	3.33873	12393	1.751
15	-352.035	3.16249	11824	2.069
16	-388.885	3.17863	11849	3.978
17	-340.598	3.20642	12004	3.822
18	-465.226	3.29108	12205	4.027
19	-348.103	3.21137	12016	4.013
20	-385.707	3.17863	11852	4.047
21	-304.627	3.30334	12413	4.181
22	-405.883	3.23979	12067	3.916
23	-344.936	3.15126	11787	4.196
24	-472.061	3.20642	11873	3.647
25	-424.506	3.28592	12226	4.040
26	-471.808	3.29108	12199	3.666
27	-468.517	3.29108	12202	4.190
28	-432.538	3.32095	12353	4.068
29	-406.915	3.22302	12002	3.831
30	-416.869	3.27381	12187	4.124
31	-373.485	3.23979	12100	4.029
32	-156.394	2.69736	10228	28.2 -3.44%
33	-136.136	2.62137	9956	20.5 -2.562%
48	-367.083	4.01831	15103	29.3 -2.849%
49	-378.917	4.03313	15149	20.7 -1.886%

Gain Settings files :

→ n568-rightbagel-11MeV.sh

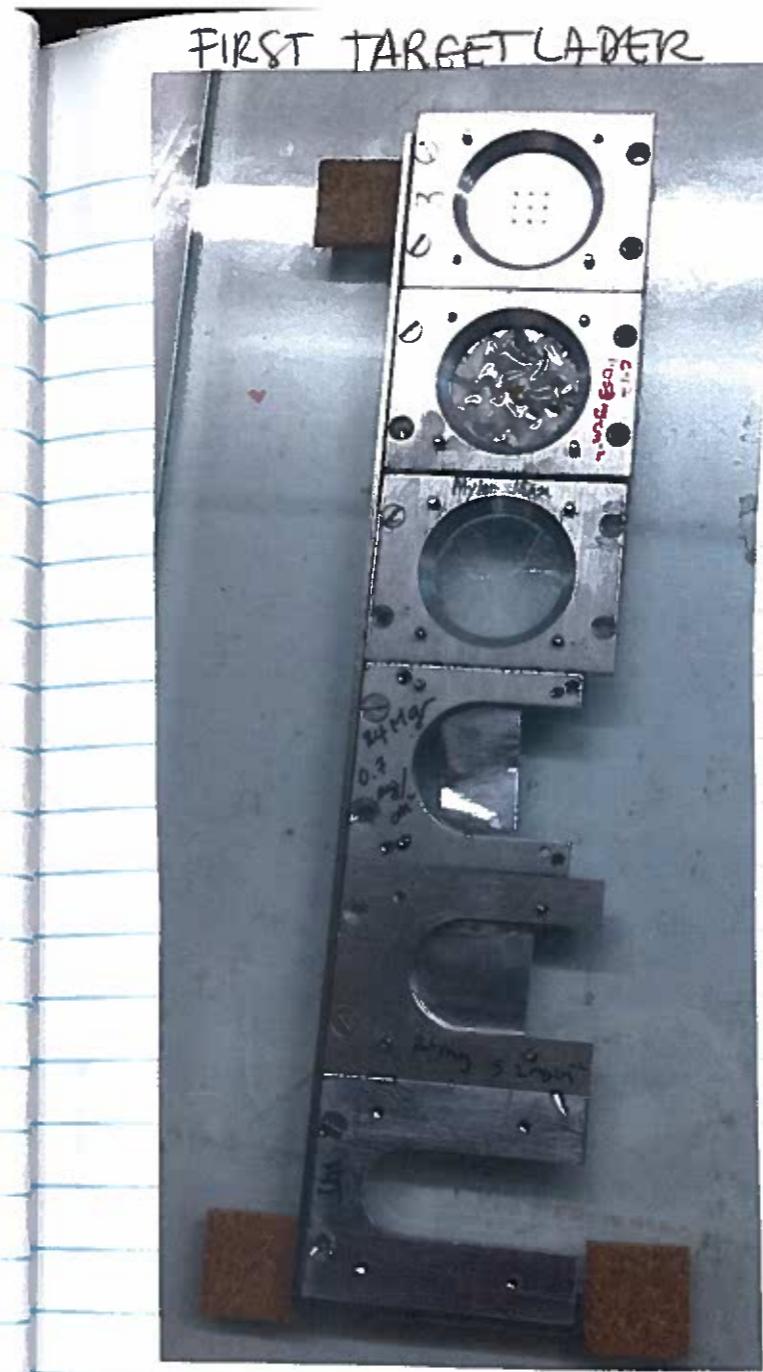
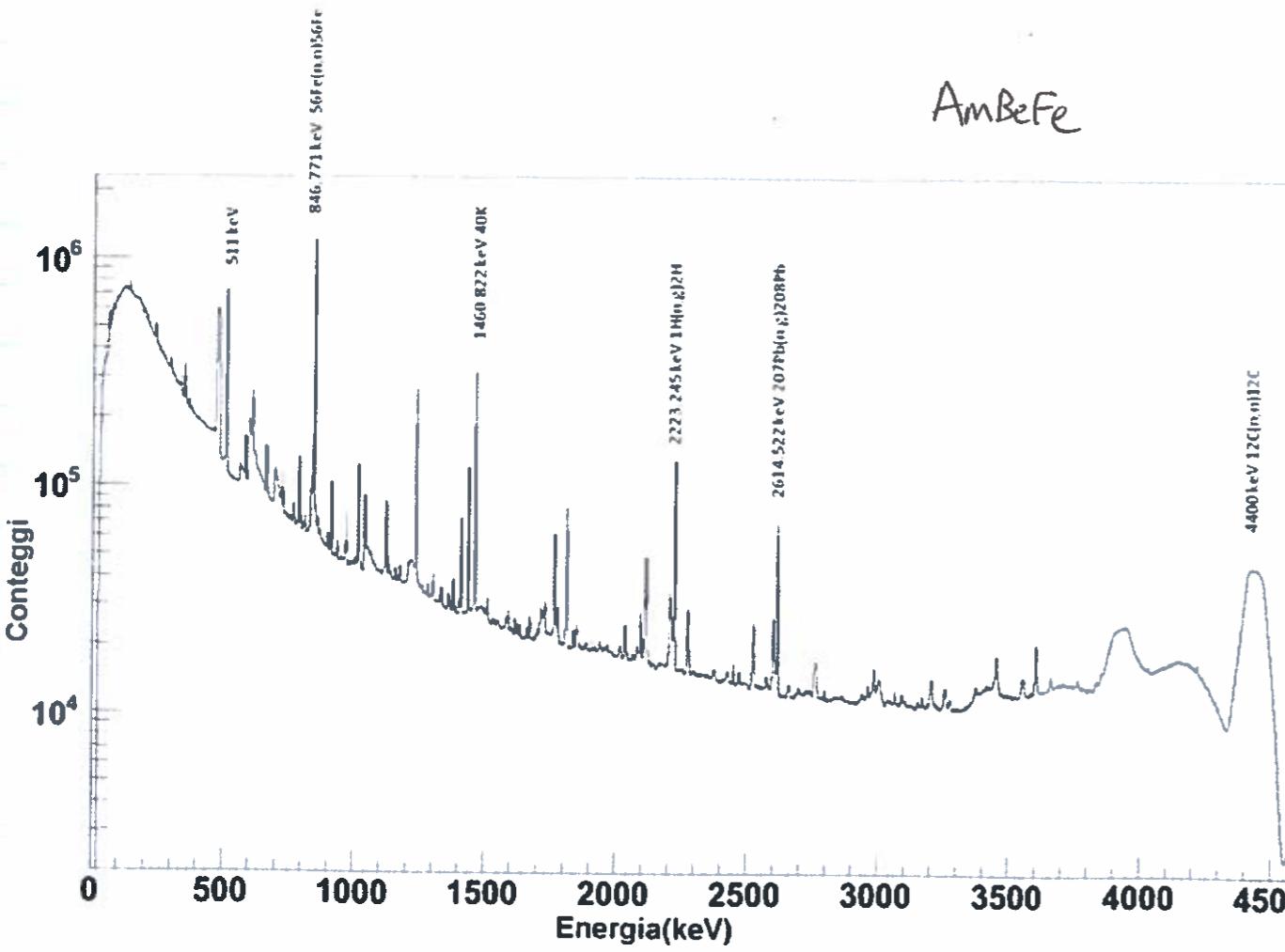
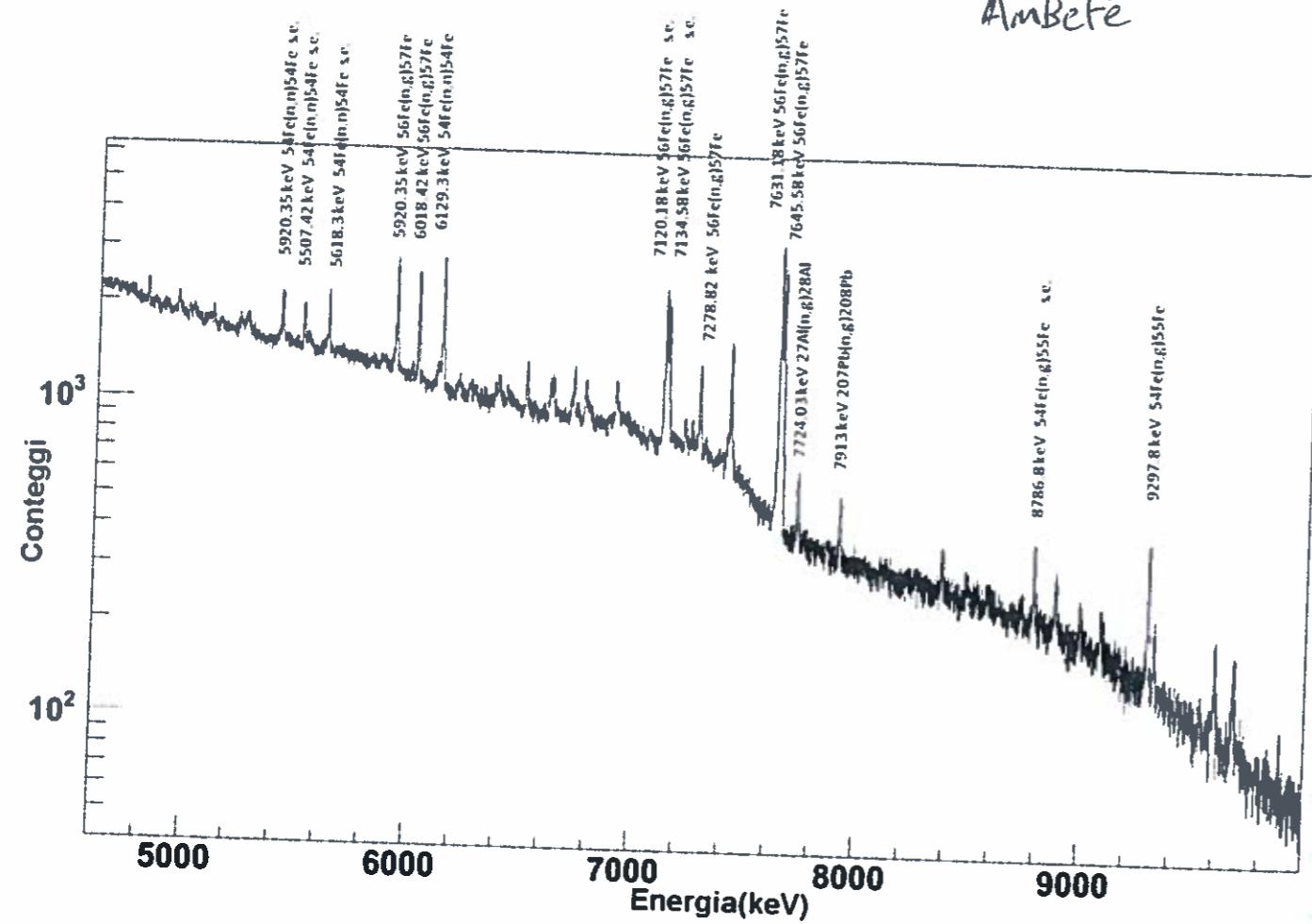
→ n568-leftbagel-11MeV.sh

Calibration parameters in config.cfg file :

→ CalibPars11MeVsetting.dat.

19/10/2016
Wednesday

47



VIEWER

¹²C 1.053 mg/cm²

MYLAR 2.1 mg/cm²

²⁴Mg 0.7 mg/cm²

²⁶Mg 5.2 mg/cm²

EMPTY

Wed 19 Oct

Run # 2001 check the rates of fe without beam

L1	469 Hz	R1	500
L2	417	R2	535
L3	438	R3	720
L4	472	R4	531

OR LabBr 3603 Hz

Runs 2001 - 2003 were test runs

Run 2004 ; ^{56}Fe source on, Bagel closed

Start: 19:13 (Wed)

Stop: Thurs 08:12.

Of course DAQ reached 4M event limit.

etime: 9:20

we start to see first how the beam look like on the beam dump. \Rightarrow empty target.

BEAM ENERGY

** EnMet Ver5.7 Oct 2013 ** Energie_NMR.txt

** BEREKENDE ENERGIE **** CALCULATED ENERGY **

2016/10/20

versnelde deeltje	Accelerated particle :
Element	= He
Atoomgetal	= Atomic Number = 2
Massagetal	= Mass Number = 4
Rel. Atoommassa	= Rel. Atomic Mass = 4.0026
Natuurlike voorkoms	= Natural Abundance = 100 %
Ladingsgetal Q	= Charge State Q = 2

1 Tesla = 42.5759 MHz [Linear Relation]

BEAM ENERGY FROM NMR-READING/S (frequency) :

BEAM ENERGY FROM NMR-READING/S (field) :

B3P Beam Energy = 117.88 Mev from NMR = 0.7879 Tesla

$E(\text{beam}) = 117.88 \text{ MeV} \Rightarrow$ we have to change the field!

Supernode $\Rightarrow D1 = 317.5$

Thursday 20 Oct

Runs 2005-2007 ; test runs to get daq going after restart of DAQ

(did a full $\text{ctrl}_{\text{power}}$ reboot)

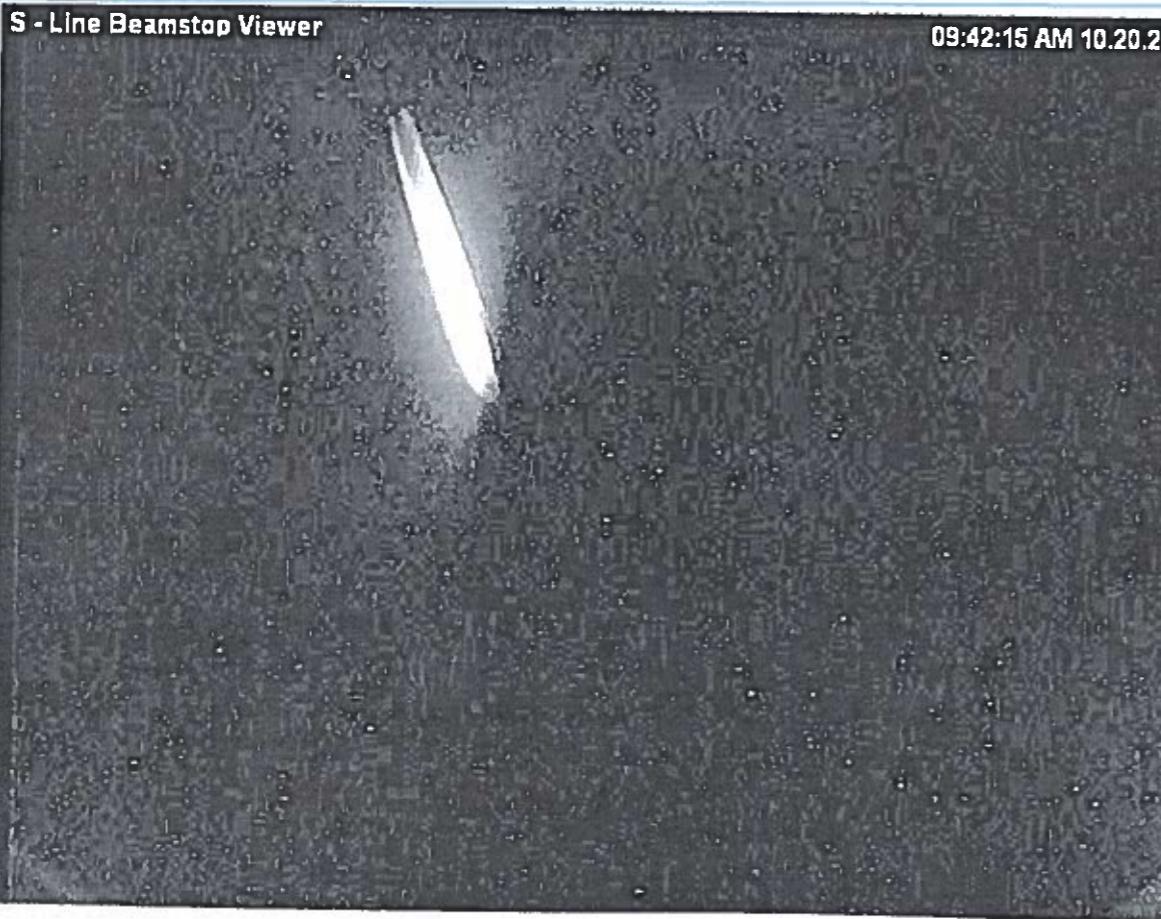
We may have beam at 9 am!

BAGEL RATES no beam; Bagel open . Run # 2008 \Rightarrow 9:39

L1	0.5 kHz	R1	0.5
L2	0.5	R2	0.5
L3	0.5	R3	0.7
L4	0.5	R4	0.5

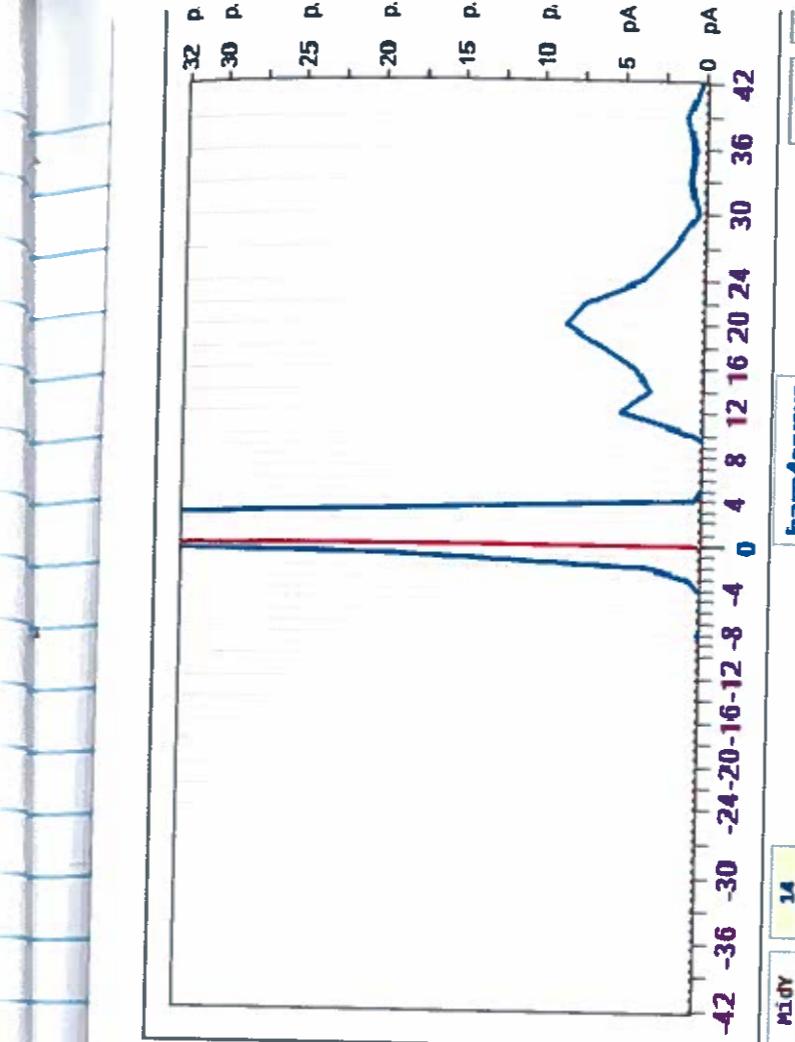
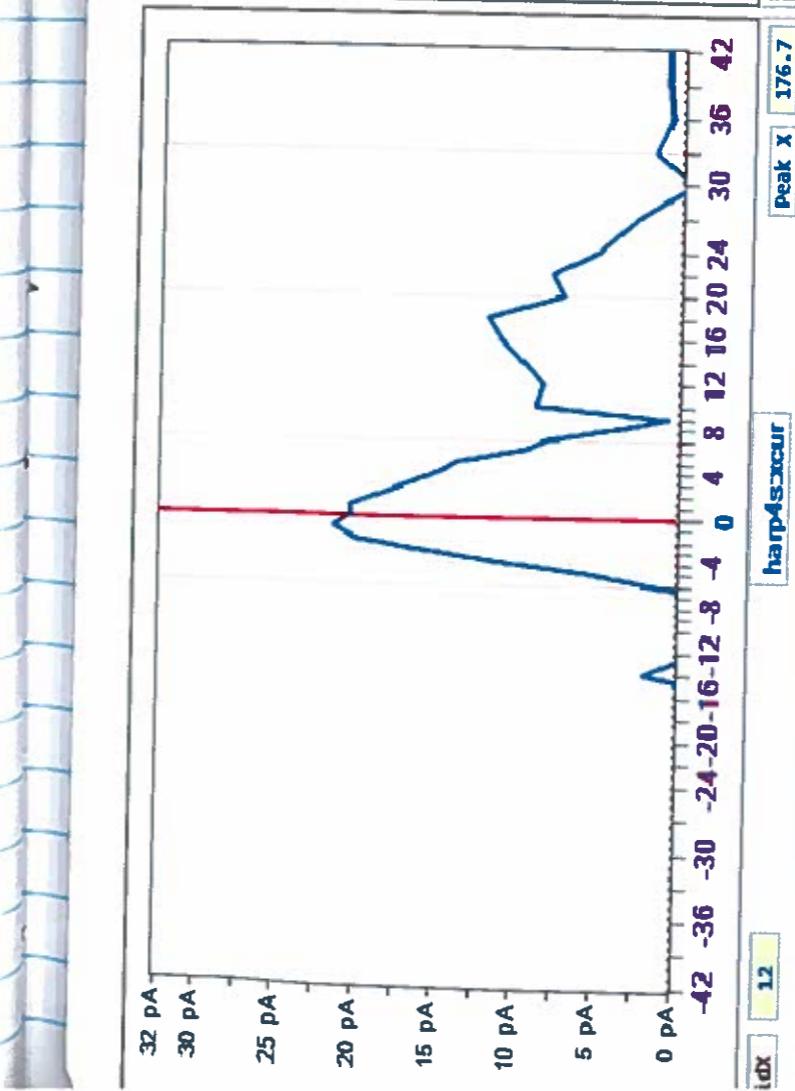
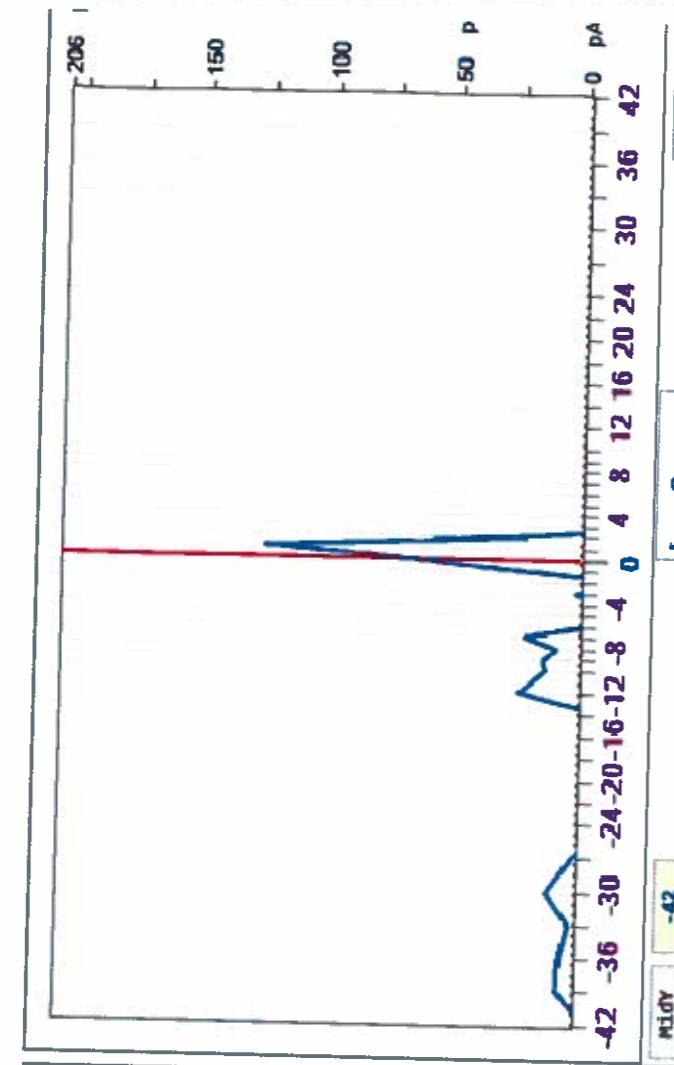
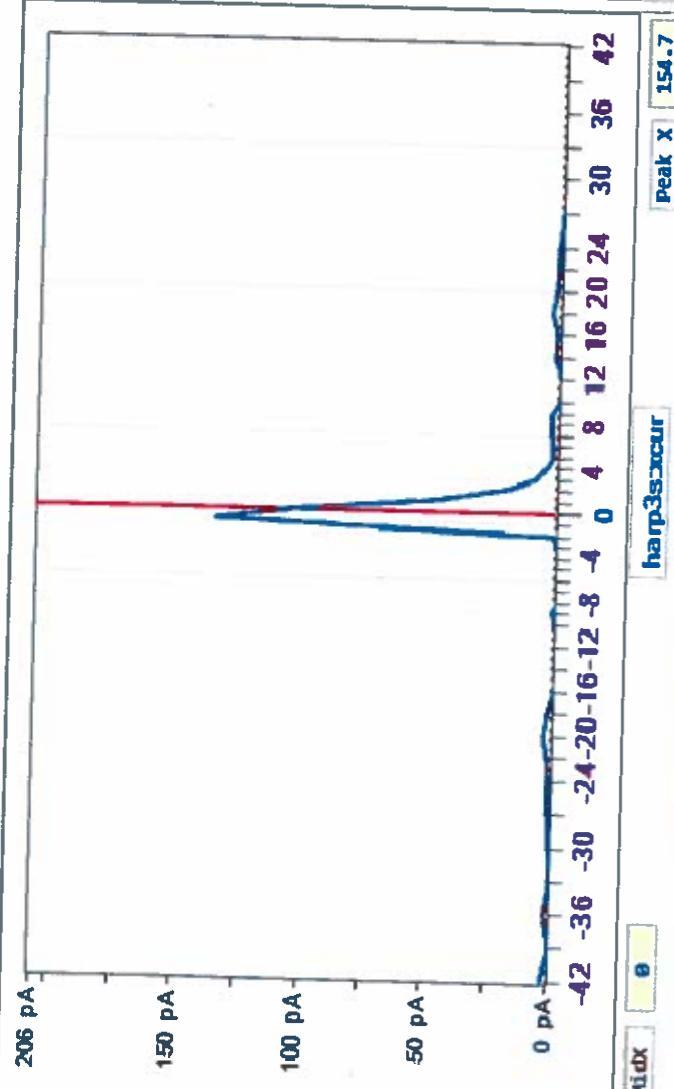
LabBr 1.4 kHz OR LabBr 3.6 kHz

Run # 2009 : Beam off beam dump.
Refer increased of 200 Hz.
0.2 nA



14

51



X emittance 5.5 π mm mrad
Y 1.1 μ

53

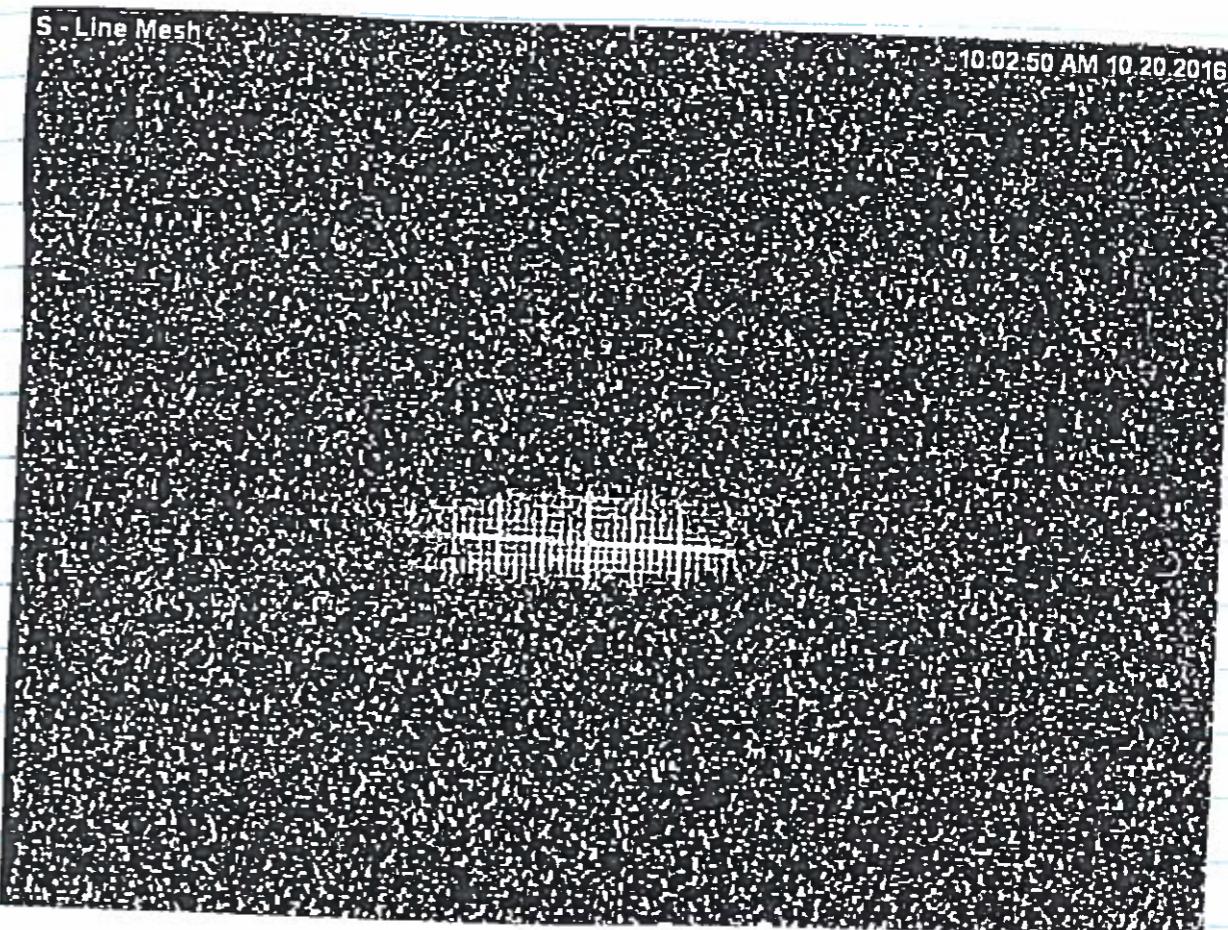
Run # 2010: 1) we put HATANAKA in and we checked the BAGEL Rater. With 0.2 nA we had 4 kHz

2) with The viewer @ 0.2 nA we had 1.5 kHz

Run # 2011: 0.2 nA with HATANAKA + VIEWER we have 3-4 kHz.

Run # 2012: VIEWER IN
0.2 nA. Rater in BAGEL N 2.5 / 3 kHz

OUT HATANAKA → later at 1.5 kHz



L3 had a very high count rate without a reason because it or not beam related.



With 12C test.
Compare to previous test.
Starting settings.

WDC1: -3.6 kV (in vault)
-500V X, U guard bias

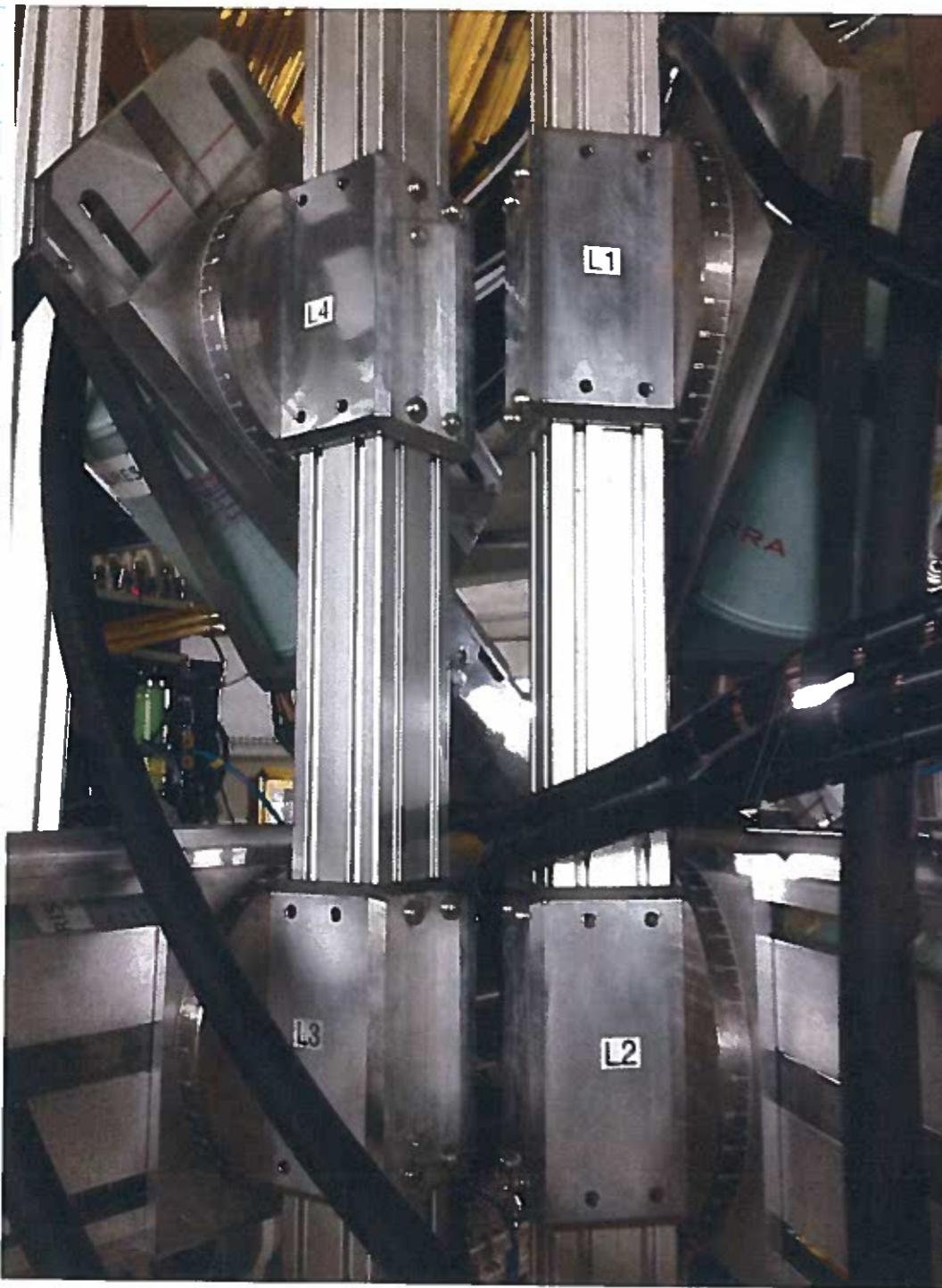
Pad1 hip -1kV
1 kip -1kV

Starting settings.

MAGNETS:

Q1	-349.697
D1	317.000
H	0.032
D2	210.282
K	18.218

BAGEL LEFT



BAGEL RIGHT



Thursday

13:00

Beam gone again.

We have put the 4 segments from L3 to monitoring the rates. ~~L3~~.

Run # 2018 : background run to check the rates of L3

Thurs ~~20~~ Oct 15:50 Beam back.

Run # 2021 : CHECK ON THE BEAM DUMP

EMPTY TARGET IN

0.2 nA current

HIP6e just 100-200 Hz more for the rates

Run # 2022 : HATANAKA IN

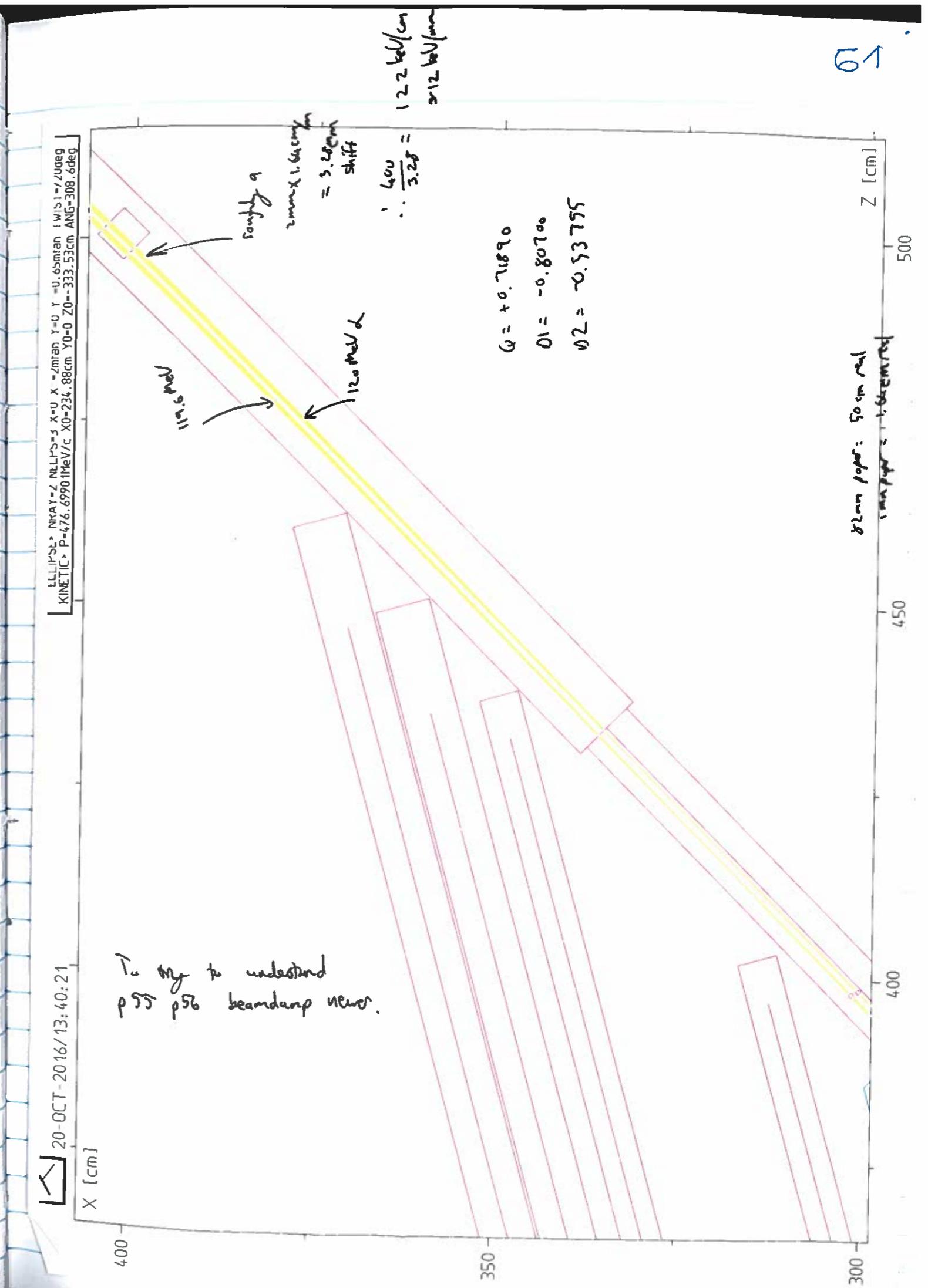
BABEL rates higher than before
~ 5-7 kHz

Run # 2023 : VIEWER + HATANAKA IN to check the beam

0.2 nA

BABEL rates 7/9 kHz

↓ after beam tuning the rates are 3/4 kHz

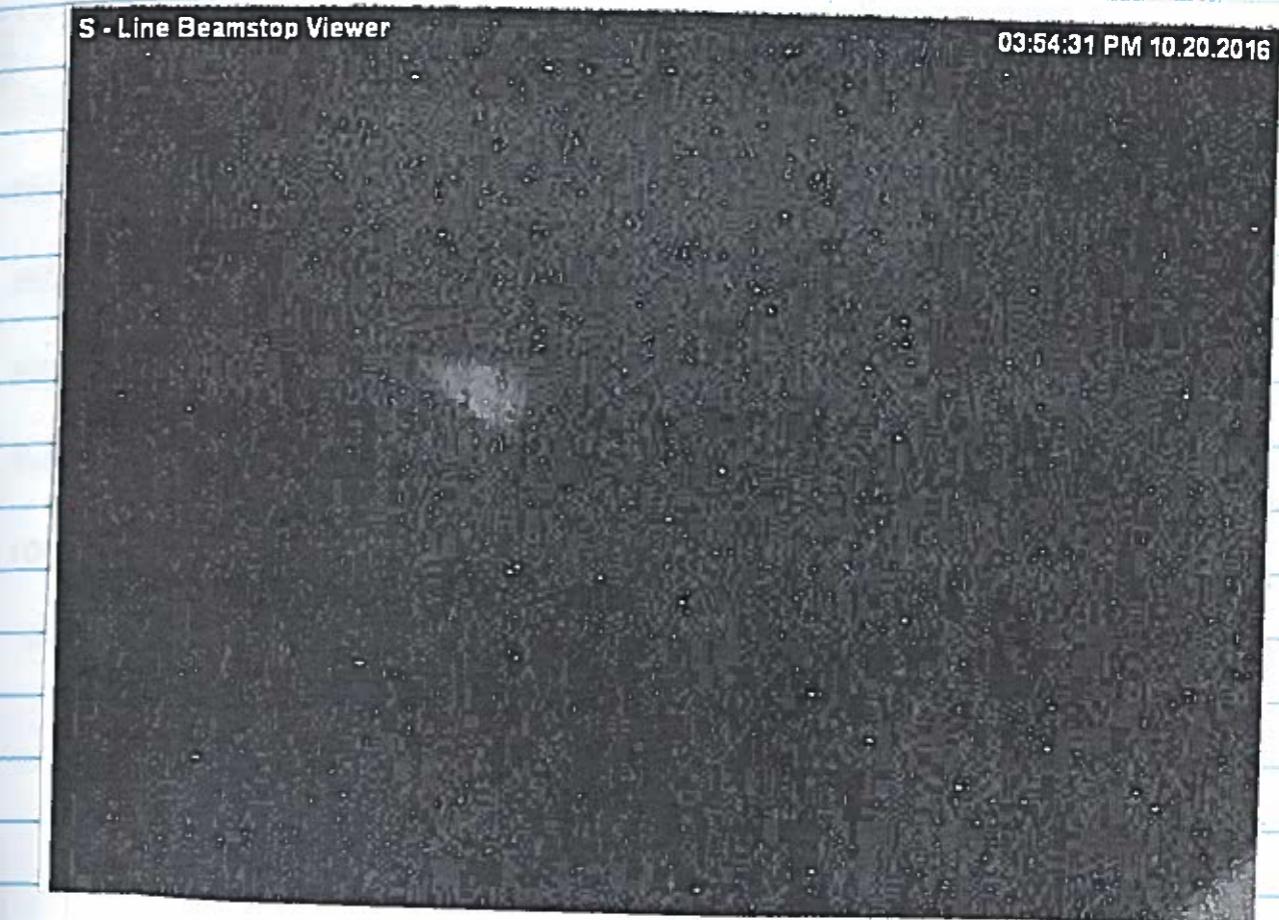


S - Line Target



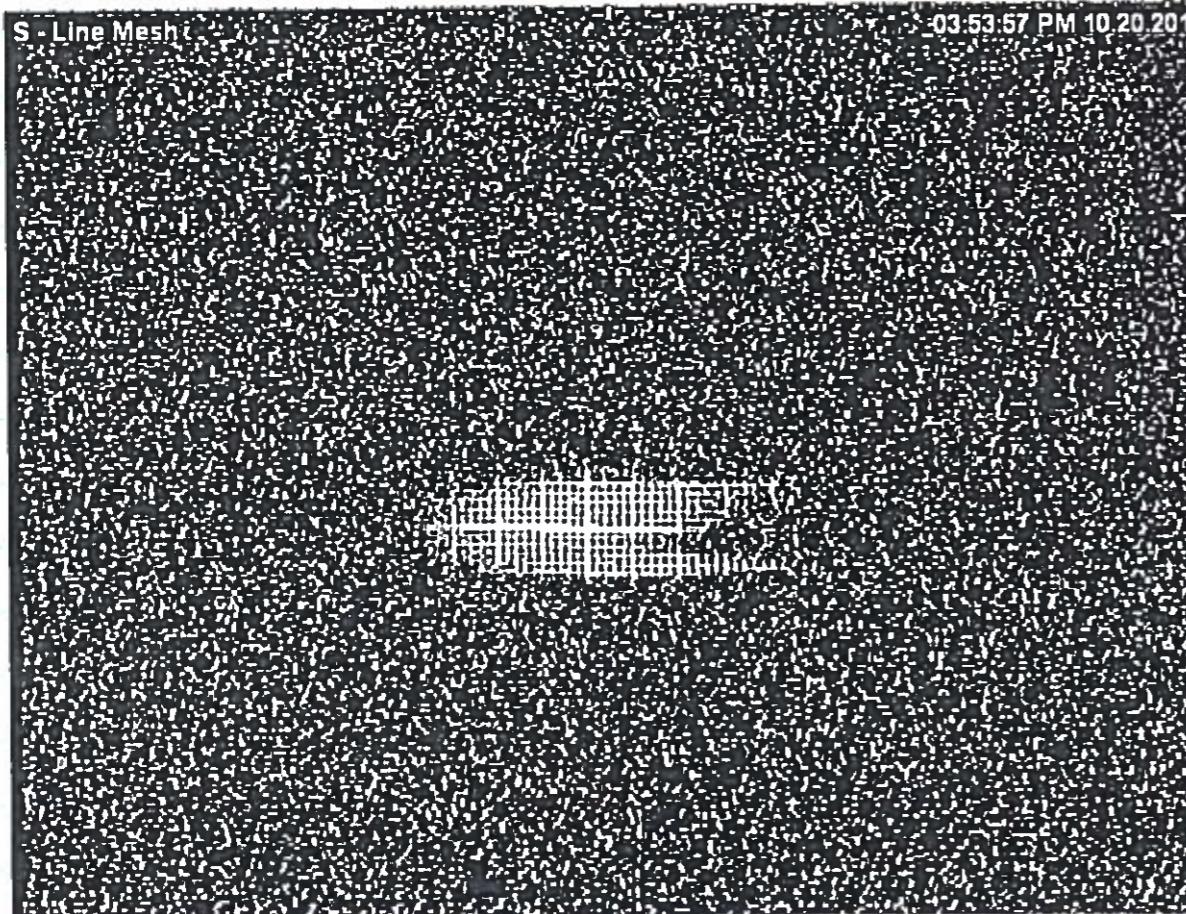
03:54:16 PM 10.20.2016

S - Line Beamstop Viewer



03:54:31 PM 10.20.2016

S - Line Mesh



03:53:57 PM 10.20.2016

ALL THE DETECTORS BACK ON + ^{12}C TARGET IN
Run #2024 : ^{12}C TARGET

0.2 nA

BAGEL rater ok ~ 0.5 kHz

1 paddle nothing
cable in middle connected to阴极 instead of Anode

Run #2025 : ^{12}C TARGET

0.2 nA

Biddle back in

Bogel rater ~ 0.5-1 kHz

we have a lot of halo \Rightarrow empty back in

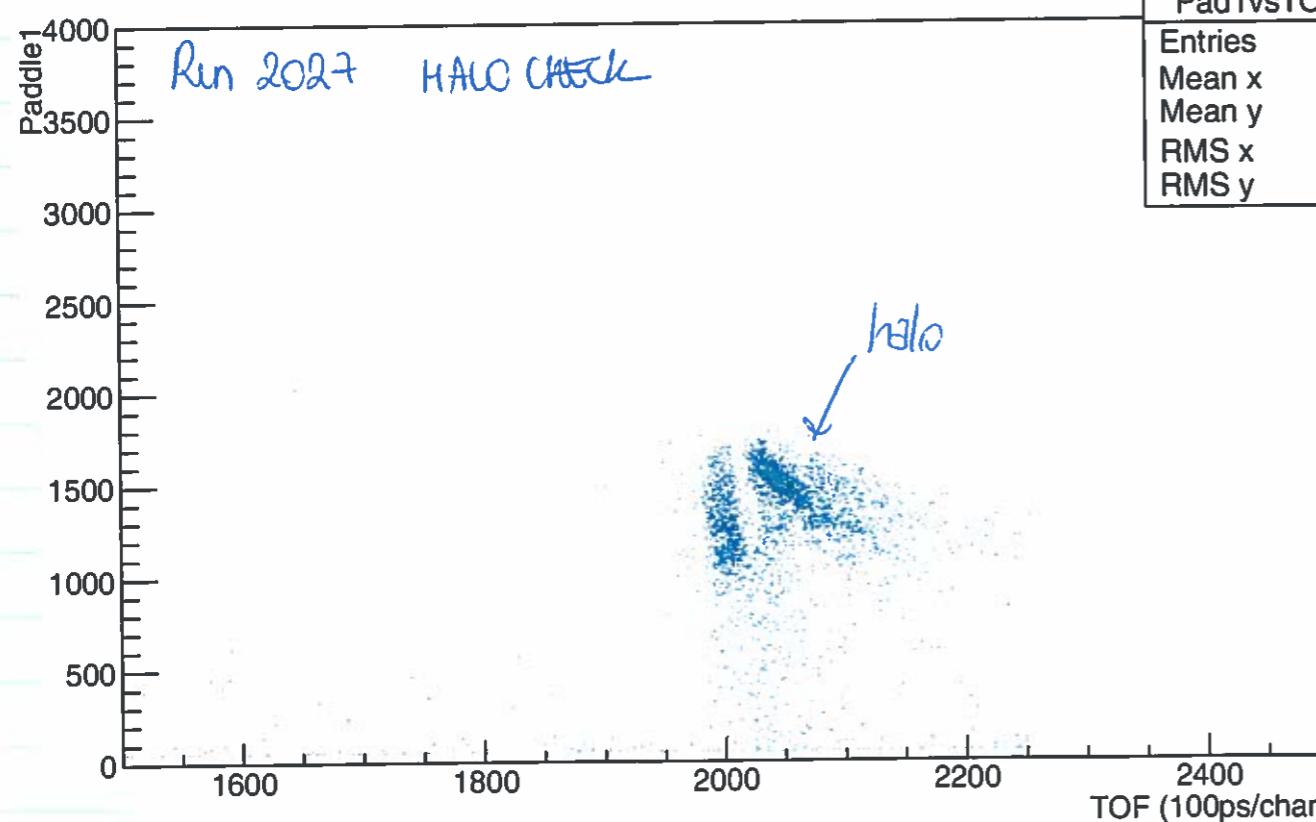
Run # 2026: EMPTY HALO check
530 Hz @ 0.15 nA

Run # 2027 after the halo tuning we have
22 @ 0.22 nA

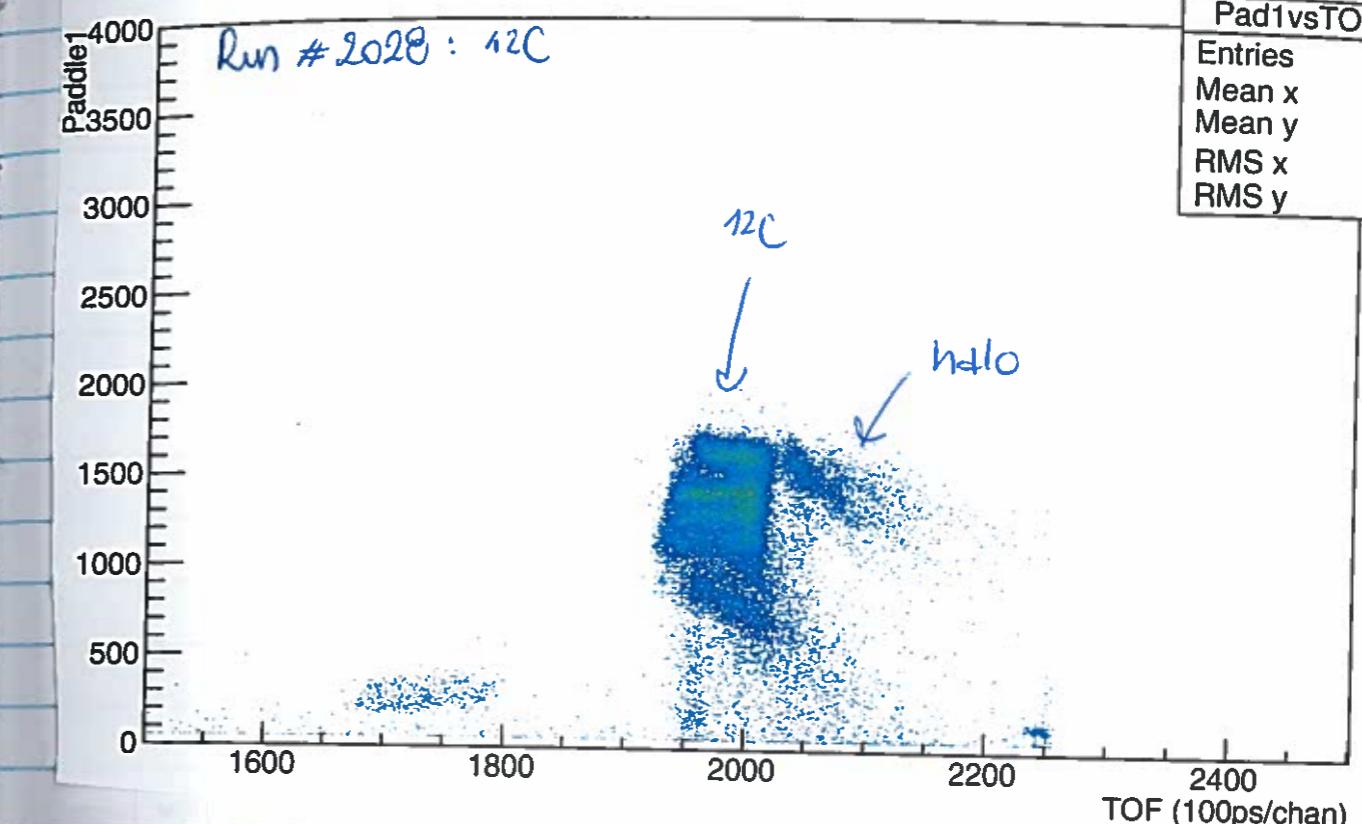
how we put back the ^{12}C

Run # 2028 : ^{12}C
0.24 nA
100 Hz @ 0.24 nA

PID: paddle 1 vs TOF (TDC1)



PID: paddle 1 vs TOF (TDC1)

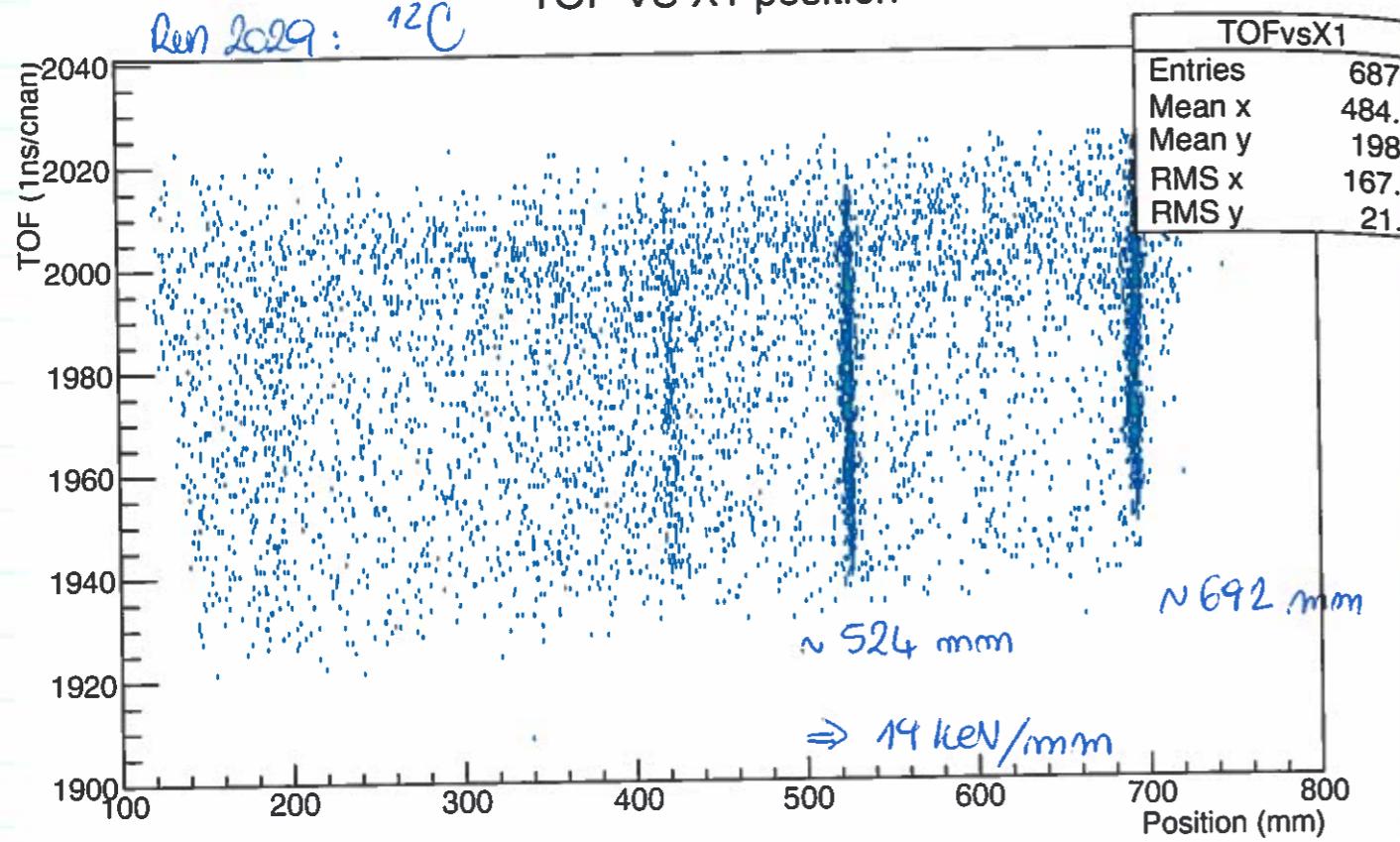


Run # 2029 : ^{12}C , BEER OPEN
0.3 nA

time have shifted so we need to change the lookup table to get the right position

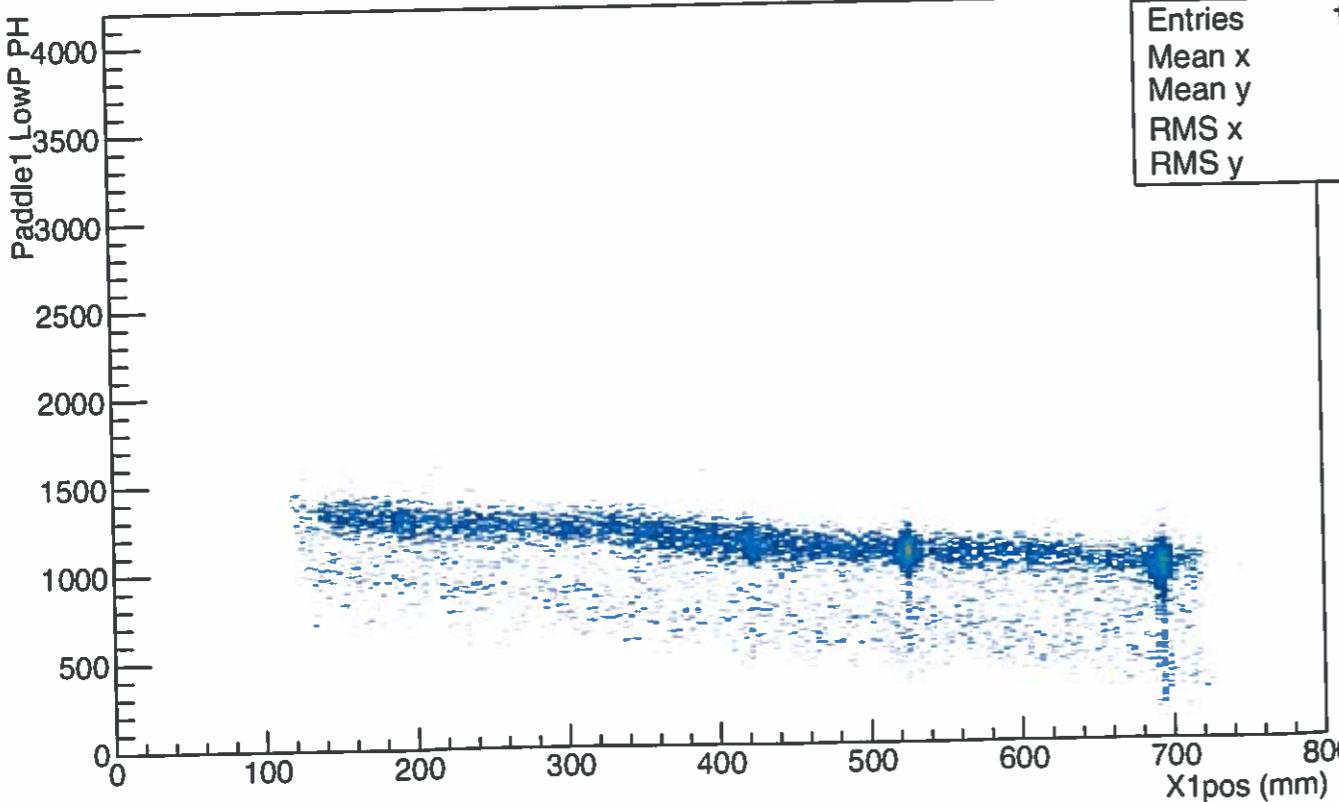
we increase the current to 1 nA
Run # 2035 ^{12}C 1 nA BEER ON

TOF VS X1 position

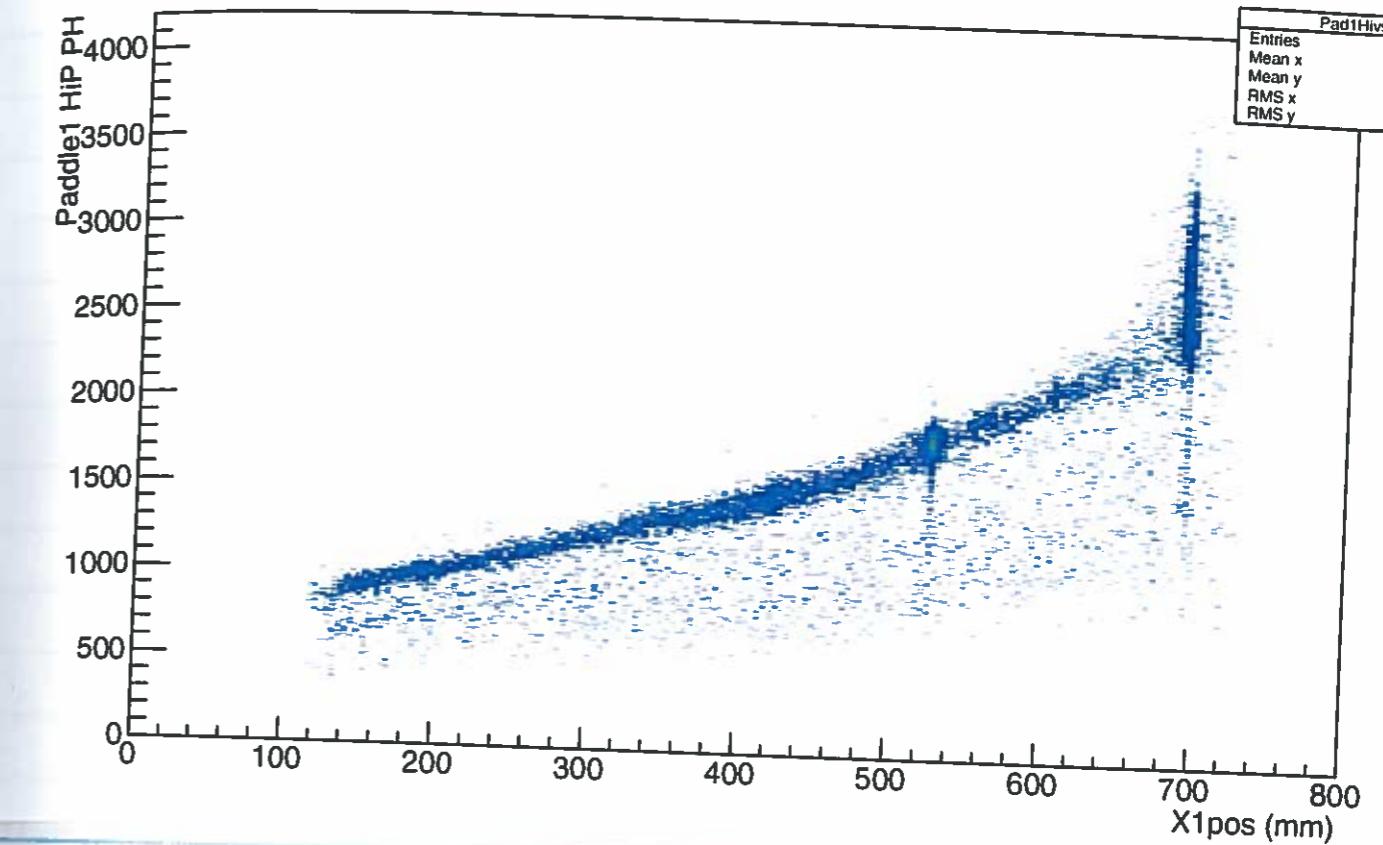


Resolution 74 keV on halo

Paddle 1 Low VS X1 (pid gated)



Run 2029 Paddle 1 High VS X1 (pid gated)



Run # 2029 Q6 26.3

on halo state
res. 74 keV

Run # 2030 Q6 26.5

84 ~~74~~ keV

we increase the beam @ 1 nA

Run # 2031 Q6 26.0

too much halo

→ we put the empty to check

Run # 2032 EMPTY, halo check

End with ~70 Hz for 1 nA.

Now to close BAGEL.
BAGEL CLOSED.

Run # 2033 EMPTY IN, check the rates in bagel
0.17 nA

no current; rates ~ 0.7 Hz

0.15 nA beam trough
21 Hz

no difference on BAGEL

now we put the ^{12}C

Run # 2034 : ^{12}C
0.2 nA

BAGEL ~ 1 kHz
LaBr ~ 3 kHz

We increase the current @ 1 nA

Run # 2035 : ^{12}C
1.0 nA 300 Hz in FP
BAGEL 2 kHz

Run comment: ^{26}Mg check counts in BAGEL

Run #: 2036

Start _____ Current: _____ nA Trigger rate: _____ Hz

Stop: _____ CI Range: _____ Trigger evts: _____

Target: _____ Scaler evts: _____

Clover L1-4 Rates (Hz) L1: _____ L2: _____ L3: _____ L4: _____

Clover R1-4 Rates (Hz) R1: _____ R2: _____ R3: _____ R4: _____

LaBr Rates (Hz) 1: _____ 2: _____

K600 angle: 0 deg

Q: _____ A

D1: _____ A

H: _____ A

X1: _____

D2: _____ A

U1: _____

K: _____ A

Mental Health Level:

VDC efficiency

X1 _____

U1 _____

with ^{26}Mg 5 mg/cm² BAGEL rates $\sim 14/15$ kHz

Run comment: ^{26}Mg

Run #: 2037

Start: 19:24 Current: 1 nA Trigger rate: 1012 Hz

Stop: 20:18 CI Range: 6x10⁹ Trigger evts: 3.195M

Target: 45 26mg Scaler evts: 3321

Clover L1-4 Rates (Hz) L1: 13.5 kHz L2: 17.2 kHz L3: 16.5 kHz L4: 13.5 kHz

Clover R1-4 Rates (Hz) R1: 10.2 kHz R2: 13.0 kHz R3: 16.5 kHz R4: 11.4 kHz

LaBr Rates (Hz) 1: 11.4 kHz 2: 21.6 kHz

K600 angle: 0 deg

Q: -349.67 A

D1: 317.00 A

H: 0.037 A

X1: 94.2826

D2: 210.282 A

K: 18.218 A

Mental Health Level:

VDC efficiency

X1: _____

U1: _____

- 2038 Halo check

54 Hz @ 1nA

Run comment: ^{24}Mg halo data

Run #: 2039

Start: 20:24 Current: 0.9 nA Trigger rate: 400 Hz

Stop: 21:25 CI Range: 1.0x10¹⁰ Trigger evts: 1.312 M

Target: 24 Mg Scaler evts: 3541

Clover L1-4 Rates (Hz) L1: 22.1 kHz L2: 20.4 kHz L3: 24.5 kHz L4: 21.6 kHz

Clover R1-4 Rates (Hz) R1: 21.6 kHz R2: 21.4 kHz R3: 26.4 kHz R4: 18.3 kHz

LaBr Rates (Hz) 1: 35.03 kHz 2: 70.7 kHz

K600 angle: 0 deg

Q: -349.67 A

D1: 317.00 A

H: 0.032 A

X1: _____

D2: 210.282 A

K: 18.218 A

Mental Health Level:

VDC efficiency

X1: _____

U1: _____

Run comment: Carbon 12 data run (BAGEL CLOSED)

Run #: 2040

Start: 21:30 Current: 0.9 nA Trigger rate: 450 Hz

Stop: 22:00 CI Range: 1.06×10^{-9} Trigger evts: 586359

Target: 12C Scaler evts: 1757

Clover L1-4 Rates (Hz) L1: 16.2 kHz L2: 15.2 kHz L3: 17.1 kHz L4: 15.2 kHz

Clover R1-4 Rates (Hz) R1: 17.1 kHz R2: 15.3 kHz R3: 19.3 kHz R4: 18.2 kHz

LaBr Rates (Hz) 1: 27.3 kHz 2: 51.6 kHz

K600 angle: 0 deg

Q: _____ A

D1: _____ A

H: _____ A

D2: _____ A

K: _____ A

Mental Health Level:

VDC efficiency

X1: _____

U1: _____

Some beam problems during this run
SSC truncaL problems.

Run 2041 Mylar #3

MYLAR #3

Run comment:

Run #: 2041

Start: 22:03 Current: 0.9 nA Trigger rate: 500 Hz

Stop: 22:33 CI Range: 0.8×10^{-9} Trigger evts: 716091

Target: Mylar Scaler evts: 769

Clover L1-4 Rates (Hz) L1: 19.4 kHz L2: 18.6 kHz L3: 20.4 kHz L4: 20.9 kHz

Clover R1-4 Rates (Hz) R1: 25.4 kHz R2: 22.4 kHz R3: 19.5 kHz R4: 21.7 kHz

LaBr Rates (Hz) 1: 42.8 kHz 2: 83.9 kHz

K600 angle: 0 deg

Q: _____ A

D1: _____ A

H: _____ A

D2: _____ A

K: _____ A

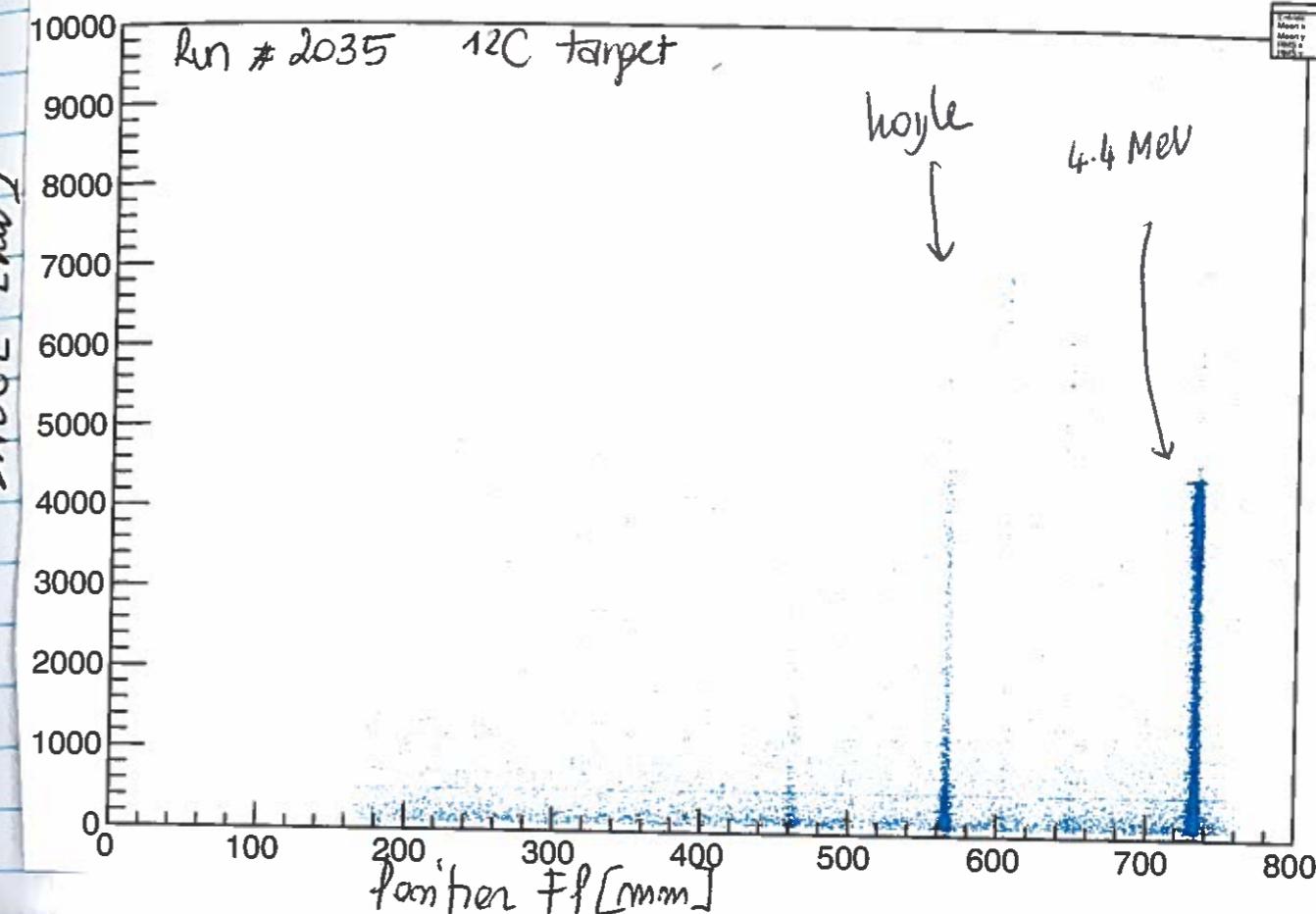
Mental Health Level:

VDC efficiency

X1: _____

U1: _____

BAGEL (kHz)



Run comment: 26My, BAGEL closed run

Run #: 2042

Start: 22:34 Current: 0.9 nA Trigger rate: 1101 Hz

Stop: 23:37 CI Range: 0.9×10^{-9} Trigger evts: 3.898 M

Target: 26 My Scaler evts: 3656

Clover L1-4 Rates (Hz) L1: 14.6 kHz L2: 13.9 kHz L3: 15.4 kHz L4: 14.4 kHz

Clover R1-4 Rates (Hz) R1: 11.3 kHz R2: 14.2 kHz R3: 16.4 kHz R4: 11.4 kHz

LaBr Rates (Hz) 1: 10.0 kHz 2: 21.8 kHz

K600 angle: 0 deg

Q: _____ A

D1: _____ A

H: _____ A

D2: _____ A

K: _____ A

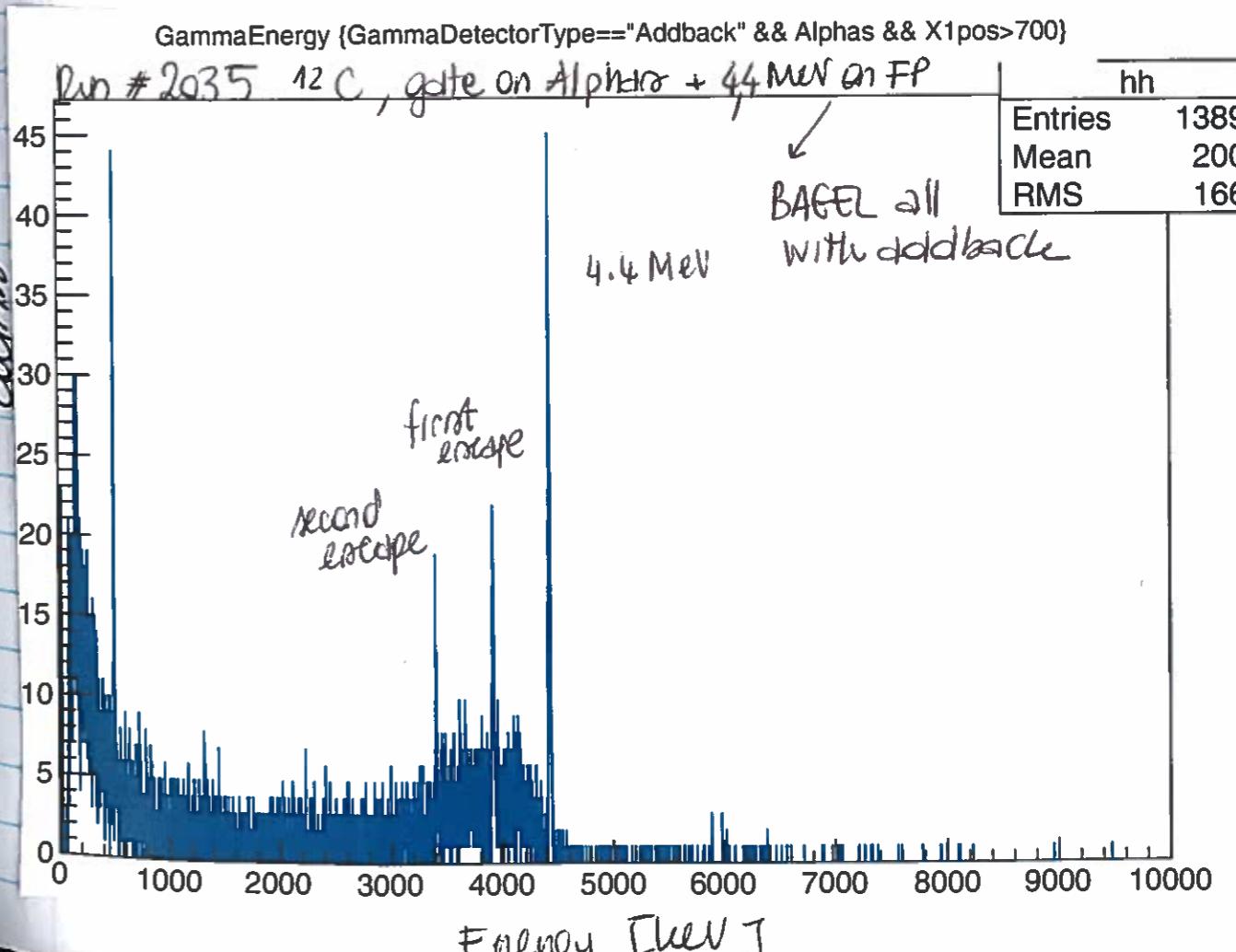
Mental Health Level:

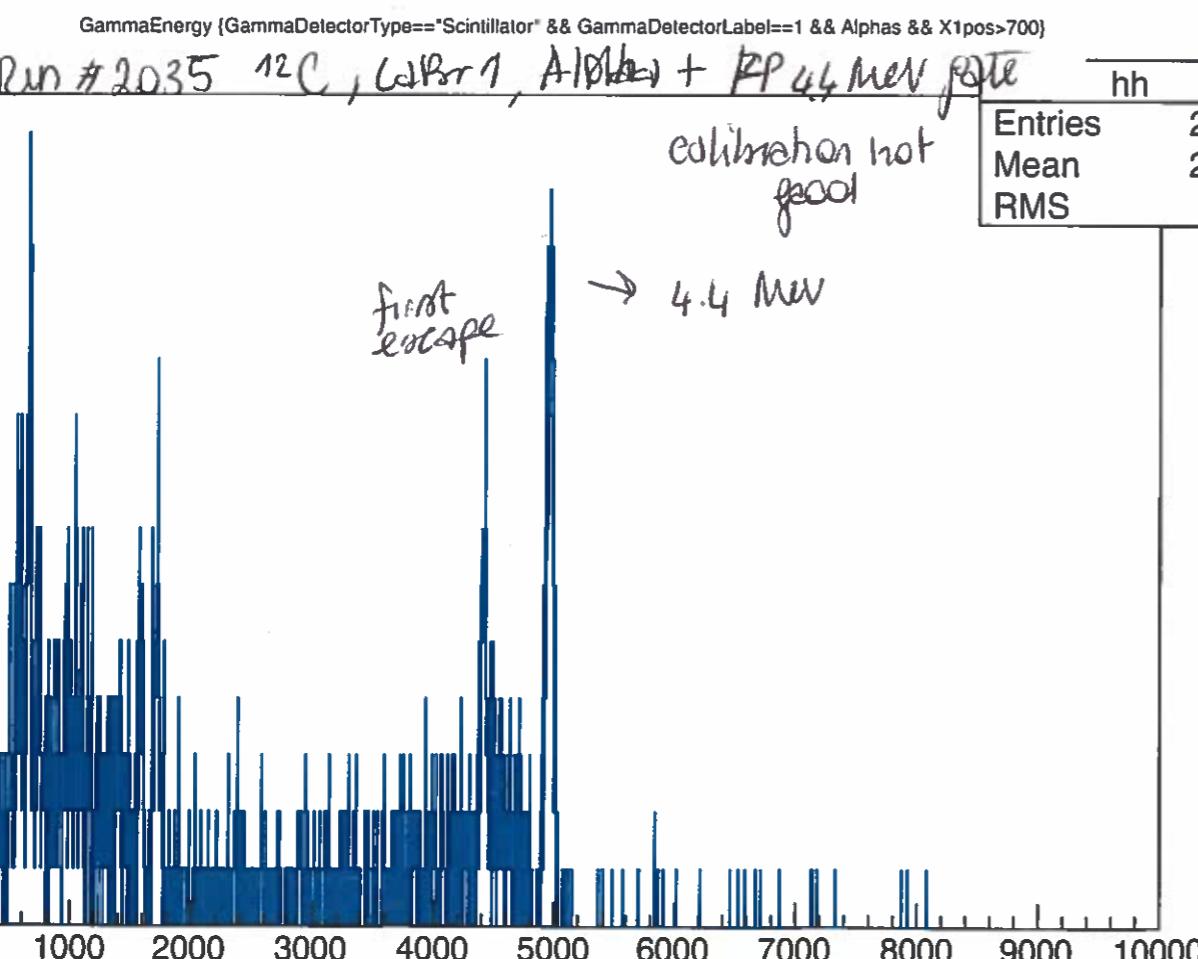
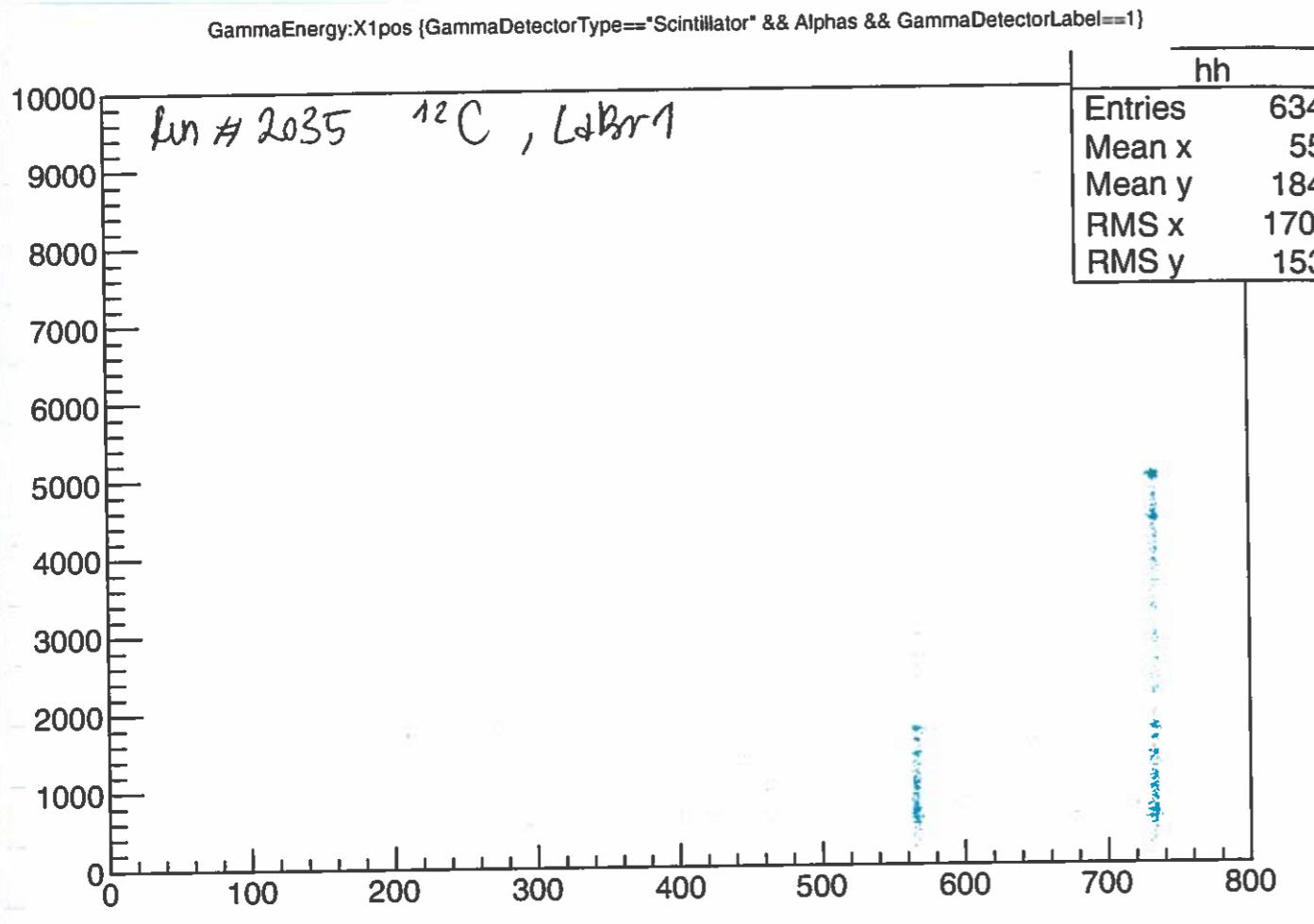
VDC efficiency

X1: 94.2116

U1: 95.1355

center





Run comment: ^{24}Mg run BAGEL CLOSED

Run #: 2043
Start: 03:42 Current: 0.86 nA Trigger rate: 454 Hz
Stop: 03:41 CI Range: 6 Trigger evts: 967 151
Target: ^{24}Mg #4 Scaler evts: 3467

Clover L1-4 Rates (Hz) L1: 2.0 kHz L2: 2.02 kHz L3: 1.9 kHz
Clover R1-4 Rates (Hz) R1: 2.0 kHz R2: 2.0 kHz R3: 2.4 kHz R4: 1.8 kHz
LaBr Rates (Hz) 1: 3.6 kHz 2: 7.6 kHz

K600 angle: 0 deg Mental Health Level:
Q: S A VDC efficiency
D1: S A X1
H: M A U1
D2: M A
K: M A

11:55 SPC2 RF 1st tripping
Checked LaBr Gain settings \rightarrow no change.

Run # 2044

Run comment: ^{12}C

Run #: 2044
Start: 00:52 Current: 1.0 nA Trigger rate: 303.7 Hz
Stop: 01:23 CI Range: 6 Trigger evts: 562 817
Target: #2 ^{12}C Scaler evts: 1809

Clover L1-4 Rates (Hz) L1: 1.6 kHz L2: 1.5 kHz L3: 1.7 kHz L4: 1.5 kHz
Clover R1-4 Rates (Hz) R1: 1.8 kHz R2: 1.6 kHz R3: 2.0 kHz R4: 1.7 kHz
LaBr Rates (Hz) 1: 3.5 kHz 2: 7.5 kHz

K600 angle: 0 deg Mental Health Level:
Q: S A VDC efficiency
D1: S A X1 94.0304
H: M A U1 95.0736

Run comment: ^{26}Mg BAGEL closed

Run #: 2045
Start: 01:21 Current: 0.95 nA Trigger rate: 1090 Hz
Stop: 01:58 CI Range: 6 Trigger evts: 1,895 M
Target: ^{26}Mg #5 Scaler evts: 1739

Clover L1-4 Rates (Hz) L1: 1.3 kHz L2: 1.2 kHz L3: 1.3 kHz L4: 1.2 kHz
Clover R1-4 Rates (Hz) R1: 1.4 kHz R2: 1.9 kHz R3: 1.9 kHz R4: 1.5 kHz
LaBr Rates (Hz) 1: 10.8 kHz 2: 20.6 kHz

K600 angle: 0 deg Mental Health Level:
Q: S A VDC efficiency
D1: S A X1 94.4176
H: S A U1 95.0805

We split the 1h of ^{26}Mg in two 50 mins runs not to get close to the 4 MeVents limit.

Run comment: ^{26}Mg , BAGEL closed.

Run #: 2046

Start: 02:00 Current: 1.1 nA Trigger rate: 1298.0 Hz
Stop: 02:50 CI Range: 6 Trigger evts: 2,256 M
Target: ^{26}Mg #5

Clover L1-4 Rates (Hz) L1: 15.5 kHz
Clover R1-4 Rates (Hz) R1: 12.1 kHz
LaBr Rates (Hz) 1: 12.9 kHz

L2: 14.8 kHz L3: 16.5 kHz L4: 15.1 kHz
R2: 15.3 kHz R3: 19.5 kHz R4: 13.2 kHz
2: 24.1 kHz

K600 angle: 0 deg Mental Health Level:
Q: ↑ A VDC efficiency
D1: ↓ A X1 94,3599
H: SAME A U1 95,0435
D2: ↓ A
K: ↓ A

Run comment: ^{26}Mg , BAGEL closed run

Run #: 2049

Start: 04:07 Current: 1.0 nA Trigger rate: 1135 Hz
Stop: 04:37 CI Range: 6 Trigger evts: 2,125 M
Target: ^{26}Mg #5
Scaler evts: 1794

Clover L1-4 Rates (Hz) L1: 15.4 kHz
Clover R1-4 Rates (Hz) R1: 12.3 kHz
LaBr Rates (Hz) 1: 13.1 kHz

L2: 15.1 kHz L3: 16.2 kHz L4: 15.1 kHz
R2: 15.6 kHz R3: 17.9 kHz R4: 13.8 kHz
2: 24.3 kHz

K600 angle: 0 deg Mental Health Level:
Q: ↑ A VDC efficiency
D1: ↓ A X1 94,179
H: SAME A U1 95,1516
D2: ↓ A
K: ↓ A

Increased threshold for alarm of count rate in R2

Run comment: ^{24}Mg , BAGEL closed

Run #: 2047

Start: 02:32 Current: 1.0 nA Trigger rate: 324.5 Hz
Stop: 03:32 CI Range: 6 Trigger evts: 1,193 M
Target: ^{24}Mg #4

Clover L1-4 Rates (Hz) L1: 2.4 kHz
Clover R1-4 Rates (Hz) R1: 2.4 kHz
LaBr Rates (Hz) 1: 3.9 kHz

L2: 2.3 kHz L3: 2.5 kHz L4: 2.4 kHz
R2: 2.4 kHz R3: 3.2 kHz R4: 2.4 kHz
2: 5.1 kHz

K600 angle: 0 deg Mental Health Level:
Q: ↑ A VDC efficiency
D1: ↓ A X1 93.8736
H: SAME A U1 94,1846
D2: ↓ A
K: ↓ A

Run comment: ^{26}Mg , BAGEL closed run

Run #: 2050

Start: 04:38 Current: 1.15 nA Trigger rate: 1269 Hz
Stop: 05:08 CI Range: 6 Trigger evts: 2,145 M
Target: ^{26}Mg #5
Scaler evts: 1800

Clover L1-4 Rates (Hz) L1: 16.3 kHz
Clover R1-4 Rates (Hz) R1: 13.2 kHz
LaBr Rates (Hz) 1: 12.7 kHz

L2: 15.9 kHz L3: 17.2 kHz L4: 16.1 kHz
R2: 16.6 kHz R3: 19.5 kHz R4: 13.3 kHz
2: 24.5 kHz

K600 angle: 0 deg Mental Health Level:
Q: ↑ A VDC efficiency
D1: ↓ A X1 94,1534
H: SAME A U1 95,1773
D2: ↓ A
K: ↓ A

Run comment: ^{12}C , BAGEL closed

Run #: 2048

Start: 03:35 Current: 0.97 nA Trigger rate: 391.5 Hz
Stop: 04:05 CI Range: 6 Trigger evts: 6,018 246
Target: ^{12}C #2

Clover L1-4 Rates (Hz) L1: 1.56 kHz
Clover R1-4 Rates (Hz) R1: 1.74 kHz
LaBr Rates (Hz) 1: 3.73 kHz

L2: 1.43 kHz L3: 1.71 kHz L4: 1.53 kHz
R2: 1.58 kHz R3: 2.06 kHz R4: 1.76 kHz
2: 7.68 kHz

K600 angle: 0 deg Mental Health Level:
Q: ↑ A VDC efficiency
D1: ↓ A X1 94,3385
H: SAME A U1 94,9784
D2: ↓ A
K: ↓ A

Run comment: ^{24}Mg , BAGEL closed Run

Run #: 2051

Start: 05:09 Current: 1.1 nA Trigger rate: 223.6 Hz
Stop: 06:09 CI Range: 6 Trigger evts: 882 565
Target: ^{24}Mg #4
Scaler evts: 3466

Clover L1-4 Rates (Hz) L1: 2.4 kHz
Clover R1-4 Rates (Hz) R1: 2.4 kHz
LaBr Rates (Hz) 1: 4.0 kHz

L2: 2.4 kHz L3: 2.6 kHz L4: 2.4 kHz
R2: 2.5 kHz R3: 2.9 kHz R4: 2.1 kHz
2: 8.3 kHz

K600 angle: 0 deg Mental Health Level:
Q: ↑ A VDC efficiency
D1: ↓ A X1 94,1042
H: SAME A U1 93,9104
D2: ↓ A
K: ↓ A

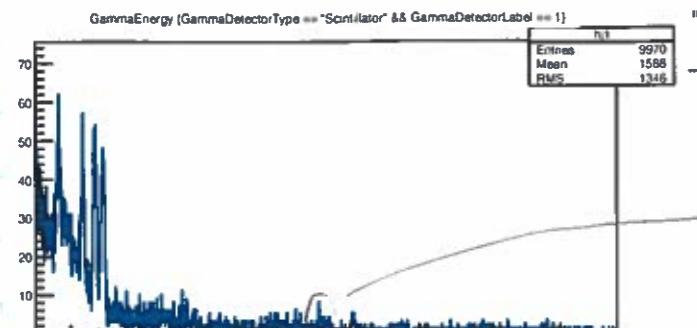
LaBr 2 counting less than LaBr 1.

↳ In some cases, some peaks are missing. for ^{12}C and ^{24}Mg .

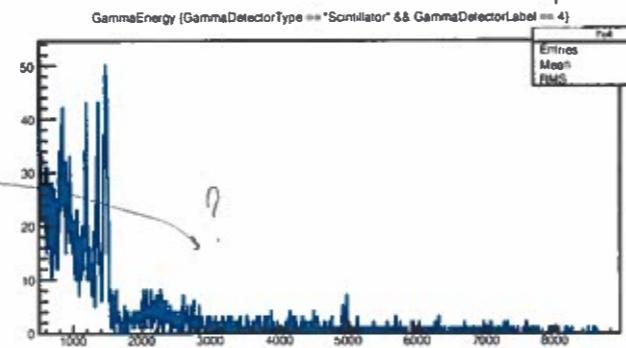
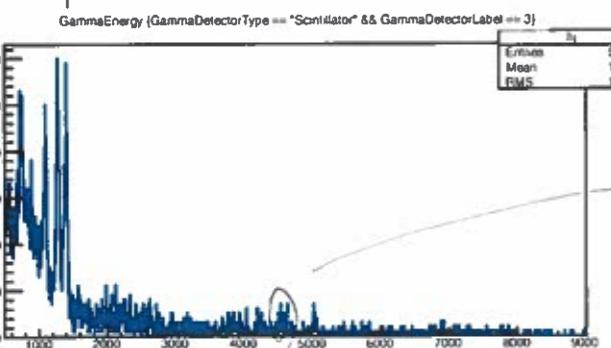
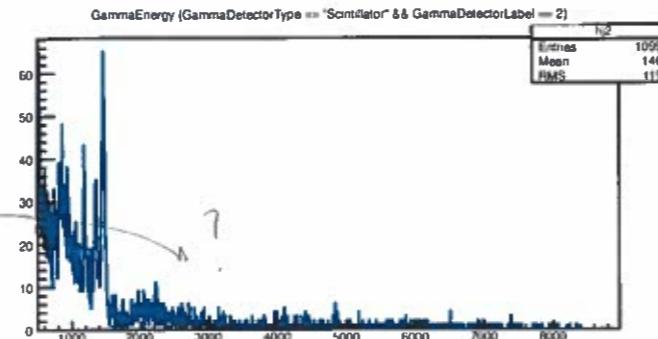
Is this perhaps a shading effect of the target ladder?

Run # 2047 ^{24}Mg

LaBr 1



LaBr 2



Run comment: ^{12}C , BAGEL closed run

Run #: 2052
Start: 06:10 Current: 1.2 nA Trigger rate: 321 Hz
Stop: 06:40 CI Range: 6 Trigger evts: 615 665
Target: ^{12}C #2 Scaler evts: 1734

Clover L1-4 Rates (Hz) L1: 1.7 kHz L2: 1.6 kHz L3: 1.9 kHz L4: 1.7 kHz
Clover R1-4 Rates (Hz) R1: 1.8 kHz R2: 1.6 kHz R3: 2.2 kHz R4: 1.7 kHz
LaBr Rates (Hz) 1: 3.8 kHz 2: 7.8 kHz

Event rate went up to 503 Hz

Run comment: ^{26}Mg

Run #: 2053
Start: 06:43 Current: 1.2 nA Trigger rate: 1293 Hz
Stop: 07:13 CI Range: 6 Trigger evts: 3,132 M
Target: ^{26}Mg #5 Scaler evts: 1767

Clover L1-4 Rates (Hz) L1: 17 kHz L2: 16 kHz L3: 18 kHz L4: 16 kHz
Clover R1-4 Rates (Hz) R1: 13 kHz R2: 17 kHz R3: 21 kHz R4: 14 kHz
LaBr Rates (Hz) 1: 14 kHz 2: 25 kHz

K600 angle: 0 deg
Q: ↑ A Mental Health Level: ☺ ☻ ☻
D1: ↑ A VDC efficiency X1 94,1005
H: SAME A U1 95,2044

Run comment: ^{26}Mg

Run #: 2054
Start: 07:14 Current: 0.89 nA Trigger rate: 1081 Hz
Stop: 07:44 CI Range: 6 Trigger evts: 2,012 M
Target: ^{26}Mg #5 Scaler evts: 1779

Clover L1-4 Rates (Hz) L1: 13, 8 kHz L2: 13, 2 kHz L3: 14, 6 kHz L4: 13, 6 kHz
Clover R1-4 Rates (Hz) R1: 11, 3 kHz R2: 14 kHz R3: 18 kHz R4: 12, 9 kHz
LaBr Rates (Hz) 1: 12, 6 kHz 2: 23, 6 kHz

K600 angle: 0 deg
Q: ↑ A Mental Health Level: ☺ ☻ ☻
D1: ↑ A VDC efficiency X1 94,4094
H: SAME A U1 95,2395

Run comment: ^{24}Mg

Run #: 2055
Start: 07:45 Current: 1.1 nA Trigger rate: 254.7 Hz
Stop: 08:46 CI Range: 6 Trigger evts: 880264
Target: ^{24}Mg #4 Scaler evts: 3549

Clover L1-4 Rates (Hz) L1: 2.3 kHz L2: 2.3 kHz L3: 2.5 kHz L4: 2.4 kHz
Clover R1-4 Rates (Hz) R1: 2.4 kHz R2: 2.3 kHz R3: 2.99 kHz R4: 2.1 kHz
LaBr Rates (Hz) 1: 3.9 kHz 2: 8 kHz

K600 angle: 0 deg
Q: ↑ A Mental Health Level: ☺ ☻ ☻
D1: ↑ A VDC efficiency X1 94,1651
H: SAME A U1 93,4797

^{12}C

Run comment: ^{24}Mg , BAGEL CLOSED

Run #: 2056
Start: 08:49 Current: 1.2 nA Trigger rate: 3.14 Hz
Stop: 09:29 CI Range: 1.2×10^{-1} Trigger evts: 716088
Target: ^{24}Mg #4 Scaler evts: 2340

Clover L1-4 Rates (Hz) L1: 1.4 kHz L2: 1.1 kHz L3: 2.8 kHz L4: 1.9 kHz
Clover R1-4 Rates (Hz) R1: 2.0 kHz R2: 1.8 kHz R3: 2.4 kHz R4: 1.19 kHz
LaBr Rates (Hz) 1: 4.1 kHz 2: 8.1 kHz

K600 angle: 0 deg
Q: ↑ A Mental Health Level: ☺ ☻ ☻
D1: ↑ A VDC efficiency X1 94,16862
H: SAME A U1 95,3657

Note → online notes also wrong about target

Fin 21 Ger

9:24 Now for faint beam

Till now: $M = 317.0$ Run # 2057 $D_1 = 332.0$ with super knobs
to check faint beamBASEL rates ~ 1 kHz
checking the rates in FP ~ 4 kHz

Run # 2058 QBS 26.0 Q21P 22.65
 QSS -43.4
 Slot 9X X_{gap} 0.7
 12X X_{gap} 2.6
 12X X_{gap} 7.08
 1P X_{gap} 7.42
 1P X_{gap} 3.90
 $\sigma = 0.82$ FWHM ~ 36.6 keV

Q21P 22.65

(a) rate/V/m

Run 2059 QBS = 26.4 $\sigma = 0.91$ nm; 40.5 keV
 Run 2060 QBS = 25.6 bad run.
 Run 2061 " $\sigma = 1.31$ nm 58 keV
 Run 2062 QBS = 26.0 $\sigma = 0.92$ 41 keV

Run 2063 $Q21P: 22.65 \rightarrow 22.35$ $\sigma = 0.86$ 39 keV
 Run 2064 $Q21P = 22.35$ $\sigma = 0.87$
 Run 2065 $Q21P = 22.35$ QBS = 26.2 $\sigma = 0.77$ 34 keV

Run 2066 QSS -43.4 \Rightarrow -43.7 $\sigma = 0.8$
 Run 2067 QSS -43.1 $\sigma = 0.88$
 Run 2068 QSS -43.4 $= 0.76$ mm.

Done with faint beam.

Back to $D_1 = 317$ with super knobs.

Now to look at viewers.

Move BASEL out.

Run # 2069 VIEWER BASEL OPEN
 BASEL rates without beam ~ 0.5 kHz

Run # 2070 ~~target~~^{beam} on viewer
 BASEL voter $\sim 1.5/2$ kHz

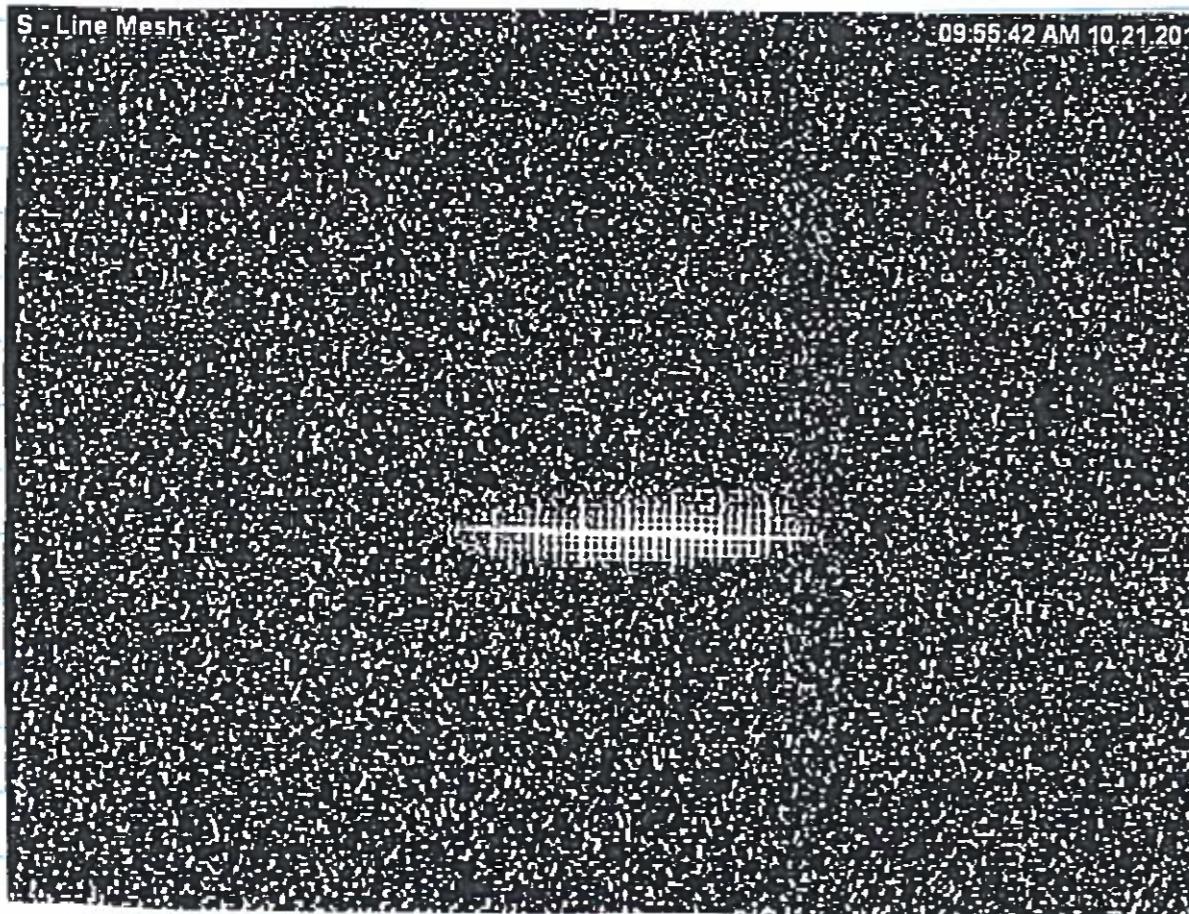
Run # 2071 now PUT HATANAKA
 Bad rates $\sim 3/4$ kHz

Run # 2072 EMTPY to check the HALO

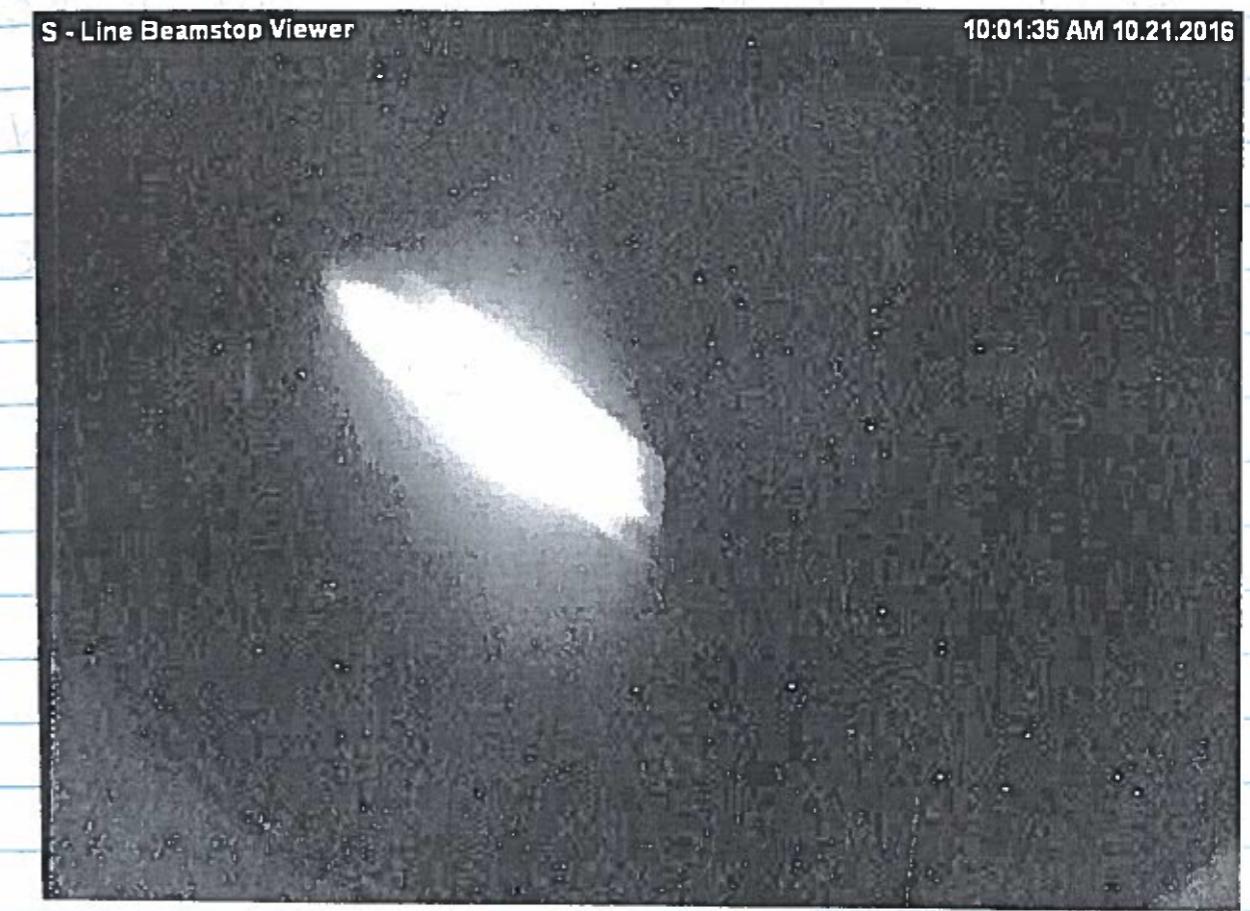
We switched the detector on

Run # 2073 current 0.2 nA on

Run # 2073 current 0.2 nA 170 Hz



we try to tune the halo a bit to see if we can
go down to 100 Hz @ 1 nA



⇒ we got 70 Hz @ 1.1 nA !!

BAGEL is CLOSED now

we put the pulser back in

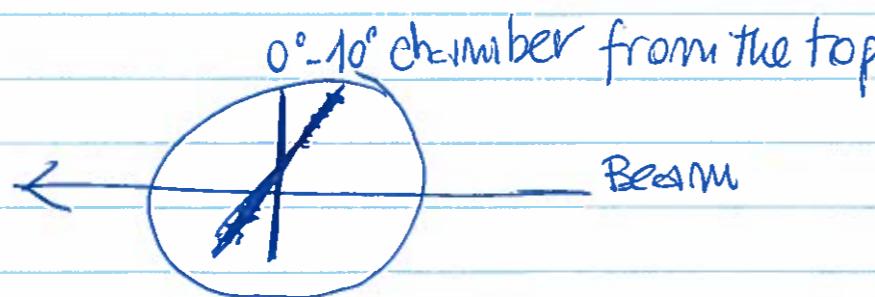
we do a test to see ~~why~~ why LaBr2 counts less than LaBr1. we think that could be due to the target ladder. We will change the angle of the ladder to something up and down $\sim 10^\circ$ and see if something changes.

Target @ $0^\circ \rightarrow 63.1$ (on the target motor)

Run # 2074 ^{12}C , bagel closed
target @ 0°

bagel rates 1.5 kHz

Run # 2075 ^{12}C , bagel closed
target @ $-10^\circ \rightarrow 78.1/\text{Hz} 53.1$



Pulser rates @ 1.5 kHz

Run comment: ^{12}C , target @ -10°
Run #: 2075
Start: 11:01 Current: 1 nA Trigger rate: 318 Hz
Stop: 11:27 Cl Range: 6 Trigger evts: 495820
Target: ^{12}C Scaler evts: 1565

Clover L1-4 Rates (Hz)	L1: 1.8 kHz	L2: 1.76 kHz	L3: 1.89 kHz	L4: 1.84 kHz
Clover R1-4 Rates (Hz)	R1: 1.75 kHz	R2: 1.75 kHz	R3: 2.23 kHz	R4: 2.7 kHz
LaBr Rates (Hz)	1: 3.8 kHz	2: 8.0 kHz		

R4 was counting much more than the others $\sim 6\text{kHz}$
→ we unplug the pulser from ~~it~~ it

Run comment: ^{12}C target @ -10° no pulser in fly
Run #: 2076
Start: 11:34 Current: 1 nA Trigger rate: 305 Hz
Stop: 12:08 Cl Range: 6 Trigger evts: 669775
Target: ^{12}C Scaler evts: 2027

Clover L1-4 Rates (Hz)	L1: 1.79 kHz	L2: 1.77 kHz	L3: 1.98 kHz	L4: 1.79 kHz
Clover R1-4 Rates (Hz)	R1: 2.01 kHz	R2: 1.8 kHz	R3: 2.3 kHz	R4: 1.8 kHz
LaBr Rates (Hz)	1: 3.9 kHz	2: 7.88 kHz		

K600 angle: 0 deg Mental Health Level:
Q: A D1: A H: A D2: A K: E A
VDC efficiency X1 U1

without the pulser the R4 rate is back @ normal level

- Before the faint beam
↳ ^{24}Mg resolution K600 ~ 98 keV

Run comment: ^{26}Mg Run.
Run #: 2077
Start: 12:12 Current: 1.0 nA Trigger rate: 1289 Hz
Stop: 12:23 Cl Range: 6 Trigger evts: _____
Target: #5 Scaler evts: _____

Clover L1-4 Rates (Hz)	L1: 13.3 kHz	L2: 13.05 kHz	L3: 14.3 kHz	L4: 13.5 kHz
Clover R1-4 Rates (Hz)	R1: 12.6 kHz	R2: 13.6 kHz	R3: 17.2 kHz	R4: 12.7 kHz
LaBr Rates (Hz)	1: 10.8 kHz	2: 22.2 kHz		

K600 angle: 0 deg Mental Health Level:
Q: A D1: A H: A D2: A K: A
VDC efficiency X1 U1

R4 counts high erratically

Run comment: ^{26}Mg run
Run #: 2078
Start: _____ Current: _____ nA Trigger rate: _____ Hz
Stop: _____ Cl Range: _____ Trigger evts: _____
Target: #5 Scaler evts: _____

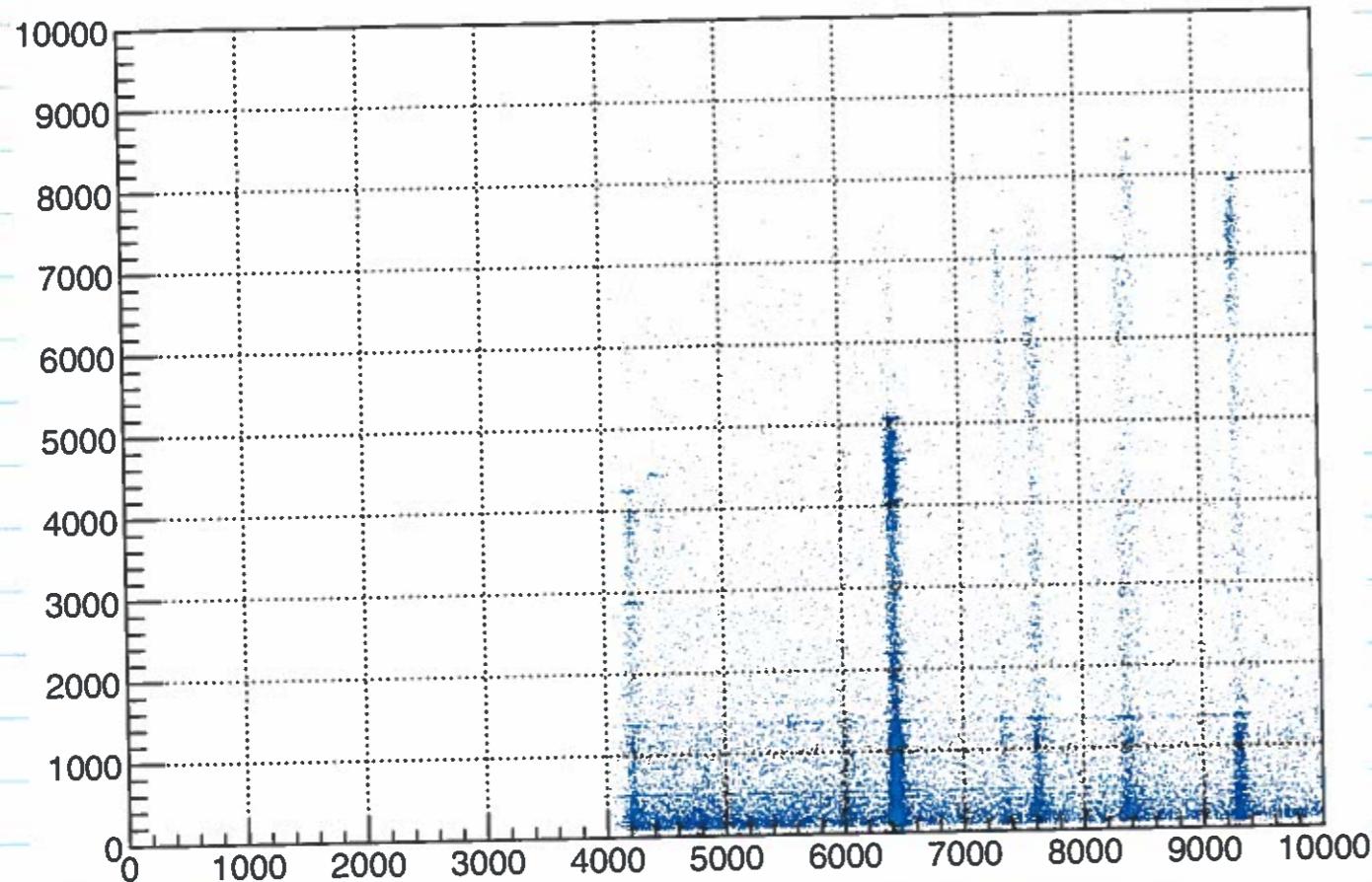
Clover L1-4 Rates (Hz)	L1: _____	L2: _____	L3: _____	L4: _____
Clover R1-4 Rates (Hz)	R1: _____	R2: _____	R3: _____	R4: _____
LaBr Rates (Hz)	1: 7	2: _____		

K600 angle: 0 deg Mental Health Level:
Q: A D1: A H: A D2: A K: A
VDC efficiency X1 U1

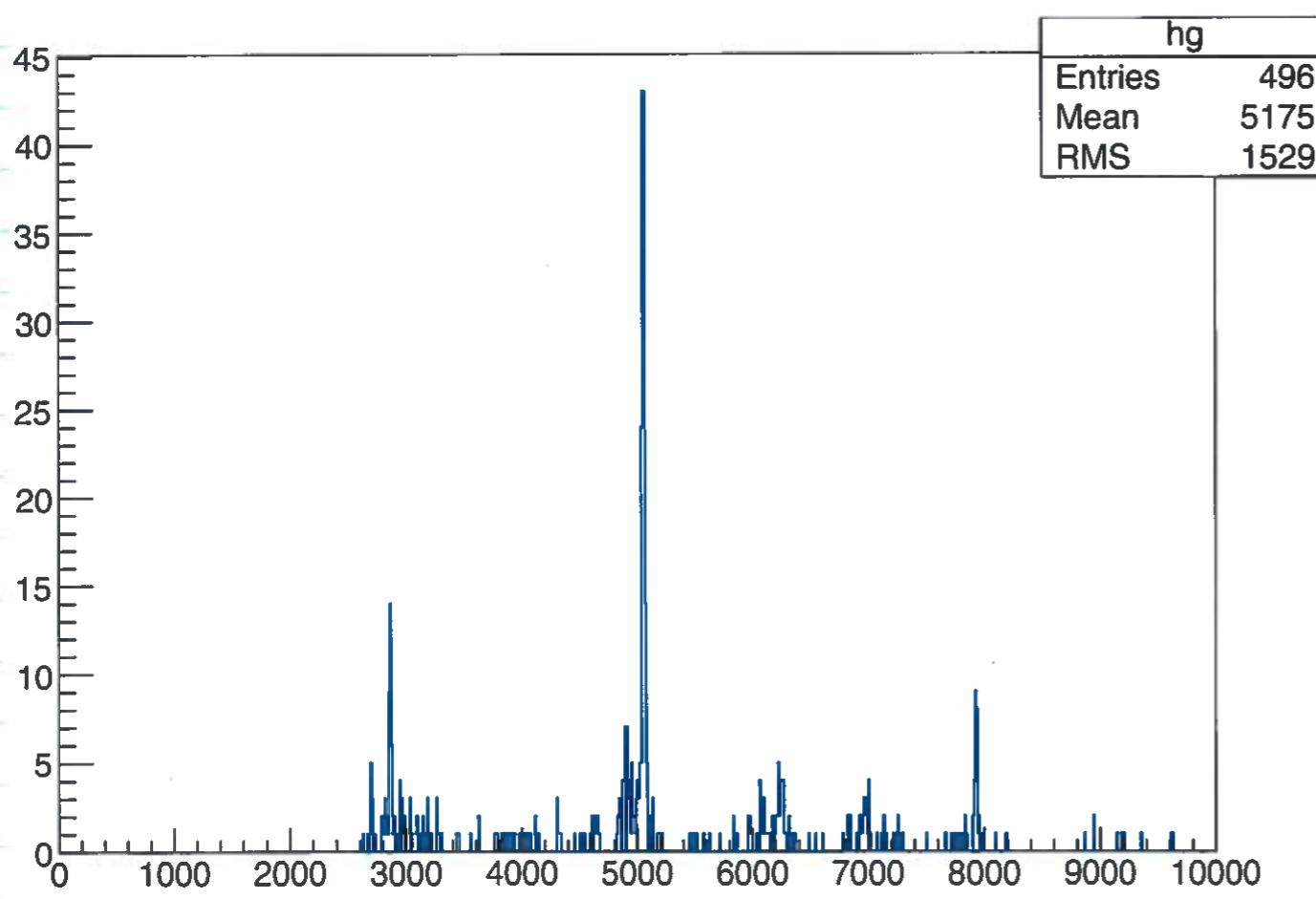
DAG crashed? Why:

No. But the run start of #2078 shows up twice in the history? Why? Most likely had no beam.

GammaEnergy:ExK600 {GammaDetectorType=="Addback" && Alphas && Y1>-20 && Y1<20}



GammaEnergy ((GammaDetectorType=="Addback" && Alphas && Y1>-20 && Y1<20)&&(abs((18686.5-19.35*X1pos)-GammaEnergy-1368) < 200))



Runs chosen (^{24}Mg): 2039, 2043, 2047, 2051, 2055

of R4 block,

We checked R4 → the CFD was giving problems



lots of multihits

⇒ we changed CFD to see if how is better

⇒ LaBr2 still doesn't see anything at high energy ⇒ we changed again the target holder position to -20° (43.1)

Run 2079 : PULSER IN, prescaled 1 to CI
R4 look better now but R2 is bad!
Clear Pulsar changed to 5% CI prescale.

Problems to fix:
no pulser in Bayel Right.
R2 block cfd noisy
LaBr signal check.
Verify target ladder angle.

Data to check:
pulser can be id'd in data analysis?
LaBr 2 data quality?

Run comment: 12c data target at -20deg R4 block new CFD

Run #: 2079

Start: 13:21 Current: 1 nA Trigger rate: 1.9 Hz

Stop: 14:39 CI Range: 6 Trigger evts: 1635M

Target: 12C Scaler evts: 4602

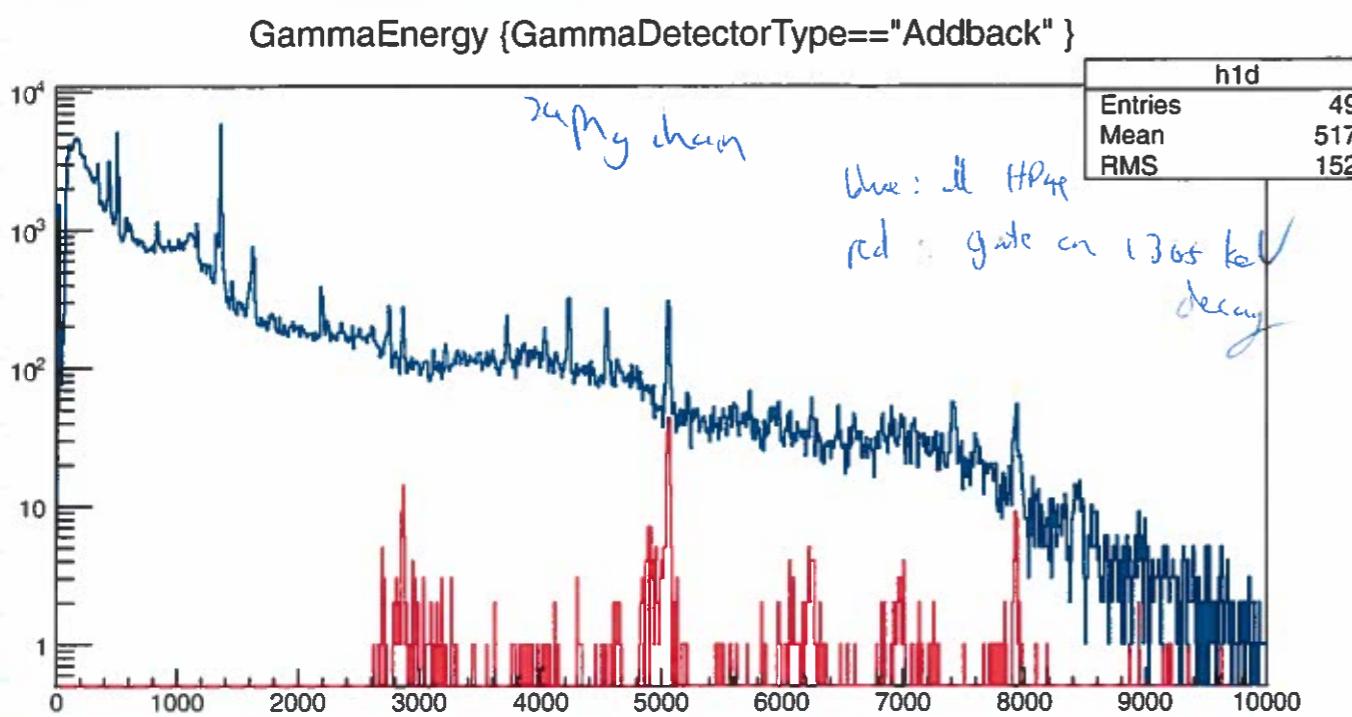
Clover L1-4 Rates (Hz) L1: 1.135 kHz

Clover R1-4 Rates (Hz) R1: 0.6 kHz

LaBr Rates (Hz) 1: 4.71 kHz

Q:	A	Q:	A
D1:	A	D1:	A
H:	A	H:	A
D2:	A	D2:	A
K:	A	K:	A

VDC efficiency
x1 43.843
u1 95.5526



15:40 6/20 into vault to fix R2 noise

Run 2080 LaBr background trigger
DAC crash; veto was unplugged!
VME sysreset

Run 2081 DAC crash.
VME power cycle.

Run 2082 LaBr trigger ~5 kHz.

→ time peak at ~ 6300

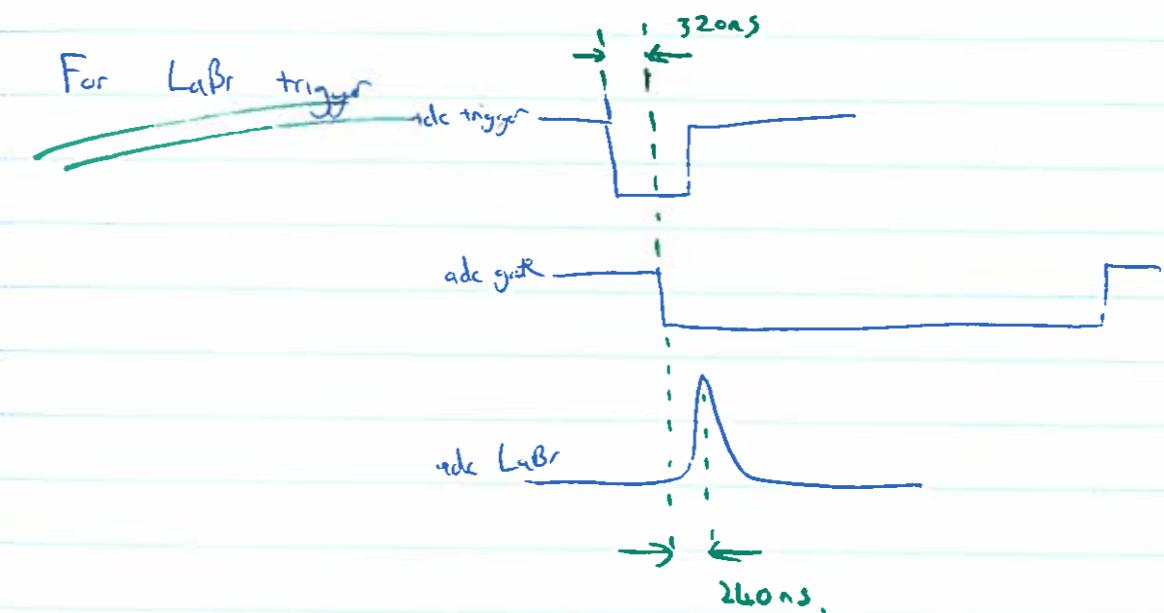
With the exponent the ^{peak} time peak is ~ 4200
i.e. ~ 200 ns later.

assume ADC peak is also ~ 200 ns later
thus should be really safe. ADC peak should
be in the gate.

Tgt back to original angle = 63.1°
= perpendicular to beam

No pulsar on HPGe's.

New patch panel:
ADC gate 50 μs (6) #19
LaBr 1 cfd (6) #1



16:00 SSC RF trouble. No beam for 1h.

17:00 Beam in back 17:46

they pull out FC45 and the detector of K600
tripped. (VDC + ~~VME~~ pad(s))

Now we fit EMPTY chan check the data with 2 nA

Run # 2085 EMPTY halo check with 2nA
3000 Hz @ 2 nA

we have to tune the halo.
Bapet open

we go @ 0.2 nA and check the beam on
the viewer + HATANAKA
Run # 2086 nofus in - beam lost
Run # 2086

Lowny is tuning the beam

18:44 still no beam ... 😕

18:50 Lowny tried the beam

	x	y
Emittance measurement:	15	16
	35	6
	45	19

X: 631 Tl mm mrad

Y: 0.94 Tl mm mrad

Run # 2087 VIEWER IN
beam 0.2 nA
Bapet inster → 2 kHz
viewer in

Run # 2088 HATANAKA + VIEWER
higher count after ~5 kHz

RF behavior funny → later jumping

Run # 2089 All viewers in. Aligning
Bapet inster ← → kHz.
at 0.2 nA.

Run # 2090 nofus in

Run # 2091 EMPTY HALO CHECK
0.2 nA → 26 Hz

how we are going to 1nA
1nA → 100 Hz
2nA → 150 Hz

Cloud.

we change slightly the RF fields to ~~per sec~~
~ 4 MeV off FP

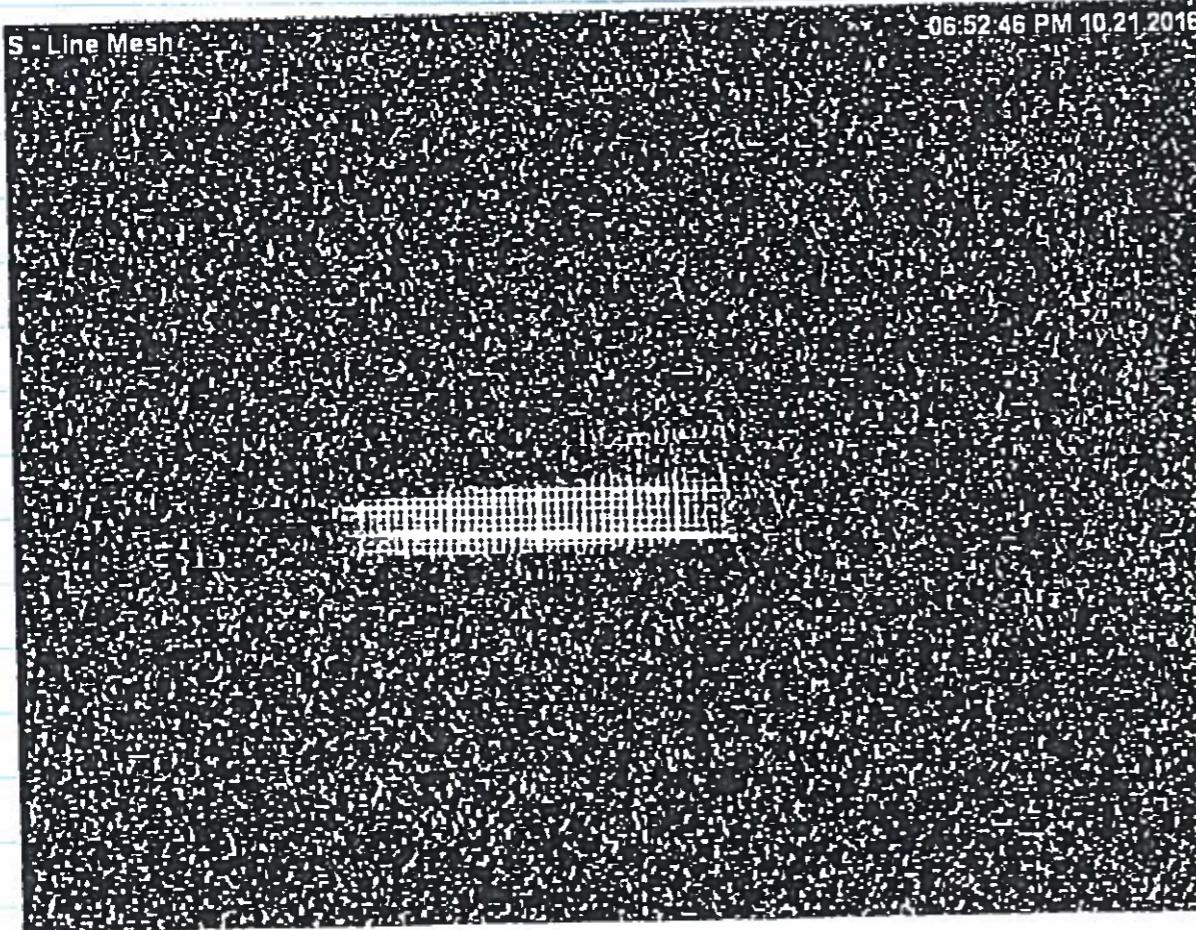
from P1 = 317.0 to 317.7
changed the other with the superkmb

S - Line Target



06:53:01 PM 10.21.2016

S - Line Mesh



06:52:46 PM 10.21.2016

S - Line Beamstop Viewer



06:53:10 PM 10.21.2016

This is background viewer that
is attenuated or target viewer.

S - Line Beamstop Viewer



06:56:55 PM 10.21.2016

$D_1 = 317.0$

D1 = 317.7
D2 = 10Run comment: ¹²C data Bayd IN

Run #: 2097
Start: 20:03 Current: 2 nA Trigger rate: 670 Hz
Stop: CI Range: 6 Trigger evts: _____
Target: ¹²C Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 2200 L2: 2300 L3: 2300 L4: 2600
Clover R1-4 Rates (Hz) R1: 2600 R2: 7600 R3: 7200 R4: 2500
LaBr Rates (Hz) OR: 9200 2: 4600

K600 angle: 0 deg Mental Health Level:
Q: A A VDC efficiency
D1: A X1: _____
H: A U1: _____
D2: A
K: A

Saturday 22/10

95

Run comment: Mylar #3, Bagel In

Run #: 2101
Start: 21:13 Current: 1.7 nA Trigger rate: 550 Hz
Stop: 22:13 CI Range: 6n Trigger evts: 2,671 M
Target: #3 Mylar
Clover L1-4 Rates (Hz) L1: 2.91 K L2: 3.06 K L3: 3.56 K L4: 3.25 K
Clover R1-4 Rates (Hz) R1: 3.46 K R2: 3.27 K R3: 4.15 K R4: 3.06 K
LaBr Rates (Hz) 1: 5.13 K 2: 10.56

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: SAME A X1 _____
D2: A U1 _____
K: A
VDC efficiency

Run comment: ^{12}C BAGEL IN

Run #: 2102
Start: 22:15 Current: 1.9 nA Trigger rate: 584 Hz
Stop: 22:45 CI Range: 6 Trigger evts: 983 445
Target: #2 ^{12}C
Clover L1-4 Rates (Hz) L1: 2.62 kHz L2: 2.64 kHz L3: 2.92 kHz L4: 2.68 kHz
Clover R1-4 Rates (Hz) R1: 2.95 kHz R2: 2.72 kHz R3: 3.58 kHz R4: 2.70 kHz
LaBr Rates (Hz) 1: 9.51 kHz 2: 4.85

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: SAME A X1 94, 2518
D2: A U1 94, 9825
K: A
VDC efficiency

Run comment: 26 Mg, Bagel in

Run #: 2103
Start: 22:49 Current: 0.9 nA Trigger rate: 1033 Hz
Stop: 23:44 CI Range: 6 Trigger evts: 3,693 M
Target: 26 Mg #5
Clover L1-4 Rates (Hz) L1: 13.6 kHz L2: 13.3 kHz L3: 14.2 kHz L4: 13.1 kHz
Clover R1-4 Rates (Hz) R1: 10.8 kHz R2: 13.3 kHz R3: 17.3 kHz R4: 11.8 kHz
LaBr Rates (Hz) 1: 21.7 kHz 2: 10.9 kHz

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: SAME A X1 94, 6175
D2: A U1 95, 1284
K: A
VDC efficiency

Run comment: 26 Mg, Bagel in.

Run #: 2104
Start: 23:46 Current: 0.9 nA Trigger rate: 1128 Hz
Stop: 00:45 CI Range: 6 Trigger evts: 4,673 M
Target: 26 Mg #5
Clover L1-4 Rates (Hz) L1: 13.6 kHz L2: 13.3 kHz L3: 14.7 kHz L4: 12.9 kHz
Clover R1-4 Rates (Hz) R1: 10.7 kHz R2: 13.3 kHz R3: 17.0 kHz R4: 11.4 kHz
LaBr Rates (Hz) 1: 21.4 kHz 2: 10.7412

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: SAME A X1 94, 3458
D2: A U1 94, 9479
K: A
VDC efficiency

Run comment: 26 Mg, Bagel in

Run #: 2105
Start: 00:26 Current: 1 nA Trigger rate: 1000 Hz
Stop: 01:25 CI Range: 6 Trigger evts: 1,676 M
Target: 26 Mg
Clover L1-4 Rates (Hz) L1: 10.5 kHz L2: 13.3 kHz L3: 13.1 kHz L4: 12.9 kHz
Clover R1-4 Rates (Hz) R1: 10.8 kHz R2: 14.5 kHz R3: 18.7 kHz R4: 13.2 kHz
LaBr Rates (Hz) 1: 12.10 kHz 2: 24.4 kHz

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: SAME A X1 94, 16
D2: A U1 95, 1
K: A
VDC efficiency

We stopped the run because we noticed that the event rate was 0. The dog had crashed (we don't know why, we were far from the events limit and the rate wasn't high). VME restarted and frontend restarted. While this was done the FC was pushed in, since the rate in the clovers could not be monitored.

Run comment: 26 Mg, Bagel in

Run #: 2106
Start: 01:33 Current: 0.6 nA Trigger rate: 735 Hz
Stop: 02:17 CI Range: 6 Trigger evts: 3,23 M
Target: 26 Mg
Clover L1-4 Rates (Hz) L1: 11.5 kHz L2: 11.7 kHz L3: 12 kHz L4: 13 kHz
Clover R1-4 Rates (Hz) R1: 10.7 kHz R2: 14 kHz R3: 11 kHz R4: 12 kHz
LaBr Rates (Hz) 1: 12 2: 25

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: A X1 94.6
D2: A U1 95.1
K: A
VDC efficiency

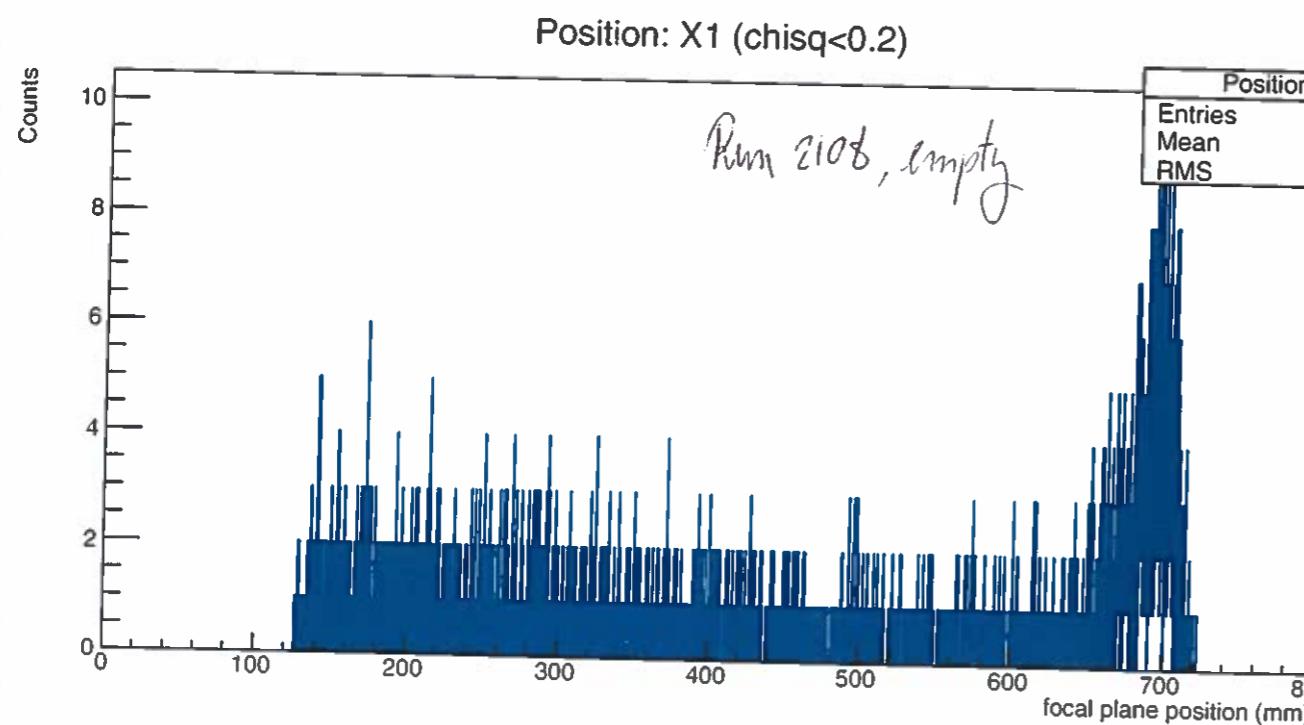
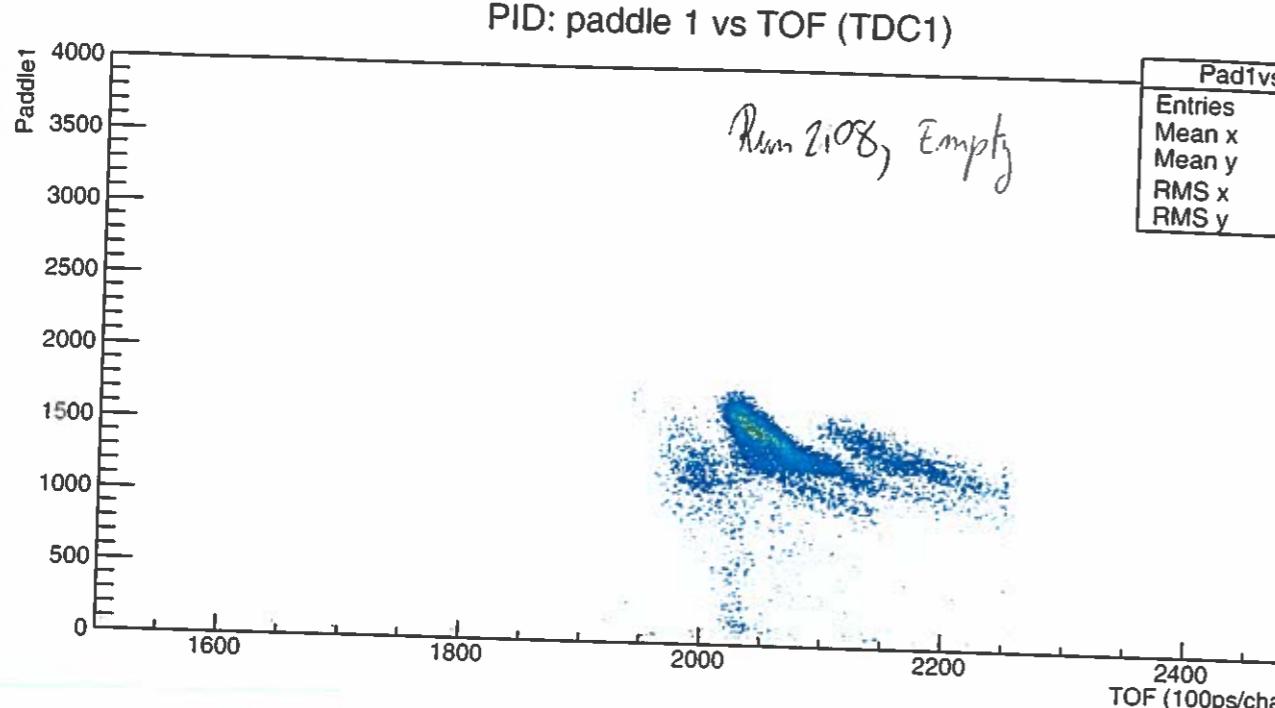
Run comment: 24 Mg, Bagel in

Run #: 2107
Start: 02:23 Current: 2 nA Trigger rate: 403 Hz
Stop: 03:24 CI Range: 6 Trigger evts: 1,645 M
Target: 24 Mg
Clover L1-4 Rates (Hz) L1: 3.2 kHz L2: 3.3 kHz L3: 3.5 kHz L4: 3.4 kHz
Clover R1-4 Rates (Hz) R1: 3.1 kHz R2: 3.5 kHz R3: 4.4 kHz R4: 3.2 kHz
LaBr Rates (Hz) 1: 5.1 kHz 2: 9.7 kHz

K600 angle: 0 deg Mental Health Level:
Q: A
D1: A
H: A X1 94, 69
D2: A U1 93, 7
K: A
VDC efficiency

2108 : Hafe check 190 ev/s

Since in run 2091 150 Hz were considered good at 2 mA, I assume so is 190. Plots attached next page



Run comment: A^{12}C , Bagel in
Run #: 2107

Run # 3109 Trigger m
Start 3:37 Current 7.1 NA Trigger rate 680
Stop 4:11 CI Range -6 Trigger evts. 114551
Target HIC Scaler evts. 12 22

Clover L1-4 Rates (Hz)	L1	<u>2.7 kHz</u>	L2	<u>7.5 kHz</u>	L3	<u>7.9 kHz</u>	D2	<u>K</u>
Clover R1-4 Rates (Hz)	R1	<u>2.7 kHz</u>	R2	<u>7.6 kHz</u>	R3	<u>7.3 kHz</u>	L4	<u>7.3 kHz</u>
LaBr Rates (Hz)	1	<u>4.9 kHz</u>	2	<u>7.7 kHz</u>			R4	<u>2.6 kHz</u>

Run comment:	<u>^{26}Mg, Ba$\gamma\gamma$ clusel in</u>			K60		
Run #:	<u>2110</u>	Q-				
Start:	<u>04:19</u>	Current:	<u>0.9</u> nA	Trigger rate:	<u>1323</u> Hz	
Stop:	<u>04:55</u>	Cl Range:	<u>6</u>	Trigger evts:	<u>2106180</u>	
Target:	<u>36Kg</u>	Scaler evts:				
Clover L1-4 Rates (Hz)	L1:	<u>13,7</u> kHz	L2:	<u>13,2</u> kHz	L3:	<u>13,4</u> kHz
Clover R1-4 Rates (Hz)	R1:	<u>10,3</u> kHz	R2:	<u>14,3</u> kHz	R3:	<u>18,7</u> kHz
LaBr Rates (Hz)	1:	<u>11,7</u> kHz	2:	<u>23,1</u> kHz		

at 4:14 the halo went up, so we had to do a halo check and to open BAGEL, thus @ 2:14 we had 167 counts.

Run comment: 26 My, BAGEL closed
 Run #: 2112
 Start 05:20 Current D,S nA Trigger rate 3
 Stop 05:55 CI Range 6 Trigger evts. 21
 Target: 26 My Scaler evts. 1

 Clover L1-4 Rates (Hz) L1 13.7 kHz L2: 13.7 kHz
 Clover R1-4 Rates (Hz) R1 12.1 kHz R2: 15.1 kHz
 LaBr Rates (Hz) 1 11.5 kHz 2 23.1 kHz

Run comment:	26 My ; BAYEL Closed		
Run #:	<u>2113</u>		
Start	05:55	Current	0.9
Stop	06:28	CI Range	6
Target	26 My		
13.5			
Clover L1-4 Rates (Hz)	L1	13.7 kHz	L2: 13.1 kHz
Clover R1-4 Rates (Hz)	R1	11.1 kHz	R2: 13.9 kHz
LaBr Rates (Hz)	1	10.55 kHz	R3: 11.1 kHz

Run comment: 26 Mg ; BAYIL closed
Run #: 2114

Target	Scaler evts
Clover L1-4 Rates (Hz)	L1 <u>10,1 kHz</u>
Clover R1-4 Rates (Hz)	R1 <u>4,511 kHz</u>
LaBr Rates (Hz)	1. <u>10,5 kHz</u>
	2. <u>21,4</u>

K600 angle	0 deg	Mental Health Level
Q	A	
D1	A	VDC efficiency
H:	A	X1 94-14
D2:	A	U1 94-14
K:	A	
L4:	12.18 kHz	
R4	12.14 kHz	

K600 angle 0 deg	Mental Health Level
Q: _____ A	
D1: <u>same</u> A	VDC efficiency
H: <u>same</u> A	X1 <u>94,1455</u>
D2: _____ A	U1 <u>45,0721</u>
K: <u>✓</u> A	
L4 <u>14,8E+12</u>	
R4 <u>i3,1K+12</u>	

K600 angle 0 deg	Mental Health Level
Q _____ A	
D1 _____ A	VDC efficiency
H _____ A	X1 94, 64
D2: <u>SAMC</u> A	U1 95, 67
K <u>C</u> A	
L4 <u>12,9 KHz</u>	
R4 <u>11,6 KHz</u>	

K600 angle	0 deg	Mental Health Level:
Q	A	
D1	A	VDC efficiency
H	A	X1 <u>94,46</u>
D2	A	U1 <u>94,557</u>
K	A	
L4	11,5 kHz	
R4	10,9 kHz	

Run comment: ^{26}Mg , BAGEL closed

Run #: 2115

Start 07:02

Stop 07:02 Current 6 nA Trigger rate Hz

Target ^{26}Mg

Clover L1-4 Rates (Hz)

Clover R1-4 Rates (Hz)

LaBr Rates (Hz)

K600 angle: 0 deg
Q: A Mental Health Level: ☺ ☺ ☺
D1: A VDC efficiency
H: same X1 94.5102
D2: A U1 94.8963
K: A

Rates higher than normal

Run # 2116, Empty target

The halo was tuned from 360 Hz to 70 Hz

For nA

Run comment: ^{26}Mg , BAGEL closed

Run #: 2117

Start 07:14

Stop 07:45 Current 0.8 nA Trigger rate 630 Hz

Target ^{26}Mg

Clover L1-4 Rates (Hz)

Clover R1-4 Rates (Hz)

LaBr Rates (Hz)

K600 angle: 0 deg
Q: A Mental Health Level: ☺ ☺ ☺
D1: A VDC efficiency
H: same X1 94.5622
D2: A U1 95.3195
K: A

L1: 17.9 kHz L2: 17.4 kHz L3: 17.5 kHz L4: 16.4 kHz

R1: 13.2 kHz R2: 17.6 kHz R3: 22.5 kHz R4: 15.5 kHz

1: 13.7 kHz 2: 27.3 kHz

Run comment: ^{26}Mg , BAGEL closed

Run #: 2118

Start 07:48

Stop 08:15

Target ^{26}Mg

Clover L1-4 Rates (Hz)

Clover R1-4 Rates (Hz)

LaBr Rates (Hz)

K600 angle: 0 deg
Q: A Mental Health Level: ☺ ☺ ☺
D1: A VDC efficiency
H: same X1 95.3154
D2: A U1 95.0972
K: A

L1: 17.9 kHz L2: 17.1 kHz L3: 18.9 kHz L4: 17.5 kHz

R1: 14.2 kHz R2: 18.0 kHz R3: 21.6 kHz R4: 14.9 kHz

1: 12.9 kHz 2: 25.8 kHz

Run comment: ^{24}Mg , BAGEL CLOSD

Run #: 2119

Start 08:24

Stop 08:53

Target ^{24}Mg #4

Scaler evts:

1: 1694

2: 418

Clover L1-4 Rates (Hz) L1: 3.3 kHz

Clover R1-4 Rates (Hz) R1: 3.2 kHz

LaBr Rates (Hz) 1: 9.1 kHz OR 2: 4.18 kHz

L2: 3.2 kHz L3: 3.6 kHz

R2: 3.4 kHz R3: 4.0 kHz

R4: 3.0 kHz

K600 angle: 0 deg
Q: A Mental Health Level: ☺ ☺ ☺
D1: A VDC efficiency
H: same X1
D2: A U1
K: A L4

(Beam current increased to 2.2 nA)

Run # 2120

Halo fine tuning
210 events / s

Bagel ~ 1 kHz

(BAGEL IN)

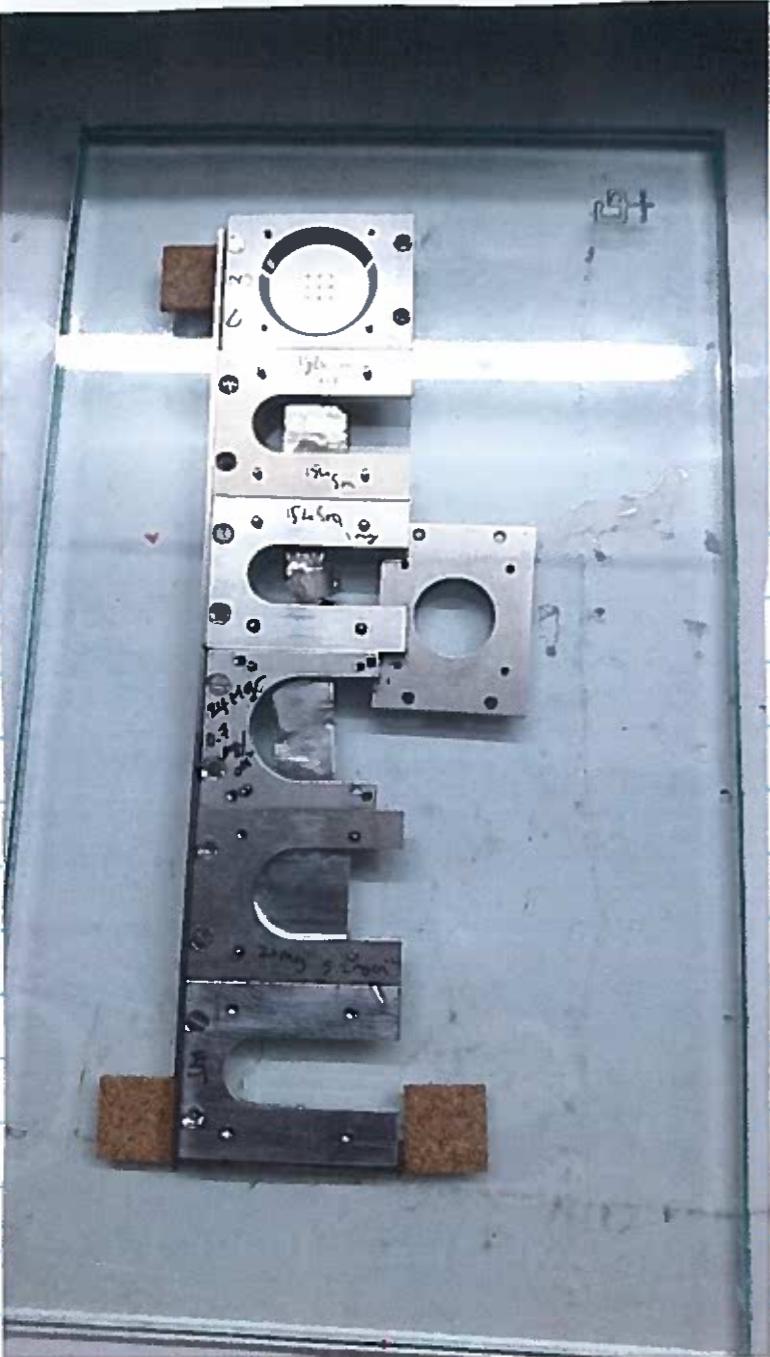
09:05

Problem with the buncher before the SCC.
Waiting for operators to fix the problem.

10:50 Beam is back

we change the target locker
it is at 90° respect to the beam direction
 \Rightarrow G3, 1

SECOND TARGET LADDER



22 October 2016
Saturday

101

VIEWER

^{154}Sm 4.8 mg/cm^2

^{154}Sm 1 mg/cm^2

^{24}Mg 0.7 mg/cm^2

^{26}Mg 5.2 mg/cm^2

EMPTY

Run # 2122

VIEWER IN

we check the BAGEL rates

0.2 nA

→ VIEWER + HAPANAKA

6/7 kHz ~~on~~ on BAGEL

Run # 2123

EMPTY for halo check

~~detector~~ VDC back on $\sim 1\text{kHz}$ (9) 1/nA

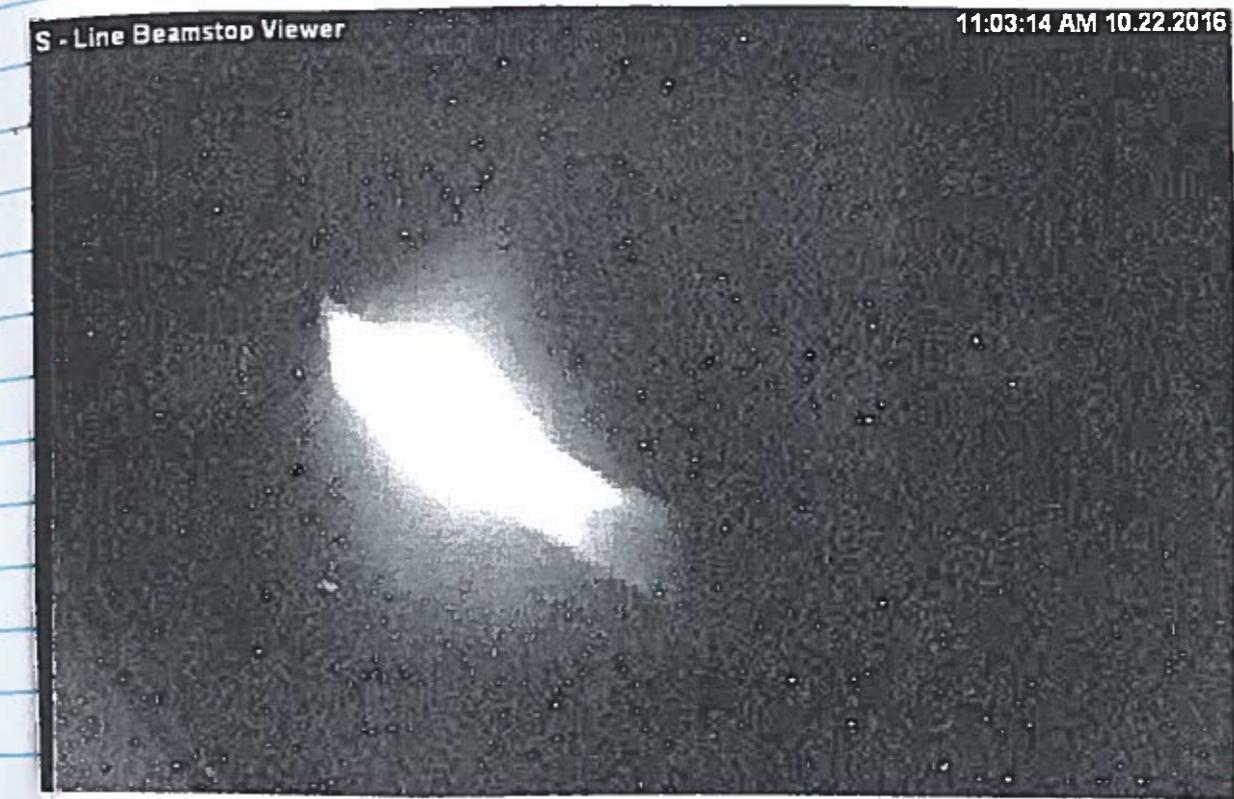
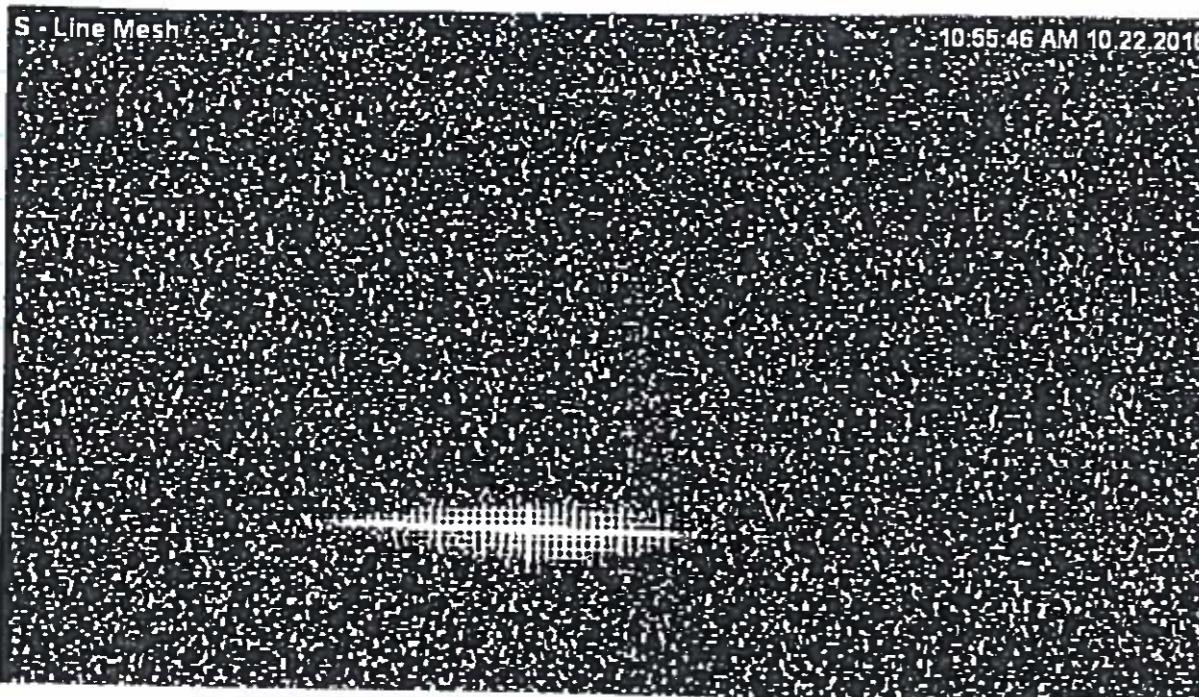
how $D1 = 317.2$ (it was $D1 = 317.7$)

EMPTY with 1 nA BAGEL rates $\sim 1\text{kHz}$

→ halo tuning now

@ 1 nA

end 150 Hz (a) 2 nA



1mA
no viewers.

DL = 317.2

Run 2124 ^{154}Sm back-side 2 mA. 7 kHz.
4.8 mg/cm²

Run 2125 ^{244}Pu peaked. 2 mA. 550 Hz.

kHz rate ↓

BAGEL CLOSED NOW (Sat 12:00)

We start with 2 mA and check on the Sm 1 mg/cm²
how many counts we have

Run 2126 ^{154}Sm 1 mg/cm² 1 mA 2.4 kHz 1600 region

Run 2127 Empty target, DATA corred
2128 " "

Reset : UME SYSRESET.

Run 2129 Empty target : 6eHz (a) 0.2 mA.

Run 2130

 ^{154}Sm 4.8 mg cm^{-2}

0.7 nA.

Clear rates 19 - 17 kHz.

3.7 - 4 kHz migrate

16 min 3.92 M events

Run 2131

 ^{154}Sm 4.8 mg cm^{-2} 5 kHz migrate
1 nA.

Clear rates < 2 kHz

LaBr 2 = 14.5 kHz

LaBr 2R = 25 kHz

$$\chi_1 = 95\%$$

$$\chi_2 = 74.8\%$$

HgGe : $\frac{\text{ThI}}{\text{ThII}} / \frac{\text{ThII}}{\text{ThIII}} = \frac{166}{4700}$
 L1 black Red ~ 6840
 L1 black red ~ 4550

Reached 4 M event limit. Shift to deep.

Run 2132

 ^{154}Sm 4.8 mg cm^{-2}

Run 2133

 ^{154}Sm 4.8 mg cm^{-2}

Run 2134

 ^{154}Sm 4.8 mg cm^{-2}

Run 2135

 ^{154}Sm 4.8 mg cm^{-2}

Run 2136

 ^{154}Sm 4.8 mg cm^{-2}

Run 2137

" "

Run 2138

" "

Run 2139

" "

L4

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2135	0.9	13:47	14:02	^{154}Sm #2 4.6 mg	~5 kHz	21	20	20	17
						16	21	20	16
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
				24 - 14 = 10	14	15	14	14	14
2136	0.9	14:01	14:13	^{154}Sm #2	5.1 kHz	20	19	19	17
						16	21	20	16
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
				10	14	15	14	14	14
2137	0.9	14:13	14:25	^{154}Sm #2	5,276 kHz	21	20	20	17
						LaBr 1	LaBr 2	VDC U1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
2138	0.9	14:25	14:38	^{154}Sm #2	5,074 kHz	21	20	20	17
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
2139	0.9	14:38	14:58	^{154}Sm #2	4,7	21	20	20	17
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff
2141	0.9	15:08	15:18	^{154}Sm #2	5,295	21	20	20	17
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
				LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff	VDC U1 eff	VDC U1 eff

crossed

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2142	0.87	15:18		^{154}Sm	S, S	17	22	39	19
				# 2		Clover R1	Clover R2	Clover R3	Clover R4
						17	22	59	126
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						10	15	95	94
2143	0.98	15:30	15:41	^{154}Sm	S, 4	K600 trigger	Clover L1	Clover L2	Clover L3
				# 2		20	20	21	16
						Clover R1	Clover R2	Clover R3	Clover R4
						17	22	59	157
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						10	15	95	94, 55
2145	1.0	15:45	15:55	^{154}Sm	S, S	K600 trigger	Clover L1	Clover L2	Clover L3
				# 2		22, 7	22	21, 6	18, 7
						Clover R1	Clover R2	Clover R3	Clover R4
						18, 2	23	63	156
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						11	14		
2146	1.0	15:56	16:05	^{154}Sm	# 2	K600 trigger	Clover L1	Clover L2	Clover L3
						24	24	23	20
						Clover R1	Clover R2	Clover R3	Clover R4
						19	25	61	131
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						11	16		

Scat 16:30 Charged target

Took out
Put in

^{154}Sm long coin
 ^{116}Sn - long coin

LaBr rate 1 now again LaBr 1 (was # 2 till now)

Run 2147 ^{116}Sn 1 nA

Uninhibited trigger rate ~ 10 kHz
Bragg rates ~ 30 kHz / detector.

Trigger rate 2.4 kHz 0.2 nA
Bragg ~ 10 kHz

Trigger rate 4 kHz 0.4 nA
Bragg ~ 20 kHz

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2146	0,6	11:08	17:21	^{116}Sn	2.2.6 19.6 $4,4,7\downarrow$	2.2.3 2.5.4 $2.1,0$	2.3,6 4.8.1 $4.4,6705$	2.2.4 14.1 $94,6705$	2.2.4 14.1 $94,6705$
2149	0,5	17:22	17:37	^{116}Sn	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2150	0,5	17:38	17:53	^{116}Sn	$4,553 \text{ kHz}$	$2.2.6$ 18.1 $16,9$	$2.2.1$ 2.2.5 $2.1,3$	$2.0.7$ 12.9 $12,7$	$2.0.4$ 12.3 $12,7$
2151	0,5	17:55	18:10	^{116}Sn	$4,346 \text{ kHz}$	$2.3,5$ 18.3 $16,9$	$2.2.3$ 2.2.2 $2.1,5$	$2.0.7$ 39.9 $39,1$	$2.0.7$ 13.3 $13,1$
2152	0,4	18:11	18:20	^{116}Sn	$4,112 \text{ kHz}$	$2.0.8$ 16.2 $10,8$	$2.0.5$ 2.1.0 $2.1,5$	$1.9,9$ 39.9 $39,1$	$1.9,4$ 12.3 $12,3$
2153	0,5	18:51	19:08			$1.9,4$ 15.4 $10,3$	$1.9,5$ 19.1 $23,5$	$1.9,5$ 39.2 $39,1$	$1.9,5$ 11.1 $11,1$

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2154	0,3	19:09	19:28	^{116}Sn	$3,2300$	$15,5$ 12.8 $10,8$	$15,7$ Clover R1 16.1 8.8	$15,4$ Clover R2 16.0 LaBr 1 20,1	$14,14$ Clover R4 12.8 VDC U1 eff $94,5669$
2155	0,4	19:29	19:46	^{116}Sn	$4,137 \text{ kHz}$	16.1 15.4 $10,5$	16.5 Clover R1 19.1 LaBr 1 20,1	$17,2$ Clover R3 39.2 LaBr 2 94.376	$16,4$ Clover R4 11.1 VDC U1 eff $94,5897$
2156	0,45	19:47	20:04	^{116}Sn	$3,8704$	16.1 15.4 $10,3$	16.4 Clover R1 19.2 LaBr 1 23,4	$16,3$ Clover R3 37.1 LaBr 2 94.4975	$16,5$ Clover R4 11.6 VDC U1 eff $94,8336$
2157	0,4	20:05	20:23	^{116}Sn	$3,6751$	16.3 14.5 $10,9$	16.5 Clover R1 19.2 LaBr 1 22,3	$16,3$ Clover R3 37.1 LaBr 2 94.7	$16,3$ Clover R4 11.0 VDC U1 eff $95,0$
2158	0,42	20:24	20:29	^{116}Sn	$3,614$	16.8 14.0 9.8	16.9 Clover R1 17.4 LaBr 1 22,1	$16,4$ Clover R3 33.5 LaBr 2 94.7	$16,3$ Clover R4 10.3 VDC U1 eff $94,5451$
2159	0,3-0,6	20:37	20:51	^{116}Sn	2.893 $4,608 \text{ kHz}$	20.36 11.13 $11,88$	20.41 Clover R2 11.81 LaBr 1 22.8	19.19 Clover R3 33.5 LaBr 2 94.7	19.19 Clover R4 10.3 VDC U1 eff $94,5451$

					# 2152	A power supply in a Q-line is problematic.			109
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* RUN 2158 was stop because of a problem with the current-integrator for - we unplugged the power supply cable and plugging it back, everything work again -

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2160	0.4	20.51	21.05	^{116}Sn	4.643	22.9	22.2	22.2	20.72
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2161	1.0	21.09	21.40	^{26}Mg	1.355	18.4	18.8	18.3	13.9
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2162	1.0	21.40	22.12	^{26}Mg	1.2810	15.0	17.5	17.7	18.3
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2163	1.0	22.13	22.43	^{24}Mg	3.001	2.185	3.06	3.06	2.0
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2164				HALO CHECK EMPTY	103.8	14.5	14.5	19.5	10.1
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2165	0.42	22.54	23.04	^{116}Sn	3.845	18.1	17.5	17.2	15.8
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2166	0.5	23.66	23.20	^{116}Sn	4.049	21.5	21.7	21.3	19.7
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2167	0.46	23.21	23.34	^{116}Sn	4.1645	18.2	22.4	22.1	20.8
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2168	0.5	23.35	23.49	^{116}Sn	4.655	11.9	23.1	23.1	13.1
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2169	0.5	23.50	00:04	^{116}Sn	4.656	18.6	18.6	18.4	14.0
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2170	0.5	00:05	00:19	^{116}Sn	4.965	19.5	26.1	26.1	13.6
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2171	0.52	00:20	00:35	^{116}Sn	4.4667	19.5	24.9	24.9	14.3

rates went up I stopped the run and start

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2166	0.5	23.66	23.20	^{116}Sn	4.049	21.5	21.7	21.3	19.7
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2167	0.46	23.21	23.34	^{116}Sn	4.1645	18.2	22.4	22.1	20.8
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2168	0.5	23.35	23.49	^{116}Sn	4.655	11.9	23.1	23.1	13.1
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2169	0.5	23.50	00:04	^{116}Sn	4.656	18.6	18.6	18.4	14.0
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2170	0.5	00:05	00:19	^{116}Sn	4.965	19.5	26.1	26.1	13.6
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2171	0.52	00:20	00:35	^{116}Sn	4.4667	19.5	24.9	24.9	14.3

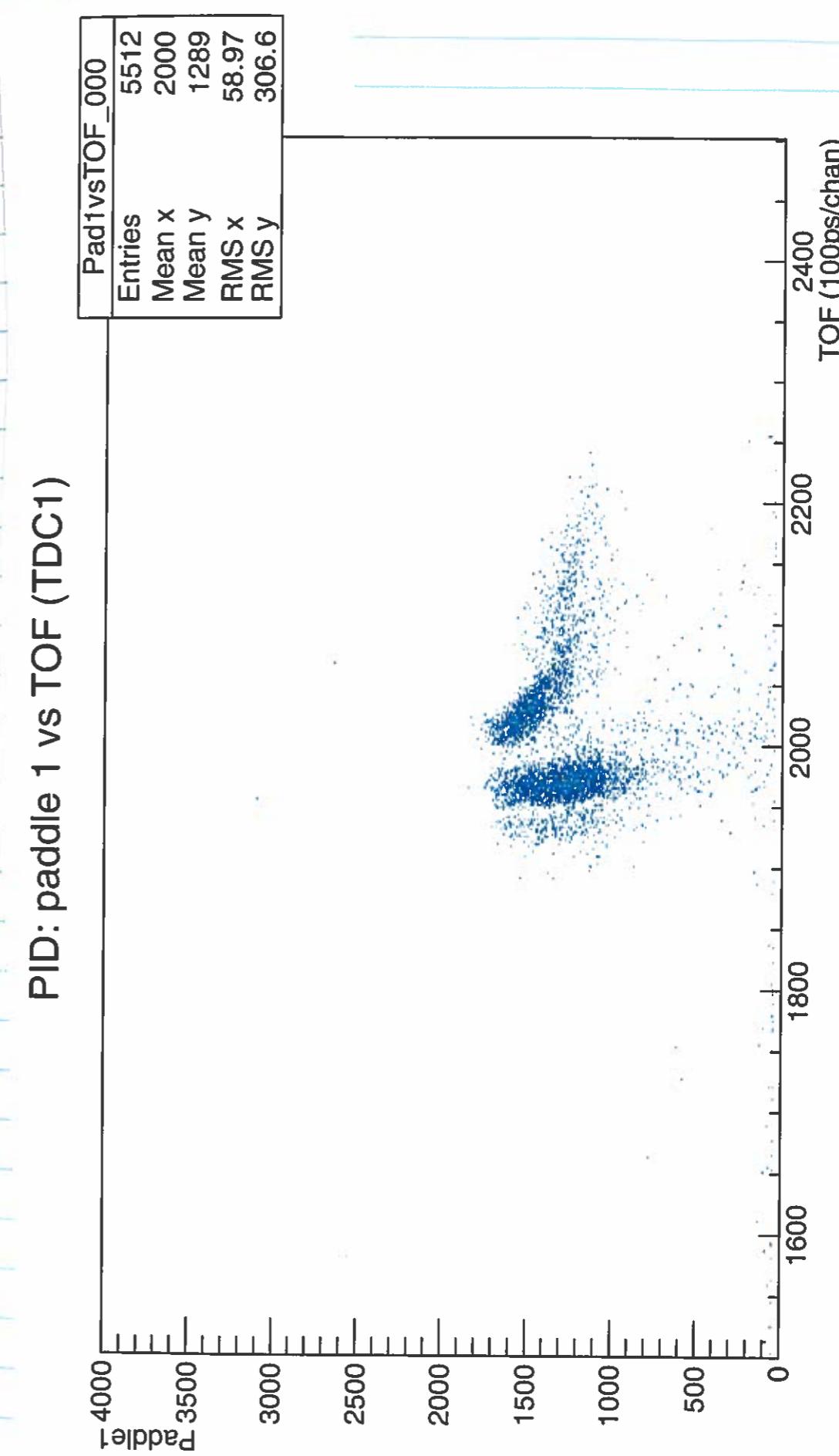
Sunday 23 Oct

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Something to try

Compare the last and second last Pad1 vs TOF Spectra for empty runs. Note that there is a difference in the counts that correspond to the hiP side of the spectrum. Maybe this is beam position dependent. With the thick heavy mass target the beam "blows up" and possibly makes more background on the hiP sides. With the thick target, change the spectrometer magnets with the superknobs to shift the beam more to the centre of the pipe and see if the count rate in the K600 goes down. This comes at the price of ^{an} increase in hiP threshold.

- * 10:30 funny structure on K600 scaler. We decided to make an empty-run. (Run 2164).



Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2172	0.5	06:36	00:51	^{116}Sn	5.15 kHz	2.5.3	2.5.3	2.5.7	2.5.2
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2173	0.5	00:52	01:07	^{116}Sn	4.81 kHz	1.9.2	2.4.2	4.4.4	1.3.7
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2174	0.5	01:08	01:23	^{116}Sn	4460	22.4	21.4	2.3.3	21.6
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2175	0.5	01:24	01:39	^{116}Sn	4.57k	19.1	17.9	4.3.1	14.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2176	0.5	01:40	01:44	^{116}Sn	4.2k	20.3	19.1	2.2.3	14.1
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2177	0.5	01:45	02:00	^{116}Sn	4.4k	17.3	17.3	4.3.1	13.1
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2178	0.5	02:05	02:40	^{26}Mg	1.7	11.4	11.4	9.4.8	9.4.7
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2179	1.1	02:54	03:32	^{26}Mg	1.55 kHz	13.9	12.1	2.2.3	14.2
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2180	1.1	03:35	04:07	^{24}Mg	1, 2	13.9	12.1	4.3.1	13.5
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2181	0.45	04:10	04:22	^{116}Sn	5.2 kHz	15.5	15.5	3.2	14.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2182	0.5	04:23	04:37	^{116}Sn	4.8 kHz	18.5	18.5	2.2.3	14.2
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2183	0.45	04:37	04:51	^{116}Sn	5.0 k	21	21	4.2	13
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff

Spikes in R4 ~~at~~ is continuous, (with ~60sec) . Run 2177

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2178	1.1 NA	02:54	03:32	^{26}Mg	1.7	13.9	12.1	1.55	14.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2181	1.1	02:54	03:32	^{26}Mg	1.55 kHz	13.9	12.1	2.2.3	14.5
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2182	1.1	03:35	04:07	^{24}Mg	1, 2	14.5	13.5	3.2	14.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2183	0.45	04:10	04:22	^{116}Sn	5.2 kHz	15.5	15.5	2.2.3	14.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2184	0.5	04:23	04:37	^{116}Sn	4.8 kHz	18.5	18.5	4.2	13
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2186	0.5	04:40	04:56	$^{116}\text{S}_{\text{n}}$	4.4	1.1	1.2	1.1	1.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2187	0.5	04:57	05:12	$^{116}\text{S}_{\text{n}}$	4.4	1.5	2.0	3.1	1.2
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2188	0.5	05:14	05:29	$^{116}\text{S}_{\text{n}}$	5.0	1.1	1.4	1.4	1.1
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2189	0.42	05:30	05:46	$^{116}\text{S}_{\text{n}}$	4.12	2.3	2.3	2.2	2.0
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2190	0.45	05:47	06:02	$^{116}\text{S}_{\text{n}}$	4.12	1.8	2.3	4.3	1.3
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2191	0.45	06:03	06:20	$^{116}\text{S}_{\text{n}}$	4.12	1.6	1.4	1.4	1.1
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2192	0.45	06:23	06:39	$^{116}\text{S}_{\text{n}}$	4.62	1.6	2.0	2.8	1.1
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2193	0.47	06:40	06:57	$^{116}\text{S}_{\text{n}}$	4.12	1.0	1.3	1.5	1.5
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2194	0.47	06:58	07:14	$^{116}\text{S}_{\text{n}}$	4.2	1.6	1.1	1.1	1.1
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
2195	1.1	07:19	07:50	^{26}Mg	1.2	1.0	1.7	1.0	1.2
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2196	1.1	07:51	08:22	^{26}Mg	1.3	1.3	2.1	3.10	3.16
Run nr	Current	Start	Stop	Target	K600 trigger	Clover R1	Clover R2	Clover R3	Clover R4
2197	0.51	08:24	08:55	^{24}Mg	2.67	2.1	4.1	4.1	1.9
Run nr	Current	Start	Stop	Target	K600 trigger	LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff

Looks like restarting a run too quickly interferes with the online analyzer
47

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2198	0,5	09:00	09:11S	116 Sn	4,6	21,8	21,3	21,1	18,9
2199	0,5	09:16	09:32	116 Sn	4,5	16,9	21,7	21,6	Clover R4 13,0
2200	0,5	10:16	10:31	116 Sn	4,10	LaBr 1 11,2	LaBr 2 24,6	VDC X1 eff 94,5482	VDC U1 eff 94,17438
2201	0,5	10:32	09:49	116 Sn	4,10	22,8	22,0	21,8	Clover L4 20,2
2202	0,5	10:46	10:31	116 Sn	4,16	17,3	23,5	24,5	Clover R4 13,6
2203	0,5	10:46	10:31	116 Sn	4,16	LaBr 1 11,6	LaBr 2 25,6	VDC X1 eff 94,5763	VDC U1 eff 94,13599
2204	0,5	11:05	11:05	116 Sn	4,12	20,8	20,5	20,5	Clover L4 19,4
2205	0,48	11:50	11:05	116 Sn	4,12	18,4	18,1	18,1	Clover R4 14,1

># Chest
next
Panic

→ Dog
→ 1000 → crashed.

was first seen

Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
2206	0,14	11.06	11.15	116 Sn	410	1q,4	1q,5	1q,2	1q,8
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
						Clover R1	Clover R2	Clover R3	Clover R4
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						9,9	2,210	9,4,533,2	9,4,70,66
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
						Clover R1	Clover R2	Clover R3	Clover R4
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
						Clover R1	Clover R2	Clover R3	Clover R4
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
						Clover R1	Clover R2	Clover R3	Clover R4
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
Run nr	Current	Start	Stop	Target	K600 trigger	Clover L1	Clover L2	Clover L3	Clover L4
						Clover R1	Clover R2	Clover R3	Clover R4
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff
						LaBr 1	LaBr 2	VDC X1 eff	VDC U1 eff

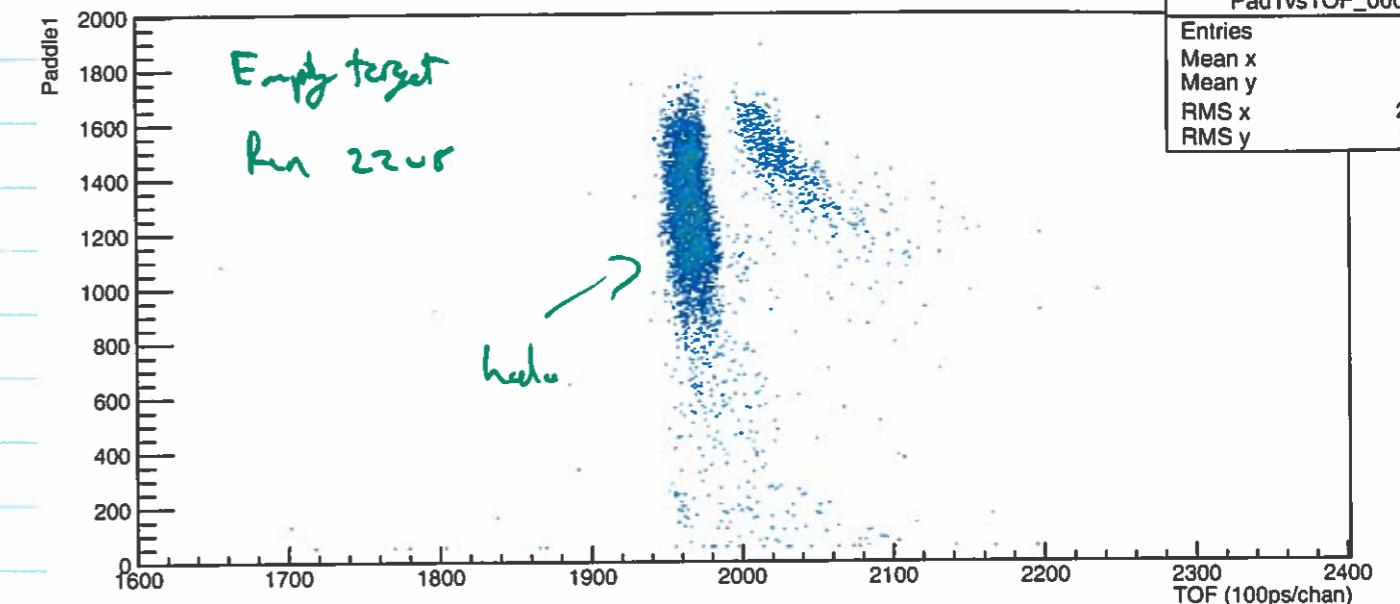
11

→ Run # 2202 , we put the attenuator on the detectors , thickness = 1.2 mm

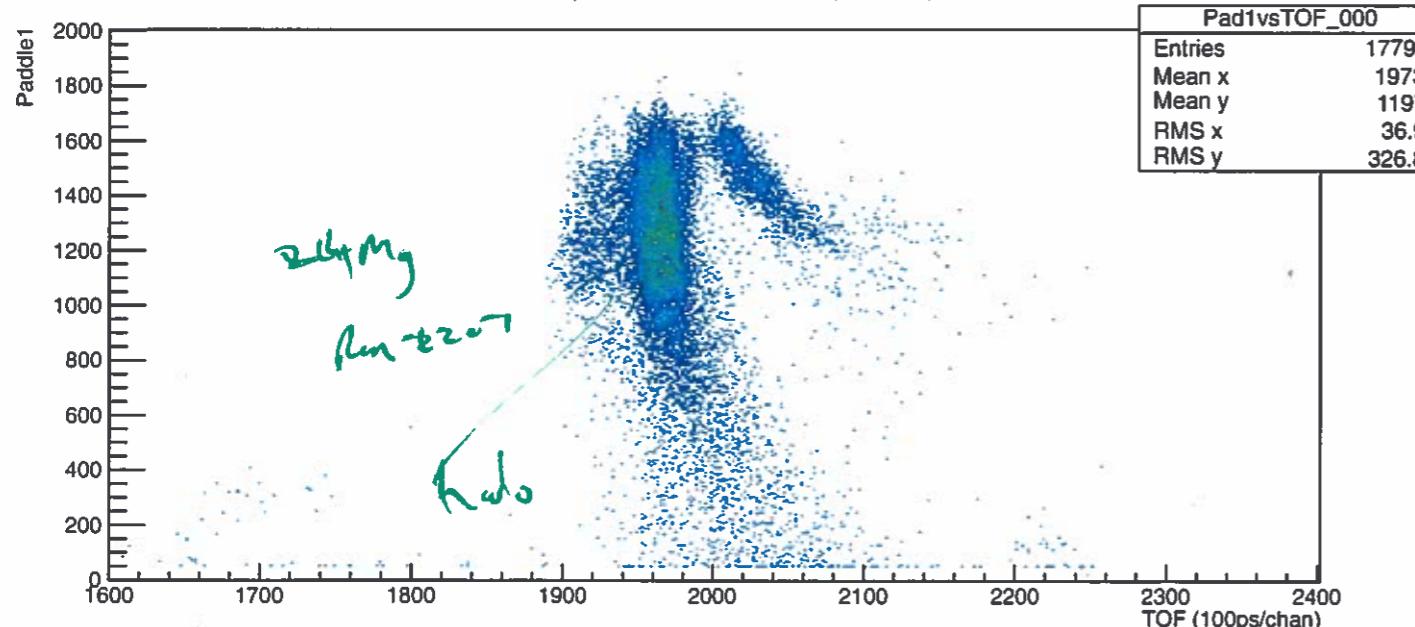
- Run 2207 → we are try to tune the halo
with ^{24}Mg

- Run 2208 → Empty target.

PID: paddle 1 vs TOF (TDC1)



PID: paddle 1 vs TOF (TDC1)



Looks good. No bunches seen!

Run # 2210



BAGEL OUT !

Run # 2209

VIEWER

BAGEL Rater N 1 kHz

Run # 2210

EMPTY IN, check halo
 0.2 nA
 $\hookrightarrow \text{in FP } 31 \text{ Hz}$
 $\text{BAGEL } \sim 0.6 \text{ kHz}$

We are trying to move the beam more to the ~~center~~ centre of the beam dump

$D1 = 317.2 \xrightarrow{\text{to}} 317.0$

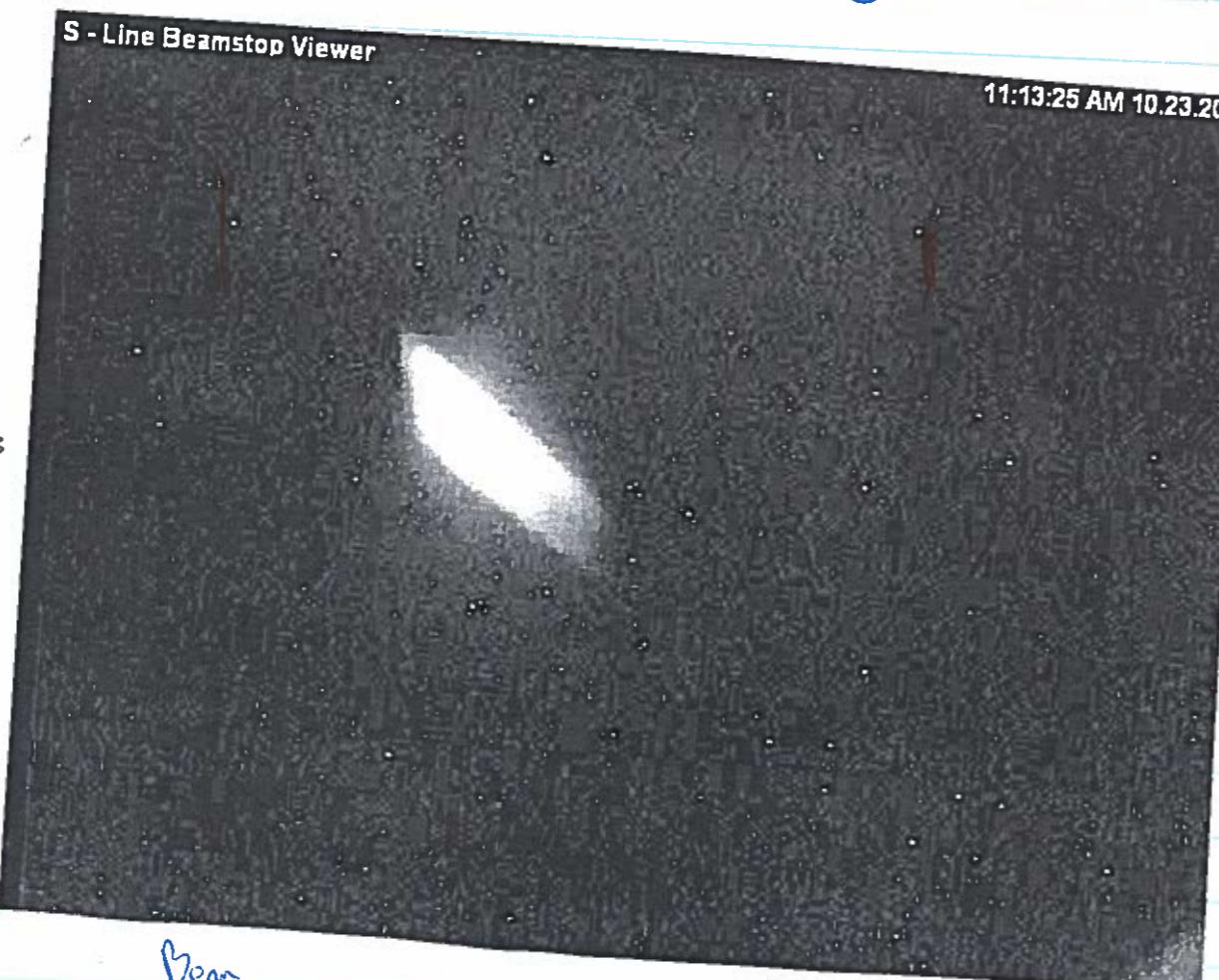
changed with the superknob

FP $\sim 23 \text{ Hz}$ @ 0.2 nA

\Rightarrow now we try to do a bit of halo tuning
@ 1 nA

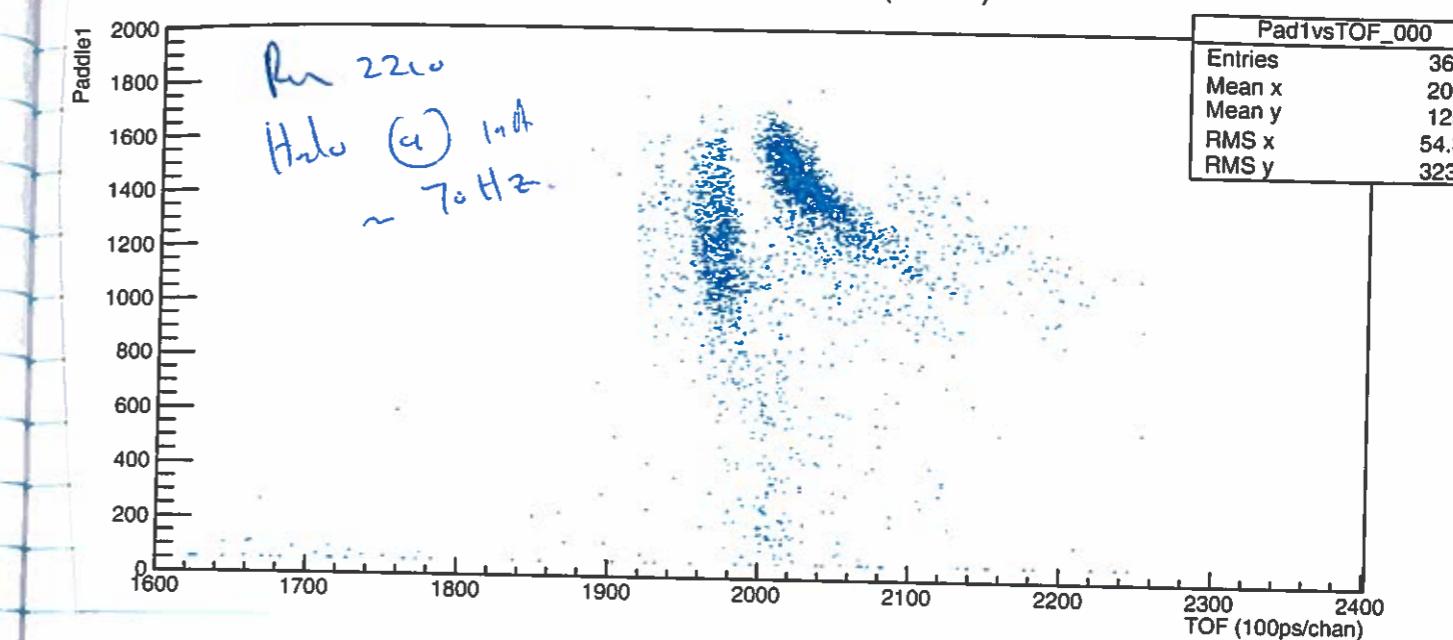
End (a) $\sim 20 \text{ Hz}$ (a) 1 nA

After Superknob change. $D1 = 317.0$
Also confirmed that $\Delta Q = -16 \text{ A}$
has little dipole effect on viewer.



Suggested change of Quad of K602 : 363.9 A
(far 349.917)

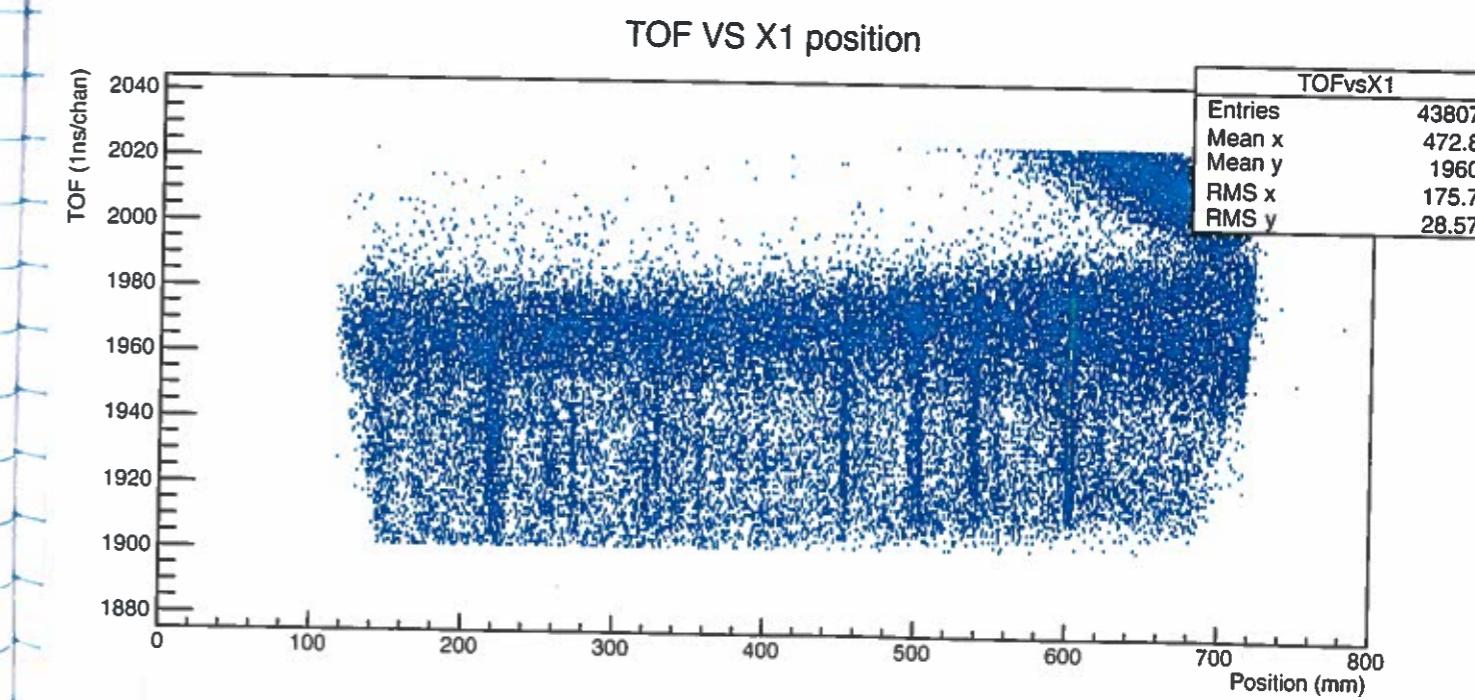
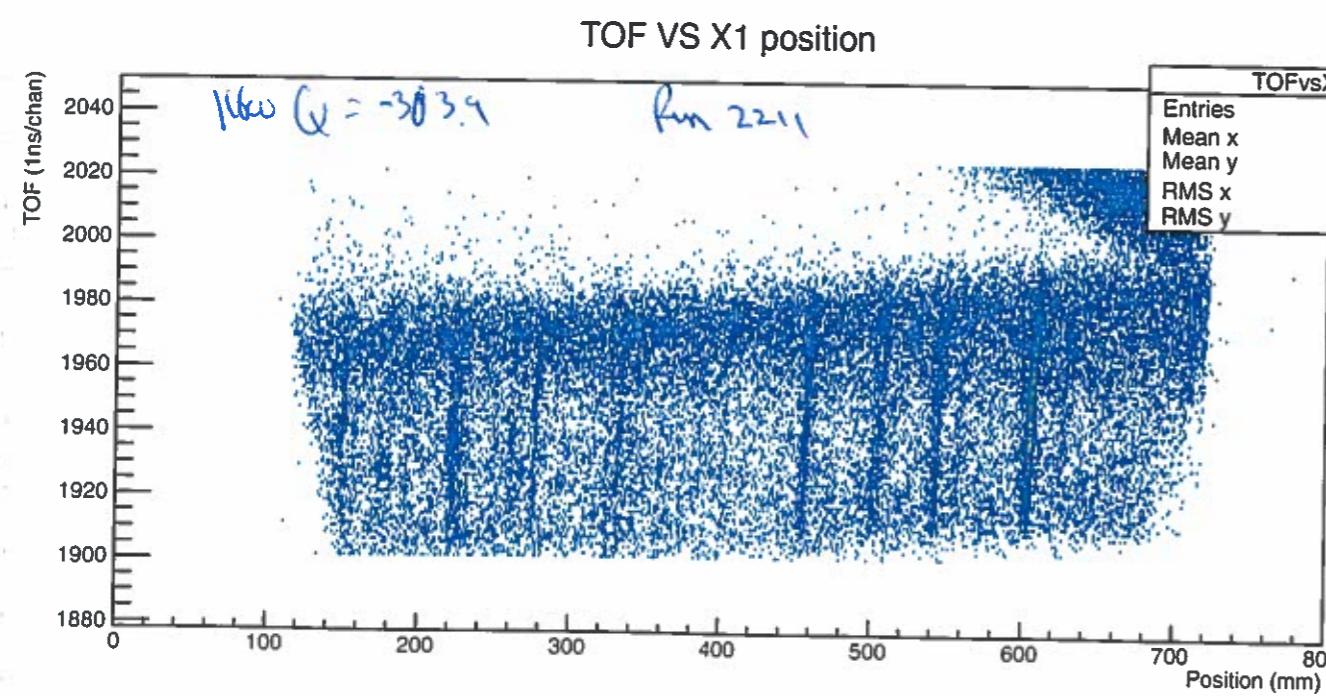
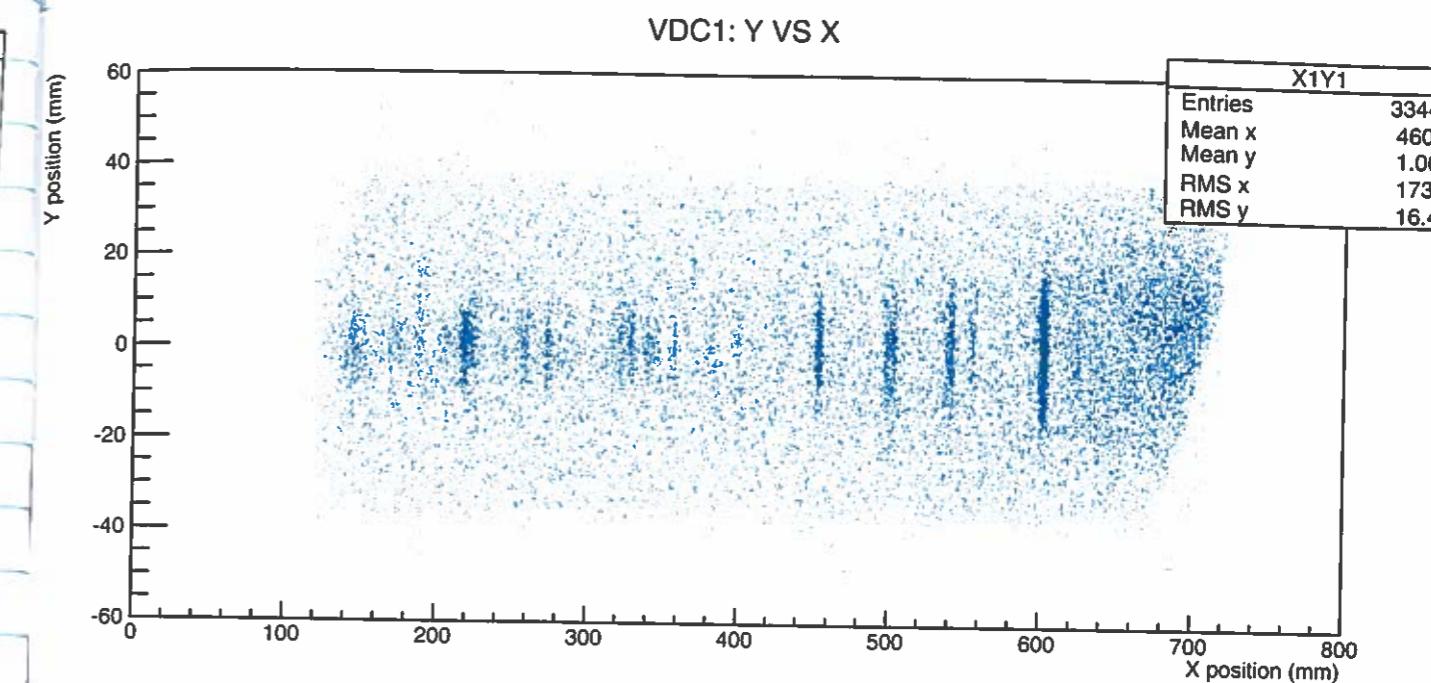
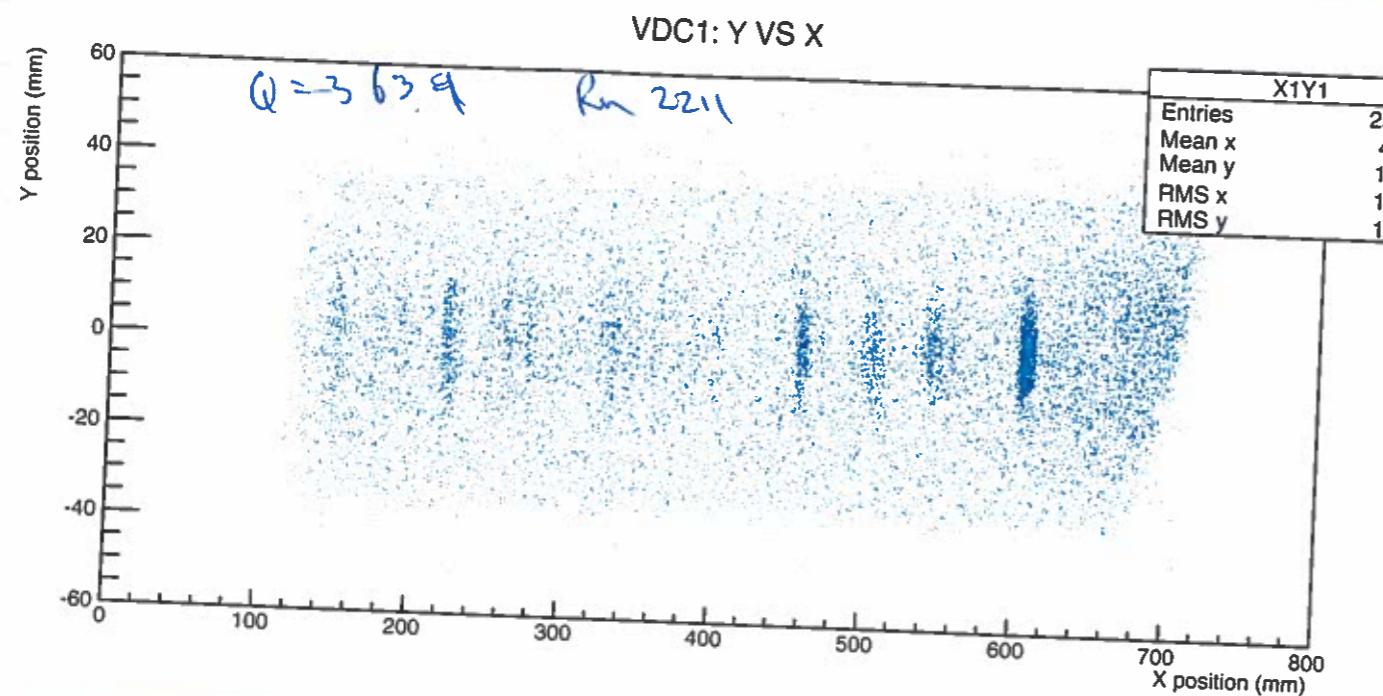
PID: paddle 1 vs TOF (TDC1)

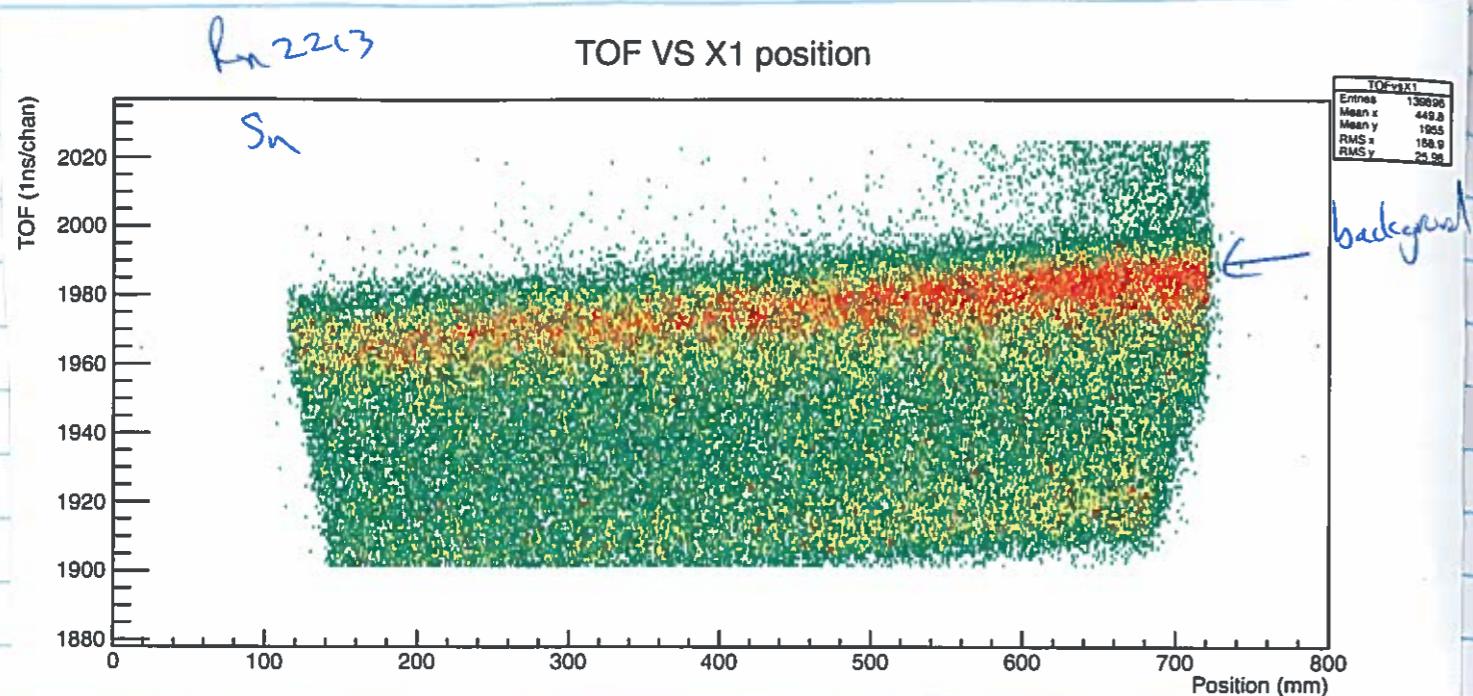


Run 2211 ^{24}Mg 1nA , 20 Hz
 $K602 Q1 SP = -363.9$ 363.9 0

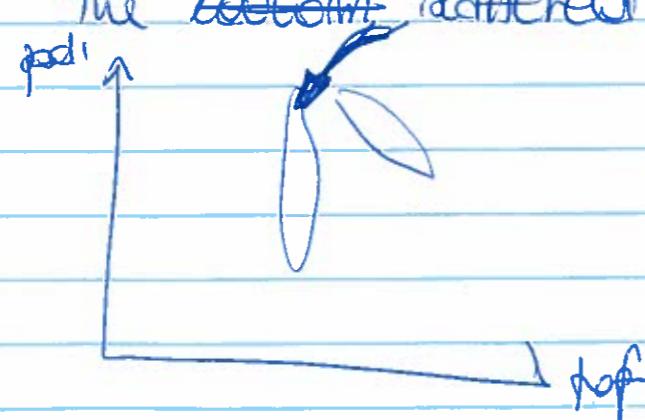
Run 2212 ^{24}Mg 1nA $\sim 200 \text{ Hz}$
 $K602 Q = 349.9$

Run 2213 ^{116}Sn 0.5nA 4 kHz

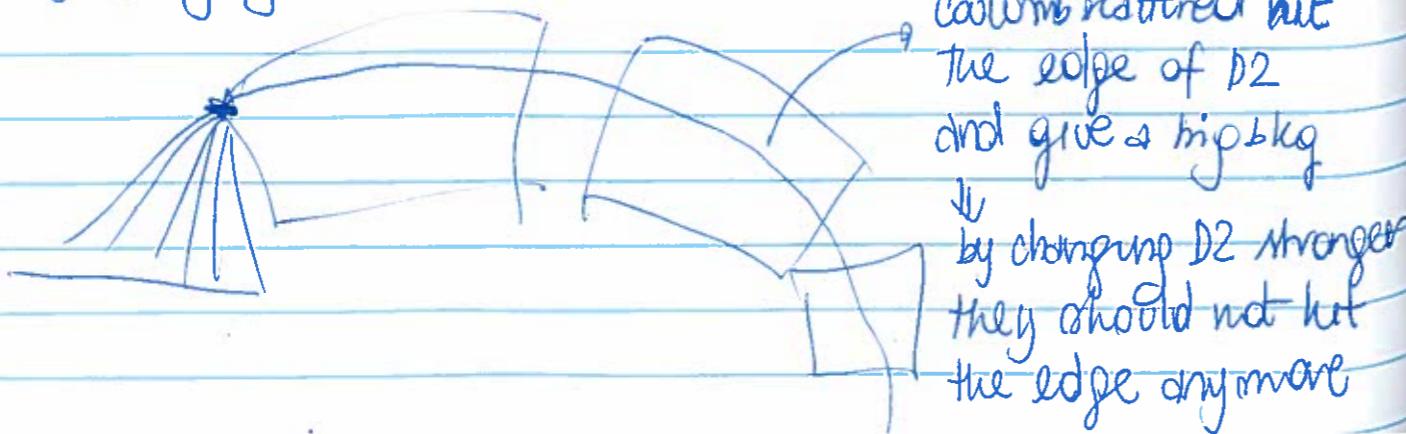




Run # 2214 EMPTY
change D2 (stronger) D1 (weaker)
to see if we can get rid of
the ~~coulomb~~ scattered particle



- Why changing D2 and D1:



Run #2215 EMPTY
0.5 nA

starting: $D1 = 317.0$ and $D2 = 210.282$

$D1 = 1A$ down up
 $D2 = 1A$ up down



$D1 = 318$, $D2 = 209.282$

$D1 = 316$ $D2 = 211.282$

$D1 = 315$ $D2 = 211.882$

$D1 = 314$ $D2 = 210.282$ 212, 582
 $D1 = 320$ $D2 = 208.282$
322, 206.282
326, 204.282
317, 210.82

We are back to original.
No change seemed to get rid of the background
in prod1 vs 3 drift



hole tuned → now 82 Hz @ 1 nA

Collimator!

12/23/09
12:50

We gave up and decided to close Bagel.
Upon further investigation of the collimator
it was seen that there is no collimator!

Sunday

Vented the small angle chamber (+ scat. chamber)
and placed in the collimator.



Before

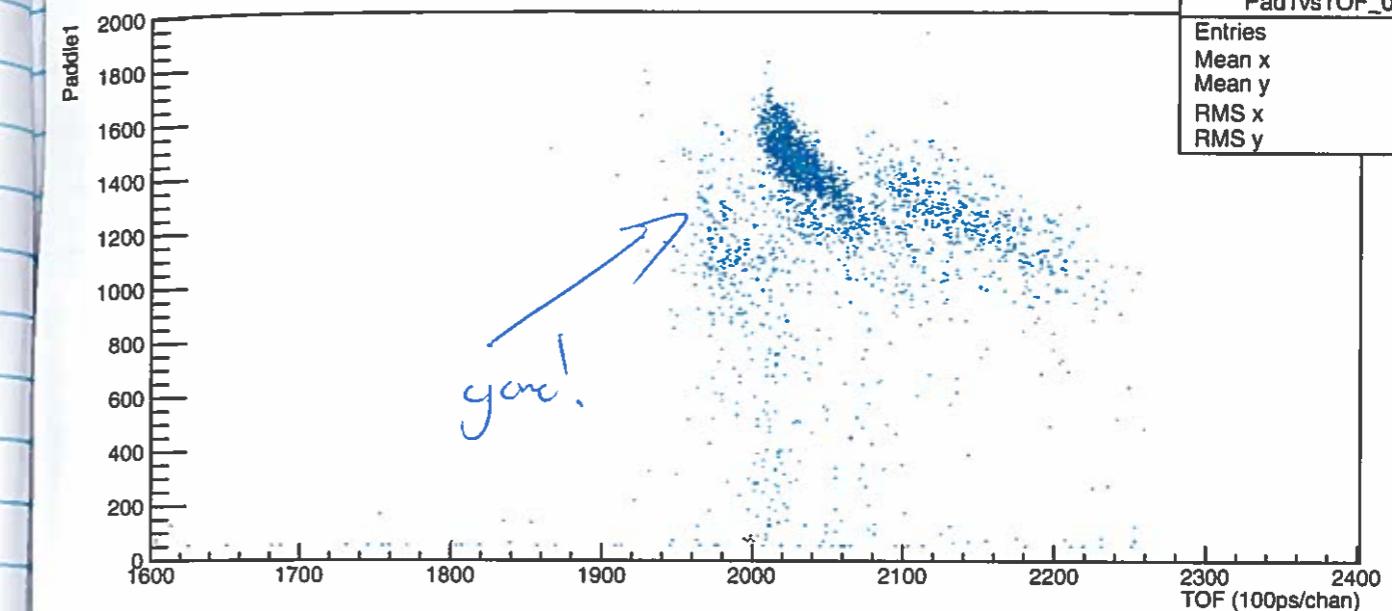


After -

Run 2216 Empty 70 Hz @ 0.5 nA

PID: paddle 1 vs TOF (TDC1)

Pad1vsTOF_000	
Entries	2841
Mean x	2049
Mean y	1264
RMS x	63.95
RMS y	327.1



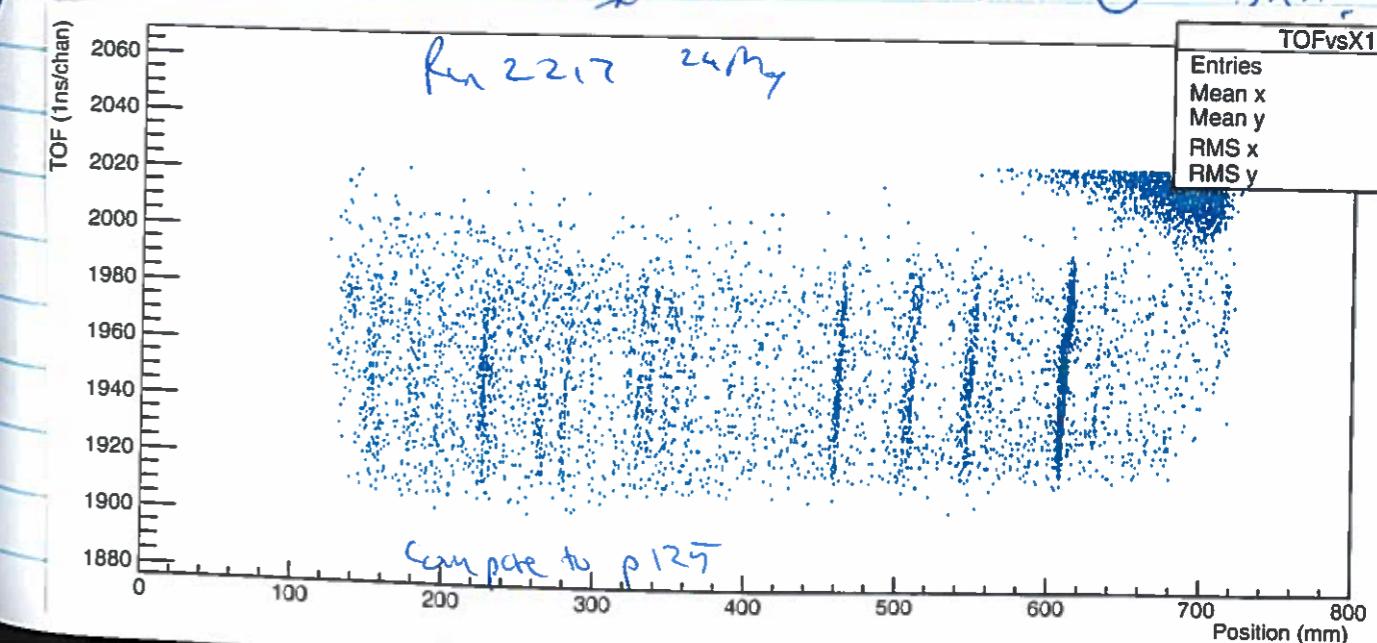
Run 2217 ^{24}Mg ; 70 Hz @ 0.5 nA

Resolution for state $\sim 600 = 1.3 \text{ nm}$
(for small t_f range)
 $\sim 60 \text{ keV}$

BAGEL IN

Report Run 2218 ^{16}Sn 500 Hz @ 0.5 nA
Bagel rates $\sim 17 \text{ kHz}$ @ 0.5 nA

TOFvsX1	
Entries	7195
Mean x	490.1
Mean y	1969
RMS x	182.8
RMS y	33.87



Run comment: ^{116 Sn}
 Run #: 2218
 Start 13:13 Current 05 nA Trigger rate: 560 Hz
 Stop 14:51 CI Range 6 Trigger evts: 2,257 M
 Target 115 Scaler evts: 3989

 Clover L1-4 Rates (Hz) L1: 25 k L2: 25k L3: 24.5k L4: 23.1k
 Clover R1-4 Rates (Hz) R1: 21 k R2: 26k R3: 35 k R4: 13 k -10k
 LaBr Rates (Hz) 1: 13 k 2: 30 k

K600 angle: 0 deg
 Q: -363.9 A Mental Health Level:
 D1: 317.0 A
 H: 0.032 A VDC efficiency
 D2: 210.252 A X1 93 95
 K: 18.218 A U1 94 36
 L4: 23.1k

Comparing prompt and background in TDC spectra.
 $7\text{mg/cm}^2 / 10\text{nA}$ $0.7\text{mg/cm}^2 / 1\text{nA}$
 ^{116}Sn target ^{24}Mg -target
 Prompt backgrd ratio Prompt backgrd ratio

Clover L1 green	2510	1370	0.54	1545	136	0.10
LaBr 1	3683	2336	0.63	2995	446	0.14

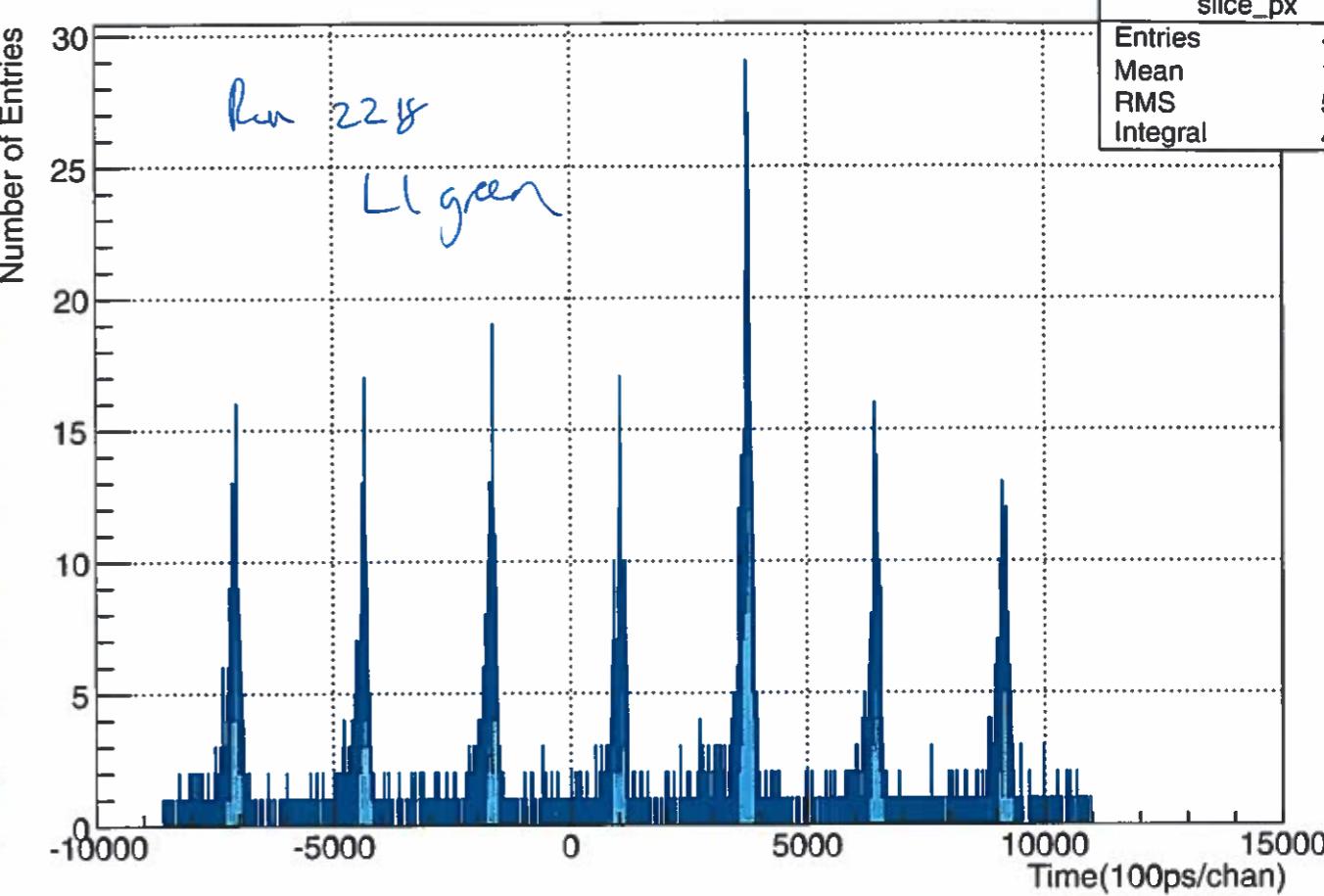
5.2 $\mu\text{g}/\text{cm}^2$ ^{26}Mg target	Prompt	Background	ratio
116 Sn	2510	136	
Clover	25830	9822	0.38
LaBr 3	43390	21760	0.50

Conclusion the target thickness is critical
 the thick target produces more random/
 background.

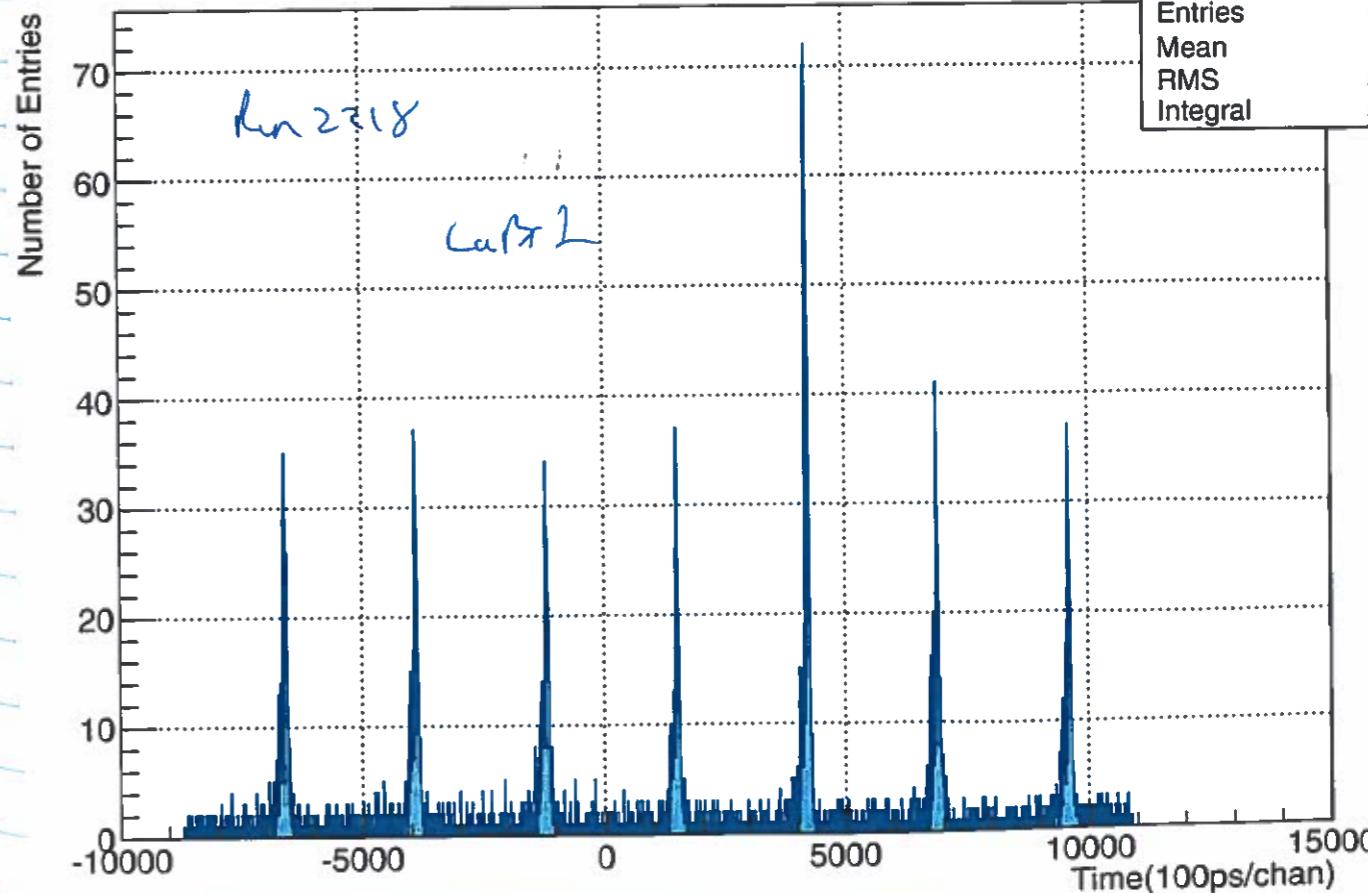
A new ^{116}Sn target is being made: $2\text{mg}/\text{cm}^2$
 and for ^{154}Sm the $1\text{mg}/\text{cm}^2$ target thickness
 would be the best.

ProjectionX of biny=98

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ProjectionX of biny=49

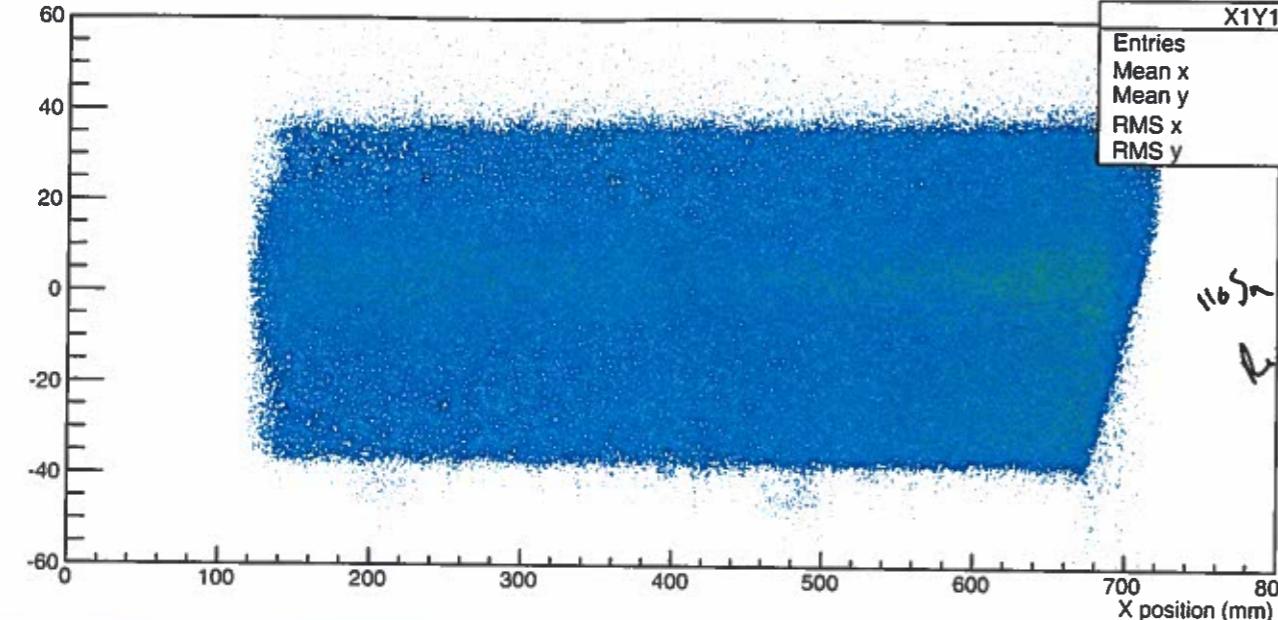


Run comment: ^{116}Sn data

Run #: 2219
 Start: 14:53 Current: 0.6 nA Trigger rate: 622 Hz
 Stop: ^{116}Sn CI Range: 6 Trigger evts: _____
 Target: ^{116}Sn Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 188.29
 Clover R1-4 Rates (Hz) R1: 160.41
 LaBr Rates (Hz) 1: 174.96
 2: 84.75

K600 angle: 0 deg Mental Health Level:
 Q: A VDC efficiency
 D1: S A X1 93.1496
 H: A U1 94.1481
 D2: M A
 K: A

Run comment: ^{154}Sm data

Run #: 2220
 Start: 15:27 Current: 0.6 nA Trigger rate: 402 Hz
 Stop: ^{154}Sm CI Range: 6 Trigger evts: 239500
 Target: ^{154}Sm Scaler evts: 621

Clover L1-4 Rates (Hz) L1: 149.04
 Clover R1-4 Rates (Hz) R1: 121.4
 LaBr Rates (Hz) 1: 89.27
 2: 199.56

K600 angle: 0 deg Mental Health Level:
 Q: A VDC efficiency
 D1: S A X1 93.1986
 H: A U1 94.0427
 D2: X A
 K: A

222

Clover TDC chan 98

Labr #1

prompt background ratio

663 249 0.38
879 663 0.5Run comment: ^{26}Mg

Run #: 2221
 Start: 15:43 Current: 0.5 nA Trigger rate: 295 Hz
 Stop: ^{26}Mg CI Range: 6 Trigger evts: _____
 Target: ^{26}Mg Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 10
 Clover R1-4 Rates (Hz) R1: 7.7
 LaBr Rates (Hz) 1: 8.1
 2: 15.1 k

K600 angle: 0 deg Mental Health Level:
 Q: A VDC efficiency
 D1: A X1 _____
 H: A U1 _____
 D2: A
 K: A

\leftarrow without Blad.

prompt background ratio
 530 1w 0.188
 887 221 0.24

Clover TDC chan 98
 Labr #1

Run comment: ^{26}Mg

Run #: 2222
 Start: _____ Current: 1 nA Trigger rate: 450 Hz
 Stop: _____ CI Range: 6 Trigger evts: _____
 Target: _____ Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 16.3
 Clover R1-4 Rates (Hz) R1: 12.3
 LaBr Rates (Hz) 1: 12.8
 2: 24.4

K600 angle: 0 deg Mental Health Level:
 Q: A VDC efficiency
 D1: A X1 _____
 H: A U1 _____
 D2: A
 K: A

\leftarrow logo blocks

prompt background ratio
 781 199 0.25
 1371 410 0.299

Clover TDC chan 98
 Labr #1

Run comment: ^{26}Mg

Run #: 2223
 Start: _____ Current: 2 nA Trigger rate: _____ Hz
 Stop: _____ CI Range: 6 Trigger evts: _____
 Target: _____ Scaler evts: _____

Clover L1-4 Rates (Hz) L1: _____
 Clover R1-4 Rates (Hz) R1: _____
 LaBr Rates (Hz) 1: _____
 2: _____

K600 angle: 0 deg Mental Health Level:
 Q: A VDC efficiency
 D1: A X1 _____
 H: A U1 _____
 D2: A
 K: A

Massive rate. Need to look at empty target.

Big halo.

Run 2224

halo tree & K down to 150 Hz @ 2nA.

Run comment: ²⁶Mg

Run #: 2225

Start: 16:11 Current: 2 nA Trigger rate: 760 Hz

Stop: 16:39 Cl Range: 6 Trigger evts: _____

Target: ²⁶Mg Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 24.5 L2: 23.1 L3: 29.4 L4: 22.9
 Clover R1-4 Rates (Hz) R1: 19.7 R2: 25.1 R3: 21.7 R4: 16.3 → without Block 2

LaBr Rates (Hz) 1: 18.6 2: 34.7

K600 angle: 0 deg Mental Health Level:

Q:	A	☺	☺	☺
D1:	A	VDC efficiency		
H:	A	X1	46	95
D2:	A	U1	45	95
K:	A			

prompt background ratio

TDC Clover chan#8	810	238	0.29
LaBr 1	1460	620	0.44



WTH M = 317.5

Go in to put thin ¹⁵⁶Gm in.

BAGEL IN

Run # 2226

EMPTY

we try to move the beam
back for having the 4.4 MeV in

D1 = 317.0 to 317.5

now D1 = 317.5

now we want to check the halo
@ 3nA

→ 160 Hz @ 2.3 nA

Latest superlab values.

O2	1.5075
Q	-0.8711
K	17.4
H	9965.6

we run the ²⁴Mg to check that the acceptance of
K600 was back to ~ 4 MeV

$\Gamma = 1.6 \Rightarrow \pm 1$ keV

Run comment: as ²⁴Mg to check K600 acceptance

Run #: 2227

Start: 17:25 Current: 2 nA Trigger rate: 207 Hz

Stop: 17:40 Cl Range: 6 Trigger evts: 179991

Target: ²⁴Mg Scaler evts: 843

Clover L1-4 Rates (Hz) L1: 3.3 K L2: 3.2 K L3: 3.6 K
 Clover R1-4 Rates (Hz) R1: 3.3 K R2: 3.4 K R3: 3.3 K
 LaBr Rates (Hz) 1: 4.6 K 2: 9.7 K

Run comment: as ²⁴Mg to check K600 acceptance

Run #: 2227

K600 angle: 0 deg Mental Health Level:

Q:	317.5 A	☺	☺	☺
D1:	317.5 A	VDC efficiency		
H:	0.032 A	X1	46	92
D2:	216.61 A	U1	45	92
K:	18.24 A			

L4: 3.2 K R4: 2.4 → 1 cm/km

DATA COLLECTION STARTS

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checking the coincidences
→ look nice

TDC channel 98 (clover)
LaBr 1

prompt	blg	ratio
196	18	0.09
375	52	0.14

Run comment: THIN SM DATA

Run #: 2229
Start: 17:41 Current: 2.2 nA Trigger rate: 628 Hz
Stop: 18:04 CI Range: 6 Trigger evts: _____
Target: 154Sm #3 THIN Scaler evts: _____

Clover L1-4 Rates (Hz) L1: _____ L2: _____ L3: _____ L4: _____
Clover R1-4 Rates (Hz) R1: _____ R2: _____ R3: _____ R4: _____
LaBr Rates (Hz) 1: _____ 2: _____

raterr ~ 30 kHz for 2 nA
~ 12 kHz for 1.4 nA

TDC ch 98 (clover)
LaBr 1

prompt	blg	ratio
958	487	0.51
1322	821	0.62

After ~20 min rates at 1.5 nA : 13 kHz and less.

DAC crash.

Restart DAC.

Run comment: Thin Sm

Run #: 2230
Start: 18:13 Current: 1.6 nA Trigger rate: 670 Hz
Stop: 19h14 CI Range: 6 Trigger evts: 1.623M
Target: 154Sm Scaler evts: 35162

Clover L1-4 Rates (Hz) L1: 14 L2: 13 L3: 13
Clover R1-4 Rates (Hz) R1: 12 R2: 19 R3: 23
LaBr Rates (Hz) 1: 1 2: 200

K600 angle: 0 deg
Q: A D1: A H: A D2: A K: A
D: A M: A E: A D3: A R: A
Mental Health Level:
VDC efficiency X1 93.14 U1 94.33

Thin Sm (mg/cm²)

Run #: 2231
Start: 19h15 Current: 1.6 nA Trigger rate: 594 Hz
Stop: 20h15 CI Range: 6 Trigger evts: 1.844M
Target: 154Sm Scaler evts: 35055

Clover L1-4 Rates (Hz) L1: 15.6 L2: 15.2 L3: 15.0 L4: 13.8
Clover R1-4 Rates (Hz) R1: 12.8 R2: 16.0 R3: 24.9 R4: 9.1
LaBr Rates (Hz) 1: 9.5 2: 20.6

Q: A D1: A H: A D2: A K: A
D: A M: A E: A D3: A R: A
Mental Health Level:
VDC efficiency X1 93.1 U1 93.3

Thin Sm

Run #: 2231
Start: 20h16 Current: 1.5 nA Trigger rate: 476 Hz
Stop: 21h24 CI Range: 6 Trigger evts: 1.819M
Target: 154Sm Scaler evts: 3869

Clover L1-4 Rates (Hz) L1: 14 L2: 13.4 L3: 13.1 L4: 12.2
Clover R1-4 Rates (Hz) R1: 11.7 R2: 14.6 R3: 23 R4: 8.5
LaBr Rates (Hz) 1: 8.8 2: 19.9

Q: A D1: A H: A D2: A K: A
D: A M: A E: A D3: A R: A
Mental Health Level:
VDC efficiency X1 93.1 U1 94.2

Run comment: 26Mg

Run #: 2232
Start: 21h28 Current: 1.5 nA Trigger rate: 611 Hz
Stop: 21h58 CI Range: 6 Trigger evts: 1.109M
Target: 26Mg Scaler evts: 1744

Clover L1-4 Rates (Hz) L1: 18.2 L2: 17.6 L3: 19.2 L4: 17.9
Clover R1-4 Rates (Hz) R1: 14 R2: 17.9 R3: 22.2 R4: 11.8
LaBr Rates (Hz) 1: 15 2: 28.7

K600 angle: 0 deg
Q: A D1: A H: A D2: A K: A
D: A M: A E: A D3: A R: A
Mental Health Level:
VDC efficiency X1 94.1 U1 95.5

Run comment: 24Mg

Run #: 2233
Start: 22h01 Current: 1.5 nA Trigger rate: 170 Hz
Stop: 22h16 CI Range: 6 Trigger evts: 1.22801
Target: 24Mg Scaler evts: 893

Clover L1-4 Rates (Hz) L1: 30.5 L2: 29.4 L3: 32
Clover R1-4 Rates (Hz) R1: 30.4 R2: 30.9 R3: 40.1 R4: 20.9
LaBr Rates (Hz) 1: 4.5 2: 9.7

K600 angle: 0 deg
Q: A D1: A H: A D2: A K: A
D: A M: A E: A D3: A R: A
Mental Health Level:
VDC efficiency X1 94.1 U1 90.8

Monday 26 October

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Run comment: 154 Sm thin, BAGEL in

Run #: 2234

Start: 22:18 Current: 1.4 nA Trigger rate: 479 Hz
Stop: 23:18 CI Range: 6 Trigger evts: 1,669 M
Target: 154 Sm #3

K600 angle: 0 deg
Q: S A Mental Health Level:
D1: S A
H: A A
D2: M A
K: E A
VDC efficiency
X1 93,0301
U1 94,3992

Clover L1-4 Rates (Hz) L1: 15.2 L2: 14.9 L3: 14.5 L4: 12.5
Clover R1-4 Rates (Hz) R1: 12.3 R2: 15.4 R3: 24.2 R4: 8.9
LaBr Rates (Hz) 1: 9.0 2: OR 20.5

Run comment: 154 Sm thin, BAGEL IN

Run #: 2235

Start: 23:20 Current: 1.4 nA Trigger rate: 448 Hz
Stop: 00:20 CI Range: 6 Trigger evts: 1,725 M
Target: 154 Sm #3

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 93,4063
U1 93,7345

Clover L1-4 Rates (Hz) L1: 14.2 kHz L2: 13.7 kHz L3: 13.1 kHz L4: 11.6 kHz
Clover R1-4 Rates (Hz) R1: 11.4 kHz R2: 13.9 kHz R3: 22.5 kHz R4: 8.4 kHz
LaBr Rates (Hz) 1: 8.8 kHz 2: OR 20.2 kHz

In run #2235 → beam fluctuated a lot between 1.1 nA
and 2.0 nA.

Run comment: 154 Sm thin, BAGEL IN

Run #: 2236

Start: 00:23 Current: 1.9 nA Trigger rate: 548 Hz
Stop: 01:23 CI Range: 6 Trigger evts: 1,860 M
Target: 154 Sm #3

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 93,4143
U1 94,3565

Clover L1-4 Rates (Hz) L1: 17.5 kHz L2: 17.3 kHz L3: 17.0 kHz L4: 14.6 kHz
Clover R1-4 Rates (Hz) R1: 14.4 kHz R2: 17.8 kHz R3: 28.1 kHz R4: 10.1 kHz
LaBr Rates (Hz) 1: 9.8 kHz 2: OR 21.5 kHz

Run comment: 26 mg, BAGEL IN

Run #: 2237

Start: 01:26 Current: 1.4 nA Trigger rate: 556 Hz
Stop: 01:56 CI Range: 6 Trigger evts: 1,160 M
Target: 26 Mg #5

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 94,1061
U1 95,2371

Clover L1-4 Rates (Hz) L1: 19.7 kHz L2: 19.1 kHz L3: 20.6 kHz L4: 18.8 kHz
Clover R1-4 Rates (Hz) R1: 15.9 kHz R2: 20.2 kHz R3: 25.6 kHz R4: 14.1 kHz
LaBr Rates (Hz) 1: 17.5 kHz 2: 32.6 kHz

Run comment: 24 Mg, BAGEL IN

Run #: 2238

Start: 01:59 Current: 1.93 nA Trigger rate: 2028 Hz
Stop: 02:14 CI Range: 6 Trigger evts: 184,476
Target: 24 Mg #4

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 93,9356
U1 90,6129

Clover L1-4 Rates (Hz) L1: 3.5 kHz L2: 3.4 kHz L3: 3.7 kHz L4: 3.4 kHz
Clover R1-4 Rates (Hz) R1: 3.3 kHz R2: 3.5 kHz R3: 4.4 kHz R4: 2.4 kHz
LaBr Rates (Hz) 1: 4.7 kHz 2: OR 9.9 kHz

Run comment: 154 Sm thin, BAGEL IN

Run #: 2239

Start: 02:17 Current: 1.56 nA Trigger rate: 500.8 Hz
Stop: 03:17 CI Range: 6 Trigger evts: 1,697 M
Target: 154 Sm #3

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 93,1117
U1 94,2054

Clover L1-4 Rates (Hz) L1: 13.3 kHz L2: 12.8 kHz L3: 10.9 kHz L4: 10.8 kHz
Clover R1-4 Rates (Hz) R1: 9.9 kHz R2: 9.7 kHz R3: 11.7 kHz R4: 6.9 kHz
LaBr Rates (Hz) 1: 7.7 kHz 2: OR 17.3 kHz

Run comment: 154 Sm thin, BAGEL in

Run #: 2240

Start: 03:18 Current: 1.4 nA Trigger rate: 435 Hz
Stop: 04:18 CI Range: 6 Trigger evts: 1,952 M
Target: 154 Sm #3

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 93,4965
U1 94,2801

Clover L1-4 Rates (Hz) L1: 12.8 kHz L2: 12.6 kHz L3: 12.9 kHz L4: 11.2 kHz
Clover R1-4 Rates (Hz) R1: 10.7 kHz R2: 13.4 kHz R3: 21.2 kHz R4: 7.8 kHz
LaBr Rates (Hz) 1: 8.3 kHz 2: OR 18.6 kHz

Run comment: 154 Sm thin, BAGEL in

Run #: 2241

Start: 04:19 Current: 1.6 nA Trigger rate: 574 Hz
Stop: 05:19 CI Range: 6 Trigger evts: 1,920 M
Target: 154 Sm #3

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: M A
K: C A
VDC efficiency
X1 91,5609
U1 94,186

Clover L1-4 Rates (Hz) L1: 11.478 L2: 13.897 L3: 11.511 L4: 12.168
Clover R1-4 Rates (Hz) R1: 11.381 R2: 14.251 R3: 23.914 R4: 8.501
LaBr Rates (Hz) 1: 9.326 2: 20.518

26 Mg. BAGEL IN

Run #: 2242

Start: 05:23 Current: 1.7 nA Trigger rate: 770 Hz
Stop: 05:53 CI Range: 6 Trigger evts: 1,349 M
Target: 26 Mg #5

K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: M A
D2: E A
K: A A
VDC efficiency
X1 92,6837
U1 95,1776

Clover L1-4 Rates (Hz) L1: 22.8 kHz L2: 22.6 kHz L3: 25.0 kHz L4: 23.1 kHz
Clover R1-4 Rates (Hz) R1: 19.11 kHz R2: 24.3 kHz R3: 30.3 kHz R4: 16.5 kHz
LaBr Rates (Hz) 1: 19.2 kHz 2: 36.1 kHz

Run comment: 24 Mg. Bagel in, data

Run #: 2243

Start: 05:54 Current: 1.6 nA Trigger rate: 239.1 Hz
Stop: 06:11 CI Range: 6 Trigger evts: 2,181 M
Target: 24 Mg #4

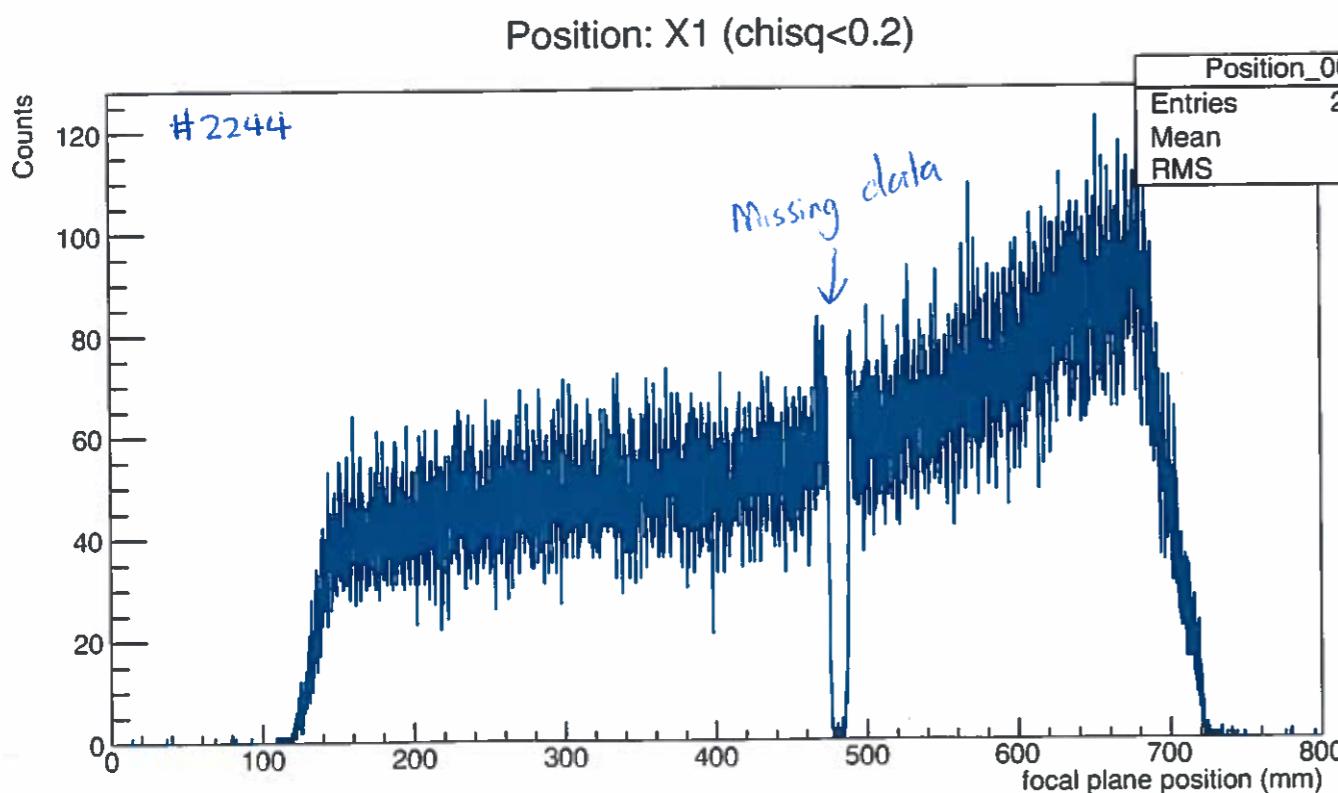
K600 angle: 0 deg
Q: ↑ A Mental Health Level:
D1: ↑ A
H: SAME A
D2: ↓ A
K: A A
VDC efficiency
X1 92,6033
U1 91,472

Clover L1-4 Rates (Hz) L1: 3.2 kHz L2: 3.1 kHz L3: 3.5 kHz L4: 3.2 kHz
Clover R1-4 Rates (Hz) R1: 3.3 kHz R2: 3.3 kHz R3: 4.2 kHz R4: 2.3 kHz
LaBr Rates (Hz) 1: 4.6 kHz 2: OR 9.5 kHz

Run # 2244 (Forgot to take faraday cup out)

Run comment: 154 Sm thin, BAGEL IN
 Run #: 2245
 Start: 06:40 Current: 1.6 nA Trigger rate: 551.2 Hz
 Stop: 07:01 CI Range: 6 Trigger evts: _____
 Target: 154 Sm #3 Scaler evts: _____
 Clover L1-4 Rates (Hz) L1: 13.3 kHz L2: 13.6 kHz L3: 13.7 kHz L4: 11.8 kHz
 Clover R1-4 Rates (Hz) R1: 11.5 kHz R2: 14.7 kHz R3: 22.9 kHz R4: 8.7 kHz
 LaBr Rates (Hz) 1: 8.7 kHz 2: 19.2 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: S A
 H: M A
 D2: C A
 K: A
 VDC efficiency
 X1 91,425
 U1 94,2042



↳ Problem with X wires in VDC? Noticed missing data in both #2244 and #2245.

Something caused faraday cup to be pushed in.

↳ Operators had issue with their interlock system and hence put all cups in.

This caused the VDC to ~~trip~~.

↳ Reset VDC voltage supply, now working ^{better} ~~properly~~. But still reduced amount of data in above mentioned X data.

Run comment: 154 Sm - BAGEL IN
 Run #: 2246
 Start: 07:10 Current: 1.4 nA Trigger rate: 5.80 Hz
 Stop: 07:36 CI Range: 6 Trigger evts: 706606
 Target: 154 Sm Scaler evts: 1483

Clover L1-4 Rates (Hz) L1: 14609 L2: 15036 L3: 14073 L4: 12366
 Clover R1-4 Rates (Hz) R1: 115146 R2: 14777 R3: 22444 R4: 8271
 LaBr Rates (Hz) 1: 56.42 2: 8123

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: M A
 H: M A
 D2: C A
 K: A
 VDC efficiency
 X1 93-1618
 U1 94-144

↳ Still problem persisting.

No data in TDC Module 0, channels 61-64

Restarted DAQ and reset VME.

↳ Problem still there.

Paul suggested it may be related to the pre-amp.

↳ We restarted the pre-amps and the problem was solved 😊

Run comment: 154 Sm, BAGEL IN

Run #: 2248
 Start: 08:02 Current: 14 nA Trigger rate: 500 Hz
 Stop: 09:02 CI Range: 6 Trigger evts: 1851 M
 Target: 154 Sm Scaler evts: 3517

Clover L1-4 Rates (Hz) L1: 16.9 L2: 16.4 L3: 14.2 L4: 14.2
 Clover R1-4 Rates (Hz) R1: 13.6 R2: 16.9 R3: 26.9 R4: 99.7
 LaBr Rates (Hz) 1: 10.0 2: 22.1

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: M A
 H: M A
 D2: C A
 K: A
 VDC efficiency
 X1 93,1455
 U1 94,2812

Run comment: 26 Mg, BAGEL IN

Run #: 2249
 Start: 09:11 Current: 1.4 nA Trigger rate: 784 Hz
 Stop: 09:45 CI Range: 6 Trigger evts: 1325 M
 Target: 26 Mg Scaler evts: 1954

Clover L1-4 Rates (Hz) L1: 2310 L2: 2212 L3: 24.2 L4: 21.8
 Clover R1-4 Rates (Hz) R1: 18.1 R2: 23.1 R3: 33.7 R4: 15.7
 LaBr Rates (Hz) 1: 17.5 2: 33.6

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: M A
 H: M A
 D2: C A
 K: A
 VDC efficiency
 X1 94,1021
 U1 95,193

84 Mg, BAGEL 1H

Run #: 2250
 Start: 09:47 Current: 1.4 nA Trigger rate: 229 Hz
 Stop: 10:00 CI Range: 6 Trigger evts: 178 M
 Target: 24 Mg Scaler evts: 740

Clover L1-4 Rates (Hz) L1: 3.4 L2: 3.7 L3: 3.6 L4: 3.3
 Clover R1-4 Rates (Hz) R1: 3.3 R2: 3.4 R3: 4.4 R4: 2.3
 LaBr Rates (Hz) 1: 4.9 2: 9.8

Q: A D1: A H: A D2: SAME A K: A
 VDC efficiency X1 94.10953 U1 90.0622

154 Sm, BAGEL 1H

Run comment: 154 Sm, BAGEL 1H
 Run #: 2251
 Start: 10:16 Current: 1.8 nA Trigger rate: 647 Hz
 Stop: 11:16 CI Range: 6 Trigger evts: 2.116 M
 Target: 154 Sm Scaler evts: 3828

Clover L1-4 Rates (Hz) L1: 16.7 L2: 15.9 L3: 15.6 L4: 13.6
 Clover R1-4 Rates (Hz) R1: 13.4 R2: 16.8 R3: 26.9 R4: 9.8
 LaBr Rates (Hz) 1: 9.8 2: 21.9

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: A D2: SAME A K: A
 VDC efficiency X1 92.4326 U1 94.1315

154 Sm, BAGEL 1H

Run #: 2252
 Start: 11:17 Current: 1.5 nA Trigger rate: 572 Hz
 Stop: 12:18 CI Range: 6 Trigger evts: 1.93 M
 Target: 154 Sm Scaler evts: 3533

Clover L1-4 Rates (Hz) L1: 15.1 L2: 14.7 L3: 14.3 L4: 12.2
 Clover R1-4 Rates (Hz) R1: 12.0 R2: 15.0 R3: 23.3 R4: 8.7
 LaBr Rates (Hz) 1: 8.8 2: 19.6

Q: A D1: A H: A D2: SAME A K: A
 VDC efficiency X1 93.1926 U1 94.1569

154 Sm, BAGEL 1H

Run comment: 154 Sm, BAGEL 1H
 Run #: 2253
 Start: 12:18 Current: 1.5 nA Trigger rate: 580 Hz
 Stop: 12:33 CI Range: 6 Trigger evts: _____
 Target: 154 Sm Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 14.3 L2: 14.0 L3: 14.2 L4: 12.1
 Clover R1-4 Rates (Hz) R1: 11.9 R2: 14.1 R3: 22.2 R4: 8.7
 LaBr Rates (Hz) 1: 8.9 2: 19.9

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: A D2: SAME A K: A
 VDC efficiency X1 _____ U1 _____

Stopped the run at 12:33 because the ~~alarm~~ ^{Clover} alarms went off (I put the cup in immediately).

Continuing

Can't see what triggered in the history scalers

Resuming running

159 Sm, Bagel 1H

Run #: 2254
 Start: 12:37 Current: 1.3 nA Trigger rate: 470 Hz
 Stop: 13:17 CI Range: 6 Trigger evts: 1.27 M
 Target: 159 Sm Scaler evts: 2350

Clover L1-4 Rates (Hz) L1: 13.2 L2: 12.9 L3: 12.9 L4: 10.7
 Clover R1-4 Rates (Hz) R1: 11.5 R2: 15.0 R3: 72.9 R4: 8.7
 LaBr Rates (Hz) 1: 9.0 2: 72.0

Q: A D1: A H: SAME A D2: A K: A
 VDC efficiency X1 93 U1 94

- Cup were in because of alarm again.

↳ The alarm was due to a low threshold on L3 → We set the threshold a bit higher

26Mg

Run comment: 26Mg
 Run #: 2255
 Start: 13:21 Current: 1.5 nA Trigger rate: 690 Hz
 Stop: 13:49 CI Range: 6 Trigger evts: _____
 Target: 26Mg Scaler evts: _____

Clover L1-4 Rates (Hz) L1: _____ L2: _____ L3: _____ L4: _____
 Clover R1-4 Rates (Hz) R1: _____ R2: _____ R3: _____ R4: _____
 LaBr Rates (Hz) 1: _____ 2: _____

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: A D2: A K: A
 VDC efficiency X1 _____ U1 _____

↑ Apologies, the next run was ~~not~~ started before the details for this run were recorded. The run was smooth and the approximate Clover rates were ~~more~~ normal

24Mg

Run comment: 24Mg
 Run #: 2256
 Start: 13:52 M+45 Current: 1.6 nA Trigger rate: 214 Hz
 Stop: 13:59 CI Range: 6 Trigger evts: 2.31 M
 Target: 24Mg Scaler evts: 3659

Clover L1-4 Rates (Hz) L1: 2.8 L2: 2.7 L3: 3.1 L4: 2.8
 Clover R1-4 Rates (Hz) R1: 2.9 R2: 2.7 R3: 3.9 R4: 2.7
 LaBr Rates (Hz) 1: 4.3 2: 9.0

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: SAME A D2: A K: A
 VDC efficiency X1 93.8 U1 91.5

See p 146

Offline analysis. 2229, 2230, 2231, 2234, 2235,
2236, 2239, 2240, 2241, 2245

2246
 ^{154}Sm 1 mg/cm² ~1.5 nA

These are all MT checks

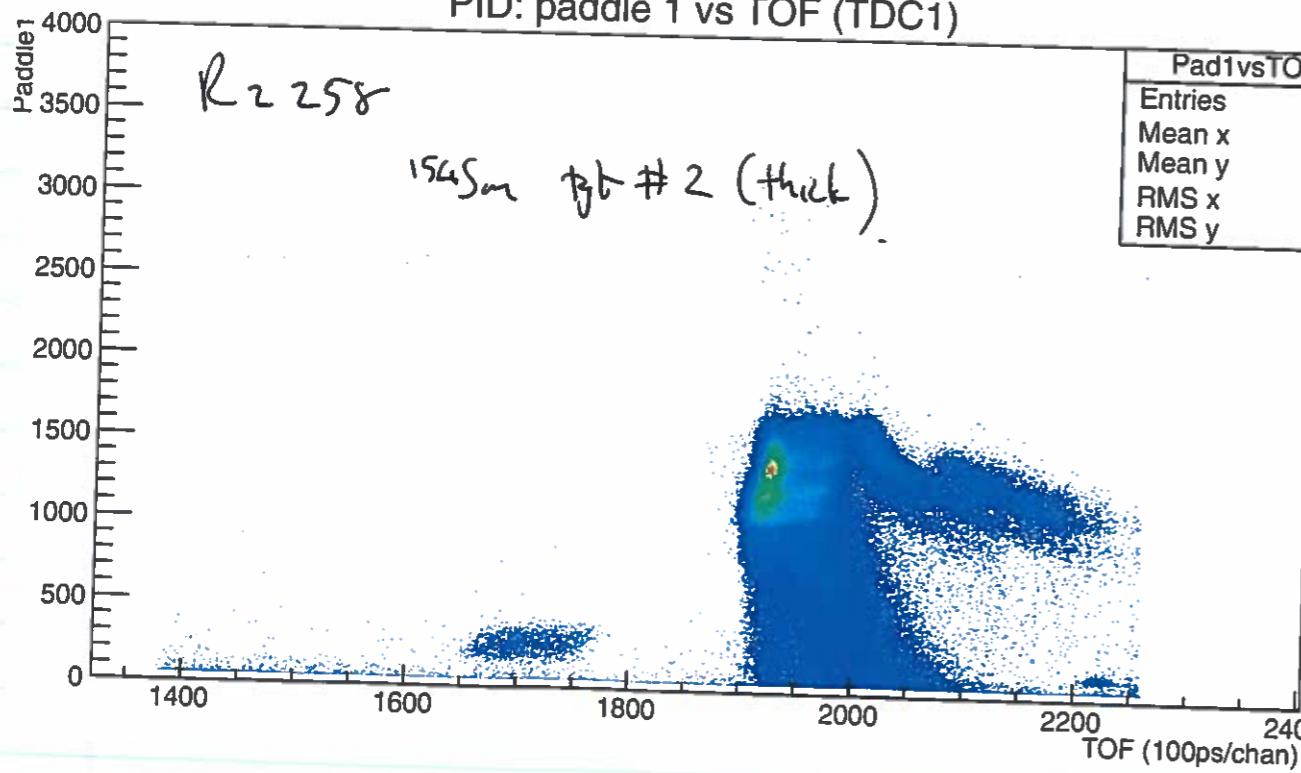
Run comment:	MT check	K600 angle: 0 deg	Mental Health Level:
Run #:	2257	Q: A	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Start:	Current: _____ nA	D1: A	VDC efficiency
Stop:	Cl Range: _____	H: <u>same</u> A	X1 _____
Target:	Trigger rate: _____ Hz	D2: A	U1 _____
Clover L1-4 Rates (Hz)	L1: _____	K: A	
Clover R1-4 Rates (Hz)	R1: _____		
LaBr Rates (Hz)	L2: _____		
	L3: _____		
	L4: _____		
	R2: _____		
	R3: _____		
	R4: _____		
	1: _____		
	2: _____		

Engaging 3 good.

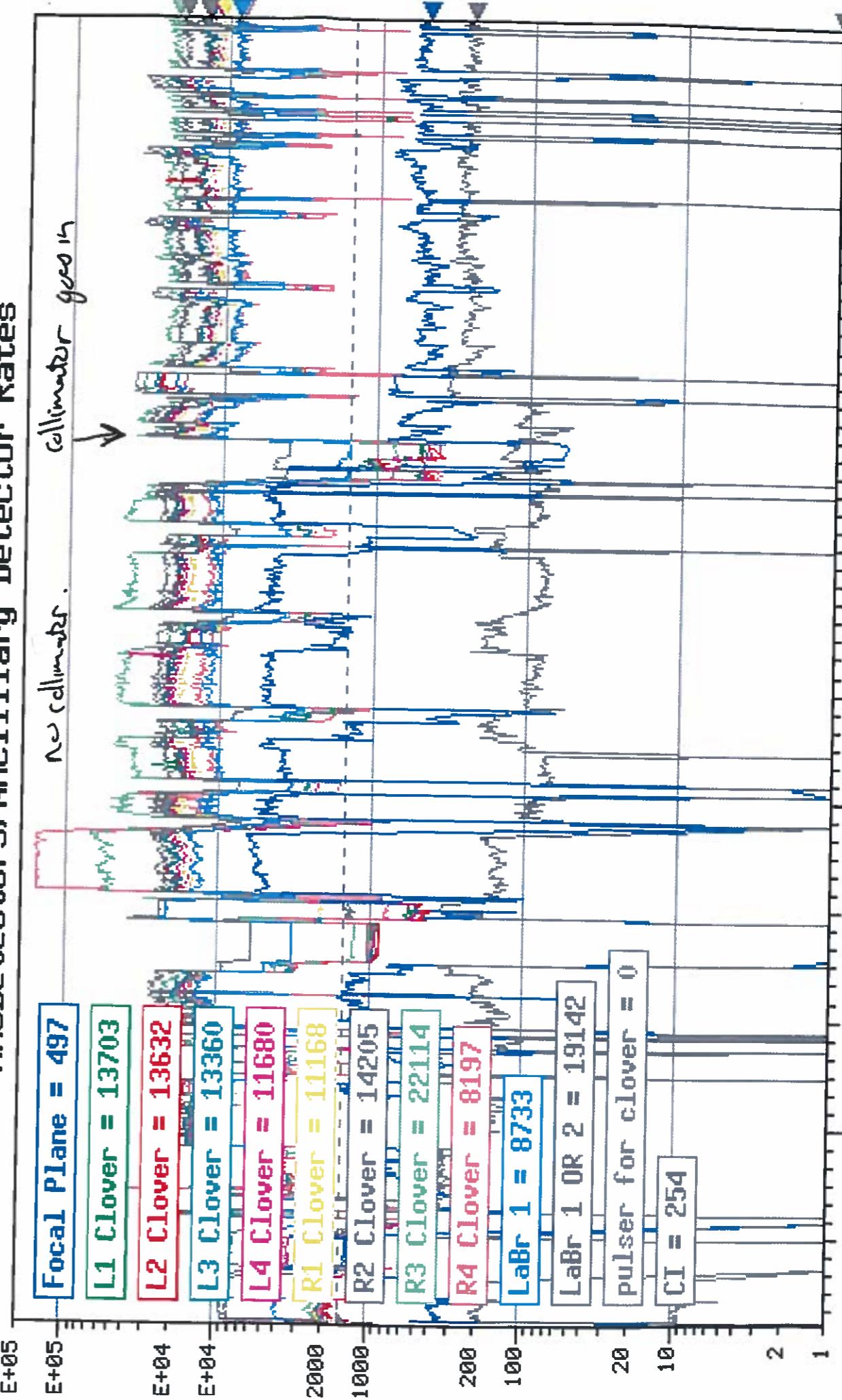
Run comment: ^{154}Sm , thick

Run #:	2258	K600 angle: 0 deg	Mental Health Level:
Start:	14:18	Q: A	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Stop:	15:20	D1: A	VDC efficiency
Target:	Cl Range: 6	H: <u>same</u> A	X1 <u>93.01</u>
Clover L1-4 Rates (Hz)	L1: 20.4	D2: A	U1 <u>94.0</u>
Clover R1-4 Rates (Hz)	R1: 17.8	K: A	
LaBr Rates (Hz)	1: 12.1		
	2: 27.2		

PID: paddle 1 vs TOF (TDC1)



AncDetectors/Ancilliary Detector Rates

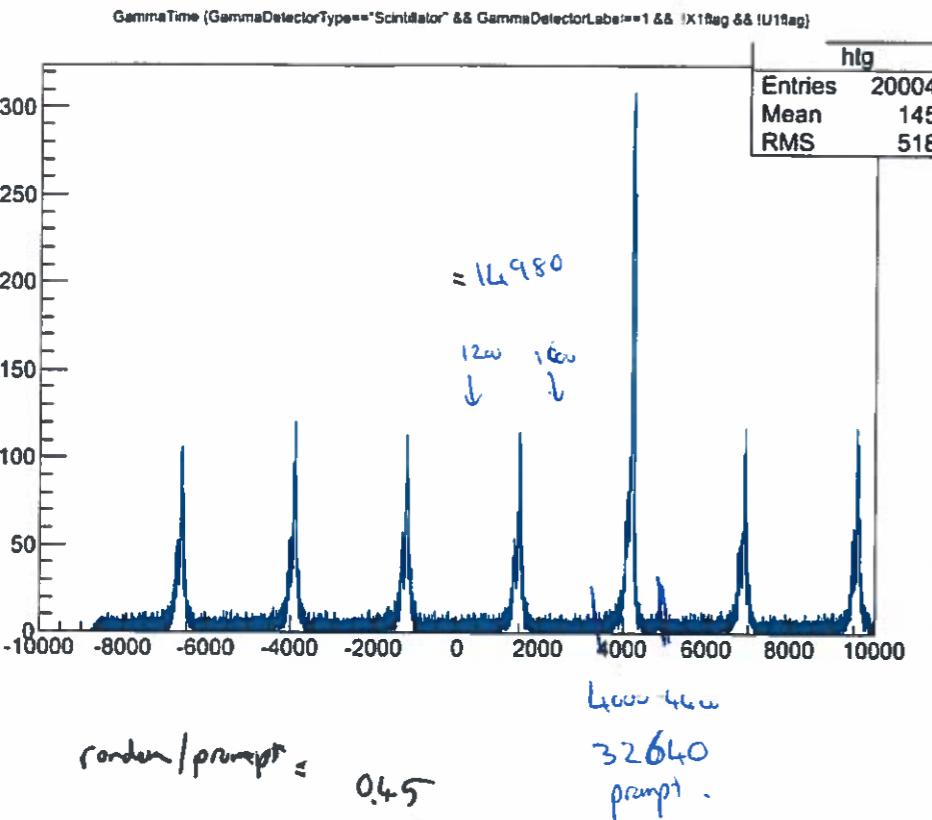


24 Oct 16

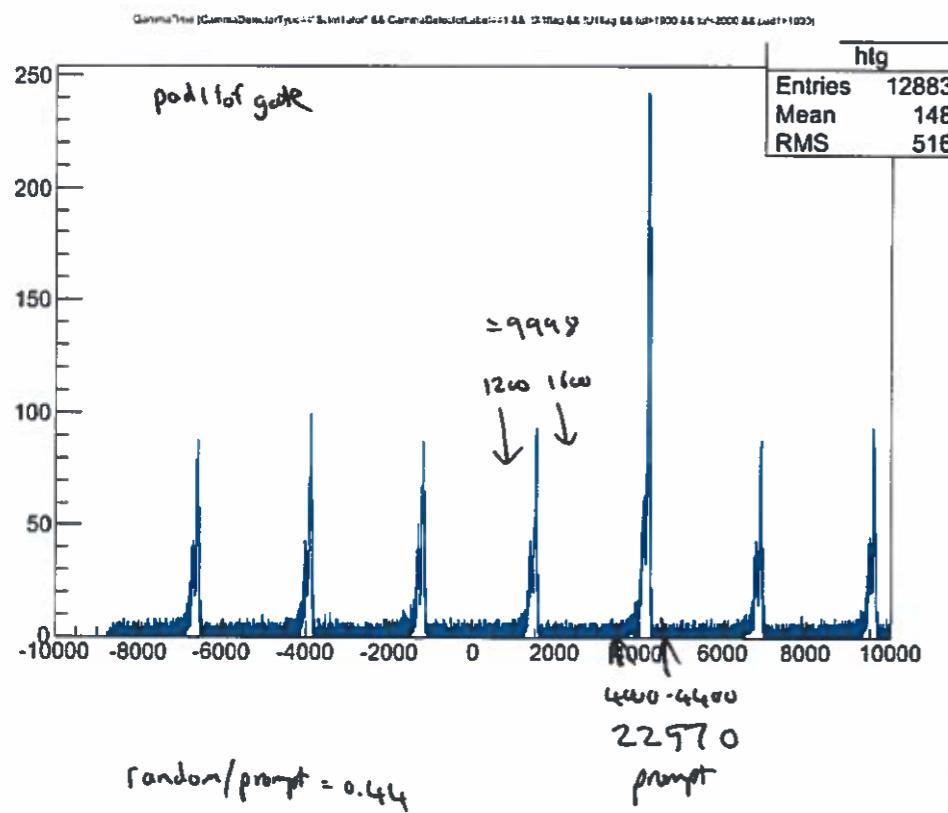
23 Oct 16

22 Oct 16

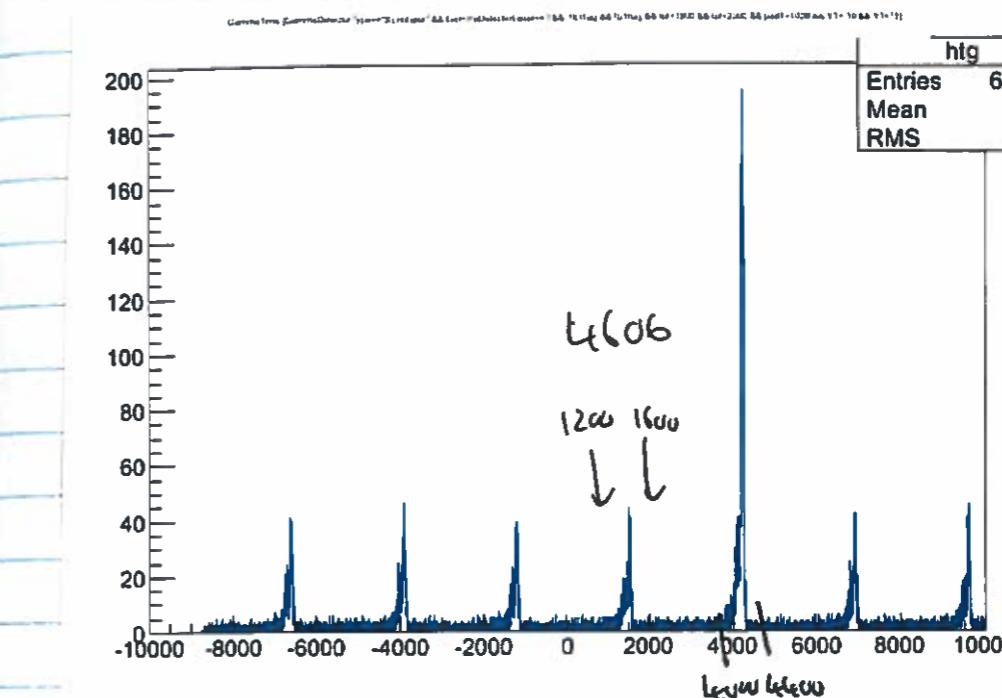
$^{154}\text{Sm THIN}$ N 1.5 nA
LaBr'1



$^{154}\text{Sm THIN}$ N 1.5 nA
LaBr'2



$^{154}\text{Sm THIN}$ N 1.5 nA



random/prompt = 0.29

Run comment: $^{154}\text{Sm THICK BAGEL 1H}$

Run #: 2259
Start: 15:23 Current: 0.8 nA Trigger rate: 582 Hz
Stop: 16:23 CI Range: L Trigger evts: 21083M
Target: ^{154}Sm Scaler evts: 3555

Clover L1-4 Rates (Hz) L1: 11.8 L2: 18.3 L3: 18.3 L4: 15.1
Clover R1-4 Rates (Hz) R1: 14.4 R2: 18.2 R3: 28.8 R4: 10.7
LaBr Rates (Hz) 1: 10.3 2: 23.2

K600 angle: 0 deg
Q: A
D1: A
H: A
D2: A
K: A
L: A
M: A
N: A
O: A
P: A
R: A
S: A
T: A
U: A
V: A

Mental Health Level:

VDC efficiency
X1 93.2158
U1 94.1305

Run comment: $^{154}\text{Sm Thick BAGEL 1H}$

Run #: _____
Start: _____ Current: _____ nA Trigger rate: _____ Hz
Stop: _____ CI Range: _____ Trigger evts: _____
Target: ^{154}Sm Scaler evts: _____

Clover L1-4 Rates (Hz) L1: _____ L2: _____ L3: _____ L4: _____
Clover R1-4 Rates (Hz) R1: _____ R2: _____ R3: _____ R4: _____
LaBr Rates (Hz) 1: _____ 2: _____

K600 angle: 0 deg
Q: A
D1: A
H: A
D2: A
K: A
L: A
M: A
N: A
O: A
P: A
R: A
S: A
T: A
U: A
V: A

Mental Health Level:

VDC efficiency
X1 _____
U1 _____

Pulse selection off

16:41 → we decide to take off the pulse selection
to have less current in each pulse



11.38MHz frequency of SSC
↳ $\approx 87\text{ nsr}$

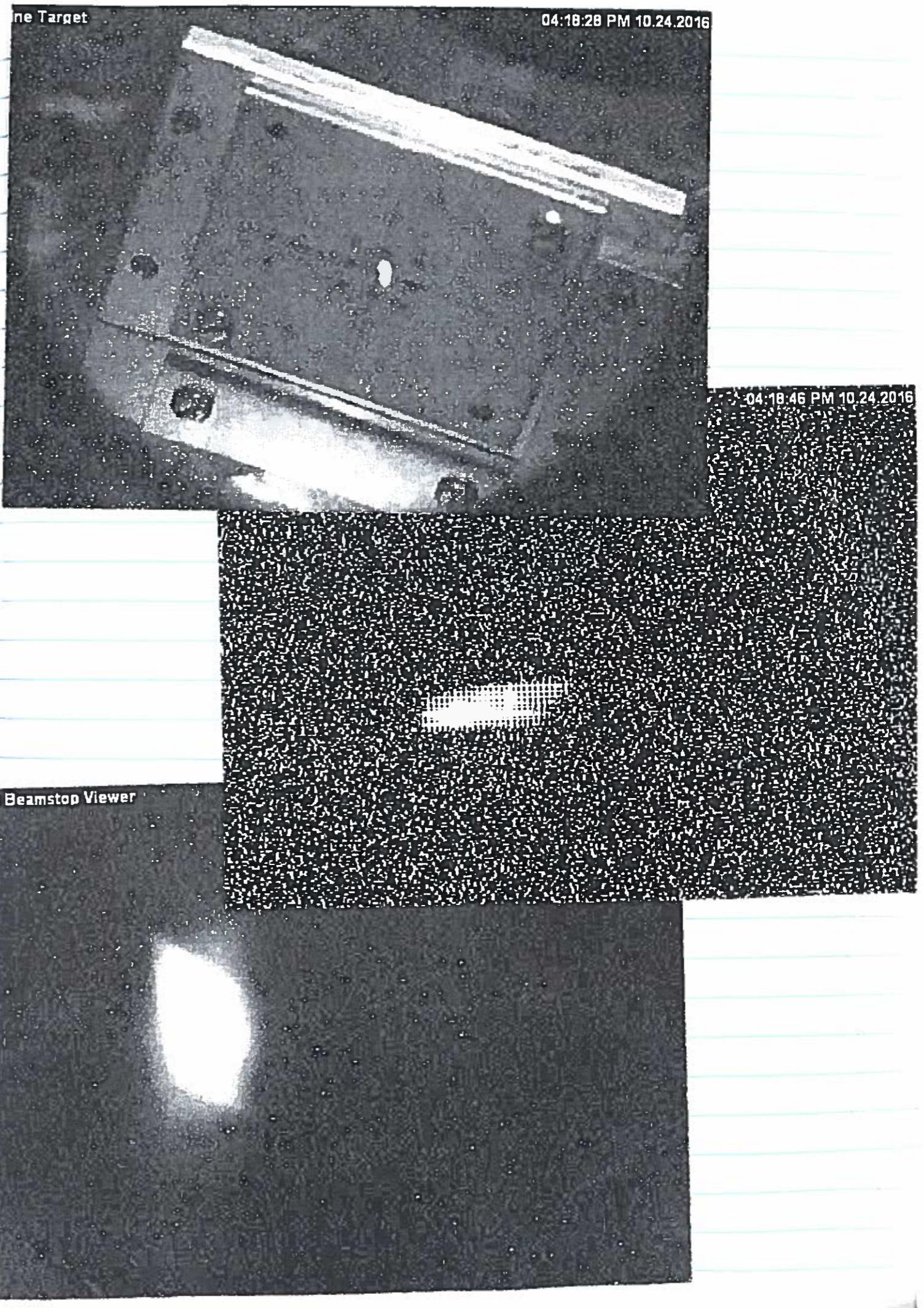
PULSE SELECTION OFF

Run #

2261 EMPTY to check the beam on the
beam dump

halo tuning \rightarrow 30 Hz for 1.5 nA

we changed time gate for RF and paddles
from 254 ns to 150 ns



Run # 2262

^{184}Sm THIN #3 @ 1.5 nA
Start 13:09
Stop 17:59
check water with no pulse selection
rate FP 441 Hz

Run 1

Bkg

REAL

ratio

TDC channel 49

55
Ch 3000-3500186
4000-4500s
644

0.34

0.27

Clover rates	L	11.3	10.7	10.8	9.3
	R	9.3	11.2	17.7	6.7
	LaBr	7.4		16.5	

- 2263, Thick ^{154}Sm .
with 1.5 nA the rates on the clovers were
25-30 kHz.
Intensity reduced to 1 mA.

Run comment: ^{154}Sm thick, bagel in

Run #: 2264
Start: 18:07 Current: 10 nA Trigger rate: 680 Hz
Stop: 19:07 CI Range: 6 Trigger evts: 3,261 M
Target: ^{154}Sm Scaler evts: 3501

Clover L1-4 Rates (Hz) L1: 21.7 L2: 20.4 L3: 19.7 L4: 17.4
Clover R1-4 Rates (Hz) R1: 11.6 R2: 11.4 R3: 33.3 R4: 12.1
LaBr Rates (Hz) 1: 11.8 2: 26.0

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 93.0

U1 94.3

Run comment: ^{154}Sm thick, BAGEL in

Run #: 2265
Start: 19:08 Current: 0.9 nA Trigger rate: 618 Hz 2305M
Stop: 20:10 CI Range: 6 Trigger evts: 2,022 M
Target: ^{154}Sm Scaler evts: 3617

Clover L1-4 Rates (Hz) L1: 22.2 L2: 22.2 L3: 21.7 L4: 18.8
Clover R1-4 Rates (Hz) R1: 17.9 R2: 22.5 R3: 35.4 R4: 12.6
LaBr Rates (Hz) 1: 12.1 2: 27.1

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 93.0453

U1 94.372

Run comment: ^{154}Sm thick, BAGEL in

Run #: 2266
Start: 20:11 Current: 1.0 nA Trigger rate: 536 Hz
Stop: 21:11 CI Range: 6 Trigger evts: 2,174 M
Target: ^{154}Sm Scaler evts: 3486

Clover L1-4 Rates (Hz) L1: 19.7 L2: 20.04 L3: 20.3 L4: 19.7
Clover R1-4 Rates (Hz) R1: 19.4 R2: 25.1 R3: 38.4 R4: 17.7
LaBr Rates (Hz) 1: 19.6 2: 27.9

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 92.8568

U1 93.8596

Run comment: ^{26}Mg , BAGEL 1H

Run #: 2267
Start: 21:13 Current: 1 nA Trigger rate: 428 Hz
Stop: 21:44 CI Range: 6 Trigger evts: 6,11709
Target: ^{26}Mg Scaler evts: 1765

Clover L1-4 Rates (Hz) L1: 12.3 L2: 13.0 L3: 15.2 L4: 13.7
Clover R1-4 Rates (Hz) R1: 11.6 R2: 14.7 R3: 19.0 R4: 10.2
LaBr Rates (Hz) 1: 12.9 2: 24.1

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 94.1832

U1 94.17656

Run comment: ^{154}Sm , BAGEL 1H

Run #: 2268
Start: 21:47 Current: 0.7 nA Trigger rate: 689 Hz
Stop: 22:42 CI Range: 6 Trigger evts: 2,044 M
Target: ^{154}Sm Scaler evts: 3179

Clover L1-4 Rates (Hz) L1: 21.9 L2: 21.6 L3: 18.0 L4: 17.9
Clover R1-4 Rates (Hz) R1: 16.8 R2: 19.7 R3: 30.3 R4: 10.9
LaBr Rates (Hz) 1: 10.8 2: 23.3

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 98.5147

U1 94.1443

Run comment: ^{154}Sm , BAGEL 1H

Run #: 2269
Start: 22:42 Current: 1 nA Trigger rate: 623 Hz
Stop: 23:44 CI Range: 6 Trigger evts: 2,316 M
Target: ^{154}Sm Scaler evts: 3597

Clover L1-4 Rates (Hz) L1: 17.0 L2: 16.5 L3: 15.9 L4: 13.5
Clover R1-4 Rates (Hz) R1: 12.4 R2: 15.9 R3: 24.8 R4: 9.5
LaBr Rates (Hz) 1: 9.6 2: 21.6

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 93.109

U1 93.43

Tuesday 25/10

Run comment: ^{154}Sm 1BA GEL 1H

Run #: 2270
Start: 23:45 Current: 1.0 nA Trigger rate: 582.8 Hz
Stop: 00:51 CI Range: 6nA Trigger evts: 2,528M
Target: ^{154}Sm Scaler evts: 3923

Clover L1-4 Rates (Hz) L1: 19.8 L2: 19.0 L3: 18.6 L4: 16.6
Clover R1-4 Rates (Hz) R1: 16.2 R2: 20.9 R3: 32.4 R4: 11.5
LaBr Rates (Hz) 1: 11.2 2: 24.9

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 92.7 U1 94.2

^{26}Mg data, BAGEL in

Run #: 2271
Start: 00:54 Current: 1.0 nA Trigger rate: 400 Hz
Stop: 01:25 CI Range: 6nA Trigger evts: 67706S
Target: ^{26}Mg Scaler evts: 1805

Clover L1-4 Rates (Hz) L1: 14.6 L2: 14.3 L3: 16.0 L4: 14.8
Clover R1-4 Rates (Hz) R1: 12.4 R2: 15.8 R3: 20.0 R4: 10.9
LaBr Rates (Hz) 1: 11.5 2: 22.3

Q: A D1: SA A H: SA A VDC efficiency X1 94.2 U1 95.3

2272 ^{24}Mg Data, BAGEL in

Run #: 2272
Start: 01:27 Current: 1.0 nA Trigger rate: 82 Hz
Stop: 01:58 CI Range: 6nA Trigger evts: 137694
Target: ^{24}Mg Scaler evts: 1776

Clover L1-4 Rates (Hz) L1: 2.5 L2: 2.3 L3: 7.6 L4: 2.4
Clover R1-4 Rates (Hz) R1: 2.4 R2: 2.4 R3: 3.1 R4: 1.6
LaBr Rates (Hz) 1: 4.0 2: 8.4

Q: A D1: SA A H: SA A VDC efficiency X1 95.0 U1 89.7

^{154}Sm Data BAGEL in

Run #: 2273
Start: 02:00 Current: 1.0 nA Trigger rate: 649 Hz
Stop: 02:03 CI Range: 6nA Trigger evts: 2,284M
Target: ^{154}Sm Scaler evts: 3013

Clover L1-4 Rates (Hz) L1: 18.3 L2: 18.6 L3: 19.0 L4: 16.6
Clover R1-4 Rates (Hz) R1: 14.4 R2: 18.4 R3: 26.8 R4: 10.5
LaBr Rates (Hz) 1: 10.4 2: 24.1

Q: A D1: SA A H: SA A VDC efficiency X1 93.0 U1 94.3

^{154}Sm Data BAGEL in

Run #: 2274
Start: 02:04 Current: 1.0 nA Trigger rate: 718 Hz
Stop: 04:07 CI Range: 6nA Trigger evts: 2,323M
Target: ^{154}Sm Scaler evts: 3703

Clover L1-4 Rates (Hz) L1: 24.4 L2: 23.4 L3: 23.1 L4: 14.9
Clover R1-4 Rates (Hz) R1: 19.2 R2: 23.7 R3: 37.6 R4: 13.7
LaBr Rates (Hz) 1: 12.1 2: 28.2

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 92.1 U1 93.2

Run comment: ^{154}Sm Data, BAGEL in

Run #: 2275
Start: 04:08 Current: 1.0 nA Trigger rate: 584 Hz
Stop: 05:04 CI Range: 6nA Trigger evts: 2,043M
Target: ^{154}Sm Scaler evts: 3303

Clover L1-4 Rates (Hz) L1: 20.5 L2: 18.7 L3: 17.2 L4: 15.1
Clover R1-4 Rates (Hz) R1: 17.0 R2: 21.4 R3: 33.3 R4: 11.9
LaBr Rates (Hz) 1: 11.0 2: 25.0

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 94.1 U1 95.8

Mental Health Level:
VDC efficiency X1 94.1 U1 95.8

153

^{26}Mg data BAGEL in

Run comment:
Run #: 2276
Start: 05:06 Current: 0.9 nA Trigger rate: 348 Hz
Stop: 05:36 CI Range: 6n Trigger evts: 626834
Target: ^{26}Mg Scaler evts: 1711

Clover L1-4 Rates (Hz) L1: 12.7 L2: 12.3 L3: 13.1 L4: 12.4
Clover R1-4 Rates (Hz) R1: 10.5 R2: 12.7 R3: 15.7 R4: 8.4
LaBr Rates (Hz) 1: 11.7 2: 21.2

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 94.1 U1 92.7

Mental Health Level:
VDC efficiency X1 94.1 U1 92.7

^{154}Sm data BAGEL in

Run comment:
Run #: 2277
Start: 05:38 Current: 1.0 nA Trigger rate: 700 Hz
Stop: 06:41 CI Range: 6n Trigger evts: 7,243M
Target: ^{154}Sm Scaler evts: 3611

Clover L1-4 Rates (Hz) L1: 23.3 L2: 21.2 L3: 21.9 L4: 15.7
Clover R1-4 Rates (Hz) R1: 18.8 R2: 23.1 R3: 36.7 R4: 12.6
LaBr Rates (Hz) 1: 12.1 2: 27.2

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 90.7 U1 92.9

Mental Health Level:
VDC efficiency X1 90.7 U1 92.9

^{154}Sm data BAGEL in

Run comment:
Run #: 2278
Start: 06:43 Current: 0.6 nA Trigger rate: 635 Hz
Stop: 07:23 CI Range: 6n Trigger evts: 1,430M
Target: ^{154}Sm Scaler evts: 2846

Clover L1-4 Rates (Hz) L1: 20.2 L2: 19.9 L3: 19.0 L4: 16.3
Clover R1-4 Rates (Hz) R1: 17.4 R2: 21.3 R3: 34.1 R4: 11.4
LaBr Rates (Hz) 1: 11.5 2: 25.0

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 92.7 U1 94.2

Mental Health Level:
VDC efficiency X1 92.7 U1 94.2

^{154}Sm data, BAGEL in

Run comment:
Run #: 2279
Start: 07:37 Current: 1.0 nA Trigger rate: 633 Hz
Stop: 08:37 CI Range: 6nA Trigger evts: 2,428M
Target: ^{154}Sm Scaler evts: 3541

Clover L1-4 Rates (Hz) L1: 21.1 L2: 21.1 L3: 19.5 L4: 16.7
Clover R1-4 Rates (Hz) R1: 15.3 R2: 19.6 R3: 32.7 R4: 11.8
LaBr Rates (Hz) 1: 11.0 2: 24.6

K600 angle: 0 deg
Mental Health Level:
Q: A D1: SA A H: SA A VDC efficiency X1 93.4 U1 93.8

Mental Health Level:
VDC efficiency X1 93.4 U1 93.8

Run comment: ^{26}Mg , BAGEL IN DATA

Run #: 2280
 Start: 08:39 Current: 1.0 nA Trigger rate: 411 Hz
 Stop: 09:09 CI Range: 6 Trigger evts: 664 191
 Target: ^{26}Mg Scaler evts: 1748

Clover L1-4 Rates (Hz) L1: 13.3 kHz L2: 13.6 kHz L3: 14.9 kHz L4: 14.0 kHz
 Clover R1-4 Rates (Hz) R1: 11.9 kHz R2: 14.8 kHz R3: 19.8 kHz R4: 10.7 kHz
 LaBr Rates (Hz) 1: 12.5 kHz 2: 24.1 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: H A
 K: E A
 VDC efficiency X1 93.9 U1 95.3

Run comment: ^{154}Sm , thick, BAGEL IN

Run #: 2284
 Start: 11:57 Current: 1 nA Trigger rate: 727 Hz
 Stop: 12:57 CI Range: 6 Trigger evts: 2,354 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3480

Clover L1-4 Rates (Hz) L1: 24.12 kHz L2: 23.03 kHz L3: 21.56 kHz L4: 18.60 kHz
 Clover R1-4 Rates (Hz) R1: 18.04 kHz R2: 22.74 kHz R3: 36.44 kHz R4: 14.11 kHz
 LaBr Rates (Hz) 1: 12.93 kHz 2: 28.86 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: C A
 K: E A
 VDC efficiency X1 93.05 U1 94.56

Run comment: ^{24}Mg , BAGEL in data.

Run #: 2281
 Start: 09:12 Current: 0.7 nA Trigger rate: 597 Hz
 Stop: 09:42 CI Range: 6 Trigger evts: 121 595
 Target: $^{24}\text{Mg} \#4$ Scaler evts: 1718

Clover L1-4 Rates (Hz) L1: 0.2 kHz L2: 2.1 kHz L3: 2.4 kHz L4: 2.2 kHz
 Clover R1-4 Rates (Hz) R1: 2.3 kHz R2: 2.3 kHz R3: 3.1 kHz R4: 1.6 kHz
 LaBr Rates (Hz) 1: 3.9 kHz 2: 8.2 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A A
 VDC efficiency X1 93.7534 U1 90.0463

Run comment: ^{26}Mg , BAGEL in, data.

Run #: 2285
 Start: 12:59 Current: 1.0 nA Trigger rate: 414.4 Hz
 Stop: 13:29 CI Range: 6 Trigger evts: 347295
 Target: $^{26}\text{Mg} \#5$ Scaler evts: 1772

Clover L1-4 Rates (Hz) L1: 14.63 L2: 14.3 L3: 15.4 L4: 14.2
 Clover R1-4 Rates (Hz) R1: 11.6 R2: 14.2 R3: 18.1 R4: 9.61
 LaBr Rates (Hz) 1: 10.34 kHz 2: 23.34 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A A
 VDC efficiency X1 94.08 U1 94.88

Run comment: ^{154}Sm thick, BAGEL IN

Run #: 2282
 Start: 09:57 Current: 1.0 nA Trigger rate: 798 Hz
 Stop: 10:57 CI Range: 6 Trigger evts: 2,488 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3495

Clover L1-4 Rates (Hz) L1: 23.4 kHz L2: 22.9 kHz L3: 22.8 kHz L4: 19.7 kHz
 Clover R1-4 Rates (Hz) R1: 18.5 kHz R2: 23.7 kHz R3: 37.7 kHz R4: 13.4 kHz
 LaBr Rates (Hz) 1: 12.5 kHz 2: 28.4 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A A
 VDC efficiency X1 92.76 U1 94.07

Run comment: ^{154}Sm , thick, BAGEL IN

Run #: 2286
 Start: 13:30 Current: 1. nA Trigger rate: 692 Hz
 Stop: 14:31 CI Range: 6 Trigger evts: 2.67 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3576

Clover L1-4 Rates (Hz) L1: 23.17 kHz L2: 21.72 kHz L3: 22.52 kHz L4: 19.87 kHz
 Clover R1-4 Rates (Hz) R1: 18.19 kHz R2: 23.49 kHz R3: 36.66 kHz R4: 12.93 kHz
 LaBr Rates (Hz) 1: 17.59 kHz 2: 27.07 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: T A
 K: A A
 VDC efficiency X1 92.98 U1 94.10

Run comment: ^{154}Sm , thick, BAGEL IN

Run #: 2283
 Start: 10:57 Current: 0.7 nA Trigger rate: 541.5 Hz
 Stop: 11:57 CI Range: 6 Trigger evts: 2,374 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3442

Clover L1-4 Rates (Hz) L1: 16.9 kHz L2: 16.5 kHz L3: 16.2 kHz L4: 13.6 kHz
 Clover R1-4 Rates (Hz) R1: 13.7 kHz R2: 17.4 kHz R3: 27.6 kHz R4: 9.6 kHz
 LaBr Rates (Hz) 1: 10.5 kHz 2: 22.8 kHz

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A A
 VDC efficiency X1 93.1498 U1 94.1719

Run comment: ^{145}Sm , thick, Bagel IN

Run #: 2287
 Start: 14:31 Current: 1 nA Trigger rate: 308 Hz
 Stop: 15:31 CI Range: 6 Trigger evts: 2.45 M
 Target: $^{145}\text{Sm} \#2$ Scaler evts: 3565

Clover L1-4 Rates (Hz) L1: 22.51 L2: 20.94 L3: 18.10 L4: 17.53
 Clover R1-4 Rates (Hz) R1: 18.00 R2: 22.85 R3: 35.62 R4: 13.77
 LaBr Rates (Hz) 1: 12.10 2: 28.62

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A A
 VDC efficiency X1 92.49 U1 94.08

Run comment: ^{154}Sm , thick, BAGEL IN

Run #: 2288
 Start: 15:32 Current: 1.1 nA Trigger rate: 684 Hz
 Stop: CI CI Range: 6 Trigger evts:
 Target: $^{154}\text{Sm} \#2$ Scaler evts:

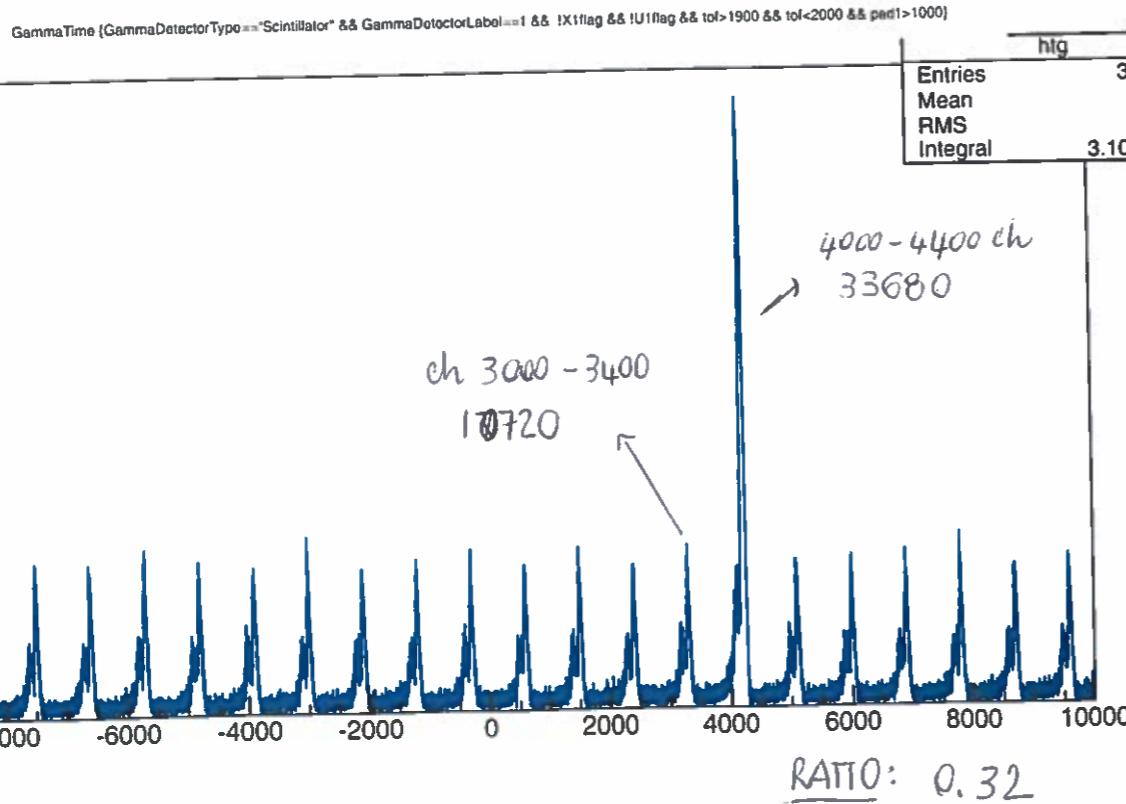
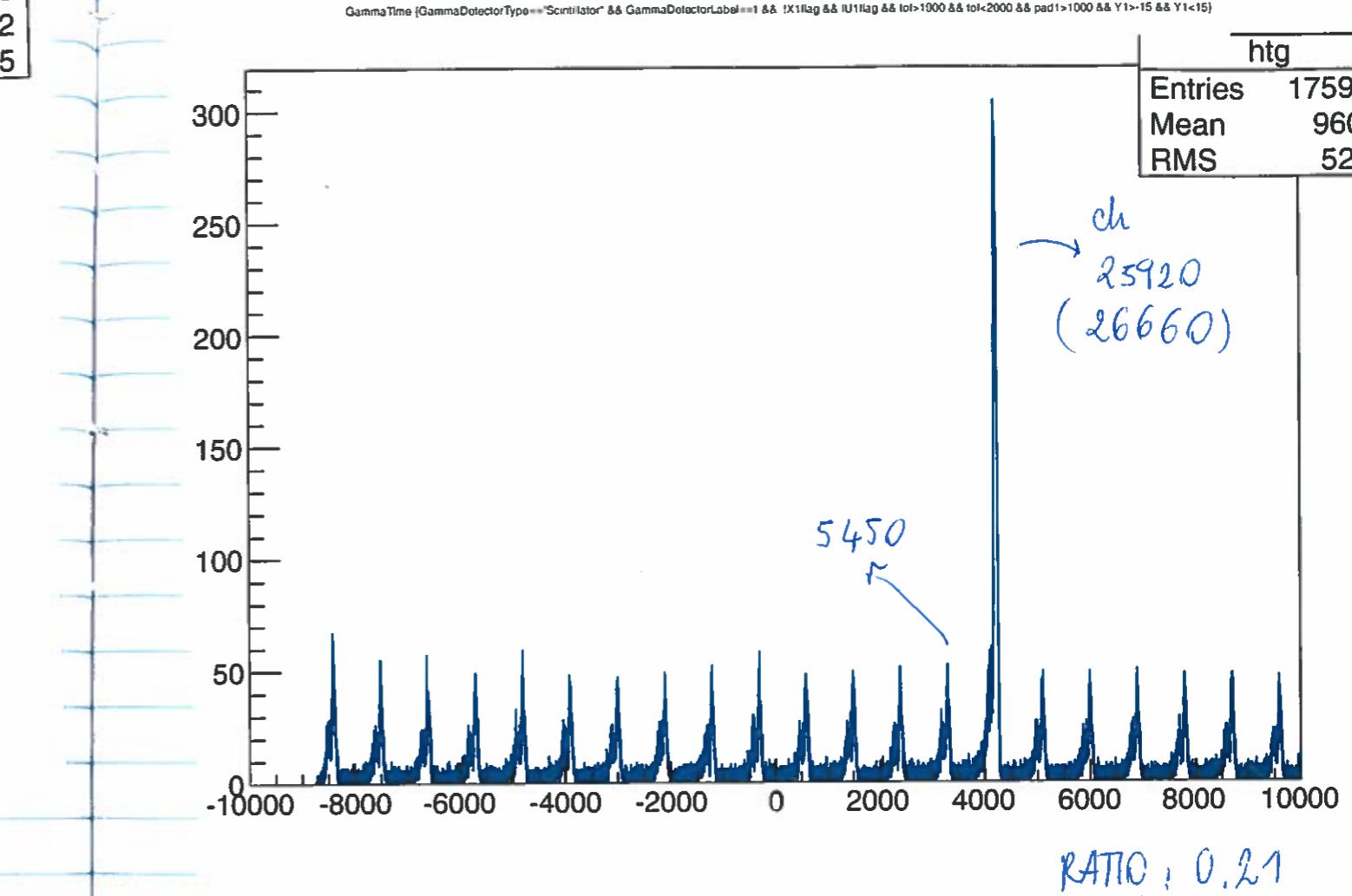
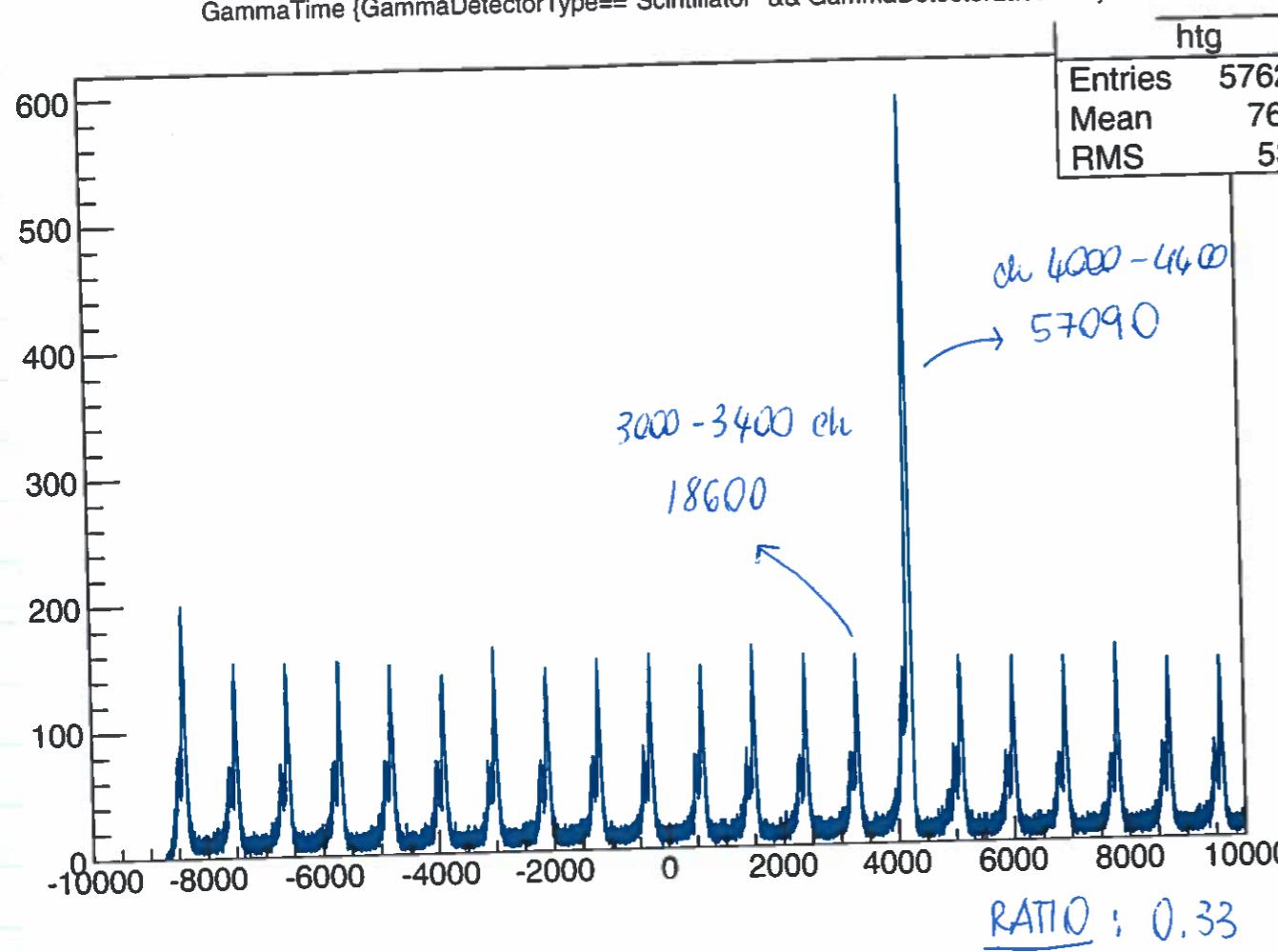
Clover L1-4 Rates (Hz) L1: 99.7 L2: 22.1 L3: 71.7 L4: 19.3
 Clover R1-4 Rates (Hz) R1: 18.3 R2: 23.1 R3: 35.1 R4: 73.4
 LaBr Rates (Hz) 1: 12.3 2: 23.2

K600 angle: 0 deg
 Mental Health Level:
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A A
 VDC efficiency X1 92.61 U1 93.67

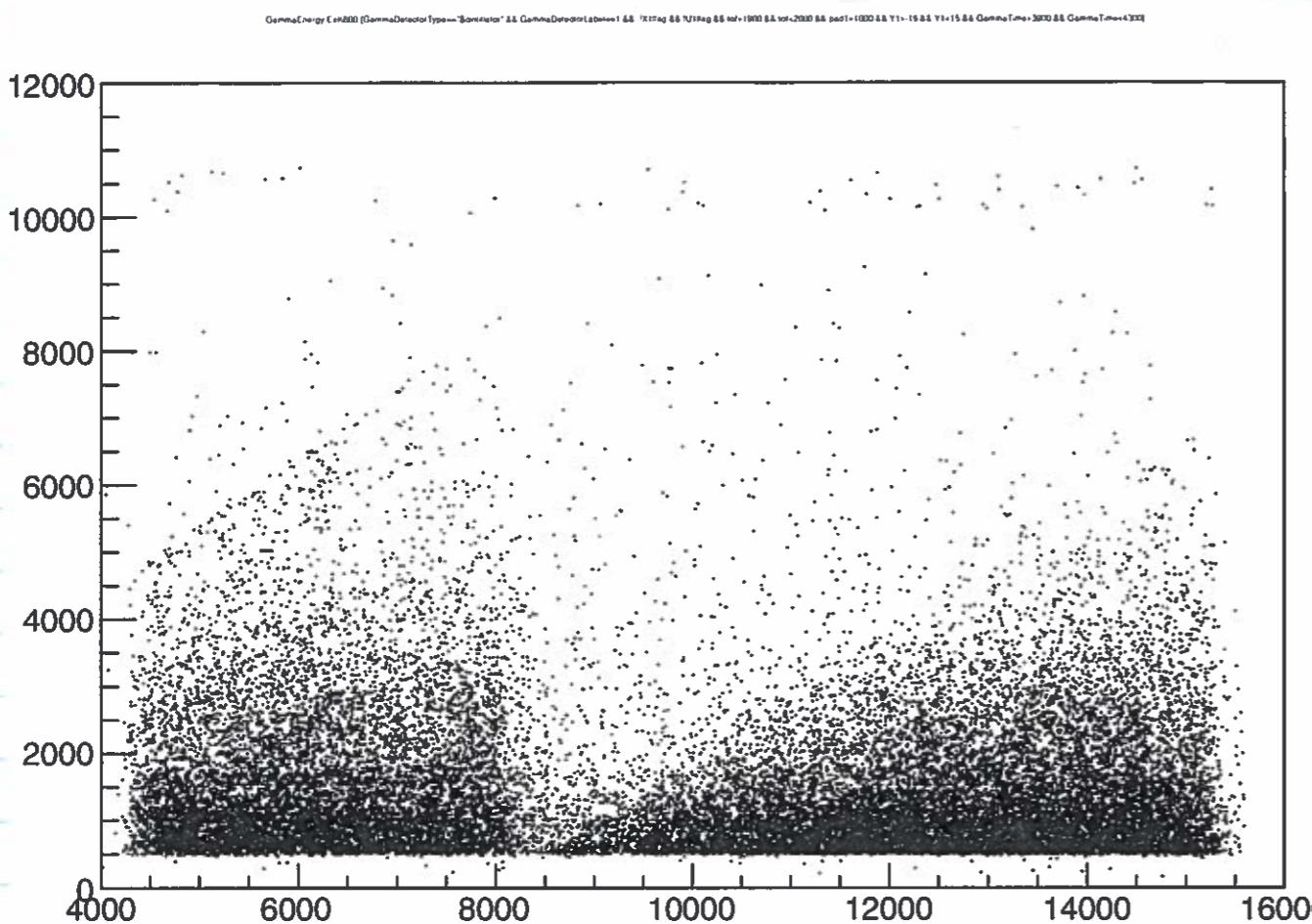
Run# 2264 - 2284 : n 13 hours

GammaTime {GammaDetectorType=="Scintillator" && GammaDetectorLabel==1}

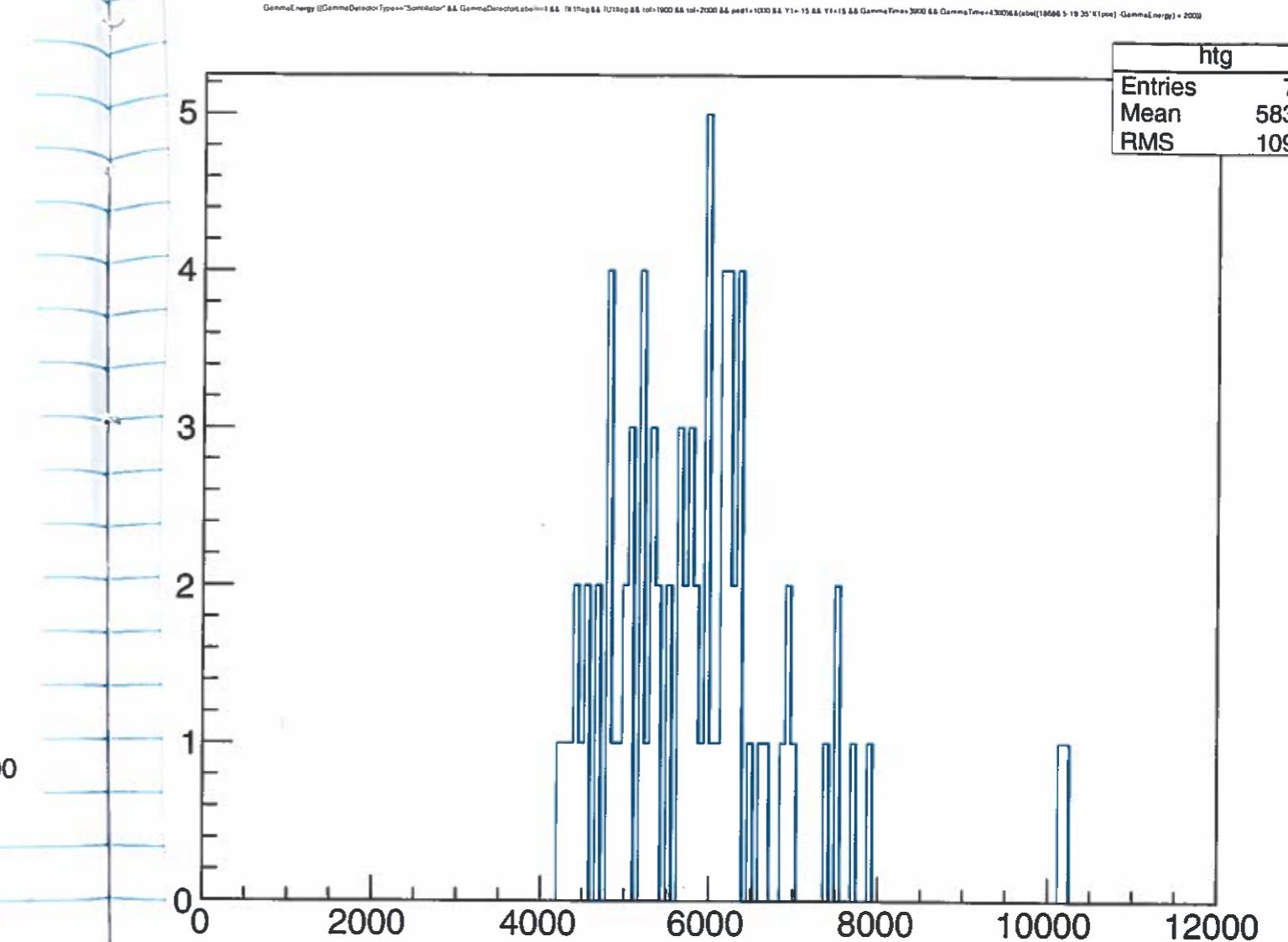
157



Run # 2264 - 2284 : ~ 13 hours LaBr₃



Run # 2264 + 2284 : ~ 13 hours LaBr₃



Run # 2289: EMPTY TARGET
15 Hz @ 1 nA

Run #: 2289 Target: 24 Mg
Start: 16:07 Current: 0.9 nA Trigger rate: 55 Hz
Stop: 20:14 CI Range: 6 Trigger evts: 187564
Target: 24 Mg #4 Scaler evts: 1750

Clover L1-4 Rates (Hz) L1: 2.0 L2: 2.0 L3: 2.1 L4: 2.0
Clover R1-4 Rates (Hz) R1: 2.0 R2: 2.0 R3: 2.8 R4: 1.5
LaBr Rates (Hz) 1: 3.7 2: 7.9

Mental Health Level:
Q: A D1: A H: GAME A D2: A K: A
VDC efficiency X1 93.7 U1 90.2

Run comment: 154 Sm BAGEL IN
Run #: 2291 Start: 16:40 Current: 1 nA Trigger rate: 636 Hz
Stop: 20:31 CI Range: 6 Trigger evts: 2141
Target: 154 Sm Scaler evts: 1000

Clover L1-4 Rates (Hz) L1: 22.2 L2: 21.5 L3: 21.1 L4: 17.9
Clover R1-4 Rates (Hz) R1: 16.4 R2: 21.1 R3: 33.2 R4: 11.7
LaBr Rates (Hz) 1: 11.4 2: 25.8

Mental Health Level:
Q: A D1: A H: GAME A D2: A K: A
VDC efficiency X1 93.2 U1 94.12

Run comment: 154 Sm, Bagel in
Run #: 2292 Start: 17:38 Current: 1.2 nA Trigger rate: 700 Hz
Stop: 18:40 CI Range: 6 Trigger evts: 21266 M
Target: 154 Sm #2 thick Scaler evts: 3649

Clover L1-4 Rates (Hz) L1: 24.4 L2: 23.6 L3: 23.4 L4: 20.5
Clover R1-4 Rates (Hz) R1: 19.4 R2: 25.2 R3: 40.1 R4: 14.4
LaBr Rates (Hz) 1: 12.6 2: 28.0

Mental Health Level:
Q: A D1: A H: GAME A D2: A K: A
VDC efficiency X1 93.1 U1 94.0

Run comment: 154 Sm, BAGEL IN
Run #: 2293 Start: 18:42 Current: 0.8 nA Trigger rate: 560 Hz
Stop: 19:16 CI Range: 6 Trigger evts: 1916 M
Target: 154 Sm Scaler evts: 3478

Clover L1-4 Rates (Hz) L1: 20.4 L2: 19.8 L3: 18.7 L4: 16.0
Clover R1-4 Rates (Hz) R1: 15.5 R2: 19.7 R3: 31.9 R4: 11.5
LaBr Rates (Hz) 1: 11.2 2: 24.6

Mental Health Level:
Q: A D1: A H: GAME A D2: A K: A
VDC efficiency X1 93.2227 U1 94.1553

Run comment: 154 Sm BAGEL IN
Run #: 2294 Start: 19:44 Current: 1 nA Trigger rate: 295 Hz
Stop: 20:14 CI Range: 6 Trigger evts: 546767
Target: 26 Mg Scaler evts: 1763

Clover L1-4 Rates (Hz) L1: 11.5 L2: 10.7 L3: 12.2 L4: 10.5
Clover R1-4 Rates (Hz) R1: 36.8 R2: 10.7 R3: 14.1 R4: 7.4
LaBr Rates (Hz) 1: 10.0 2: 18.8

K600 angle: 0 deg
Mental Health Level:
Q: A D1: A H: GAME A D2: A K: A
VDC efficiency X1 94.13336 U1 95.3951

2294, Empty target, for 30 min

Run comment: Empty target
Run #: 2294 Start: 20:15 Current: 1 nA Trigger rate: 12.9 Hz
Stop: 20:31 CI Range: 6 Trigger evts: 18
Target: Empty Scaler evts: 18

Clover L1-4 Rates (Hz) L1: 10.61.0 L2: 8.9 L3: 8.9 L4: 8.01.0
Clover R1-4 Rates (Hz) R1: 12.71.0 R2: 9.09.9 R3: 14.07 R4: 20.60.07
LaBr Rates (Hz) 1: 3.2 2: 6.3

K600 angle: 0 deg
Mental Health Level:
Q: A D1: A H: GAME A D2: A K: A
VDC efficiency X1 97.7 U1 86.9

AC 20:30 (approx.)

↳ Clover L2 alarm were off
Massive spike in the count rate.

Faraday-cup were in immediately after the alarm
didn't stabilize.

↳ pulling up out to assess situation with MT
now

20:32, the MT run was resumed.
The count rates are normal but slightly
higher ac approx. 27 Hz (focal-plane events).

Starting another MT for 5 minutes to assess the situation

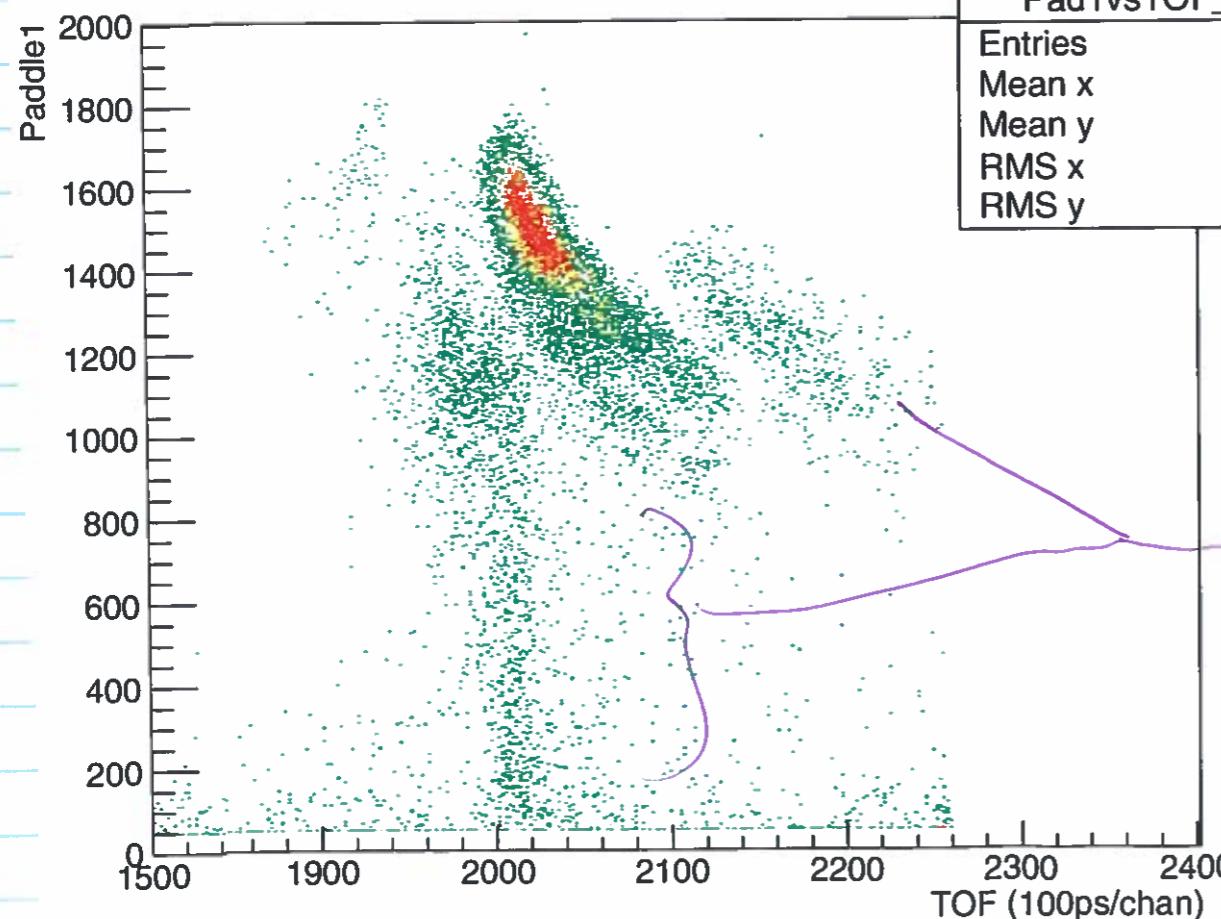
Run comment:	EMPT EMPTY TARGET
Run #:	2296
Start:	20:36
Stop:	20:48
Target:	EMPTY
Current:	1.0 nA
CI Range:	6
Trigger rate:	0.6 Hz
Trigger evts:	
Scaler evts:	
Clover L1-4 Rates (Hz)	L1: 0.9, 2
Clover R1-4 Rates (Hz)	R1: 0.1, 0, 3
LaBr Rates (Hz)	1: 0.2, 0, 7 2: 0.5, 0, 0

K600 angle: 0 deg	Mental Health Level:
Q: A	☺ ☺ ☺
D1: A	
H: A	
D2: A	
K: A	

VDC efficiency

X1	94.8
U1	72.8

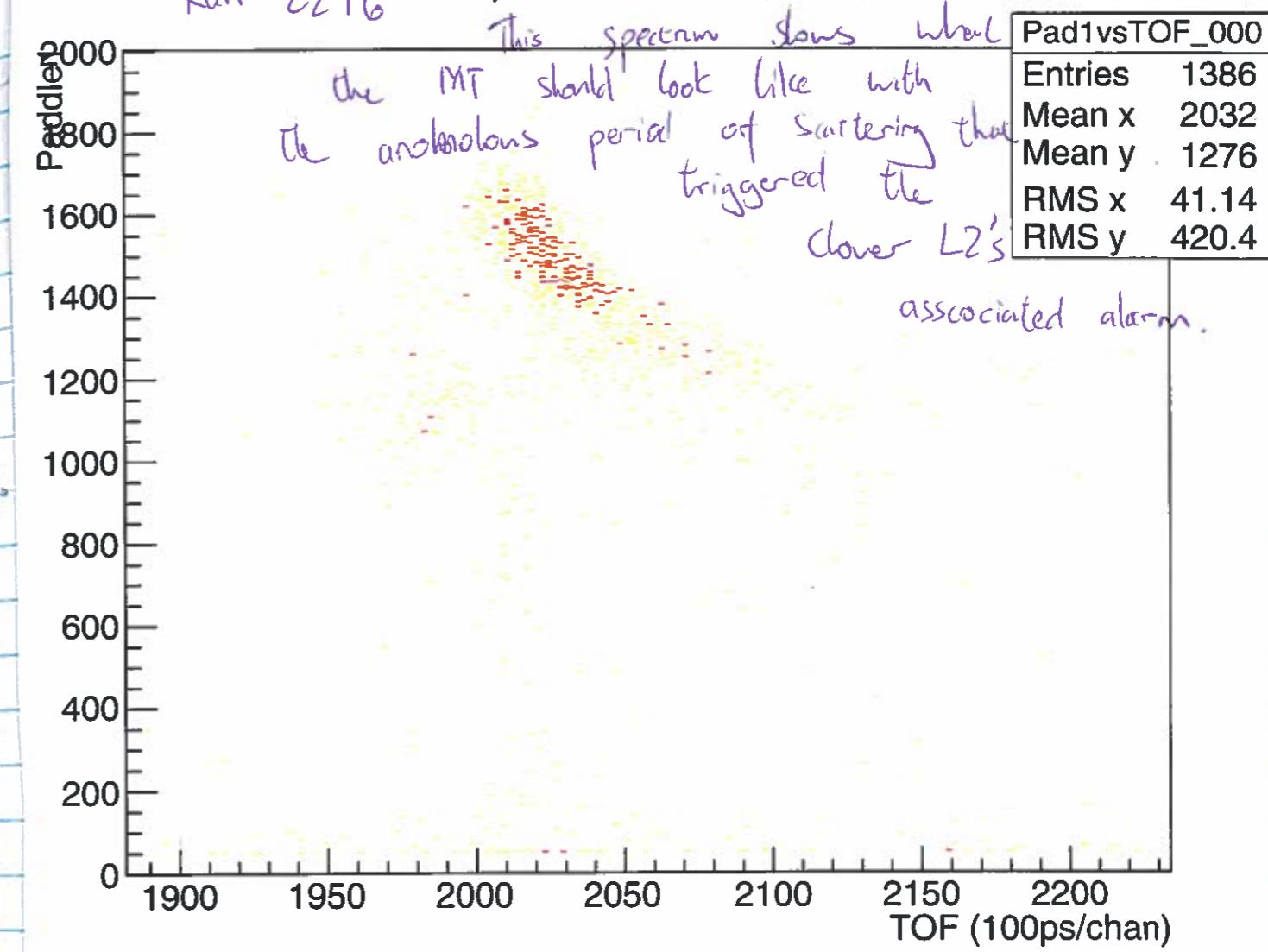
PID: paddle 1 vs TOF (TDC1)



Run 2295

Pad1vsTOF_000	
Entries	15211
Mean x	2018
Mean y	1229
RMS x	91.04
RMS y	457.9

Run 2296 PID: paddle 1 vs TOF (TDC1)



Pad1vsTOF_000	
Entries	1386
Mean x	2032
Mean y	1276
RMS x	41.14
RMS y	420.4

This is the result of the intermittent high count rate

I'm guessing it was an anomaly in the beam that was scattered off something near the target and particularly, near clover L2...

MT trigger - check click

Run #:	2297
Start:	20:49
Stop:	20:54
Target:	MT
Current:	1.0 nA
CI Range:	16
Trigger rate:	15 Hz
Trigger evts:	3451
Scaler evts:	286
Clover L1-4 Rates (Hz)	L1: 0.9
Clover R1-4 Rates (Hz)	R1: 1.0
LaBr Rates (Hz)	1: 7.7 2: 6.0

Q:	/ A
D1:	/ A
H:	Some A
D2:	/ A
K:	/ A

VDC efficiency

X1	89.3
U1	88.3

But it's MT

An MT just for 5 min just to check that the system has stabilized after the strange/anomalous triggering of clover L2. Everything is good!

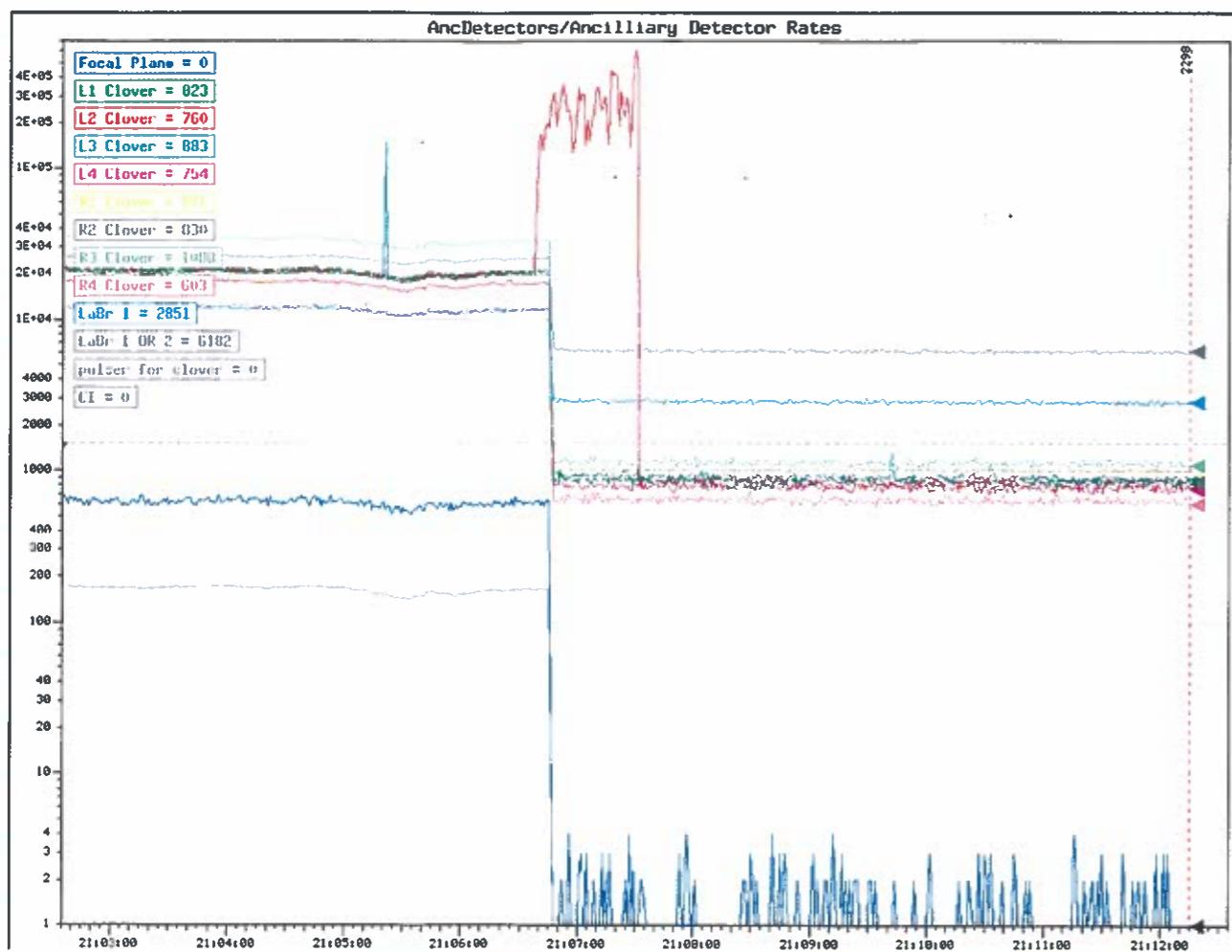
Wednesday 26/10

Resuming
154 Sm-taking

Run comment: 154 Sm, Bagel in

Run #: 2298
Start: 20:56 Current: 10 nA Trigger rate: 680 Hz
Stop: 21:12 CI Range: 6 Trigger evts: 377543
Target: 154 Sm thick #2 Scaler evts: 906

Clover L1-4 Rates (Hz) L1: 22,6
Clover R1-4 Rates (Hz) R1: 18,1
LaBr Rates (Hz) 1: 12,2
L2: 22,1 L3: 21,5
R2: 22,9 R3: 36,4 R4: 13,2
2: 27,0



The anomalous spike in L2 is believed to be electronic and not scattering since nothing else sees it. We are resuming data-taking of 154 Sm now.

Run comment: 154 Sm Bagel in

Run #: 2299

Start: 21:16

Current: nA Trigger rate: Hz

Stop:

CI Range: Trigger evts:

Target:

Scaler evts:

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1

U1

Clover L1-4 Rates (Hz)

R1: L1: L2: L3: L4:

Clover R1-4 Rates (Hz)

R1: R2: R3: R4:

LaBr Rates (Hz)

1: 2:

Run comment: 154 Sm BAYEIN

Run #: 2300

Start: 21:19

Current: 40,9 nA Trigger rate: 656 Hz

Stop: 22:11

CI Range: 6 Trigger evts: 1848M

Target: 154 Sm #2 thick

Scaler evts: 3087

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1 93,0

U1 94,2

Clover L1-4 Rates (Hz)

R1: L1: L2: L3: L4:

Clover R1-4 Rates (Hz)

R1: R2: R3: R4:

LaBr Rates (Hz)

1: 2:

→ Run ended, going in the Vault to increase pressure in liquid Nitrogen tanks

Run comment: 154 Sm, Bagel in

Run #: 2301

Start: 22:34

Current: 0,8 nA Trigger rate: 630 Hz

Stop: 23:34

CI Range: 6 Trigger evts: 21043

Target: 154 Sm

Scaler evts: 3569

K600 angle: 0 deg

Q: A

D1: A

H: Same A

D2: A

K: A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1 92,9

U1 94,5

Clover L1-4 Rates (Hz)

R1: L1: L2: L3: L4:

Clover R1-4 Rates (Hz)

R1: R2: R3: R4:

LaBr Rates (Hz)

1: 2:

Run comment: 154 Sm thick, Bagel in

Run #: 2302

Start: 23:34

Current: 0,9 nA Trigger rate: 600 Hz

Stop: 00:10

CI Range: 6 Trigger evts: 62M

Target: 154 Sm

Scaler evts: 2074

K600 angle: 0 deg

Q: A

D1: A

H: Same A

D2: A

K: . A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1 92,8

U1 94,1

Clover L1-4 Rates (Hz)

R1: L1: L2: L3: L4:

Clover R1-4 Rates (Hz)

R1: R2: R3: R4:

LaBr Rates (Hz)

1: 2:

Beam problem @ 00:10 . power supply problems
due to cholesterol in the water pipe lines
for the cooling system.

Last beam for couple of hours, but nothing
major (no tuning etc needed) so we continue
running while I watch some movies :-)

Run comment: 154Sm #12

Run #: 2305

Start: 03:34

Current: 0.8 nA

Trigger rate: 626 Hz

Stop: 04:35

Cl Range: 6

Trigger evts: 2586

Target: #2

Scaler evts: 3582

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 92

U1 94

Clover L1-4 Rates (Hz) L1: 17

Clover R1-4 Rates (Hz) R1: 13

LaBr Rates (Hz) 1: 8

L2: 16 L3: 16

R2: 17 R3: 27

R4: 19

2: 19

Run comment: 154Sm.

Run #: 2303

Start: 01:52

Current: 1.0 nA Trigger rate: 678 Hz

Stop: 02:55

Cl Range: " Trigger evts: 2387M

Target: #2

Scaler evts: 3659

K600 angle: 0 deg

Q: A

D1: A

H: A

D2: SAME

K: A

Mental Health Level:

😊 😊 😕

over dosed

on coffee

X1 91

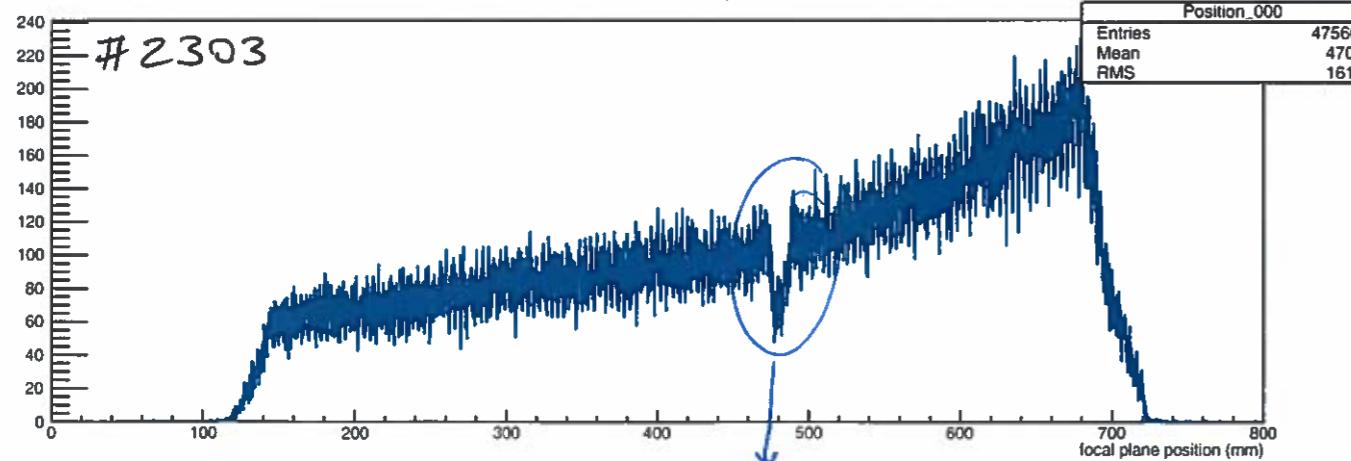
U1 93

Clover L1-4 Rates (Hz) L1: 20k

Clover R1-4 Rates (Hz) R1: 16.5

LaBr Rates (Hz) 1: 12.1

Position: X1 (chisq<0.2)



~~Not decrease~~ This does not look as bad by
the end of one hour.

Run comment: 26Mg

Run #: 2304

Start: 02:58

Current: 1.0 nA Trigger rate: 496 Hz

Stop: 03:30

Cl Range: " Trigger evts: 830998

Target: #5

Scaler evts: 1897

K600 angle: 0 deg

Q: A

D1: A

H: SAME

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 93

U1 94

Clover L1-4 Rates (Hz) L1: 15

Clover R1-4 Rates (Hz) R1: 12

LaBr Rates (Hz) 1: 19

L2: 14 L3: 16 L4: 15

R2: 15 R3: 19 R4: 10

2: 10

Run comment: 26Mg

Run #: 2308

Start: 05:46

Current: 0.8 nA

Trigger rate: 167 Hz

Stop: 05:54

Cl Range: " Trigger evts: 199842

Target: #4

Scaler evts: 1183

K600 angle: 0 deg

Q: A

D1: A

H: SAME

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 93

U1 92

Clover L1-4 Rates (Hz) L1: 12

Clover R1-4 Rates (Hz) R1: 10

LaBr Rates (Hz) 1: 10

L2: 11 L3: 12

R2: 12 R3: 15

R4: 14

2: 19

Run comment: 26Mg

Run #: 2309

Start: 05:54

Current: 0.8 nA

Trigger rate: 510 Hz

Stop: 06:05

Cl Range: " Trigger evts: 346479

Target: #5

Scaler evts: 624

K600 angle: 0 deg

Q: A

D1: A

H: SAME

D2: A

K: A

Mental Health Level:

😊 😊 😕

VDC efficiency

X1 93

U1 94

Clover L1-4 Rates (Hz) L1: 14

Clover R1-4 Rates (Hz) R1: 11

LaBr Rates (Hz) 1: 12

L2: 14 L3: 15

R2: 14 R3: 16

R4: 10

2: 23

- - - 1 min. in DVD!

End of beam:

KfW	$\chi = 364.482$
O1	317.5
H	0.032
O2	210.614
K	18.247

$$\Theta_{tg} = +63^\circ$$

VDC HV: -34 kV (in vault)

-500 V on X, U gw.

pad1 hi = -1400 V

pad1 low = -1400 V

Switch off VDC + paddles

Labr 1 -981 V
2 -960 V

(in database)
on CAEN NL70

Switch magnets off.

Q1S	6.1
2S	-31.2
3S	34.6
4S	23.1
5S	-43.6
6S	27.23

For next beam period:

- Get Ar gas!
- Must have more classes on ratemeters with alarm levels.
- Get new logbook.
- Make list or script of spectra that shifters should look at regularly.
e.g. X1 pos!

wed

8:30 Go in to vault:

→ Close valves for vacuum (isolate scat chamber)

→ Stop gas flow to VDC

NO.

We will have more beam.

Valves still open.

Gasflow still running

While we wait for SSC field to cycle
we will only do a source test run
with only the quad on.

Run 2310
(27 min long)

Sources in (^{107}S + ^{60}Co)

on top of scatter chamber.

K600 quad is on

rates in scfers : L1	2.3	R1	2.5
kHz	L2	R2	2.2
	L3	R3	2.5
	L4	R4	4.4
LdBr 1 3.6			
OR COr 7.8			

Run 2311 (same as 2310)

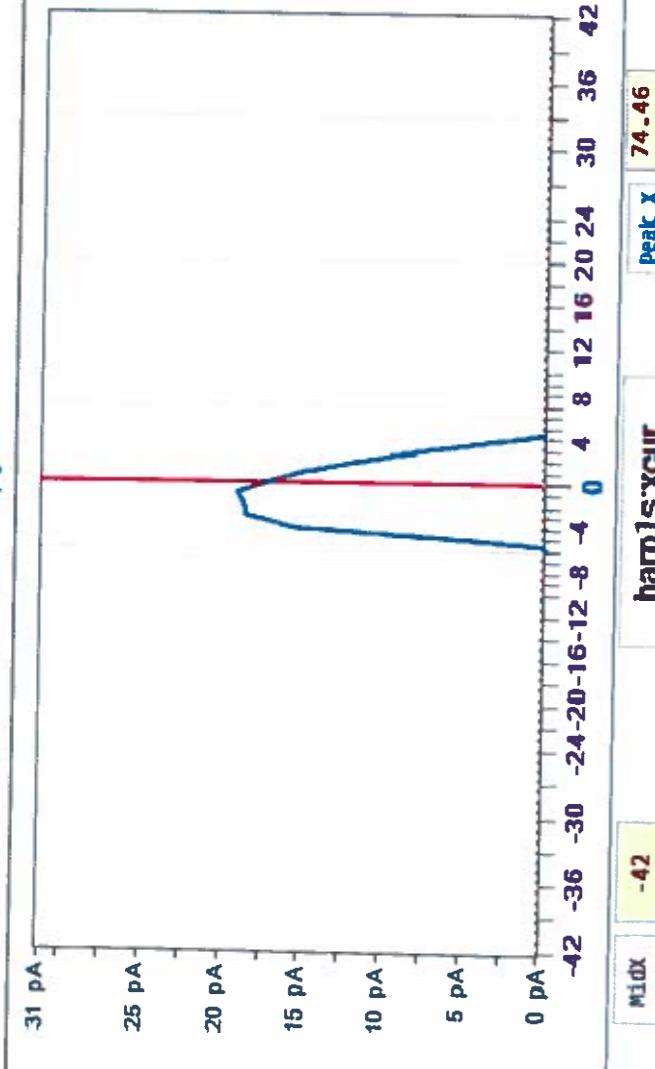
Run 2312 "

Run 2313, same as above, BUT K600 quad off.

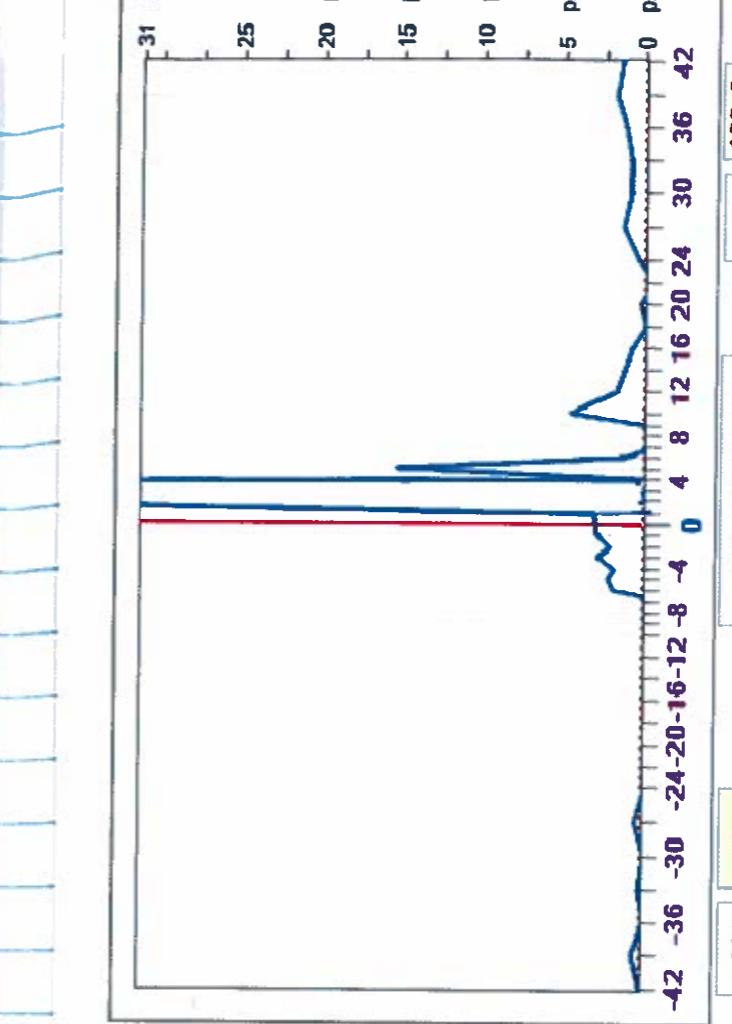
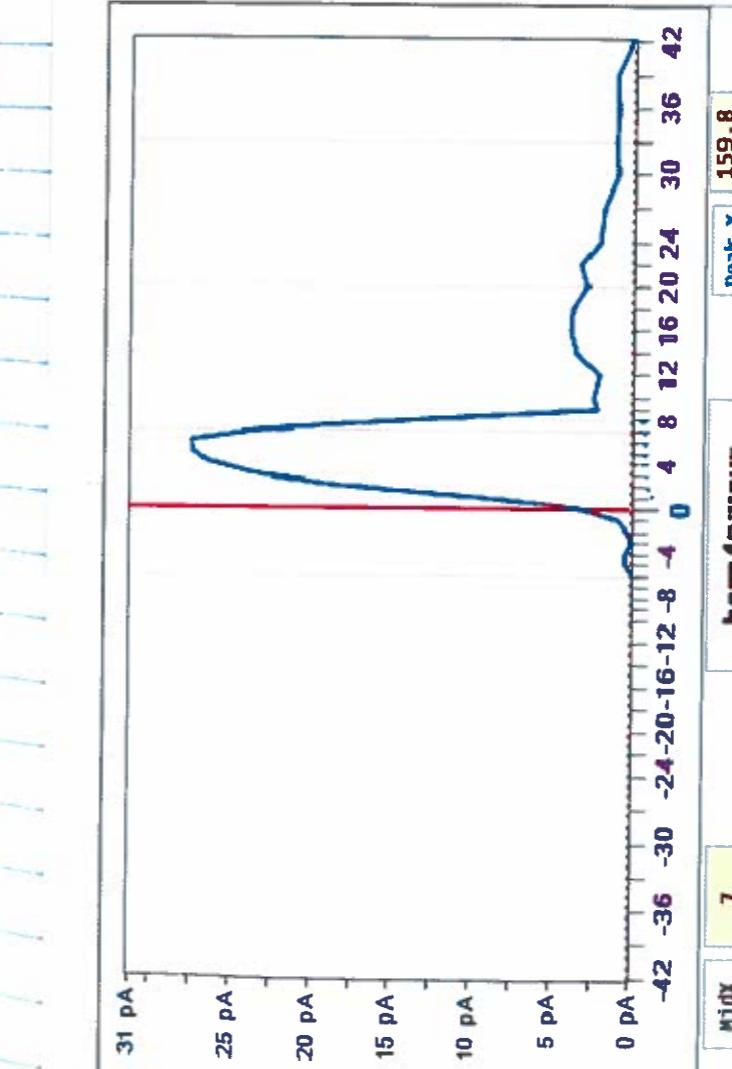
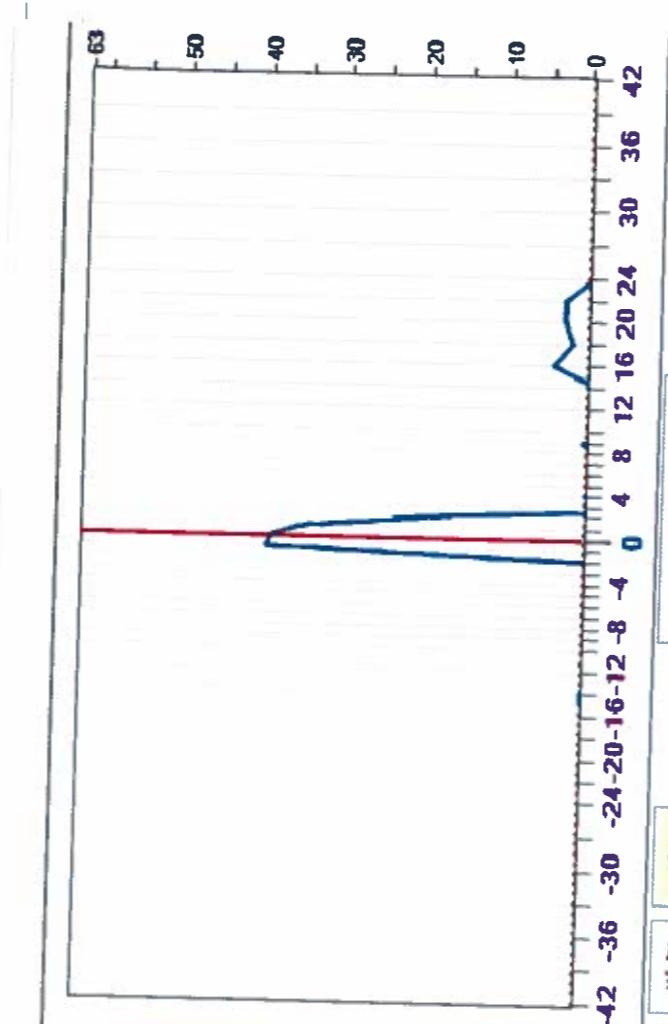
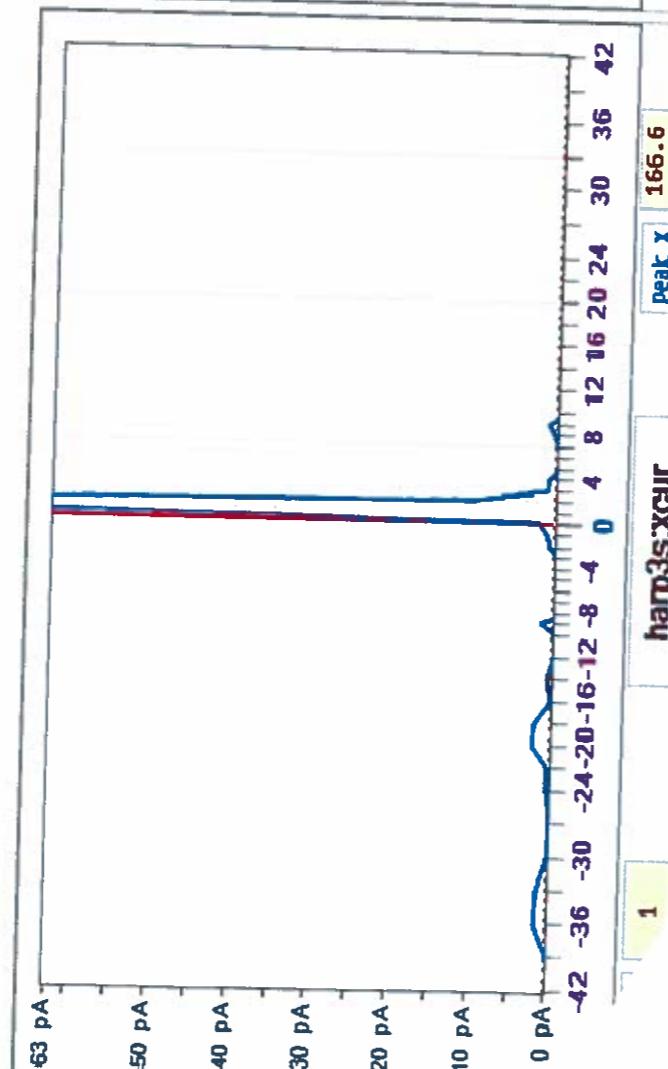
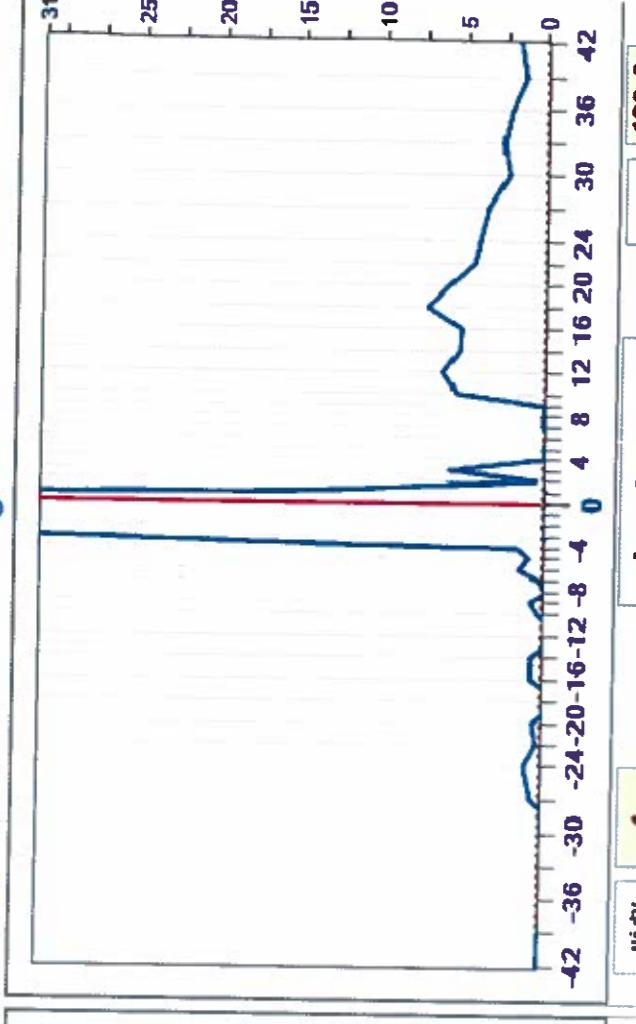
GTO now to next

logbook.

5



5



8

5

1.28
0.89

4

26/10/2016
Wednesday

14:50

Run # 2314

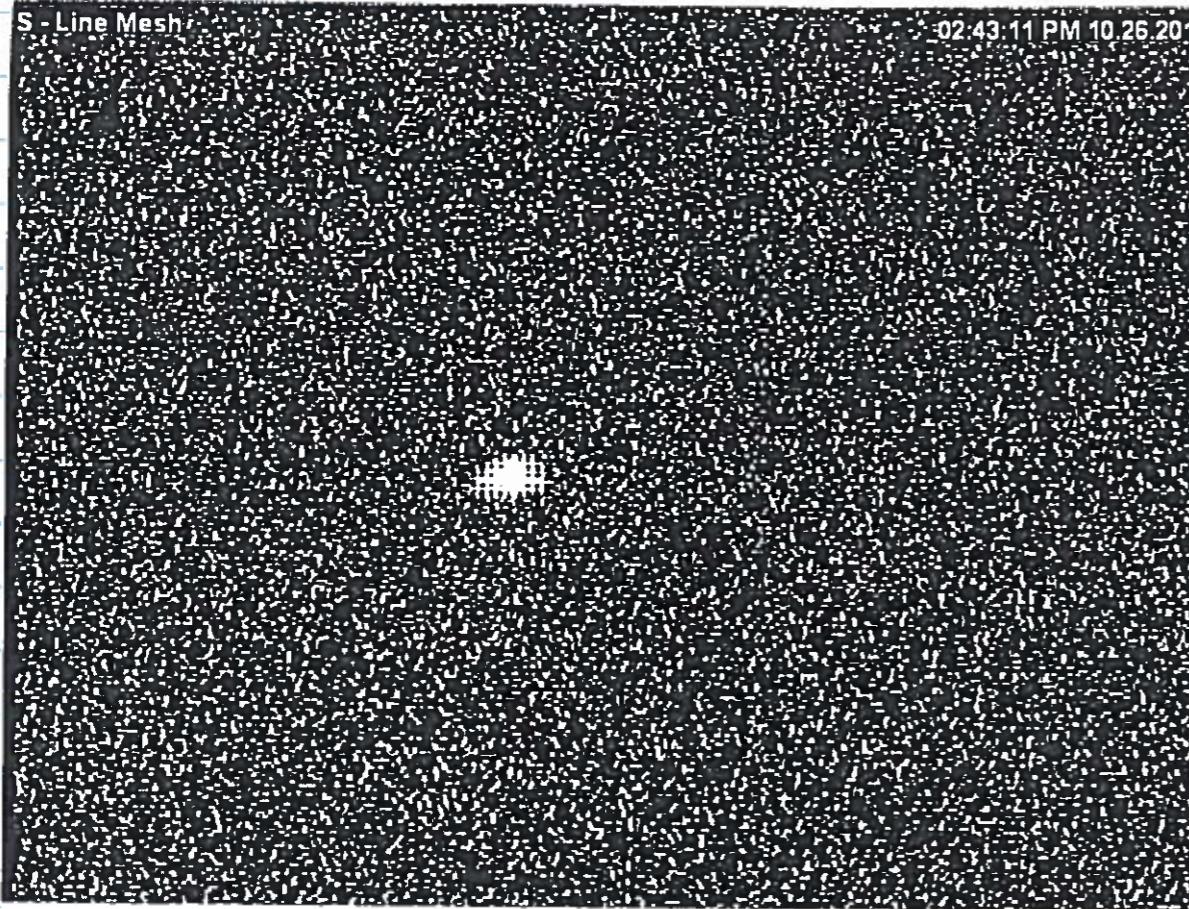
Beam it make through the k600

Run # 2315

VIEWER + HATANAKA
BAGEL later n 6-7 kHz



Bagel open



Run # 2316

EMPTY HALO CHECK

0.1 nA → 1.6 kHz

⇒ halo tuning!!!

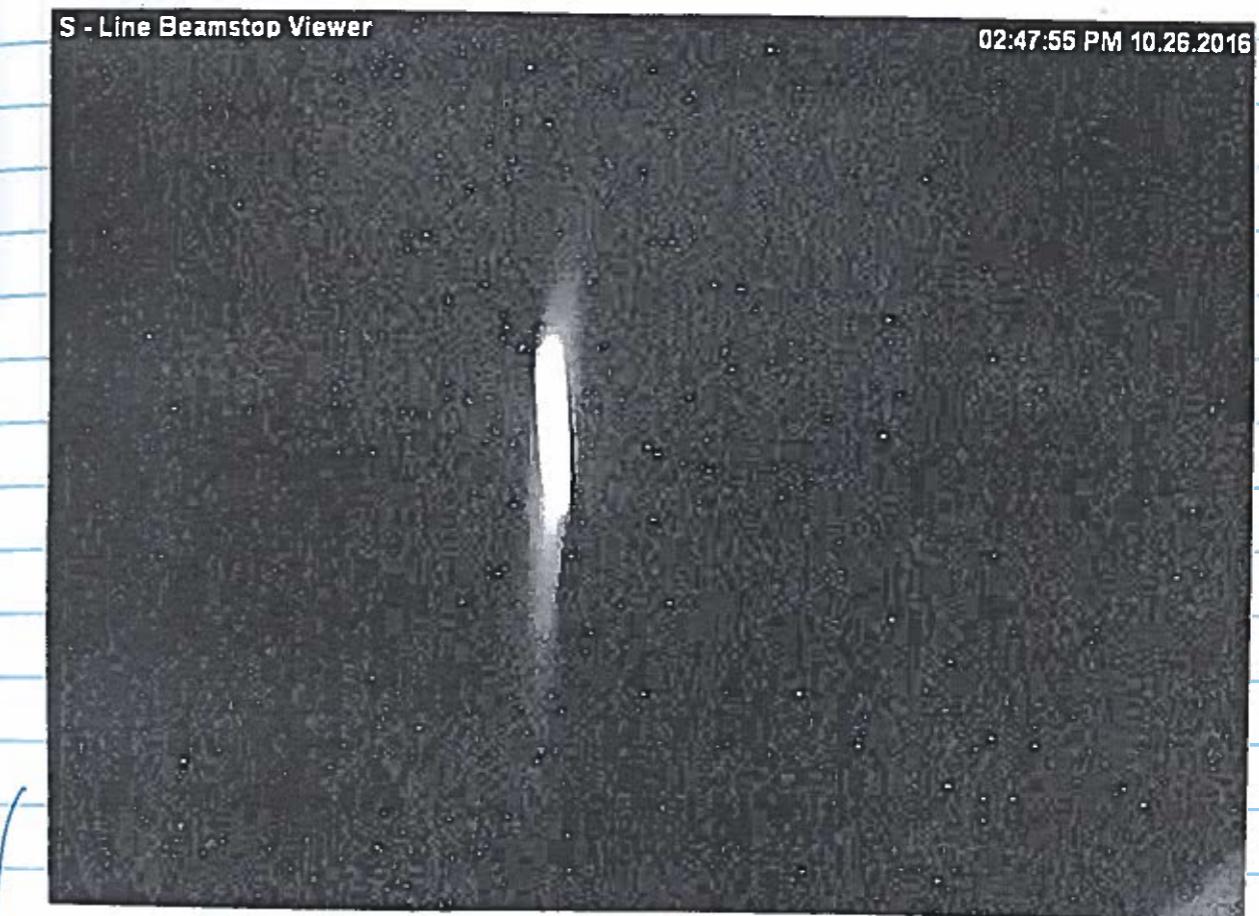


Run # 2317

2.6 kHz → @ 0.6 nA

But they had slit 1P at only 1 mm horizontal open.
No wonder. It was ~ 16 mm over the past few days.

So now we go back to emittance measurement.



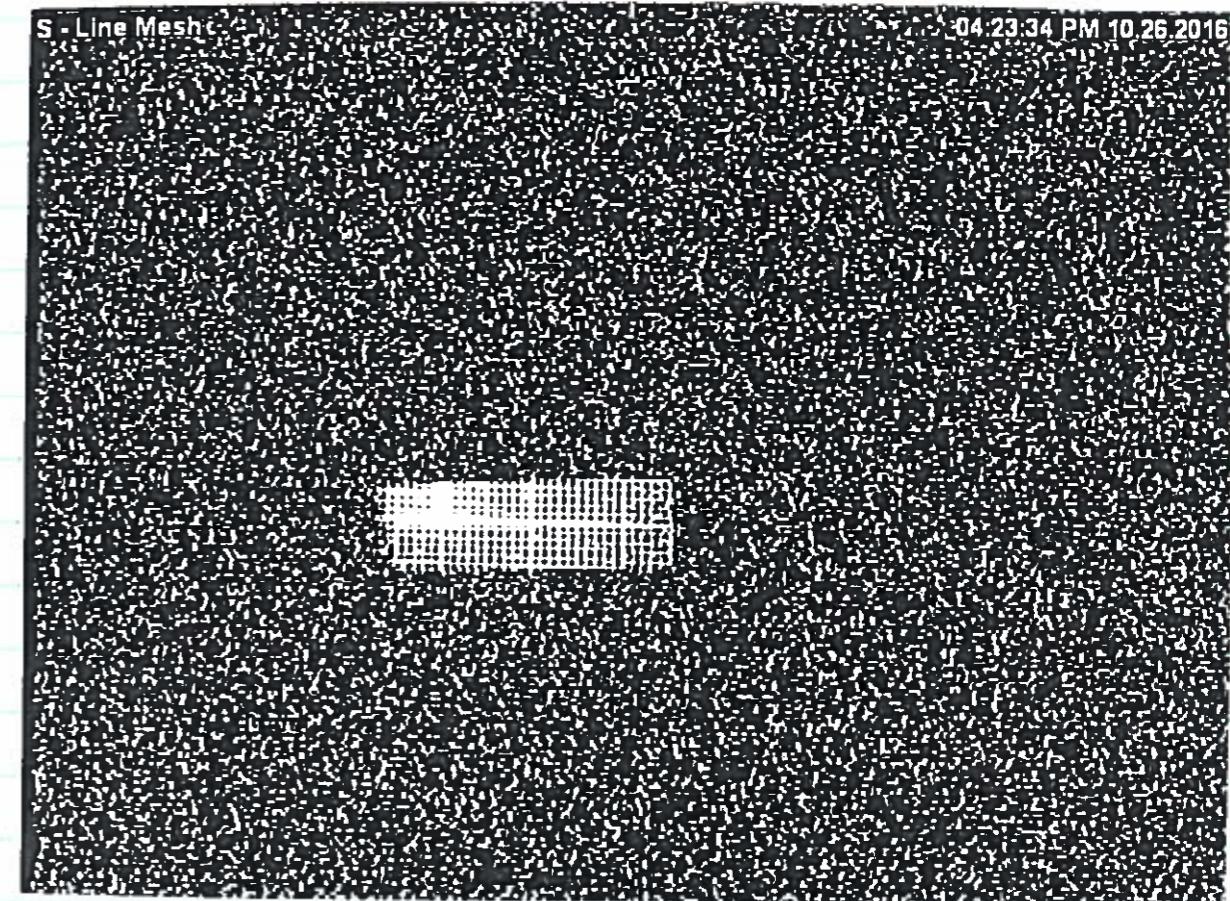
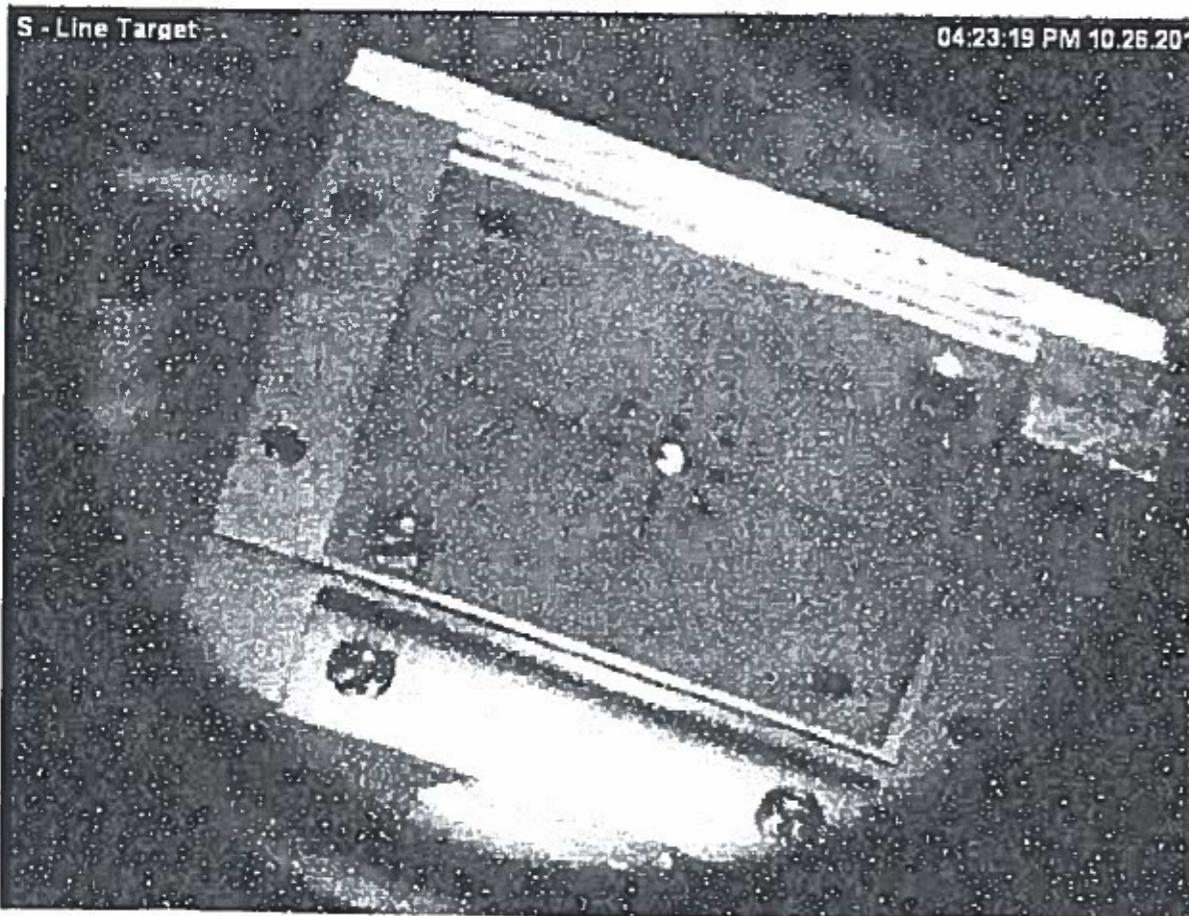
Wed 16:19

New emittance measurement

	X	Y
15	12	6
35	8	3
65	12	8

$$\begin{aligned} X &\sim 9.2 \text{ nm rms} \\ Y &\sim 1.1 \text{ nm rms.} \end{aligned}$$

Run 2318 Empty jet
then clean-turkey on viewers.



S-Line Beamstop Viewer



w/ Hatanaka
No viewers @ tgt; at tgt, 0.3 nA

04:28:18 PM 10.26.2016

Run comment: ²⁴Mg calibration run

Run #: 2320

Start: 17:12

Stop: 17:29

Target: ²⁴Mg

Current: 0.7 nA

CI Range: 6

Scaler evts: _____

Trigger rate: 65 Hz

Trigger evts: _____

K600 angle: 0 deg

Q: -365.05 A

D1: 318. A

H: 4032 A

D2: 210.96 A

K: 18.376 A

Mental Health Level:

VDC efficiency

X1 93

U1 94

Clover L1-4 Rates (Hz) L1: 2.2 L2: 2 L3: 2 L4: 3
Clover R1-4 Rates (Hz) R1: 2 R2: 2 R3: 3 R4: 1.7
LaBr Rates (Hz) 1: 3.3 2: CR 7.3

online resolution ~ ~~80~~ keV for a
slice of TDF (@ 19 keV/mn)
with QGS = 26.5

Run comment: ²⁴Mg RUN BAGEL IN

Run #: 2322

Start: 17:35

Stop: 18:35

Target: ²⁴Mg

Current: 0.9 nA

CI Range: 6

Scaler evts: 3475

Trigger rate: 100 Hz

Trigger evts: 3261/4

K600 angle: 0 deg

Q: SAME A

D1: 11 A

H: 11 A

D2: 11 A

K: 11 A

Mental Health Level:

VDC efficiency

X1 93.8

U1 95.0

Clover L1-4 Rates (Hz) L1: 2185 L2: 2030 L3: 2058 L4: 2062
Clover R1-4 Rates (Hz) R1: 2087 R2: 2058 R3: 2891 R4: 1614
LaBr Rates (Hz) 1: 3604 3.3 2: _____

Run comment: ²⁴Mg RUN BAGEL IN

Run #: 2323

Start: 18:40

Stop: 19:36

Target: ²⁶Mg

Current: 0.85 nA

CI Range: 6

Scaler evts: 3310

Trigger rate: 362 Hz

Trigger evts: 1.279M

K600 angle: 0 deg

Q: A

D1: 5 A

H: A A

D2: AME A

K: A

Mental Health Level:

VDC efficiency

X1 93.81

U1 94.14

Clover L1-4 Rates (Hz) L1: 14094 L2: 12978 L3: 14065 L4: 13152
Clover R1-4 Rates (Hz) R1: 10902 R2: 13237 R3: 16761 R4: 8261
LaBr Rates (Hz) 1: 12.2 2: 23.7

Close Bayd.

Run comment: ¹⁵⁴Sm THICK RUN BAGEL IN

Run #: 2324

Start: 19:38

Stop: 20:43

Target: ¹⁵⁴Sm 7.2 mm

Current: 0.8 nA

CI Range: 6

Scaler evts: 3654

Trigger rate: 631 Hz

Trigger evts: 2.164M

K600 angle: 0 deg

Q: A

D1: 5 A

H: A A

D2: M A

K: E A

Mental Health Level:

VDC efficiency

X1 93.04

U1 94.06

Clover L1-4 Rates (Hz) L1: 21.7 L2: 20.8 L3: 21.1 L4: 18.6
Clover R1-4 Rates (Hz) R1: 17.8 R2: 22.1 R3: 34.2 R4: 12.3
LaBr Rates (Hz) 1: 12.1 2: 26.4

Thursday 27/10

154 Sm THICK RUN

Run comment: 154 Sm THICK RUN
 Run #: 2325
 Start: 20:41 Current: 0.9 nA Trigger rate: 717 Hz
 Stop: 21:41 CI Range: 6 Trigger evts: 2,181M
 Target: 154 Sm THICK #2 Scaler evts: 3512

Clover L1-4 Rates (Hz) L1: 22.1 L2: 21.7 L3: 21.6 L4: 19.3
 Clover R1-4 Rates (Hz) R1: 17.4 R2: 22.4 R3: 35.3 R4: 13.1
 LaBr Rates (Hz) 1: 12.6 2: 20.1

K600 angle: 0 deg
 Q: S A
 D1: J A
 H: A A
 D2: M A
 K: E A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93.4
 U1 94.09

154 Sm THICK RUN

Run comment: 154 Sm THICK RUN
 Run #: 2326
 Start: 21:42 Current: 0.7 nA Trigger rate: 558 Hz
 Stop: 22:42 CI Range: 6 Trigger evts: 2,160M
 Target: 154 Sm THICK #2 Scaler evts: 3492

Clover L1-4 Rates (Hz) L1: 16.9 L2: 16.3 L3: 16.1 L4: 14.2
 Clover R1-4 Rates (Hz) R1: 13.9 R2: 16.9 R3: 26.9 R4: 99.7
 LaBr Rates (Hz) 1: 9.6 2: 21.5

K600 angle: 0 deg
 Q: S A
 D1: J A
 H: M A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93.02
 U1 94.10

154 Sm THICK RUN

Run comment: 154 Sm THICK RUN
 Run #: 1327
 Start: 22:42 Current: 0.8 nA Trigger rate: 612 Hz
 Stop: 23:42 CI Range: 6 Trigger evts: _____
 Target: 154 Sm THICK #2 Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 20.3k L2: 19.6 L3: 18.0 L4: 18.8
 Clover R1-4 Rates (Hz) R1: 15.1 R2: 17.6 R3: 27.2 R4: 10.0
 LaBr Rates (Hz) 1: 9.9 2: 22.0

K600 angle: 0 deg
 Q: S A
 D1: J A
 H: M A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93.20
 U1 94.08

24 Mg RUN

Run comment: 24 Mg RUN
 Run #: 2328
 Start: 23:44 Current: 0.4 nA Trigger rate: 75 Hz
 Stop: 00:14 CI Range: 6 Trigger evts: 125249
 Target: 24 Mg #4 Scaler evts: 1689

Clover L1-4 Rates (Hz) L1: 2.2 k L2: 2.0 L3: 2.3 L4: 2.1
 Clover R1-4 Rates (Hz) R1: 2.2 R2: 2.1 R3: 2.7 R4: 1.5
 LaBr Rates (Hz) 1: 3.7 2: 8.0

K600 angle: 0 deg
 Q: S A
 D1: J A
 H: M A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 _____
 U1 _____

26 Mg run

Run comment: 26 Mg run
 Run #: 2329
 Start: 00:16 Current: 0.4 nA Trigger rate: 380 Hz
 Stop: 00:16 CI Range: 6 Trigger evts: _____
 Target: 26 Mg #5 Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 13.8 L2: 13.5 L3: 14.4 L4: 13.7
 Clover R1-4 Rates (Hz) R1: 11.2 R2: 16.3 R3: 17.8 R4: 9
 LaBr Rates (Hz) 1: 12.3 2: 23

K600 angle: 0 deg
 Q: S A
 D1: J A
 H: M A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 94
 U1 95

154 Sm Data

Run comment: 154 Sm Data
 Run #: 2330
 Start: 00:47 Current: 0.8 nA Trigger rate: 555 Hz
 Stop: 01:47 CI Range: 6 Trigger evts: 2,03 M
 Target: 154 Sm #2 Scaler evts: 3507

Clover L1-4 Rates (Hz) L1: 20 L2: 19 L3: 20 L4: 19
 Clover R1-4 Rates (Hz) R1: 17 R2: 21 R3: 30 R4: 12
 LaBr Rates (Hz) 1: 12 2: 15

154 Sm Data

Run comment: 154 Sm Data
 Run #: 2331
 Start: 01:47 Current: 0.9 nA Trigger rate: 640 Hz
 Stop: 02:48 CI Range: 6 Trigger evts: 2,04
 Target: 154 Sm Scaler evts: 3548

Clover L1-4 Rates (Hz) L1: 20 L2: 20 L3: 19 L4: 17
 Clover R1-4 Rates (Hz) R1: 16 R2: 21 R3: 33 R4: 12
 LaBr Rates (Hz) 1: 11 2: 25

154 Sm Data

Run comment: 154 Sm Data
 Run #: 2332
 Start: 02:49 Current: 0.4 nA Trigger rate: _____ Hz
 Stop: 03:01 CI Range: 6 Trigger evts: _____
 Target: 154 Sm #4 Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 20 L2: 19 L3: 19 L4: 17
 Clover R1-4 Rates (Hz) R1: 12 R2: 21 R3: 33 R4: 12
 LaBr Rates (Hz) 1: 11 2: 25

Ouch, the analyzer is giving me problems
 2332, 2333, 2334 aborted before 1 hour. I cannot
 see the spectra anymore: something wrong
 with k600 day, it became super slow--
 I must run without the analyzer--- for now

154 Sm

Run comment: 154 Sm
 Run #: 2335
 Start: 04:14 Current: 0.9 nA Trigger rate: 567 Hz
 Stop: 05:21 CI Range: 6 Trigger evts: 650
 Target: 154 Sm Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 22 L2: 21 L3: 21 L4: 18
 Clover R1-4 Rates (Hz) R1: 17 R2: 22 R3: 34 R4: 12
 LaBr Rates (Hz) 1: 12 2: 27

on k600 day. Root returns:

Error: Unexpected end of file (G_fgetc.c) (tm.h)

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: N A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93
 U1 94

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: N A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93
 U1 94

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: N A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93
 U1 94

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: N A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 2
 U1 -

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: N A
 D2: E A
 K: A A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 _____
 U1 _____

Run comment: 24 My Data
 Run #: 2336
 Start: 05:24 Current: 0.9 nA Trigger rate: 76 Hz
 Stop: 05:54 CI Range: 6 Trigger evts: 141479
 Target: 24 My #14 Scaler evts: 2004

Clover L1-4 Rates (Hz) L1: 1.9 L2: 1.8 L3: 2.0 L4: 1.9
 Clover R1-4 Rates (Hz) R1: 1.9 R2: 1.9 R3: 2.5 R4: 1.5
 LaBr Rates (Hz) 1: 3.5 2: 7.5

Run comment: 26 My Data
 Run #: 2337
 Start: 06:05 Current: 0.8 nA Trigger rate: 350 Hz
 Stop: 06:35 CI Range: 6 Trigger evts:
 Target: 26 My #15 Scaler evts:

Clover L1-4 Rates (Hz) L1: 12 L2: 11 L3: 12 L4: 13
 Clover R1-4 Rates (Hz) R1: 10 R2: 13 R3: 17 R4: 9
 LaBr Rates (Hz) 1: 11 2: 21

Data are written on disk, so I am not too worried as the trigger rate keeps constant. I just feel super bad not being able to understand why k600 sleep or ddagui being so slow :-(

By the way there is no number for CPU / memory usage on ddagui. Is this a machine??

I would reboot ddagui, but I have no idea what the cmd is to login again :-(

Run comment: 154Sm Data
 Run #: 2338
 Start: 06:34 Current: 1.0 nA Trigger rate: 700 Hz
 Stop: CI Range: 6 Trigger evts:
 Target: 154Sm #2 Scaler evts:

Clover L1-4 Rates (Hz) L1: 23 L2: 22 L3: 22 L4: 18
 Clover R1-4 Rates (Hz) R1: 17 R2: 23 R3: 36 R4: 12
 LaBr Rates (Hz) 1: 12 2: 26

This time of the day, beam instabilities are coming up.

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: 0 A
 D2: 3 A
 K: A
 Mental Health Level: ☺ ☺ ☺
 VDC efficiency X1 2
 U1 .

Run comment: 154Sm Data

Run #: 2339
 Start: 07:39 Current: 0.9 nA Trigger rate: 670 Hz
 Stop: 08:07 CI Range: 6 Trigger evts: 985321
 Target: 154Sm #2 Scaler evts: 1621

Clover L1-4 Rates (Hz) L1: 21 L2: 20 L3: 20 L4: 17
 Clover R1-4 Rates (Hz) R1: 16 R2: 20 R3: 30 R4: 12
 LaBr Rates (Hz) 1: 11 2: 26

Run comment: 154Sm Data

Run #: 2340
 Start: 08:08 Current: 1 nA Trigger rate: 554 Hz
 Stop: 08:35 CI Range: 6 Trigger evts: 1156 M
 Target: 154Sm Scaler evts: 1881

Clover L1-4 Rates (Hz) L1: 19,6 L2: 20,4 L3: 20,5 L4: 20,2
 Clover R1-4 Rates (Hz) R1: 17,8 R2: 22,2 R3: 37,0 R4: 12,6
 LaBr Rates (Hz) 1: 11,2 2: 21,2

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: 1 A
 D2: E A
 K: A
 Mental Health Level: ☺ ☺ ☺
 VDC efficiency X1 ?
 U1 .

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: 1 M A
 D2: 9 A
 K: P A
 Mental Health Level: ☺ ☺ ☺
 VDC efficiency X1 7
 U1 .

→ R2 is a bit high, making noise, It went back to normal after a few seconds.

K600 today was getting to be really really slow.
 Killed all "k600 raw analyzer" processes.

On ddagui I

Closed all browsers

On ddagui I redid the startdag command.
 Now all is working again.

Run comment: 154 Sm, BAYI L

Run #: 2342
 Start: 09:12 Current: 0.8 nA Trigger rate: 590 Hz
 Stop: CI Range: 6 Trigger evts:
 Target: Scaler evts:

Clover L1-4 Rates (Hz) L1: 18,1 L2: 16,4 L3: 16,4 L4: 13,8
 Clover R1-4 Rates (Hz) R1: 12,6 R2: 16,7 R3: 26,7 R4: 9,8
 LaBr Rates (Hz) 1: 10,0 2: 22,4

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: 1 A
 D2: 7 A
 K: A
 Mental Health Level: ☺ ☺ ☺
 VDC efficiency X1 9213
 U1 94,2

* DATA crashed, the analysis was very slowly not plotting; on a process of trying to fix it everything crashed.

2343 dag test

Run comment: 154 Sm, BAGEL IN

Run #: 2344
Start: 09:51 Current: 0.8 nA Trigger rate: 617 Hz
Stop: 10:51 CI Range: 6 Trigger evts: 21521
Target: 154 Sm Scaler evts: 3533

Clover L1-4 Rates (Hz) L1: 21.9 L2: 21.8 L3: 19.8 L4: 17.5
Clover R1-4 Rates (Hz) R1: 16.7 R2: 21.8 R3: 34.3 R4: 12.5
LaBr Rates (Hz) 1: 12.3 2: 27.5

K600 angle: 0 deg
Mental Health Level:
Q: A D1: A H: A D2: A K: /
VDC efficiency X1 93.12 U1 94.12

Trigger rate was 0 Hz for run # 2345.

Run comment: 154 Sm, BAGEL IN

Run #: 2345
Start: 10:57 Current: 0.8 nA Trigger rate: 500 Hz
Stop: 11:59 CI Range: 6 Trigger evts: 2313
Target: 154 Sm Scaler evts: 3597

Clover L1-4 Rates (Hz) L1: 20 L2: 19 L3: 19 L4: 17
Clover R1-4 Rates (Hz) R1: 16 R2: 18 R3: 28 R4: 10
LaBr Rates (Hz) 1: 10 2: 23

K600 angle: 0 deg
Mental Health Level:
Q: A D1: A H: A D2: A K: /
VDC efficiency X1 93.5 U1 94.2

Trigger rate is 0 Hz, fixing now.

L2, the rate went very high in a short space of time ≈ 71 kHz

Run comment: 24 My, BAGEL in Data

Run #: 2347
Start: 12:02 Current: 0.9 nA Trigger rate: 82.4 Hz
Stop: 12:23 CI Range: 6 Trigger evts: 397827
Target: 24 My Scaler evts: 1209

Clover L1-4 Rates (Hz) L1: 2.1 L2: 2.0 L3: 2.1 L4: 2.0
Clover R1-4 Rates (Hz) R1: 2.1 R2: 2.0 R3: 2.8 R4: 1.5
LaBr Rates (Hz) 1: 3.7 2: 7.9

K600 angle: 0 deg
Q: A D1: A H: A D2: A K: / A
VDC efficiency X1 92.1 U1 94.2

Mental Health Level:
VDC efficiency X1 92.1 U1 94.2

→ The focal plane events went really high VDC triggered
→ This happened during # run 2347

→ # Run 2348 is 26 My, just forgot to edit/change the target to 26 My or else when starting the run

Run comment: 26 My BAGEL in Data

Run #: 2348
Start: 12:29 Current: 0.9 nA Trigger rate: 377 Hz
Stop: 13:00 CI Range: 6 Trigger evts: 637046
Target: 26 My Scaler evts: 1767

Clover L1-4 Rates (Hz) L1: 12.9 L2: 12.1 L3: 13.5 L4: 12.0
Clover R1-4 Rates (Hz) R1: 9.9 R2: 12.1 R3: 16.5 R4: 9.0
LaBr Rates (Hz) 1: 11.5 2: 21.9

K600 angle: 0 deg
Q: A D1: A H: A D2: A K: / A
VDC efficiency X1 93.88 U1 94.14

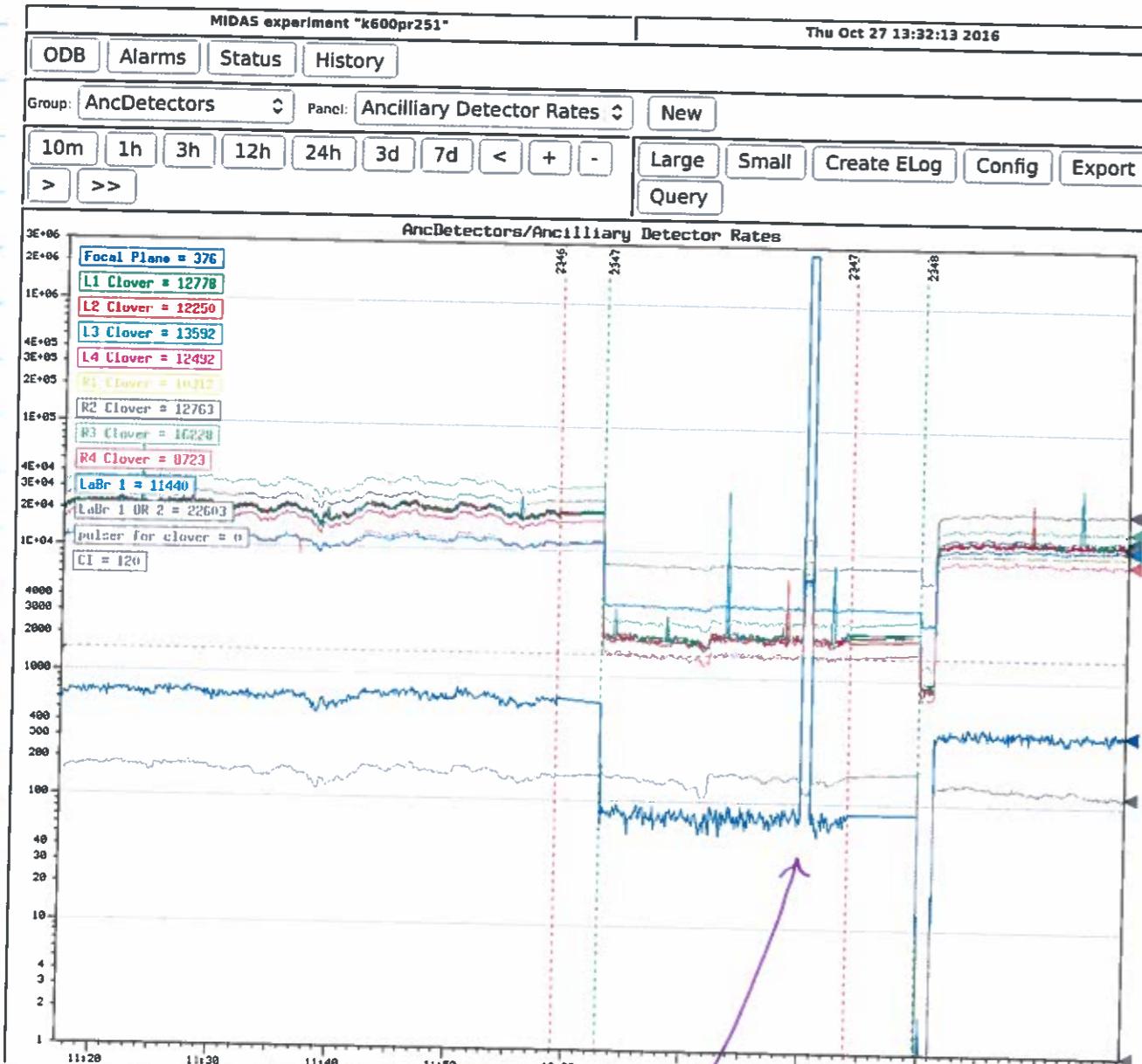
Run comment: 154 Sm

Run #: 2349
Start: 13:03 Current: 0.9 nA Trigger rate: 600 Hz
Stop: 13:35 CI Range: 6 Trigger evts: 1123 M
Target: 154 Sm Scaler evts: 1928

Clover L1-4 Rates (Hz) L1: 20.2 L2: 19.8 L3: 18.5 L4: 16.4
Clover R1-4 Rates (Hz) R1: 15.1 R2: 20.7 R3: 31.3 R4: 11.6
LaBr Rates (Hz) 1: 11.2 2: 24.4

K600 angle: 0 deg
Q: A D1: A H: A D2: A K: / A
VDC efficiency X1 92.929 U1 94.1441

→ Run stop; going to the vault to change input absorbers (copper absorber; thickness =)



Focal plane events went very high, VDC triggered
→ This happened during ^{24}Mg run # 2347

Run comment: ^{154}Sm , BAYEL in Data
Run #: 2350
Start: 13:51 Current: 0.8 nA Trigger rate: 535 Hz
Stop: Target: ^{154}Sm
CI Range: 6 Trigger evts: _____
Scaler evts: _____

Clover L1-4 Rates (Hz)	L1: 16.8	L2: 16.5	L3: 16.7	L4: 14.5
Clover R1-4 Rates (Hz)	R1: 14.1	R2: 17.1	R3: 22.7	R4: 10.0
LaBr Rates (Hz)	1: 10.2	2: 23.0		

→ No beam, SPC2 RF trapped

Run comment: ^{154}Sm , BAYEL in data

Run #: 2351
Start: 14:06 Current: 0.8 nA Trigger rate: 691 Hz
Stop: 15:07 CI Range: 6 Trigger evts: 21000 M
Target: ^{154}Sm Scaler evts: 3536

Clover L1-4 Rates (Hz)	L1: 21.9	L2: 20.6	L3: 21.2	L4: 18.3
Clover R1-4 Rates (Hz)	R1: 17.1	R2: 21.3	R3: 12.3	R4: 12.3
LaBr Rates (Hz)	1: 12.7	2: 26.1	3: 28.1	

K600 angle: 0 deg
Q: A
D1: A
H: A
D2: A
K: A

Mental Health Level:
VDC efficiency
X1 92.9669
U1 94.1249

Run comment: ^{154}Sm , BAYEL in data (3rd hour)

Run #: 2352
Start: 15:08 Current: 0.8 nA Trigger rate: 520 Hz
Stop: 15:40 CI Range: 6 Trigger evts: 11076 M
Target: ^{154}Sm Scaler evts: 1815

Clover L1-4 Rates (Hz)	L1: 16	L2: 16	L3: 16	L4: 16
Clover R1-4 Rates (Hz)	R1: 13	R2: 16	R3: 27	R4: 10
LaBr Rates (Hz)	1: 10	2: 22		

K600 angle: 0 deg
Q: A
D1: A
H: A
D2: A
K: A

Mental Health Level:
VDC efficiency
X1 92.9
U1 96.1

Run comment: ^{154}Sm , BAYEL in

Run #: 2353
Start: 15:47 Current: 0.9 nA Trigger rate: 606 Hz
Stop: 16:19 CI Range: 6 Trigger evts: 1137 M
Target: ^{154}Sm Scaler evts: 1896

Clover L1-4 Rates (Hz)	L1: 18.4	L2: 17.5	L3: 18.0	L4: 15.5
Clover R1-4 Rates (Hz)	R1: 17.7	R2: 19.1	R3: 25.6	R4: 10.8
LaBr Rates (Hz)	1: 11.2	2: 24.5		

K600 angle: 0 deg
Q: A
D1: A
H: A
D2: A
K: A

Mental Health Level:
VDC efficiency
X1 93.3571
U1 94.10629

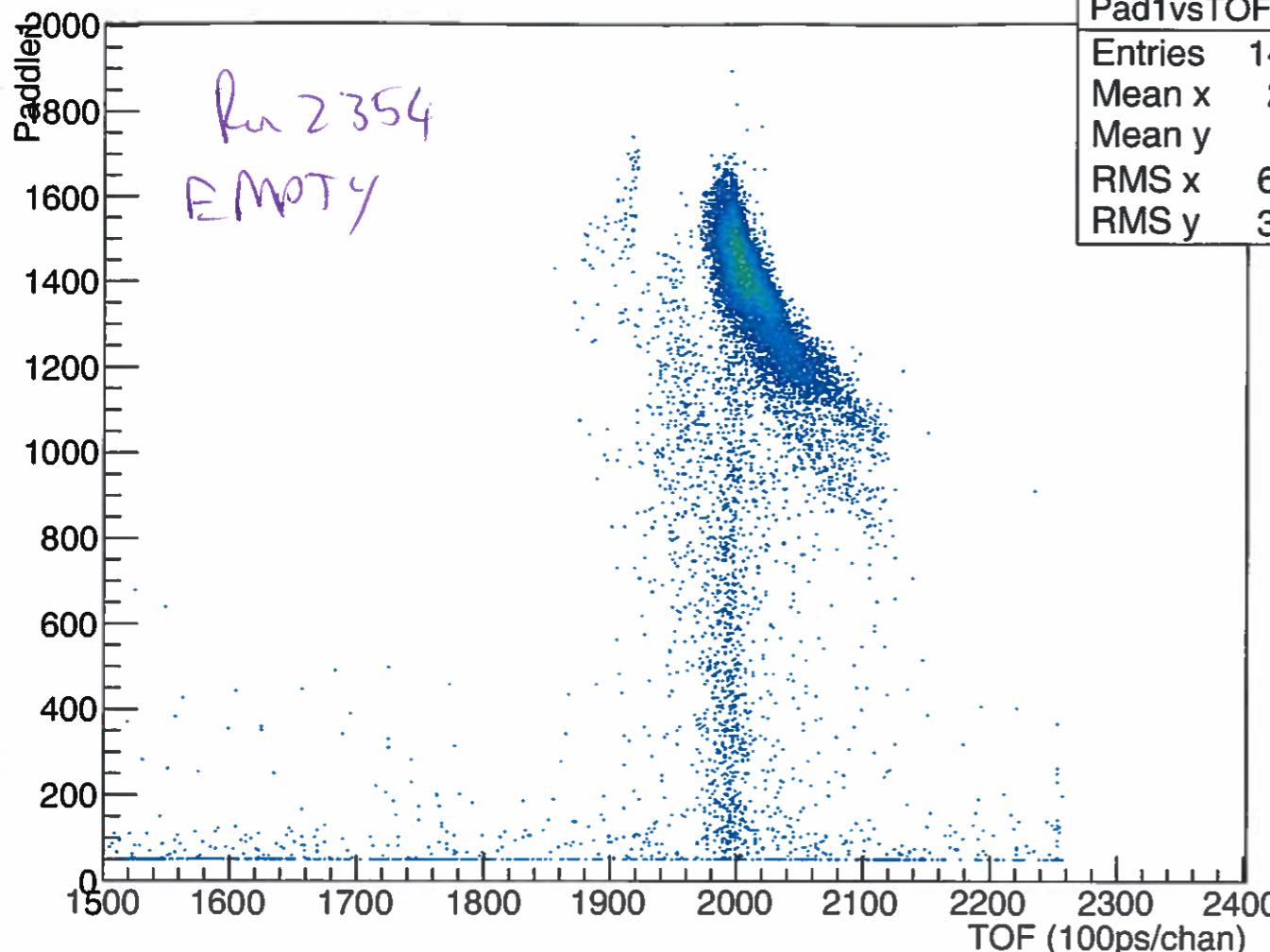
Run comment: EMPTY TARGET,

Run #: 2354
Start: 16:22 Current: 0.9 nA Trigger rate: 22 Hz
Stop: 16:43 CI Range: 6 Trigger evts: 23854
Target: EMPTY Scaler evts: 1161

Clover L1-4 Rates (Hz)	L1: 0.92	L2: 0.77	L3: 0.88	L4: 0.87
Clover R1-4 Rates (Hz)	R1: 0.96	R2: 1.28	R3: 0.71	R4: 0.71
LaBr Rates (Hz)	1: 2.9	2: 6.3		

K600 angle: 0 deg
Q: A
D1: A
H: A
D2: A
K: A

Mental Health Level:
VDC efficiency
X1 93.6
U1 84.4



Run 2354
EMPTY

Run comment: ^{154}Sm , BAGEL in DATA
Run #: 2355
Start: 16:46 Current: 0.9 nA Trigger rate: 581 Hz
Stop: 17:46 CI Range: 6 Trigger evts: 1.983M
Target: ^{154}Sm Scaler evts: 3570

K600 angle: 0 deg Mental Health Level:
Q: A D1: S A H: A D2: M A K: E A

VDC efficiency X1 92.99999 U1 94.3772

Clover L1-4 Rates (Hz) L1: 20.0 L2: 19.5 L3: 19.6 L4: 17.1
Clover R1-4 Rates (Hz) R1: 15.7 R2: 19.6 R3: 26.2 R4: 11.3
LaBr Rates (Hz) 1: 11.3 2: 24.8

Run comment: ^{24}Mg , BAGEL IN DATA
Run #: 2356
Start: 17:50 Current: 0.8 nA Trigger rate: 75 Hz
Stop: 18:20 CI Range: 6 Trigger evts: 128530
Target: ^{24}Mg #4 Scaler evts: 1722

K600 angle: 0 deg Mental Health Level:
Q: S A D1: S A H: A D2: M A K: E A

VDC efficiency X1 94.53 U1 94.65

Clover L1-4 Rates (Hz) L1: 1.8 L2: 1.7 L3: 1.8 L4: 1.6
Clover R1-4 Rates (Hz) R1: 1.7 R2: 1.664 R3: 2.2 R4: 1.5
LaBr Rates (Hz) 1: 3.8 2: 7.8

Run comment: ^{26}Mg Data, BAGEL in
Run #: 2357
Start: 18:22 Current: 0.8 nA Trigger rate: 406 Hz
Stop: 18:54 CI Range: 6 nA Trigger evts: 714333
Target: ^{26}Mg Scaler evts: 1826

Clover L1-4 Rates (Hz) L1: 12.8 L2: 12.7 L3: 13.0 L4: 12.8
Clover R1-4 Rates (Hz) R1: 10.6 R2: 12.8 R3: 16.8 R4: 9.0
LaBr Rates (Hz) 1: 11.3 2: 21.9

K600 angle: 0 deg Mental Health Level:
Q: A D1: S A H: A D2: M A K: E A

VDC efficiency X1 94.2 U1 94.2

Run #: 2358
Start: 18:56 Current: 0.9 nA Trigger rate: 493 Hz
Stop: ~~19:07~~ 20:07 CI Range: 6 nA Trigger evts: 2.139M
Target: ^{154}Sm #2 Scaler evts: 3791

Clover L1-4 Rates (Hz) L1: 19.0 L2: 18.1 L3: 18.6 L4: 16.0
Clover R1-4 Rates (Hz) R1: 15.2 R2: 19.3 R3: 25.9 R4: 11.7
LaBr Rates (Hz) 1: 11.1 2: 24.3

Q: A D1: S A H: A D2: M A K: E A

VDC efficiency X1 92.6 U1 94.1

Run comment: ^{154}Sm Thick, BAGEL in
Run #: 2359
Start: ~~19:07~~ 20:07 Current: 0.9 nA Trigger rate: 475 Hz
Stop: 21:05 CI Range: 6 nA Trigger evts: 2.084M
Target: ^{154}Sm #2 Scaler evts: 3689

Clover L1-4 Rates (Hz) L1: 16.4 L2: 15.7 L3: 15.6 L4: 13.5
Clover R1-4 Rates (Hz) R1: 11.4 R2: 13.7 R3: 19.2 R4: 8.0
LaBr Rates (Hz) 1: 9.5 2: 20.9

K600 angle: 0 deg Mental Health Level:
Q: S A D1: A A H: M A D2: M A K: E A

VDC efficiency X1 93.5 U1 94.1

- Beam a bit unstable.

Run comment: ^{154}Sm Thick #2, BAGEL in
Run #: 2360
Start: 21:06 Current: 0.5 nA Trigger rate: 556 Hz
Stop: 22:29 CI Range: 6 nA Trigger evts: 2.775M
Target: ^{154}Sm #2 Scaler evts: 4538

Clover L1-4 Rates (Hz) L1: 21.8 L2: 21.2 L3: 21.2 L4: 18.6
Clover R1-4 Rates (Hz) R1: 17.3 R2: 21.8 R3: 28.9 R4: 12.5
LaBr Rates (Hz) 1: 12.2 2: 27.0

K600 angle: 0 deg Mental Health Level:
Q: S A D1: A A H: M A D2: M A K: E A

VDC efficiency X1 93.1 U1 94.1

Run comment: ^{154}Sm thick #2 data, BAGEL in
Run #: 2361
Start: 22:30 Current: 0.8 nA Trigger rate: 536 Hz
Stop: 23:33 CI Range: 6 nA Trigger evts: 2.169M
Target: ^{154}Sm #2 Scaler evts: 3646

Clover L1-4 Rates (Hz) L1: 13.9 L2: 14.2 L3: 14.6 L4: 12.3
Clover R1-4 Rates (Hz) R1: 12.0 R2: 15.0 R3: 21.2 R4: 9.7
LaBr Rates (Hz) 1: 11.0 2: 24.0

K600 angle: 0 deg Mental Health Level:
Q: S A D1: A A H: M A D2: M A K: E A

VDC efficiency X1 93.3 U1 94.2

19

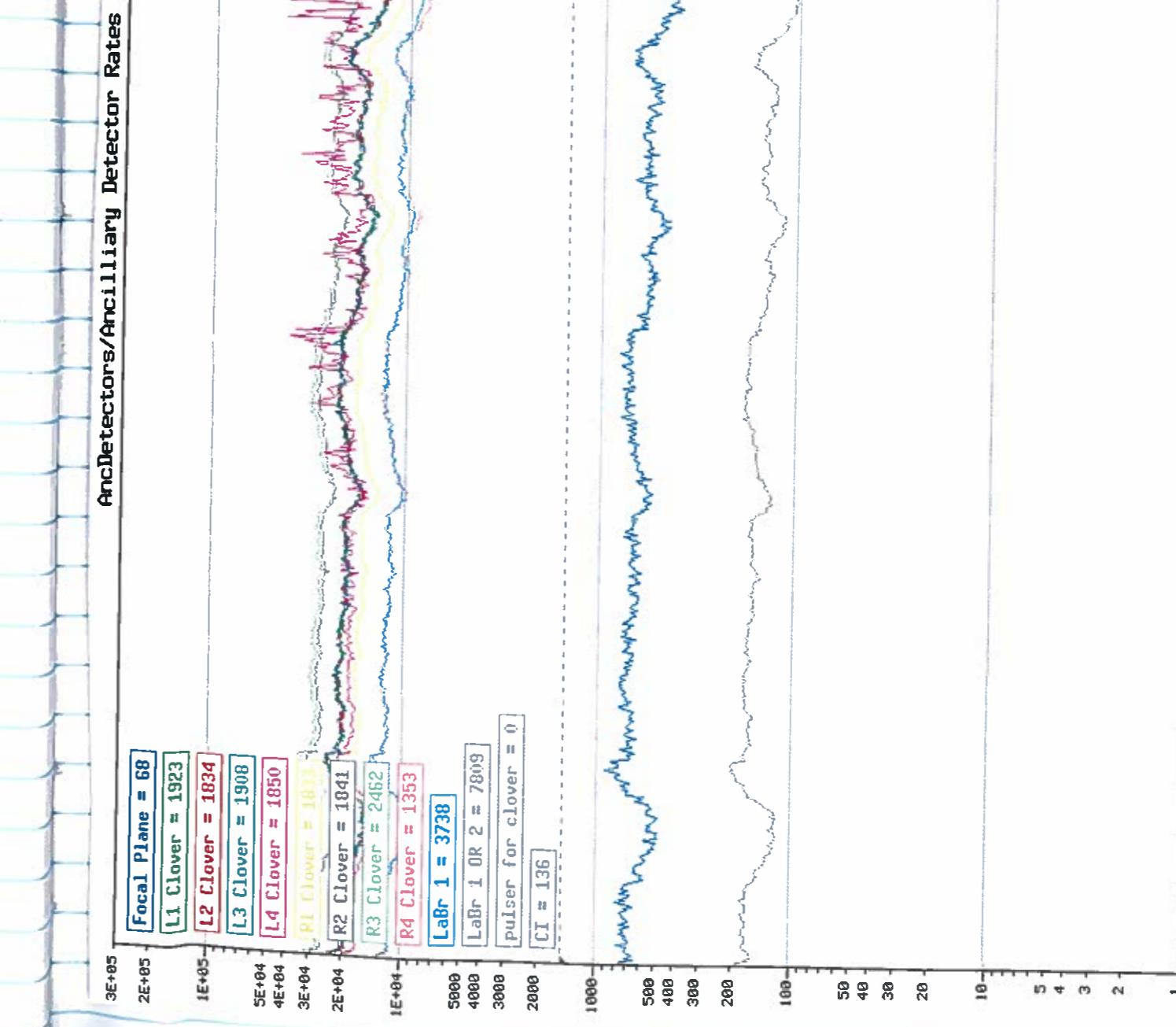
Friday 28 October

→ L4 Rate varied wildly from 50-150 kHz for ~10 minutes (even though beam setting of low-limit alarm) and then went back to normal. Noise?
Other log/lin ratemeters were silent.

Run comment: ^{26}Mg data, Babel in
 Run #: 2362
 Start: 00:35 Current: 0.8 nA Trigger rate: 61 Hz
 Stop: 00:46 CI Range: 6 Trigger evts: 15558
 Target: ^{24}Mg Scaler evts: _____
 Clover L1-4 Rates (Hz) L1: 1.6 L2: 1.5 L3: 1.6 L4: 110.8 ??
 Clover R1-4 Rates (Hz) R1: 1.7 R2: 1.5 R3: 2.0 R4: 1.1
 LaBr Rates (Hz) 1: 3.4 2: 7.2

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: A A
 D2: M A
 K: E A
 VDC efficiency
 X1 95.0
 U1 94.7

Mental Health Level:
 ☺ ☺ ☺
 VDC efficiency
 X1 93.6
 U1 94.8



Run comment: ^{154}Sm , Babel in
 Run #: 2364
 Start: 00:41 Current: 1.1 nA Trigger rate: 806 Hz
 Stop: 01:42 CI Range: 6 Trigger evts: _____
 Target: ^{154}Sm #2 Scaler evts: _____
 Clover L1-4 Rates (Hz) L1: 18.8 L2: 18.7 L3: 18.4 L4: 14.1
 Clover R1-4 Rates (Hz) R1: 15.1 R2: 19.3 R3: 25.0 R4: 11.0
 LaBr Rates (Hz) 1: 11.3 2: 24.8

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A
 VDC efficiency
 X1 93.5
 U1 94.1

Mental Health Level:
 ☺ ☺ ☺
 VDC efficiency
 X1 _____
 U1 _____

Run comment: ^{154}Sm , Babel
 Run #: 2365
 Start: 01:42 Current: 1.0 nA Trigger rate: 774 Hz
 Stop: 01:54 CI Range: 6 Trigger evts: _____
 Target: ^{154}Sm #2 Scaler evts: _____
 Clover L1-4 Rates (Hz) L1: 24.7 L2: 24.9 L3: 25.1 L4: 21.0
 Clover R1-4 Rates (Hz) R1: 10.1 R2: 25.4 R3: 35.8 R4: 15.1
 LaBr Rates (Hz) 1: 14.1 2: 30.5

File stopped for because the online analyzer crashed

Run comment: ^{154}Sm , Bag in

Run #: 2366

Start: 1.56 Current: 1.0 nA Trigger rate: 719 Hz

Stop: 2.10 Cl Range: 6 Trigger evts: _____

Target: $^{154}\text{Sm} \#2$ Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 19.9 L2: 19.6 L3: 19.9 L4: 14.1

Clover R1-4 Rates (Hz) R1: 16.4 R2: 20.6 R3: 27.8 R4: 12.0

LaBr Rates (Hz) 1: 11.4 2: 25.3

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A

Mental Health Level:

 VDC efficiency
 X1: ? U1: ?

short

Analyzer continues crashing. I decide to restart the VME to see if it improves.
 It doesn't.

Run comment: ^{154}Sm , Bag in

Run #: 2367

Start: 2.70 Current: 0.9 nA Trigger rate: 630 Hz

Stop: 2.47 Cl Range: 6 Trigger evts: 877188

Target: $^{154}\text{Sm} \#2$ Scaler evts: 1540

Clover L1-4 Rates (Hz) L1: 18.3 L2: 18.1 L3: 18.1 L4: 15.9

Clover R1-4 Rates (Hz) R1: 14.8 R2: 18.2 R3: 23.5 R4: 10.2

LaBr Rates (Hz) 1: 10.6 2: 22.7

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A

Mental Health Level:

 VDC efficiency
 X1: ? U1: ?

short

20s

I am running blindfolded. DAQ seems ok but analyzer evts crashes constantly!

-(Files 2365+2366+2367 add to 1h)

Instead of rebooting the VME, I turned it off and on. Also, I closed the analyzer terminal tabs and used new ones. Now everything works.

Run comment: ^{154}Sm , Bagel in

Run #: 2368

Start: 1.54 Current: 0.9 nA Trigger rate: 635 Hz

Stop: 3.19 Cl Range: 6 Trigger evts: _____

Target: $^{154}\text{Sm} \#2$ Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 21.1 L2: 21.7 L3: 21.8 L4: 19.6

Clover R1-4 Rates (Hz) R1: 18.1 R2: 22.6 R3: 36.9 R4: 13.4

LaBr Rates (Hz) 1: 13.3 2: 28.6

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A

Mental Health Level:

 VDC efficiency
 X1: 97.8 U1: 94.1

We had beam on target, everything looked fine, but event rate = 0.0 Hz.

While stopping the file it showed up (after a long while that it took to stop it, that the Dog (not the analyzer as before) had crashed.

Again, VME off, VME on, and frontend started. Everything looks good again.

Run comment: ^{154}Sm , Bagel in

Run #: 2369

Start: 3.26 Current: 1.0 nA Trigger rate: 661 Hz

Stop: 5.00 Cl Range: 6 Trigger evts: 351

Target: $^{154}\text{Sm} \#2$ Scaler evts: 5496

Clover L1-4 Rates (Hz) L1: 20.1 L2: 19.8 L3: 20.0 L4: 17.3

Clover R1-4 Rates (Hz) R1: 16.5 R2: 20.8 R3: 27.8 R4: 17.1

LaBr Rates (Hz) 1: 11.8 2: 26.3

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A

Mental Health Level:

 VDC efficiency
 X1: 92.9 U1: 74.2

Run comment: ^{24}Mg , Bagel in

Run #: 2370

Start: 5.01 Current: 0.9 nA Trigger rate: 738 Hz

Stop: 5.31 Cl Range: 6 Trigger evts: 123565

Target: $^{24}\text{Mg} \#4$ Scaler evts: 1687

Clover L1-4 Rates (Hz) L1: 7.0 L2: 6.7 L3: 7.1 L4: 7.0

Clover R1-4 Rates (Hz) R1: 2.1 R2: 2.0 R3: 2.7 R4: 1.4

LaBr Rates (Hz) 1: 3.8 2: 8.1

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A

Mental Health Level:

 VDC efficiency
 X1: 93.8 U1: 95.0

Run comment: ^{26}Mg , Bagel in

Run #: 2371

Start: 5.32 Current: 1.0 nA Trigger rate: 410 Hz

Stop: 6.03 Cl Range: 6 Trigger evts: 301389

Target: $^{26}\text{Mg} \#5$ Scaler evts: 1767

Clover L1-4 Rates (Hz) L1: 13.1 L2: 12.7 L3: 14.0 L4: 12.5

Clover R1-4 Rates (Hz) R1: 10.3 R2: 12.5 R3: 15.9 R4: 8.7

LaBr Rates (Hz) 1: 11.3 2: 21.9

K600 angle: 0 deg
 Q: A A
 D1: A A
 H: A A
 D2: A A
 K: A A

Mental Health Level:

 VDC efficiency
 X1: 96.1 U1: 74.6

Run # 2374 \rightarrow R4 rates crazy with a pattern ~~and~~

Run comment: ^{154}Sm , Bagel in

Run #: 2372

Start: 6:05 Current: 1.1 nA Trigger rate: 756 Hz

Stop: 7:00 Cl Range: 6 Trigger evts: 2,179 M

Target: ^{154}Sm #2 (thick) Scaler evts: 3506

Clover L1-4 Rates (Hz): L1: 23.5 L2: 27.3 L3: 21.8 L4: 18.7

Clover R1-4 Rates (Hz): R1: 18.5 R2: 22.9 R3: 31.4 R4: 13.1

LaBr Rates (Hz): 1: 12.2 2: 27.0

K600 angle: 0 deg Q: A D1: A H: A D2: A K: A

Mental Health Level: ☺ ☺ ☹

VDC efficiency X1 93.0 U1 94.1

Run comment: ^{154}Sm , Bagel in

Run #: 2373

Start: 7:06 Current: 1.0 nA Trigger rate: 704 Hz

Stop: 7:59 Cl Range: 6 Trigger evts: 705

Target: ^{154}Sm #2 Scaler evts: 1

Clover L1-4 Rates (Hz): L1: 21.8 L2: 21.5 L3: 21.7 L4: 18.6

Clover R1-4 Rates (Hz): R1: 19.4 R2: 21.9 R3: 29.3 R4: 12.7

LaBr Rates (Hz): 1: 12.4 2: 27.1

K600 angle: 0 deg Q: A D1: A H: A D2: A K: A

Mental Health Level: ☺ ☺ ☹

VDC efficiency X1 93.1 U1 94.1

STOP BEAM for ~~to~~ allow metro production guys to go in the vault.

Run comment: ^{154}Sm , BAGEL IN ATA (thick)

Run #: 2374

Start: 08:01 Current: 0.9 nA Trigger rate: 607 Hz

Stop: 08:45 Cl Range: 6 Trigger evts: 1,479

Target: ^{154}Sm THICK #2 Scaler evts: 2564

Clover L1-4 Rates (Hz): L1: 20.16 L2: 20.7 L3: 20.3 L4: 19.1

Clover R1-4 Rates (Hz): R1: 17.0 R2: 22.0 R3: 29.5 R4: 13.0

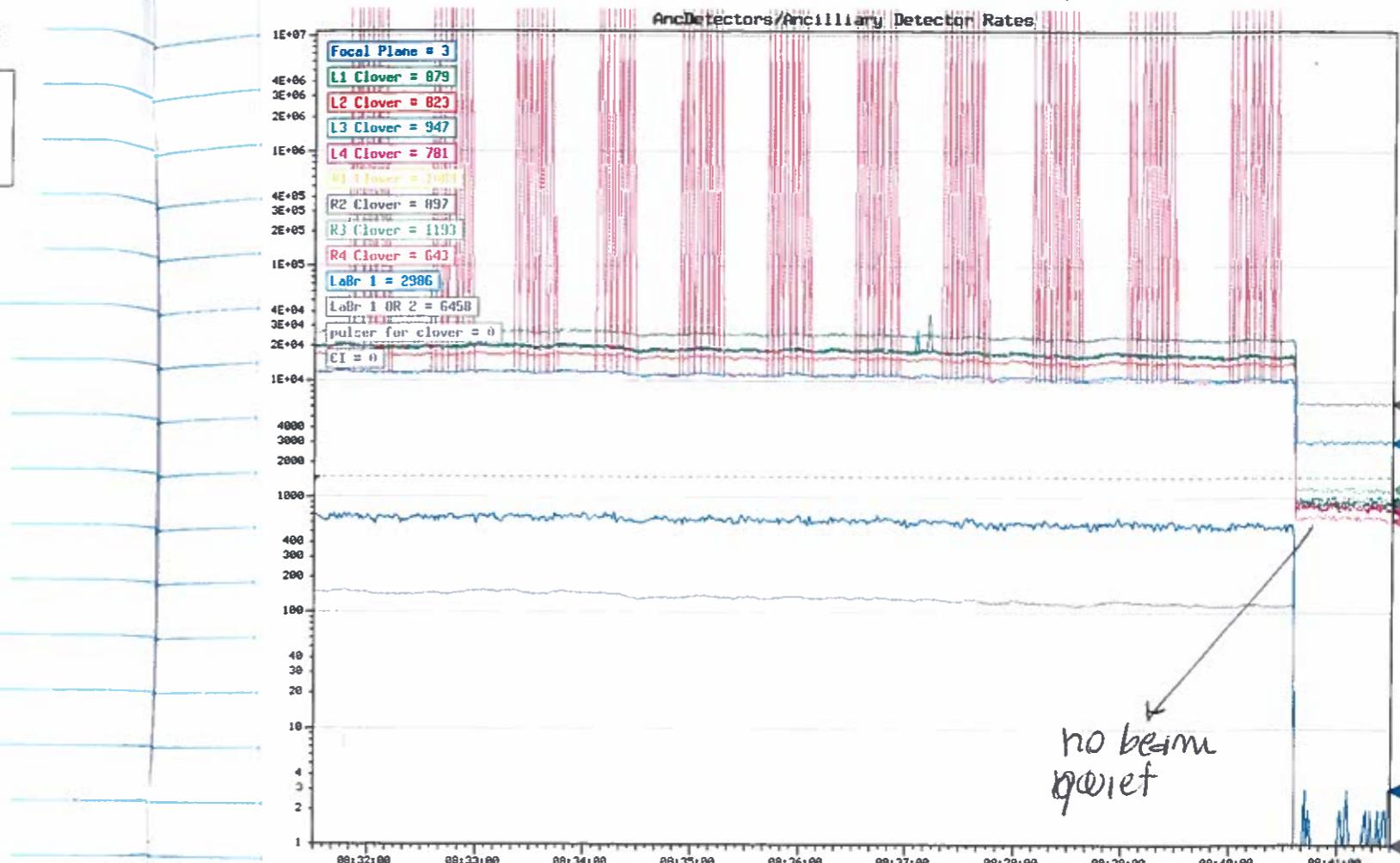
LaBr Rates (Hz): 1: 12.5 2: 27.9

K600 angle: 0 deg Q: S D1: A H: M D2: M K: E

Mental Health Level: ☺ ☺ ☹

VDC efficiency X1 _____ U1 _____

R4 east ~~west~~ counter like crazy with no reason



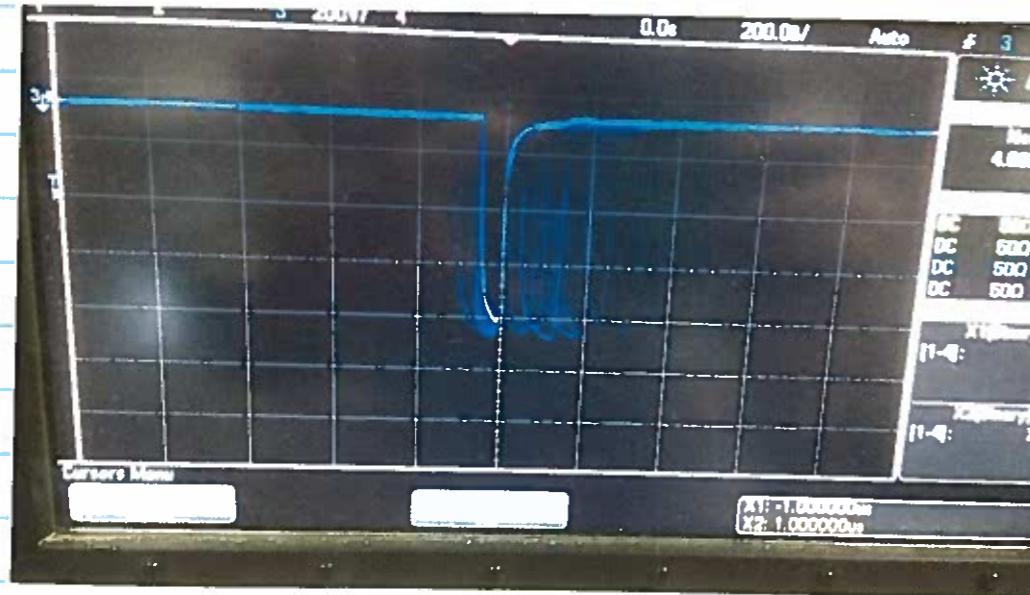
we tried to put in ^{24}Mg and ~~but~~ it doesn't show any noise anymore. So ~~but~~ as it is something correlated with the rates.

Now it's on again. It has a clear pattern.

Run # 2376 \rightarrow ^{24}Mg to check R4 counter
 \Rightarrow still noise there.

long file but no beam for most of the time!

~~Run R4 back CFD~~
↓ normal count rate



CRAZY COUNT RATE ↴



R4 OR ↴ on the oscilloscope looks fine!

I change the exit that go ^{into} the ~~on the~~ & scaler.

¹⁵⁴Sm THICK, BASEL IN

Run comment: 154Sm THICK, BASEL IN
Run #: 2377
Start: 09:43 Current: 0.7 nA Trigger rate: 507 Hz
Stop: 10:41 Cl Range: 6 Trigger evts: _____
Target: 154Sm THICK #2 Scaler evts: _____

Clover L1-4 Rates (Hz) L1: 15.9
Clover R1-4 Rates (Hz) R1: 13.5
LaBr Rates (Hz) 1: 9.9 2: 21.8

L2: 15.9 L3: 15.9
R2: 12.4 R3: 20.9
R4: 23.9 R5: 9.3 with spike pattern

K600 angle: 0 deg
Q: S A
D1: A A
H: M A
D2: M A
K: E A
L4: E A
R4: E A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1 _____

U1 _____

we enter to change the cable of the scaler. R4 OR

Run # 2378 ^{154Sm THICK}

10:57

10/11/03

→ The ~~was~~ high rate is still there

We reset the VME to see if it's there the ~~was~~ problem.

¹⁵⁴Sm THICK BASEL IN

Run comment: 154Sm THICK BASEL IN
Run #: 2379
Start: 11:08 Current: 0.8 nA Trigger rate: 722 Hz
Stop: 11:11 Cl Range: 6 Trigger evts: _____
Target: 154Sm THICK #2 Scaler evts: _____

Clover L1-4 Rates (Hz) L1: _____
Clover R1-4 Rates (Hz) R1: _____
LaBr Rates (Hz) 1: _____ 2: _____

K600 angle: 0 deg

Q: S A

D1: A A

H: M A

D2: M A

K: E A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1 _____

U1 _____

doesn't work ⇒ we try to recycle the power of VME after the REBOOT that problem is GONE !! 😊

¹⁵⁴Sm THICK, BASEL IN

Run comment: 154Sm THICK, BASEL IN
Run #: 2380
Start: 11:19:08 Current: 0.8 nA Trigger rate: 658 Hz
Stop: 12:20 Cl Range: 6 Trigger evts: 2,466 M
Target: 154Sm THICK #2 Scaler evts: 3565

Clover L1-4 Rates (Hz) L1: 18.9
Clover R1-4 Rates (Hz) R1: 15.2
LaBr Rates (Hz) 1: 10.5

L2: 18.9 L3: 18.7
R2: 17.9 R3: 24.1
R4: 10.2

K600 angle: 0 deg

Q: S A

D1: A A

H: M A

D2: M A

K: E A

Mental Health Level:

😊 😐 😕

VDC efficiency

X1 92.5

U1 93.2

Run comment: 154Sm THICK, BAGEL IN

Run #: 2381
 Start 12:20 Current 0.4 nA Trigger rate 702 Hz
 Stop 13:25 Cl Range 6 Trigger evts 2,546M
 Target 154Sm THICK #2 Scaler evts 3784

K600 angle: 0 deg
 Q: S A Mental Health Level:
 D1: S A
 H: A A
 D2: M A
 K: F A
 VDC efficiency
 X1 92.99
 U1 93.97

Clover L1-4 Rates (Hz) L1: 20.8 L2: 21 L3: 22.1 L4: 19.1
 Clover R1-4 Rates (Hz) R1: 18.2 R2: 22.1 R3: 28.6 R4: 12.5
 LaBr Rates (Hz) 1: 12.2 2: 27.4

Run comment: 154Sm THICK, BAGEL IN

Run #: 2382
 Start 13:26 Current 0.9 nA Trigger rate 705 Hz
 Stop 14:28 Cl Range 6 Trigger evts 22'36M
 Target 154Sm THICK #2 Scaler evts 3618

K600 angle: 0 deg
 Q: S A Mental Health Level:
 D1: S A
 H: A A
 D2: M A
 K: F A
 VDC efficiency
 X1 _____
 U1 _____

Clover L1-4 Rates (Hz) L1: 20.4 L2: 20.7 L3: 20.7 L4: 21.1
 Clover R1-4 Rates (Hz) R1: 16.8 R2: 20.6 R3: 28.1 R4: 12.5
 LaBr Rates (Hz) 1: 12.6 2: 27.3

Run comment: 24Mg, Bagel in

Run #: 2383
 Start 14:31 Current 0.7 nA Trigger rate 60 Hz
 Stop 15:03 Cl Range 6 Trigger evts 133496
 Target 24Mg #4 Scaler evts 1846

K600 angle: 0 deg
 Q: S A Mental Health Level:
 D1: S A
 H: A A
 D2: M A
 K: F A
 VDC efficiency
 X1 92.5
 U1 94.6

Clover L1-4 Rates (Hz) L1: 1.9 L2: 1.7 L3: 1.9 L4: 1.8
 Clover R1-4 Rates (Hz) R1: 2.0 R2: 1.8 R3: 2.5 R4: 1.4
 LaBr Rates (Hz) 1: 3.7 2: 7.7

Run comment: 26Mg, Bagel in

Run #: 2384
 Start 15:05 Current 0.8 nA Trigger rate 420 Hz
 Stop 15:52 Cl Range 6 Trigger evts 1,286M
 Target 26Mg #5 Scaler evts 2679

K600 angle: 0 deg
 Q: S A Mental Health Level:
 D1: S A
 H: A A
 D2: M A
 K: F A
 VDC efficiency
 X1 93.7
 U1 94.7

Clover L1-4 Rates (Hz) L1: 13.8 L2: 13.5 L3: 15.0 L4: 13.5
 Clover R1-4 Rates (Hz) R1: 11.3 R2: 13.8 R3: 17.8 R4: 7.8
 LaBr Rates (Hz) 1: 12.8 2: 24.4

Run comment: 154Sm BAGEL IN

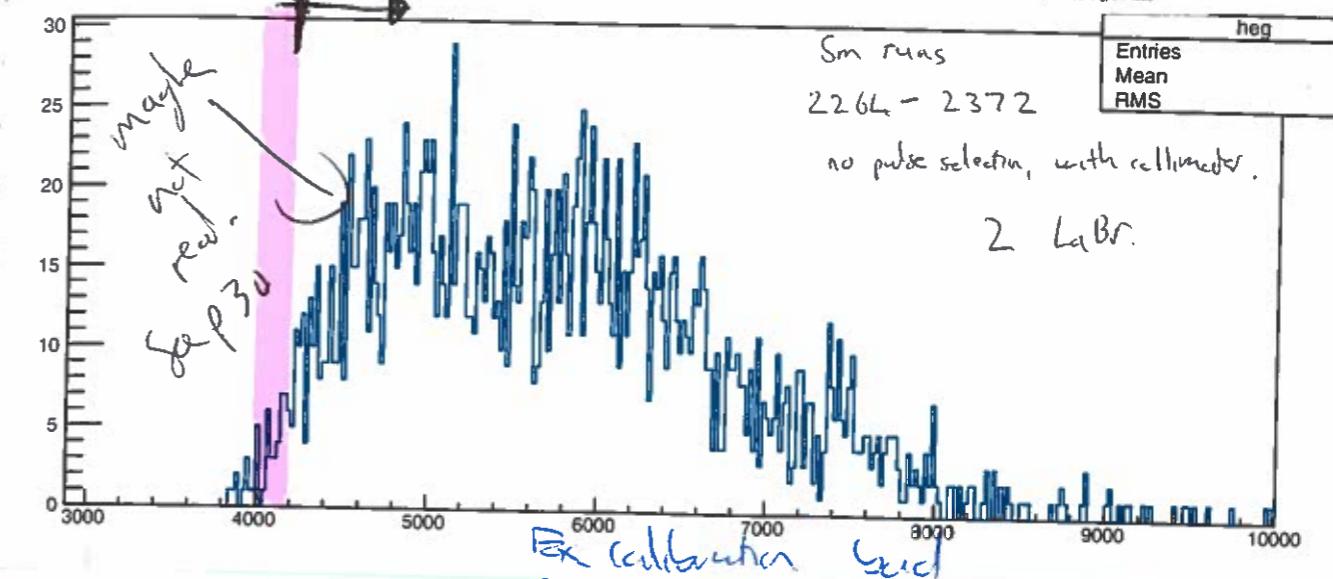
Run #: 2385
 Start 15:53 Current 1.0 nA Trigger rate 697 Hz
 Stop 16:56 Cl Range 6 Trigger evts 2,715
 Target 154Sm THICK #2 Scaler evts 3529

K600 angle: 0 deg
 Q: S A Mental Health Level:
 D1: S A
 H: A A
 D2: M A
 K: F A
 VDC efficiency
 X1 93
 U1 94

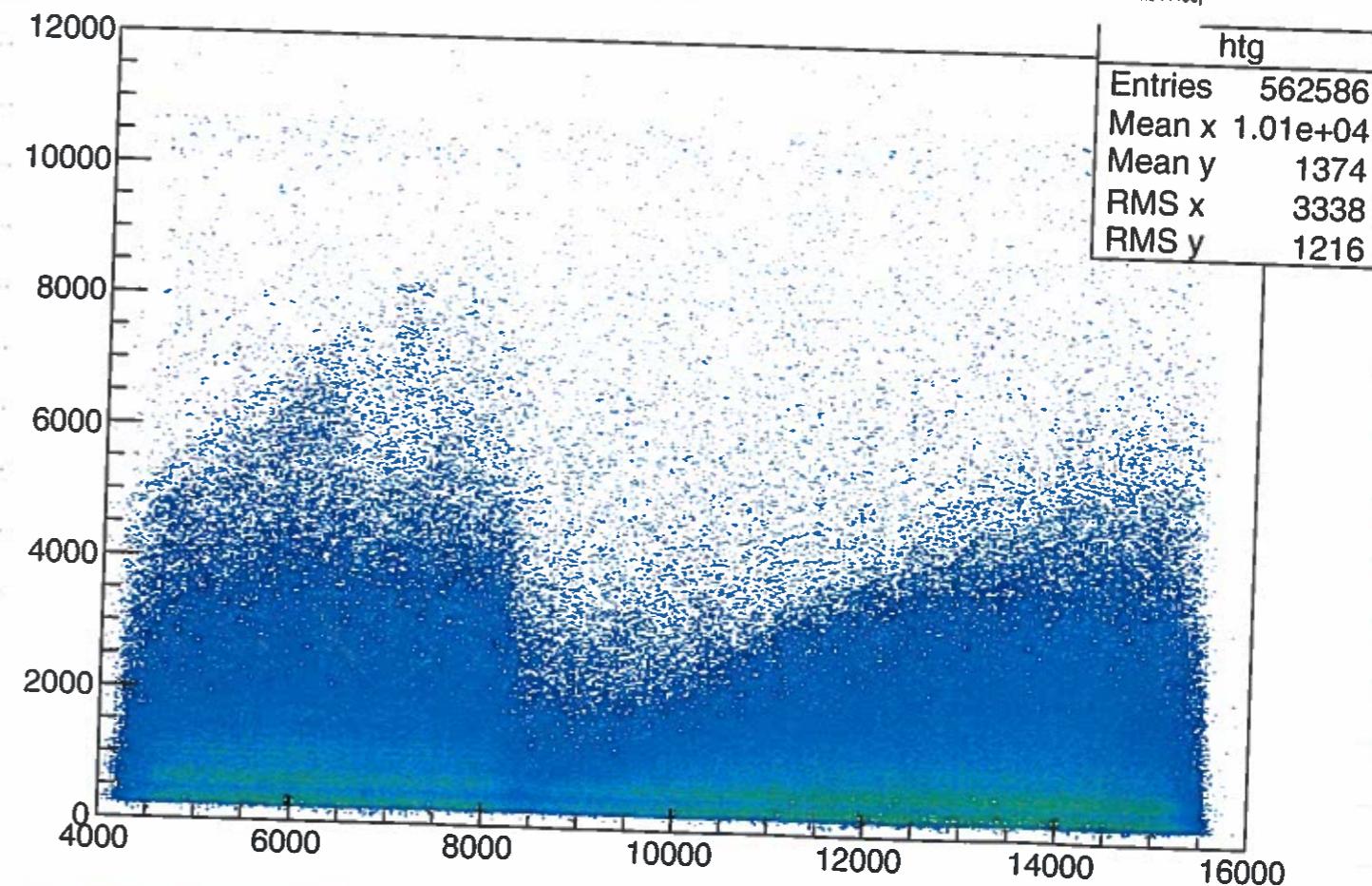
Clover L1-4 Rates (Hz) L1: 23.8 L2: 23.5 L3: 22.9 L4: 19.7
 Clover R1-4 Rates (Hz) R1: 19.1 R2: 23.7 R3: 31.5 R4: 13.9
 LaBr Rates (Hz) 1: 13.1 2: 22.7

roughly full acceptance

GammaEnergy:ExmmeDetectorType=="Scintillator" && pad_101_alpha0 && Y1>-15 && Y1<15 && GammaTime>3800 && GammaTime<4400 && (10000.5-19.35*Y1)pos) GammaEnergy > 4000



GammaEnergy:ExK600 (GammaDetectorType=="Scintillator" && pad_101_alpha0 && Y1>-15 && Y1<15 && GammaTime>3800 && GammaTime<4400)



Rn 2386

16:55 - 16:58

Empty target.

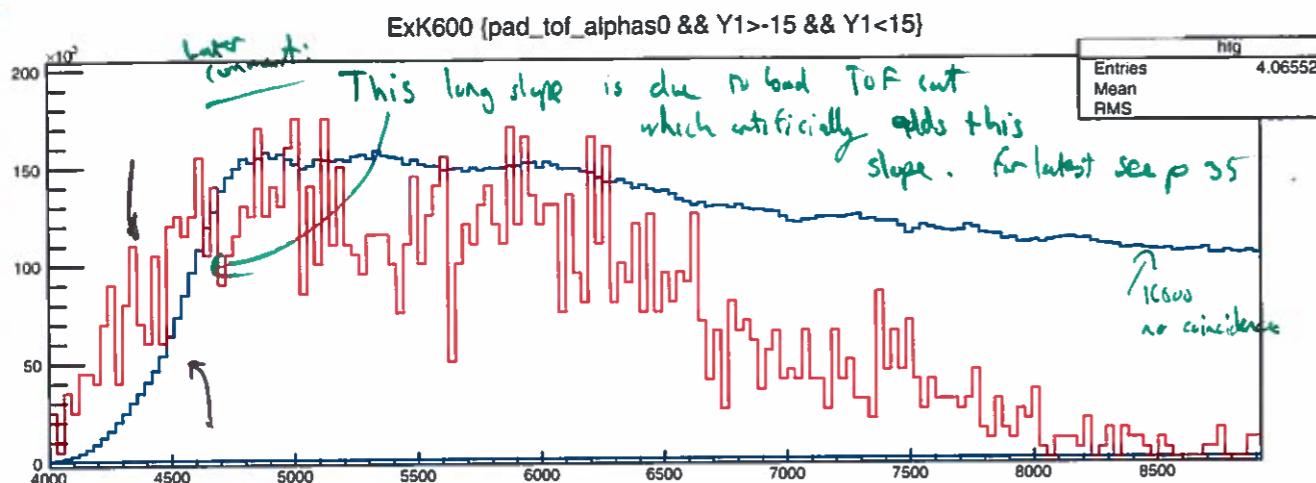
26 Hz @ 1.2 nA

Note Bad comment in online database.

31

Run comment: ^{154}Sm
 Run #: 2387
 Start: 16:59 Current: 1.2 nA Trigger rate: 700 Hz
 Stop: 17:59 CI Range: 6 Trigger evts: 2.74
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3482

Clover L1-4 Rates (Hz) L1: 21.4 L2: 20.1 L3: 20.1 L4: 18.0
 Clover R1-4 Rates (Hz) R1: 17.0 R2: 22.1 R3: 29.1 R4: 12.9
 LaBr Rates (Hz) 1: 12.13 2: 77.38



The slope of the FP acceptance and the slope of the first bump (Naked up) is too similar to claim (at this stage) that we have a bump on the left and, therefore, a double peak structure.

Run comment: ^{154}Sm
 Run #: 2388
 Start: 18:13 Current: 0.7 nA Trigger rate: 546 Hz
 Stop: 18:23 CI Range: 6 Trigger evts: 335 R28
 Target: ^{154}Sm Scaler evts: 559

Clover L1-4 Rates (Hz) L1: 16.16 L2: 15.76 L3: 15.51 L4: 13.50
 Clover R1-4 Rates (Hz) R1: 12.67 R2: 16.41 R3: 27.51 R4: 9.50
 LaBr Rates (Hz) 1: 9.99 2: 21.19

Run comment: ^{154}Sm BaGel IN
 Run #: 2389
 Start: 18:14 Current: 0.8 nA Trigger rate: 600 Hz
 Stop: 18:39 CI Range: 6 Trigger evts: 3494 R16
 Target: ^{154}Sm Scaler evts: 917

Clover L1-4 Rates (Hz) L1: 18.16 L2: 18.05 L3: 18.02 L4: 15.83
 Clover R1-4 Rates (Hz) R1: 15.1 R2: 18.58 R3: 20.41 R4: 16.21
 LaBr Rates (Hz) 1: 10.16 2: 23.81

Run comment: ^{154}Sm BaGel IN
 Run #: 2390

Start: 18:50 Current: 0.7 nA Trigger rate: 525 Hz
 Stop: 19:51 CI Range: 6 Trigger evts: 2.18 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3557

Clover L1-4 Rates (Hz) L1: 20.37 L2: 20.00 L3: 10.58 L4: 17.92
 Clover R1-4 Rates (Hz) R1: 16.81 R2: 20.73 R3: 28.41 R4: 12.38
 LaBr Rates (Hz) 1: 12.05 2: 27.58

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93.18
 U1 94.30

Run comment: ^{154}Sm BaGel IN

Run #: 2391
 Start: 19:52 Current: 0.7 nA Trigger rate: 500 Hz
 Stop: 20:52 CI Range: 6 Trigger evts: 2.010 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3672

Clover L1-4 Rates (Hz) L1: 17.81 L2: 17.61 L3: 17.59 L4: 15.14
 Clover R1-4 Rates (Hz) R1: 12.3 R2: 15.8 R3: 21.0 R4: 9.2
 LaBr Rates (Hz) 1: 10.70 2: 23.71

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 92.85
 U1 94.29

* Runs from 2392 to 2397 are JUNK,
 the DAQ ~~at~~ crashed again.
 I reset the VME and now everything
 is working again. FIUUII 😊

Run comment: ^{24}Mg BaGel IN

Run #: 2392
 Start: 21:39 Current: 0.9 nA Trigger rate: 81 Hz
 Stop: 22:11 CI Range: 6 Trigger evts: 16616
 Target: $^{24}\text{Mg} \#4$ Scaler evts: 1868

Clover L1-4 Rates (Hz) L1: 20.1 L2: 20.1 L3: 21.1 L4: 20.4
 Clover R1-4 Rates (Hz) R1: 20.1 R2: 20.2 R3: 27.4 R4: 14.2
 LaBr Rates (Hz) 1: 3.7 2: 8.2

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 94.18
 U1 95.53

Run comment: ^{154}Sm BaGel IN

Run #: 2394
 Start: 22:13 Current: 1 nA Trigger rate: 693 Hz
 Stop: 23:13 CI Range: 6 Trigger evts: 2.6 M
 Target: $^{154}\text{Sm} \#2$ Scaler evts: 3535

Clover L1-4 Rates (Hz) L1: 20.4 L2: 20.2 L3: 20.4 L4: 17.4
 Clover R1-4 Rates (Hz) R1: 16.1 R2: 20.2 R3: 27.2 R4: 12.08
 LaBr Rates (Hz) 1: 11.8 2: 26.07

K600 angle: 0 deg
 Q: S A
 D1: A A
 H: M A
 D2: E A
 K: A

Mental Health Level:
 ☺ ☺ ☺

VDC efficiency
 X1 93.06
 U1 94.08

Run comment: ¹⁵⁴Sm BaGEL in

Run #: 2405
Start: 03:14 Current: 1.1 nA Trigger rate: 830 Hz
Stop: 00:15 CI Range: 6 Trigger evts: 2.520M
Target: ¹⁵⁴Sm #2 Scaler evts: 3527

Clover L1-4 Rates (Hz) L1: 21.89 L2: 21.66 L3: 21.1 L4: 19.01
Clover R1-4 Rates (Hz) R1: 18.6 R2: 22.7 R3: 30.78 R4: 13.06
LaBr Rates (Hz) 1: 13.22 2: 28.97

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: A A
H: M A
D2: E A
K: E A

VDC efficiency

X1 93.11

U1 94.26

Clover L1-4 Rates (Hz) L1: 21.89 L2: 21.66 L3: 21.1 L4: 19.01
Clover R1-4 Rates (Hz) R1: 18.6 R2: 22.7 R3: 30.78 R4: 13.06
LaBr Rates (Hz) 1: 13.22 2: 28.97

Gut check

Run comment: ¹⁵⁴Sm #2 thick data, BaGEL in

Run #: 2401
Start: 00:16 Current: 0.7 nA Trigger rate: 534 Hz
Stop: 01:17 CI Range: 6 nA Trigger evts: 2.411M
Target: ¹⁵⁴Sm Scaler evts: 3524

Clover L1-4 Rates (Hz) L1: 14.2 L2: 13.9 L3: 14.0 L4: 11.9
Clover R1-4 Rates (Hz) R1: 11.5 R2: 11.5 R3: 15.8 R4: 8.5
LaBr Rates (Hz) 1: 10.1 2: 22.3

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: M A
K: E A

VDC efficiency

X1 92.1

U1 94.4

comment: ¹⁵⁴Sm #2 (thick) data, BaGEL in
Run #: 2402
Start: 01:19 Current: 0.7 nA Trigger rate: 665 Hz
Stop: 02:21 CI Range: 6 nA Trigger evts: 2.165M
Target: ¹⁵⁴Sm Scaler evts: 3568

Clover L1-4 Rates (Hz) L1: 17.6 L2: 19.6 L3: 19.7 L4: 16.7
Clover R1-4 Rates (Hz) R1: 15.7 R2: 19.8 R3: 26.4 R4: 11.3
LaBr Rates (Hz) 1: 11.7 2: 25.9

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: E A
K: E A

VDC efficiency

X1 92.8

U1 94.2

Run comment: ²⁴Mg data, BaGEL in

Run #: 2403
Start: 02:23 Current: 0.6 nA Trigger rate: 75 Hz
Stop: 03:03 CI Range: 6 nA Trigger evts: 1.81640
Target: ²⁴Mg Scaler evts: 2326

Clover L1-4 Rates (Hz) L1: 2.0 L2: 1.9 L3: 2.1 L4: 2.0
Clover R1-4 Rates (Hz) R1: 1.9 R2: 1.9 R3: 2.6 R4: 1.5
LaBr Rates (Hz) 1: 3.7 2: 7.8

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: E A
K: E A

VDC efficiency

X1 93.5

U1 94.8

Run comment: ¹⁵⁴Sm data, BaGEL in

Run #: 2404
Start: 03:09 Current: 0.7 nA Trigger rate: 587 Hz
Stop: 04:09 CI Range: 6 nA Trigger evts: 2.231M
Target: ¹⁵⁴Sm thick Scaler evts: 3572

Clover L1-4 Rates (Hz) L1: 17.3 L2: 17.0 L3: 17.5 L4: 15.0
Clover R1-4 Rates (Hz) R1: 14.4 R2: 17.9 R3: 25.3 R4: 11.1
LaBr Rates (Hz) 1: 10.8 2: 23.9

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: E A
K: E A

VDC efficiency

X1 93.1

U1 94.1

Clover L1-4 Rates (Hz) L1: 21.89 L2: 21.66 L3: 21.1 L4: 19.01
Clover R1-4 Rates (Hz) R1: 18.6 R2: 22.7 R3: 30.78 R4: 13.06
LaBr Rates (Hz) 1: 13.22 2: 28.97

Run comment: ¹⁵⁴Sm thick data, BaGEL in

Run #: 2405
Start: 04:10 Current: 0.7 nA Trigger rate: 560 Hz
Stop: 05:12 CI Range: 6 nA Trigger evts: 2.536M
Target: ¹⁵⁴Sm Scaler evts: 3683

Clover L1-4 Rates (Hz) L1: 23.2 L2: 22.3 L3: 22.1 L4: 19.2
Clover R1-4 Rates (Hz) R1: 18.7 R2: 23.4 R3: 31.5 R4: 13.1
LaBr Rates (Hz) 1: 13.1 2: 27.1

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: M A
K: E A

VDC efficiency

X1 92.1

U1 94.3

Clover L1-4 Rates (Hz) L1: 14.2 L2: 13.9 L3: 14.0 L4: 11.9
Clover R1-4 Rates (Hz) R1: 11.5 R2: 11.5 R3: 15.8 R4: 8.5
LaBr Rates (Hz) 1: 10.1 2: 22.3

Clover L1-4 Rates (Hz) L1: 16.2 L2: 18.6 L3: 18.7 L4: 16.6
Clover R1-4 Rates (Hz) R1: 15.4 R2: 19.8 R3: 25.2 R4: 10.0
LaBr Rates (Hz) 1: 11.7 2: 25.0

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: M A
K: E A

VDC efficiency

X1 92.7

U1 93.4

Clover L1-4 Rates (Hz) L1: 17.6 L2: 19.6 L3: 19.7 L4: 16.7
Clover R1-4 Rates (Hz) R1: 15.7 R2: 19.8 R3: 26.4 R4: 11.3
LaBr Rates (Hz) 1: 11.7 2: 25.9

Clover L1-4 Rates (Hz) L1: 18.3 L2: 17.9 L3: 17.9 L4: 15.4
Clover R1-4 Rates (Hz) R1: 14.7 R2: 18.5 R3: 25.2 R4: 7.7
LaBr Rates (Hz) 1: 11.2 2: 24.7

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: M A
K: E A

VDC efficiency

X1 93.0

U1 94.2

Clover L1-4 Rates (Hz) L1: 2.0 L2: 1.9 L3: 2.1 L4: 2.0
Clover R1-4 Rates (Hz) R1: 1.9 R2: 1.9 R3: 2.6 R4: 1.5
LaBr Rates (Hz) 1: 3.7 2: 7.8

Clover L1-4 Rates (Hz) L1: 2.0 L2: 1.9 L3: 2.1 L4: 2.0
Clover R1-4 Rates (Hz) R1: 2.0 R2: 1.9 R3: 2.7 R4: 1.5
LaBr Rates (Hz) 1: 3.7 2: 7.9

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: E A
K: E A

VDC efficiency

X1 93.9

U1 95.1

Clover L1-4 Rates (Hz) L1: 17.3 L2: 17.0 L3: 17.5 L4: 15.0
Clover R1-4 Rates (Hz) R1: 14.4 R2: 17.9 R3: 25.3 R4: 11.1
LaBr Rates (Hz) 1: 10.8 2: 23.9

Clover L1-4 Rates (Hz) L1: 23.9 L2: 23.6 L3: 23.0 L4: 19.8
Clover R1-4 Rates (Hz) R1: 18.7 R2: 24.4 R3: 32.1 R4: 13.9
LaBr Rates (Hz) 1: 13.4 2: 29.2

K600 angle: 0 deg

Mental Health Level:

Q: S A
D1: S A
H: M A
D2: E A
K: E A

VDC efficiency

X1 93.0

U1 94.3

33

Slit 2x X_{gap} 1.3 (why more than 1mm?)

Slit 12x X_{gap} 2.5
Y_{gap} 3.2

Slit 1P X_{gap} 4.399 why so small?

Slit 2P X_{gap} 10.89
Y_{gap} 4.5

Slit 10P X_{gap} 10.1
Y_{gap} 11.1

Slit 2S X_{gap} 12.5
Y_{gap} 12.53

SSC RF 11.38 MHz

RF1 = RF2 = 159170 V

Phase = 363.8°

¹⁵⁴Sn thick, BAGEL in

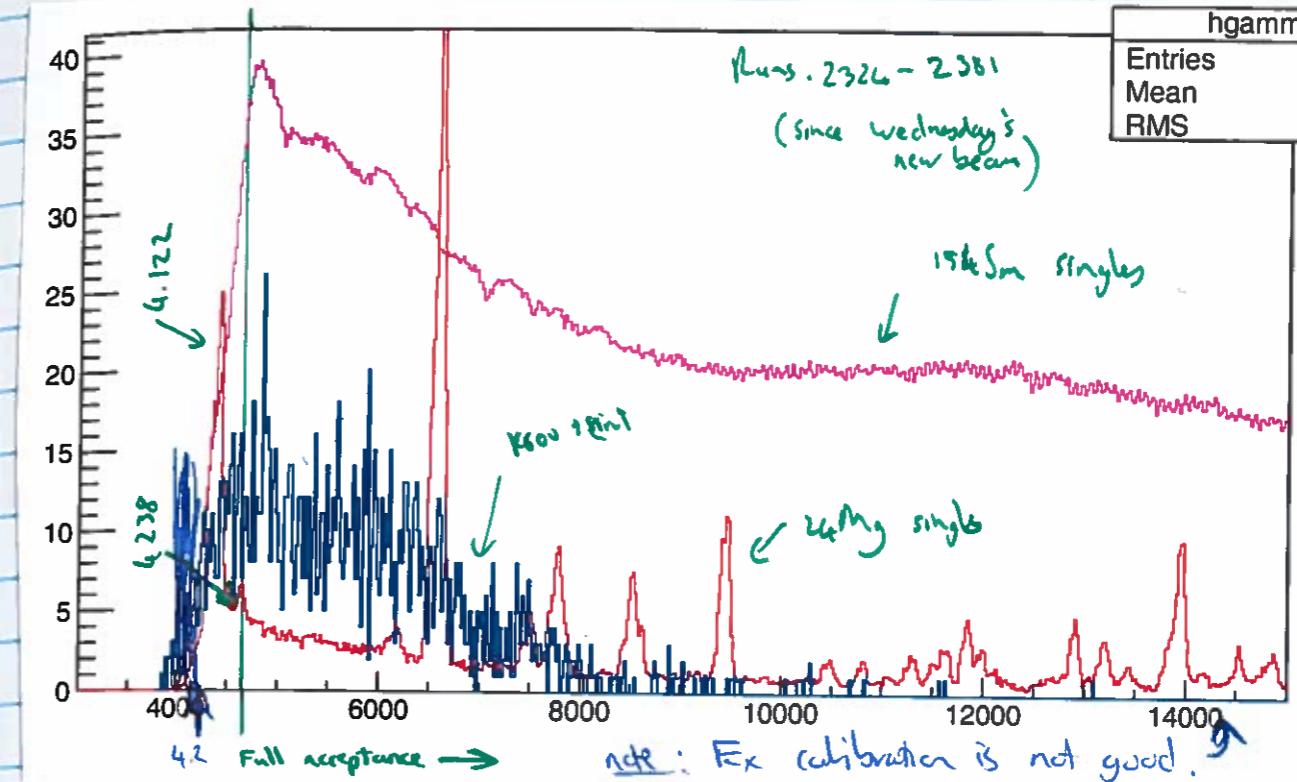
Run #: 2410
Start: 05:51 Current: 1 nA Trigger rate: 700 Hz
Stop: 10:03 CI Range: 6 Trigger evts: 3154
Target: ¹⁵⁴Sn Scaler evts: 4173

Clover L1-4 Rate (Hz) L1: 20 L2: 20 L3: 19 L4: 17
Clover R1-4 Rates (Hz) R1: 16 R2: 20 R3: 28 R4: 12
LaBr Rate (Hz) 1: 12 2: 27

K600 angle: 0 deg
Q: -365.056 A
D1: 368.0 A
H: 0.032 A
D2: 210.45 A
U1: 93.06
U2: 94.17

NOTE! Blue is ElaBr. Good calibration.
Red and pink are K600. Bad calibration. We should be safe down to.

hgamma	safe down to
Entries	1574
Mean	5714
RMS	1148



We see that

- 1) Ex calibration is out
- 2) We seem to have full acceptance down to the 4.238 MeV state in ²⁴Mg
- 3) The first 700 keV of the left "bump" is not to be trusted as there is not good enough acceptance.

10:07 Now we try and move the beam closer to the focal plane to access lower Ex.

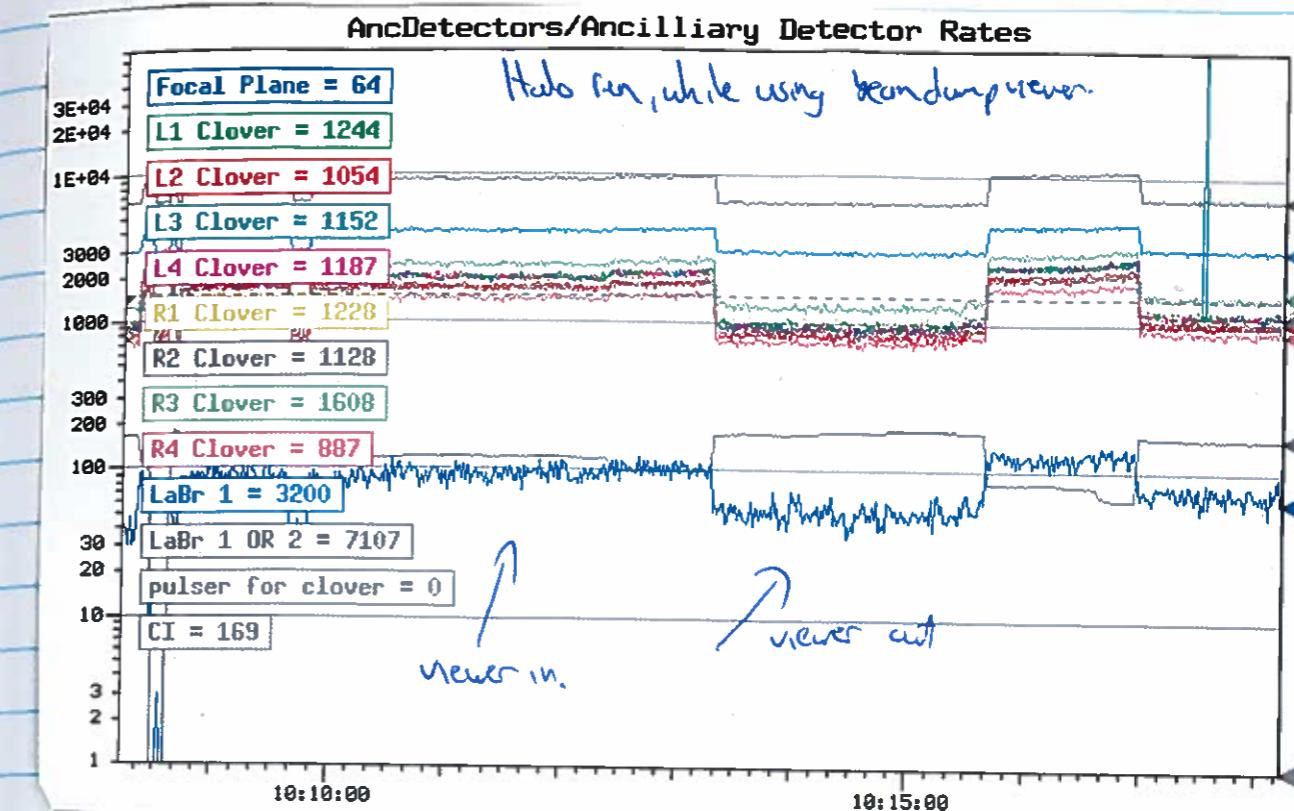
Run 2411, Empty target ~400Hz (1) nA.
BAGEL < 1000 Hz / detector.

Put in Beavertop viewer. Trig rate up to 80 Hz / nA
(note: with viewer current ~ 0.6nA.
without ~ 1nA)

Also clear rates increase to >1kHz when viewer is in



where we started. $D1 = 318$

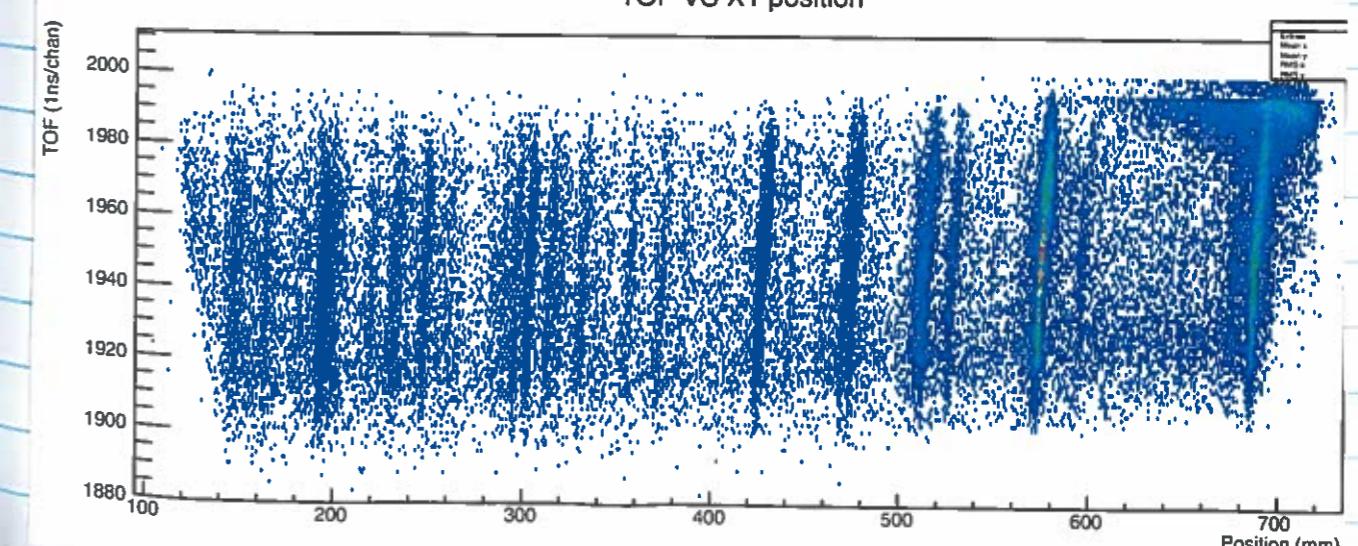
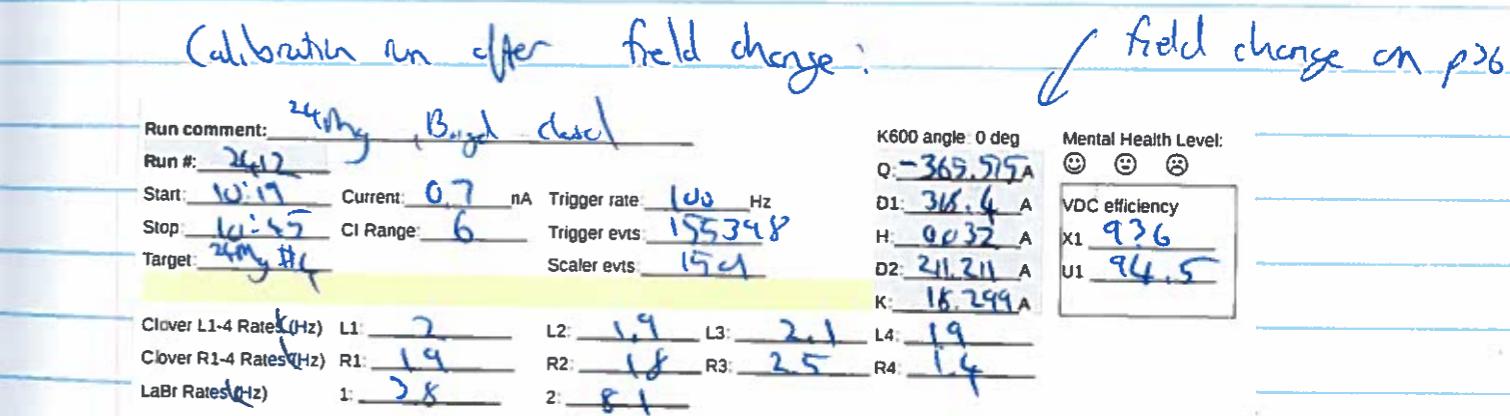


Halo run, while using beamdump viewer.

(Change) $D1 = 318.4$ (per superlens)



where we ended: $D1 = 318.4$



I moved the beam to the left on the viewer until it falls partially off the viewer. Still see full beam in FC. (when viewer is taken out)

Gain (Go-Zackel)
at & Fk side.

Run comment: 1945m, Bagel closed.

Run #: 2413
 Start: 11:41 Current: 0.6 nA Trigger rate: 580 Hz
 Stop: 11:42 CI Range: Trigger evts: Scaler evts:
 Target: 1945m thick
 Clover L1-4 Rates (Hz) L1: 24 L2: 23 L3: 24 L4: 21
 Clover R1-4 Rates (Hz) R1: 21 R2: 19 R3: 24 R4: 14
 LaBr Rates (Hz) 1: 14 2: 32

Turk
red.

K600 angle: 0 deg
 Mental Health Level:
 Q: A D1: 318.0 → 318.0 A H: A D2: A K: A
 VDC efficiency X1: U1:

Seems as if the clover rates are higher now.
 Is this due to the change in K600 fields?
 Rates approaching 30 k.

Not sure what is going on.
 Changed D1 back to 318.0
 Want to see effect on clover rates.

At 0.6 nA L: 11 19 19 18 D1 = 318.0
 R: 15 19 26 11

Try rate = 650 Hz.

Change field back to 318.0.
 At 0.65 nA L: 19 18 19 16 D1 = 318.0
 R: 15 19 26 11

Try rate = 711 Hz.

I think we can live with this.
 Start a new run...

1945m, Bagel closed.

Run comment: 1945m, Bagel closed.
 Run #: 2414
 Start: 11:44 Current: 0.7 nA Trigger rate: 700 Hz
 Stop: 11:42 CI Range: Trigger evts: Scaler evts:
 Target: 1945m thick
 Clover L1-4 Rates (Hz) L1: 20 L2: 20 L3: 22 L4: 17
 Clover R1-4 Rates (Hz) R1: 17 R2: 20 R3: 27 R4: 12
 LaBr Rates (Hz) 1: 12 2: 28

K600 angle: 0 deg
 Mental Health Level:
 Q: -315.515 A D1: 318.1 A H: 0.132 A D2: 211.211 A K: 18.749 A
 VDC efficiency X1: U1:

11:28 Analyzer again problematic.

Had to do vme sysreset. Also log out of analyzer terminals.

Run 2419 is Turk.

1945m, Bagel closed.

Run comment: 1945m, Bagel closed.
 Run #: 2415
 Start: 11:51:35 Current: 0.6 nA Trigger rate: 790 Hz
 Stop: 12:52:32 CI Range: 6 Trigger evts: 2777 m Scaler evts: 2589
 Target: 1945m thick
 Clover L1-4 Rates (Hz) L1: 19 L2: 18 L3: 18 L4: 16
 Clover R1-4 Rates (Hz) R1: 16 R2: 19 R3: 25 R4: 11
 LaBr Rates (Hz) 1: 11 2: 26

K600 angle: 0 deg
 Mental Health Level:
 Q: A D1: A H: A D2: A K: A
 VDC efficiency X1: U1:

NOTE: Run was long ~~14.97 sec~~
 :. 365.7 sec
 BUT there are only 2589 scalar events.

. every scalar event takes 1.0189 sec.

1945m, Bagel closed.

Run comment: 1945m, Bagel closed.
 Run #: 2417
 Start: 12:54 Current: 0.5 nA Trigger rate: 700 Hz
 Stop: 12:59 CI Range: 6 Trigger evts: 2474 m Scaler evts: 3457
 Target: 1945m thick
 Clover L1-4 Rates (Hz) L1: 19 L2: 14 L3: 14 L4: 17
 Clover R1-4 Rates (Hz) R1: 16 R2: 14 R3: 26 R4: 12
 LaBr Rates (Hz) 1: 13 2: 28

K600 angle: 0 deg
 Mental Health Level:
 Q: A D1: A H: A D2: A K: A
 VDC efficiency X1: 93 U1: 94

Run comment: 24 Mg
 Run #: 2418
 Start: 13:54 Current: 0.7 nA Trigger rate: 100 Hz
 Stop: 14:25 CI Range: 6 Trigger evts: 220223
 Target: 24 Mg Scaler evts: 1809
 Clover L1-4 Rates (Hz) L1: 2.4 L2: 2.3 L3: 2.5 L4: 2.5
 Clover R1-4 Rates (Hz) R1: 2.5 R2: 2.2 R3: 2.3 R4: 1.7
 LaBr Rates (Hz) 1: 4.2 2: 1.2

K600 angle: 0 deg Mental Health Level:
 Q: A
 D1: A
 H: A
 D2: A
 K: A
 VDC efficiency
 X1 93,8436
 U1 94,6992

Run comment: 154 Sm, BAGEL in

Run #: 2419
 Start: 14:39 Current: 0.5 nA Trigger rate: 693 Hz
 Stop: 15:15 CI Range: 6 Trigger evts: 1985
 Target: 154Sm Scaler evts: 2729
 Clover L1-4 Rates (Hz) L1: 17.9 L2: 17.5 L3: 17.8 L4: 15.7
 Clover R1-4 Rates (Hz) R1: 15.5 R2: 18.1 R3: 24.7 R4: 10.5
 LaBr Rates (Hz) 1: 16.2 2: 25.2

K600 angle: 0 deg Mental Health Level:
 Q: A
 D1: A
 H: A
 D2: A
 K: A
 VDC efficiency
 X1 93,0916
 U1 93,9900

Run 2420 Empty target. 60 Hz (a) 0.7nA
15:18 - 15:24

Decide to look at viewers.

Go open BAGEL.

Run 2421 Viewers.in Close check

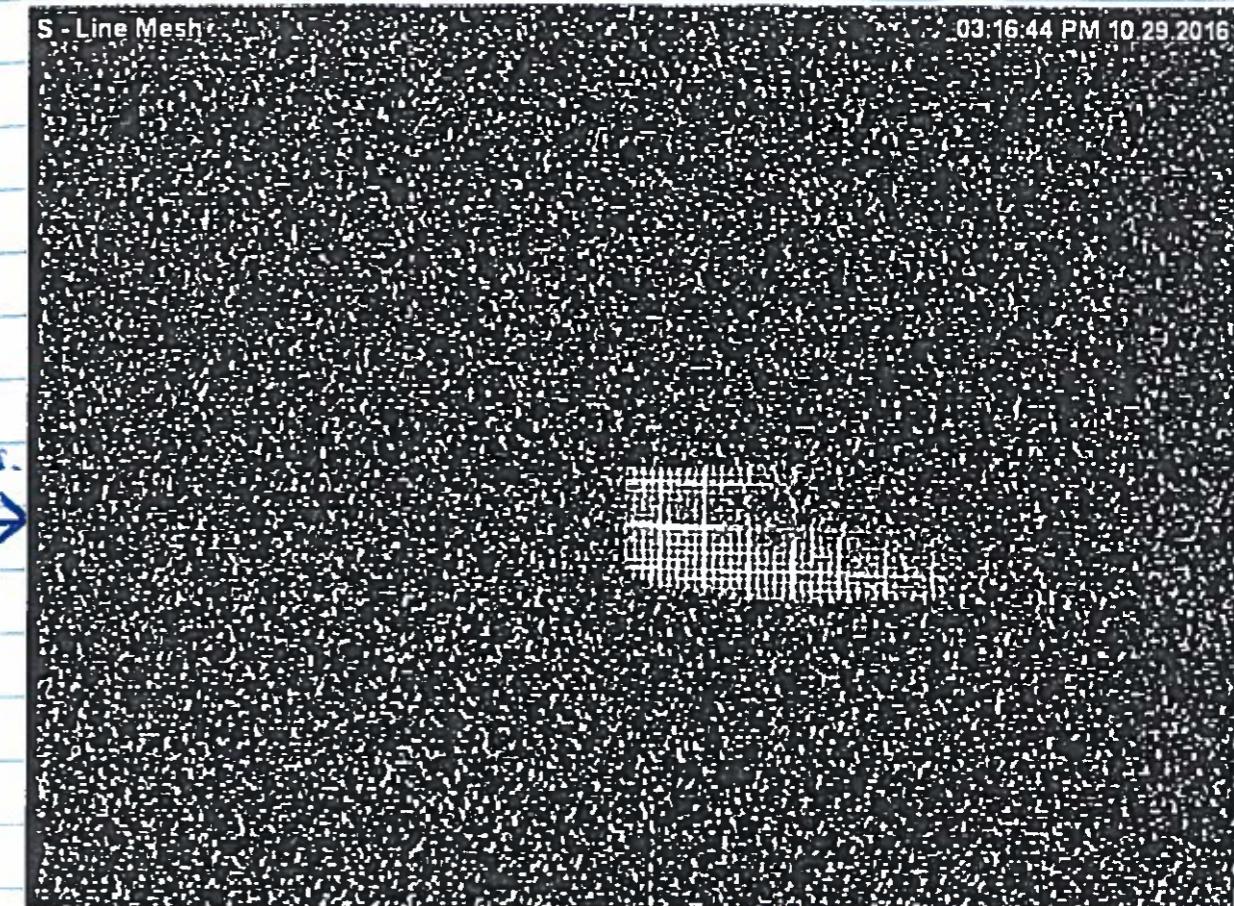
(low rate < 6 kHz. (a) 0.2nA)

Match beam on Hatchake. Web falling off
in left

Run 2422 MT

~20 Hz/nA

Close BAGEL



After
vac.
Now
(center)

If looked
good on
this never
also before
the
change.

Beam dump viewer looks like p36 bottom

L3

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2423
 Start: 15:57 Current: 0.6 nA Trigger rate: 610 Hz
 Stop: 16:56 CI Range: 6 Trigger evts: 2,123 M
 Target: ¹⁵⁴ Sm thick
 Scaler evts: 3555

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.79
 U1 94.03

Clover L1-4 Rates (Hz) L1: 17 L2: 16 L3: 17 L4: 15
 Clover R1-4 Rates (Hz) R1: 14 R2: 19 R3: 25 R4: 11
 LaBr Rates (Hz) 1: 11 2: 25

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2424
 Start: 16:48 Current: 0.6 nA Trigger rate: 151 Hz
 Stop: 17:58 CI Range: 6 Trigger evts: 1,958 M
 Target: ¹⁵⁴ Sm thick
 Scaler evts: 3470

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.79
 U1 94.84

Clover L1-4 Rates (Hz) L1: 15 L2: 14 L3: 15 L4: 13
 Clover R1-4 Rates (Hz) R1: 13 R2: 16 R3: 22 R4: 10
 LaBr Rates (Hz) 1: 10 2: 22

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2425
 Start: 17:59 Current: 0.5 nA Trigger rate: 449 Hz
 Stop: 18:59 CI Range: 6 Trigger evts: 1,721 M
 Target: ¹⁵⁴ Sm thick
 Scaler evts: 3482

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 91.85
 U1 93.58

Clover L1-4 Rates (Hz) L1: 13 L2: 13 L3: 13 L4: 12
 Clover R1-4 Rates (Hz) R1: 11 R2: 17 R3: 18 R4: 8
 LaBr Rates (Hz) 1: 9 2: 19

²⁴ Mg

Run comment: ²⁴ Mg
 Run #: 2426
 Start: 19:04 Current: 0.6 nA Trigger rate: 60 Hz
 Stop: 19:34 CI Range: 6 Trigger evts: 1064 M
 Target: ²⁴ Mg
 Scaler evts: 1716

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 93.82
 U1 95.19

Clover L1-4 Rates (Hz) L1: 1.9 L2: 1.7 L3: 1.8 L4: 1.9
 Clover R1-4 Rates (Hz) R1: 1.7 R2: 1.8 R3: 2.5 R4: 1.6
 LaBr Rates (Hz) 1: 7.5 2: 7.4

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2427
 Start: 19:37 Current: 0.6 nA Trigger rate: 611 Hz
 Stop: 20:37 CI Range: 6 Trigger evts: 1,888 M
 Target: ¹⁵⁴ Sm
 Scaler evts: 3512

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.47
 U1 93.13

Clover L1-4 Rates (Hz) L1: 15 L2: 15 L3: 15 L4: 13
 Clover R1-4 Rates (Hz) R1: 12 R2: 12 R3: 15 R4: 9
 LaBr Rates (Hz) 1: 9 2: 20

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2428
 Start: 20:39 Current: 0.7 nA Trigger rate: 570 Hz
 Stop: 21:40 CI Range: 6 Trigger evts: 1,841 M
 Target: ¹⁵⁴ Sm
 Scaler evts: 3561

Clover L1-4 Rates (Hz) L1: 16 L2: 16 L3: 16 L4: 14
 Clover R1-4 Rates (Hz) R1: 13 R2: 16 R3: 22 R4: 10
 LaBr Rates (Hz) 1: 16 2: 22

K600 angle: 0 deg
 Q: A
 D1: A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 93.15
 U1 94.30

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2429
 Start: 21:42 Current: 0.6 nA Trigger rate: 560 Hz
 Stop: 22:43 CI Range: 6 Trigger evts: 1,876 M
 Target: ¹⁵⁴ Sm
 Scaler evts: 3580

Clover L1-4 Rates (Hz) L1: 14 L2: 13 L3: 13 L4: 11
 Clover R1-4 Rates (Hz) R1: 11 R2: 13 R3: 17 R4: 10
 LaBr Rates (Hz) 1: 10 2: 20

K600 angle: 0 deg
 Q: A
 D1: A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.62
 U1 94.15

¹⁵⁴ Sm thick data

Run comment: ¹⁵⁴ Sm thick data
 Run #: 2430
 Start: 22:44 Current: 0.5 nA Trigger rate: 464 Hz
 Stop: 23:45 CI Range: 6 Trigger evts: 1,961 M
 Target: ¹⁵⁴ Sm
 Scaler evts: 3548

Clover L1-4 Rates (Hz) L1: 13 L2: 12 L3: 12 L4: 10
 Clover R1-4 Rates (Hz) R1: 10 R2: 13 R3: 18 R4: 10
 LaBr Rates (Hz) 1: 10 2: 19

K600 angle: 0 deg
 Q: A
 D1: A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.61
 U1 94.08

²⁴ Mg

Run comment: ²⁴ Mg
 Run #: 2431
 Start: 23:46 Current: 0.7 nA Trigger rate: 80 Hz
 Stop: 00:16 CI Range: 6 Trigger evts: 1230 M
 Target: ²⁴ Mg
 Scaler evts: 1746

Clover L1-4 Rates (Hz) L1: 1.7 L2: 1.6 L3: 1.9 L4: 1.7
 Clover R1-4 Rates (Hz) R1: 1.8 R2: 1.8 R3: 2.4 R4: 1.3
 LaBr Rates (Hz) 1: 3.4 2: 7.4

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.64
 U1 94.14

¹⁵⁴ SM THICK, BAGEL IN

Run comment: ¹⁵⁴ SM THICK, BAGEL IN
 Run #: 2432
 Start: 00:18 Current: 0.5 nA Trigger rate: 427 Hz
 Stop: 01:18 CI Range: 6 Trigger evts: 1,790 M
 Target: ¹⁵⁴ SM THICK H2
 Scaler evts: 3527

Clover L1-4 Rates (Hz) L1: 12.8 L2: 11.9 L3: 12.3 L4: 10.2
 Clover R1-4 Rates (Hz) R1: 9.9 R2: 12.3 R3: 16.8 R4: 7.8
 LaBr Rates (Hz) 1: 8.0 2: 17.6

K600 angle: 0 deg
 Q: A
 D1: *S* A
 H: *S* A
 D2: *S* A
 K: A

Mental Health Level:
 VDC efficiency
 X1 92.66
 U1 94.10

30 / 10

Sunday

Run comment: ¹⁵⁴Sr THICK, BAGEL IN

Run #: 2433
Start: 01:20 Current: 0.5 nA Trigger rate: 467 Hz
Stop: 02:21 CI Range: 6 Trigger evts: 1,798 M
Target: ¹⁵⁴Sr THICK #2 Scaler evts: 3533

K600 angle: 0 deg
Q: A
D1: S A
H: A A
D2: M A
K: E A
Mental Health Level:
VDC efficiency
X1 92.64
U1 93.16

Clover L1-4 Rates (Hz) L1: 13.6 L2: 12.6 L3: 12.8 L4: 11.5
Clover R1-4 Rates (Hz) R1: 11.1 R2: 13.8 R3: 18.2 R4: 8.2
LaBr Rates (Hz) 1: 8.9 2: 19.7

Run comment: ¹⁵⁴Sr THICK, BAGEL IN

Run #: 2434
Start: 02:21 Current: 0.7 nA Trigger rate: 578 Hz
Stop: 03:23 CI Range: 6 Trigger evts: 1,760 M
Target: ¹⁵⁴Sr THICK #2 Scaler evts: 3562

K600 angle: 0 deg
Q: A
D1: S A
H: A A
D2: M A
K: E A
Mental Health Level:
VDC efficiency
X1 92.64
U1 94.07

Clover L1-4 Rates (Hz) L1: 15.9 L2: 14.2 L3: 12.5 L4: 11.8
Clover R1-4 Rates (Hz) R1: 11.4 R2: 14.6 R3: 20.1 R4: 8.5
LaBr Rates (Hz) 1: 4.7 2: 20.5

Run comment: ²⁴Mg BAGEL IN DATA

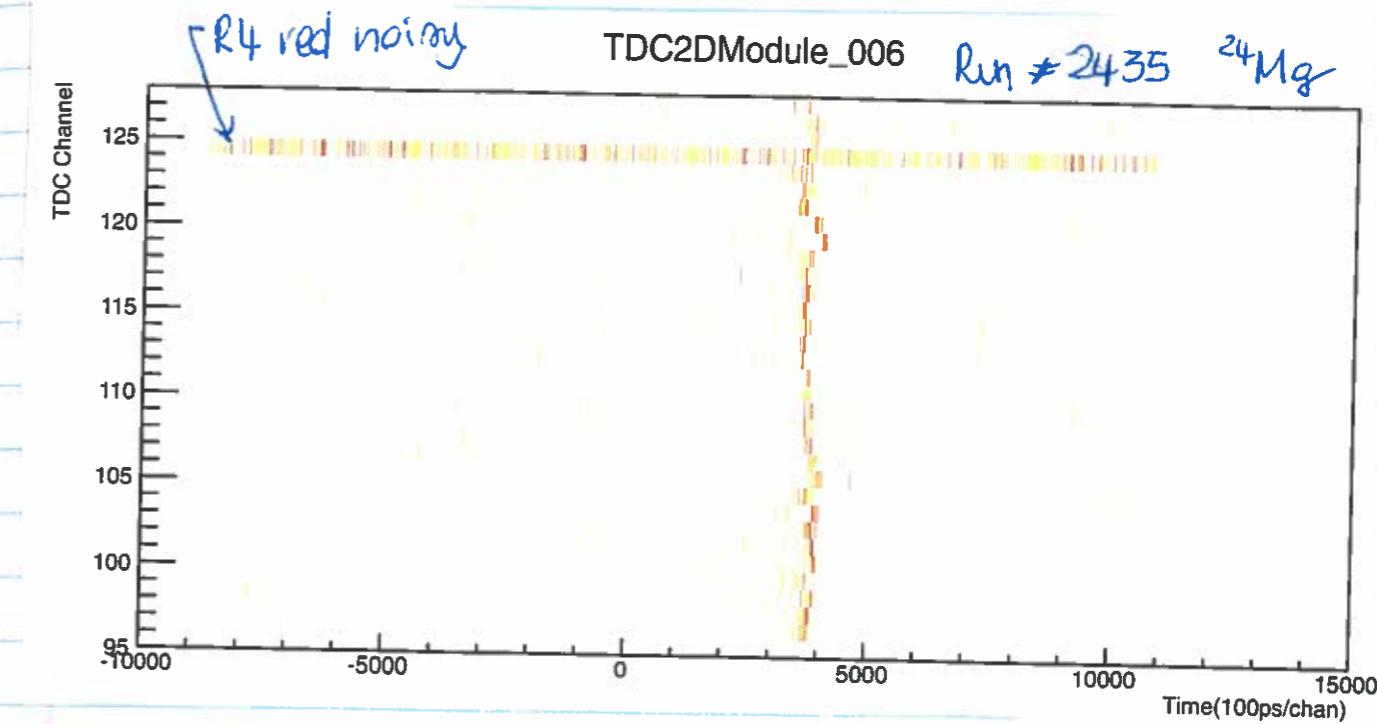
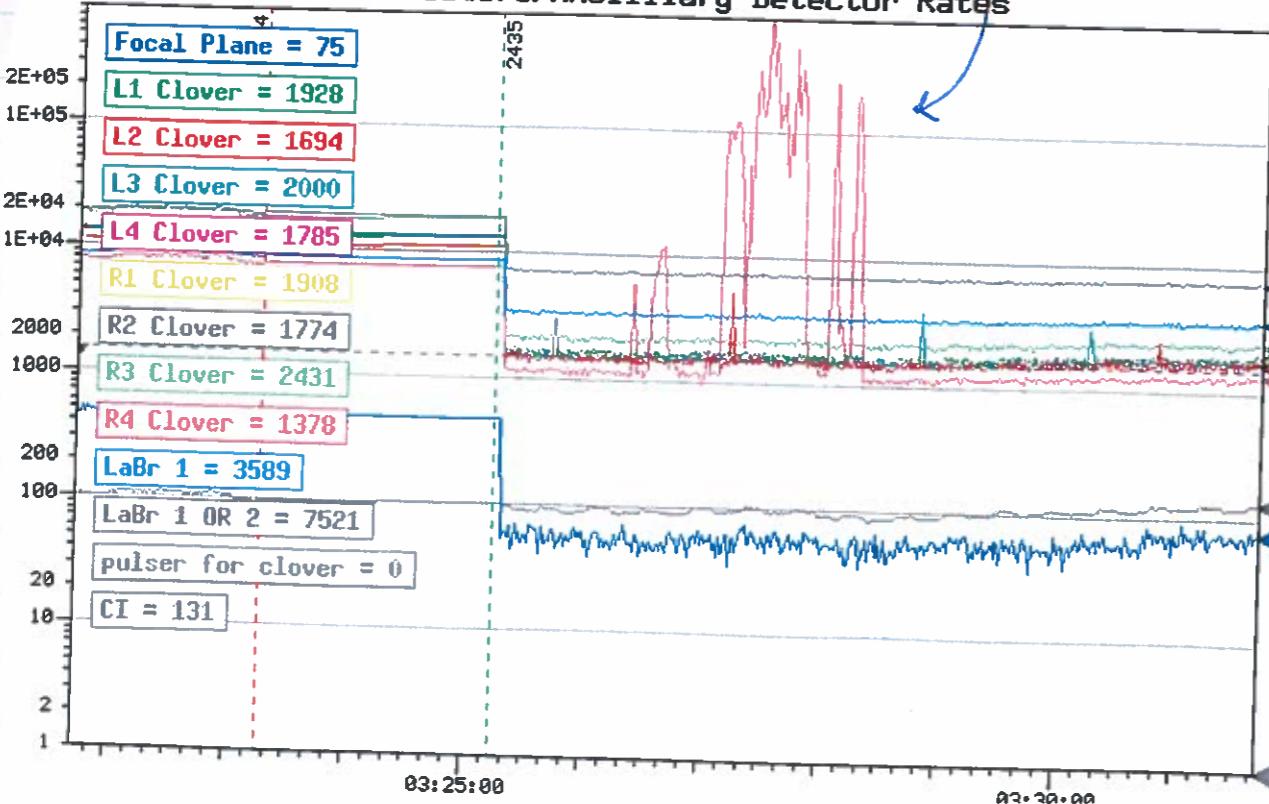
Run #: 2435
Start: 03:25 Current: 0.5 nA Trigger rate: 59 Hz
Stop: 03:55 CI Range: 6 Trigger evts: 101000
Target: ²⁴Mg #4 Scaler evts: 1723

K600 angle: 0 deg
Q: A
D1: S A
H: A A
D2: M A
K: E A
Mental Health Level:
VDC efficiency
X1 _____
U1 _____

Clover L1-4 Rates (Hz) L1: 1.6 L2: 1.5 L3: 1.6 L4: 1.4
Clover R1-4 Rates (Hz) R1: 1.6 R2: 1.5 R3: 2.1 R4: 1.4
LaBr Rates (Hz) 1: 1.3.3 2: 7.4

RATE OF R4 OR WEIRD IN THE FIRST PART OF THE RUN
NOW SEEKS FINE. MORN & I GUESSTHAT IT'S JUST NOISE

AncDetectors/Ancillary Detector Rates



NOW IT'S FINE. THE HIGHER COUNT RATES WAS JUST AT THE BEGINNING OF THE RUN.

03:50

ANALYSER CRASHED → log out restarted --

didn't work ⇒ log out ~~at~~ VME SYS RESET
Run # 2436 junk

now the ~~at~~ online analyzer seems working but I cannot visualize the plots & in

Run # 2437 junk : analyzer keep crashing.

log out from analyzer ~~at~~ terminal

~~at~~ I ignored the STARTDAQ on ddapi and restarted the ~~at~~ frontend + analyzers
⇒ now it works!

Run comment: ¹⁵⁴Sr THICK, BAGEL IN

Run #: 2438
Start: 04:15 Current: 0.7 nA Trigger rate: 534 Hz
Stop: 05:17 CI Range: 6 Trigger evts: 1,881 M
Target: ¹⁵⁴Sr THICK #2 Scaler evts: 3575

Clover L1-4 Rates (Hz) L1: 14.9 L2: 14.0 L3: 14.3 L4: 12.1
Clover R1-4 Rates (Hz) R1: 12.4 R2: 15.1 R3: 49.5 R4: 8.2
LaBr Rates (Hz) 1: 8.9 2: 20.3

K600 angle: 0 deg
Q: A
D1: S A
H: A A
D2: M A
K: E A
Mental Health Level:
VDC efficiency
X1 92.58
U1 94.08

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Run comment: 154Sm THICL, BASEL IN

Run #: 2439
 Start: 05:17 Current: 0.5 nA Trigger rate: 459 Hz
 Stop: 06:17 CI Range: 6 Trigger evts: 1,788PM
 Target: 154Sm THICL #2 Scaler evts: 3489

Clover L1-4 Rates (Hz) L1: 12.9 L2: 12.2 L3: 12.6 L4: 10.9
 Clover R1-4 Rates (Hz) R1: 11.3 R2: 13.8 R3: 19.2 R4: 8.2
 LaBr Rates (Hz) 1: 8.7 2: 19.2

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 92.5 U1 94.05

Run comment: 154 Sm THICL, BASEL IN

Run #: 2440
 Start: 06:18 Current: 0.5 nA Trigger rate: 414 Hz
 Stop: 07:18 CI Range: 6 Trigger evts: 1,782M
 Target: 154Sm THICL #2 Scaler evts: 3485

Clover L1-4 Rates (Hz) L1: 13.6 L2: 13.5 L3: 12.9 L4: 11.2
 Clover R1-4 Rates (Hz) R1: 10.9 R2: 13.2 R3: 16.9 R4: 7.6
 LaBr Rates (Hz) 1: 8.7 2: 19.6

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: E A
 Mental Health Level:

 VDC efficiency X1 92.70 U1 94.09

Run comment: 154 Sm THICL, BASEL IN

Run #: 2441
 Start: 07:19 Current: 0.5 nA Trigger rate: 414 Hz
 Stop: 08:19 CI Range: 6 Trigger evts: 1,873M
 Target: 154Sm THICL #2 Scaler evts: 3489

Clover L1-4 Rates (Hz) L1: 12.0 L2: 11.9 L3: 11.5 L4: 10.7
 Clover R1-4 Rates (Hz) R1: 10.4 R2: 13.3 R3: 17.1 R4: 7.3
 LaBr Rates (Hz) 1: 8.2 2: 18.6

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 92.78 U1 94.14

Sunday
30 Oct.Run comment: 24Mg DATA, BASEL IN

Run #: 2442
 Start: 08:22 Current: 0.7 nA Trigger rate: 58 Hz
 Stop: 09:06 CI Range: 6 Trigger evts: 155336
 Target: 24Mg #4 Scaler evts: 2508

Clover L1-4 Rates (Hz) L1: 18. L2: 17 L3: 19 L4: 18
 Clover R1-4 Rates (Hz) R1: 18 R2: 17 R3: 24 R4: 13
 LaBr Rates (Hz) 1: 3.6 2: 7.7

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 91 U1 95

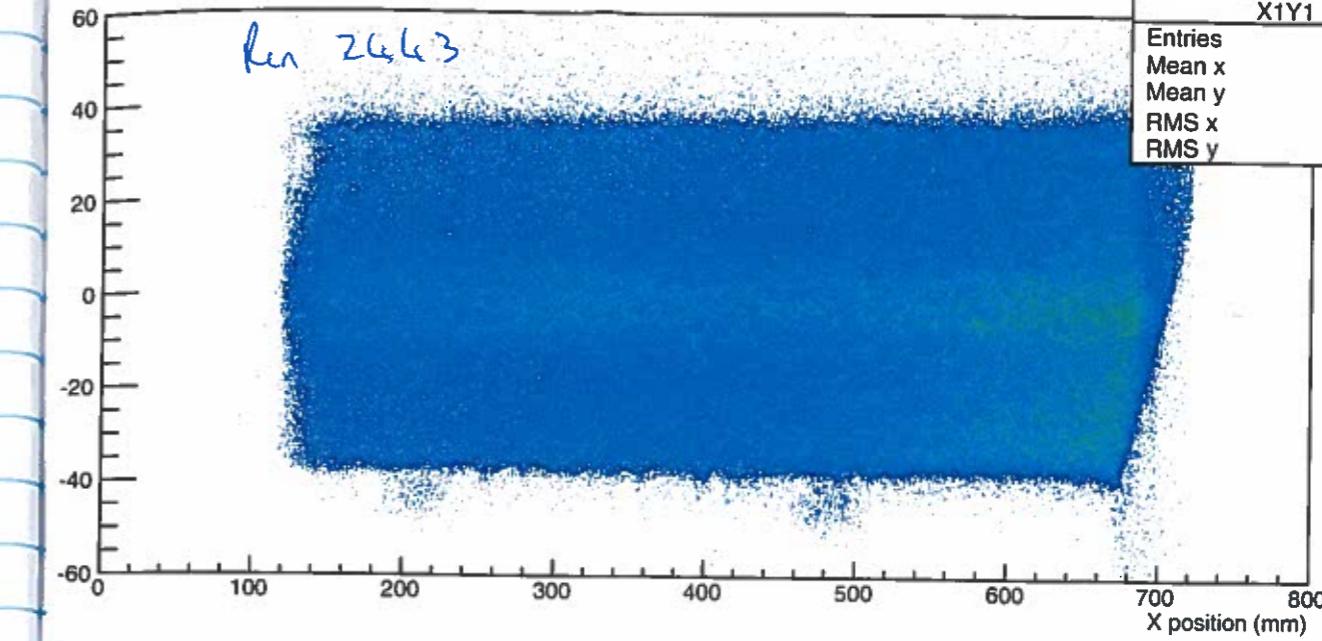
Run comment: 154Sm thick, Bagel in

Run #: 2443
 Start: 09:07 Current: 0.6 nA Trigger rate: 490 Hz
 Stop: 10:15 CI Range: 6 Trigger evts: 2,033
 Target: 154Sm #4 Scaler evts: 3497

Clover L1-4 Rates (Hz) L1: 17 L2: 17 L3: 16 L4: 15
 Clover R1-4 Rates (Hz) R1: 14 R2: 17 R3: 23 R4: 10
 LaBr Rates (Hz) 1: 10 2: 23

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 93 U1 94



X1Y1	Entries	1170981
Mean x	461	
Mean y	-2.988	
RMS x	161.4	
RMS y	19.16	

Run comment: 154Sm thick, Bagel in

Run #: 2444 Date: 30/10/16 Day: Sunday
 Start: 10:16 Current: 0.6 nA Trigger rate: 550 Hz
 Stop: 11:17 CI Range: 6 Trigger evts: 2,161
 Target: 154Sm thick Scaler evts: 3587

Clover L1-4 Rates (Hz) L1: 16 L2: 16 L3: 16 L4: 14
 Clover R1-4 Rates (Hz) R1: 13 R2: 16 R3: 22 R4: 10
 LaBr Rates (Hz) 1: 10 2: 23

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 93 U1 94

Run comment: 154Sm thick, Bagel in

Run #: 2445 Date: 31/10/16 Day: Sunday
 Start: 11:17 Current: 0.6 nA Trigger rate: 520 Hz
 Stop: 12:12 CI Range: 6 Trigger evts: 1,657
 Target: 154Sm Scaler evts: 3128

Clover L1-4 Rates (Hz) L1: 15 L2: 15 L3: 15 L4: 13
 Clover R1-4 Rates (Hz) R1: 13 R2: 16 R3: 21 R4: 9
 LaBr Rates (Hz) 1: 9 2: 23

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 93 U1 94

Run comment: 24Mg, Bagel in

Run #: 2446 Date: Day: Sunday
 Start: 12:13 Current: 0.7 nA Trigger rate: 70 Hz
 Stop: 12:50 CI Range: 6 Trigger evts: 154353
 Target: 24Mg #4 Scaler evts: 2114

Clover L1-4 Rates (Hz) L1: 17 L2: 17 L3: 18 L4: 16
 Clover R1-4 Rates (Hz) R1: 17 R2: 17 R3: 23 R4: 13
 LaBr Rates (Hz) 1: 34 2: 75

K600 angle: 0 deg
 Q: S A
 D1: S A
 H: A A
 D2: M A
 K: F A
 Mental Health Level:

 VDC efficiency X1 94 U1 95

49

Run comment: *154m Sm thick + Bagel m*

Run #: 2457 Date 30/10/16 Day Sunday
 Start: 12:52 Current: 0.6 nA Trigger rate: 550 Hz
 Stop: 14:00 CI Range: 6 Trigger evts: 2335
 Target: 154 Sm thick Scaler evts: 1617

Clover L1-4 Rates (Hz) L1: 16 L2: 15 L3: 15 L4: 13
 Clover R1-4 Rates (Hz) R1: 17 R2: 17 R3: 20 R4: 9
 LaBr Rates (Hz) 1: 9 2: 20

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: A A X1 93
 D2: S A U1 94
 K: S A

Run comment: *154 Sm thick, Bagel closed*

Run #: 2458 Date 30/10 Day Sunday
 Start: 11:01 Current: 0.7 nA Trigger rate: 650 Hz
 Stop: 15:01 CI Range: 6 Trigger evts: 2067 M
 Target: 154 Sm #2 Scaler evts: 3523

Clover L1-4 Rates (Hz) L1: 14 L2: 14 L3: 14 L4: 12
 Clover R1-4 Rates (Hz) R1: 11 R2: 13 R3: 17 R4: 8
 LaBr Rates (Hz) 1: 9 2: 20

K600 angle: 0 deg Mental Health Level:
 Q: -345.515 A ☺ ☻ ☻
 D1: 318.4 A VDC efficiency
 H: 0.032 A X1 93
 D2: 211.211 A U1 94
 K: 18.299 A

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 92.75
 D2: S A U1 94.03
 K: S A

Run comment: *154 Sm thick, Bagel closed*

Run #: 2459 Date 30/10 Day Sunday
 Start: 15:02 Current: 0.7 nA Trigger rate: 520 Hz
 Stop: 15:02 CI Range: 6 Trigger evts: 1627 M
 Target: 154 Sm #2 Scaler evts: 2823

Clover L1-4 Rates (Hz) L1: 15.1 L2: 14.8 L3: 14.7 L4: 12.8
 Clover R1-4 Rates (Hz) R1: 12.3 R2: 15.1 R3: 20.4 R4: 8.7
 LaBr Rates (Hz) 1: 9.8 2: 22

Run comment: *154 Sm 24Mg*

Run #: 2460 Date 30/10/16 Day Sunday
 Start: 15:44 Current: 0.6 nA Trigger rate: 91 Hz
 Stop: 16:25 CI Range: 6 Trigger evts: 145519
 Target: 154 Sm #2 Scaler evts: 1768

Clover L1-4 Rates (Hz) L1: 1.7 L2: 1.7 L3: 1.8 L4: 1.8
 Clover R1-4 Rates (Hz) R1: 1.9 R2: 1.8 R3: 2.4 R4: 1.4
 LaBr Rates (Hz) 1: 3.5 2: 7.6

Run 2460 is 24Mg not Sm as in the online database.

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 92.75
 D2: S A U1 94.98
 K: S A

Run comment: *154 Sm thick Bagel closed*

Run #: 2451 Date 30/10 Day Sunday
 Start: 16:27 Current: 0.6 nA Trigger rate: 561 Hz
 Stop: 17:32 CI Range: 6 Trigger evts: 2126 M
 Target: 154 Sm #2 Scaler evts: 17764

Clover L1-4 Rates (Hz) L1: 15 L2: 15 L3: 15 L4: 13
 Clover R1-4 Rates (Hz) R1: 13 R2: 16 R3: 21 R4: 9
 LaBr Rates (Hz) 1: 10 2: 21

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 92.78
 D2: S A U1 94.08
 K: S A

Run comment: *154m Sm thick Bagel closed*

Run #: 2452 Date 30/10 Day Sunday
 Start: 17:33 Current: 0.6 nA Trigger rate: 478 Hz
 Stop: 18:35 CI Range: 6 Trigger evts: 2124 M
 Target: 154 Sm #2 Scaler evts: 3587

Clover L1-4 Rates (Hz) L1: 15 L2: 15 L3: 15 L4: 13
 Clover R1-4 Rates (Hz) R1: 12 R2: 14 R3: 20 R4: 9
 LaBr Rates (Hz) 1: 10 2: 21

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 92.72
 D2: S A U1 94.09
 K: S A

Run comment: *154m Sm thick Bagel closed*

Run #: 2453 Date 30/10 Day Sunday
 Start: 18:37 Current: 0.6 nA Trigger rate: 460 Hz
 Stop: 19:37 CI Range: 6 Trigger evts: 1808 M
 Target: 154 Sm #2 Scaler evts: 3559

Clover L1-4 Rates (Hz) L1: 12 L2: 12 L3: 12 L4: 10
 Clover R1-4 Rates (Hz) R1: 10 R2: 12 R3: 16 R4: 7
 LaBr Rates (Hz) 1: 8 2: 17

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 92.74
 D2: S A U1 94.05
 K: S A

Run comment: *154m Sm thick Bagel closed*

Run #: 2454 Date 30/10 Day Sunday
 Start: 19:38 Current: 0.7 nA Trigger rate: 574 Hz
 Stop: 20:39 CI Range: 6 Trigger evts: 1962 M
 Target: 154 Sm #2 Scaler evts: 3660

Clover L1-4 Rates (Hz) L1: 12 L2: 12 L3: 13 L4: 10
 Clover R1-4 Rates (Hz) R1: 10 R2: 12 R3: 17 R4: 7
 LaBr Rates (Hz) 1: 9 2: 17

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 92.62
 D2: S A U1 94.06
 K: S A

Rome analysis crashed restarted.

Filling LN₂: exchanged tanks

Run comment: *24Mg*

Run #: 2455 Date 30/10/16 Day Sunday
 Start: 21:13 Current: 0.8 nA Trigger rate: 78 Hz
 Stop: 21:43 CI Range: 6 Trigger evts: 111632
 Target: 24Mg Scaler evts: 1713

Clover L1-4 Rates (Hz) L1: 1.5 L2: 1.4 L3: 1.6 L4: 1.4
 Clover R1-4 Rates (Hz) R1: 1.5 R2: 1.4 R3: 2.1 R4: 1.1
 LaBr Rates (Hz) 1: 3.2 2: 6.8

K600 angle: 0 deg Mental Health Level:
 Q: -345.515 A ☺ ☻ ☻
 D1: 318.400 A VDC efficiency
 H: 0.032 A X1 91.20
 D2: 211.211 A U1 95.21
 K: 18.299 A

Run comment: *154m Sm thick Bagel closed*

Run #: 2456 Date 30/10 Day Sunday
 Start: 21:45 Current: 0.7 nA Trigger rate: Hz
 Stop: 154 Sm CI Range: 6 Trigger evts:
 Target: 154 Sm Scaler evts:
 LaBr Rates (Hz) 1: 9 2: 19

Clover L1-4 Rates (Hz) L1: 15 L2: 15 L3: 14 L4: 12
 Clover R1-4 Rates (Hz) R1: 11 R2: 13 R3: 18 R4: 8
 LaBr Rates (Hz) 1: 9 2: 19

K600 angle: 0 deg Mental Health Level:
 Q: S A ☺ ☻ ☻
 D1: S A VDC efficiency
 H: S A X1 94.06
 D2: S A U1 95.27
 K: S A

Run comment: 154 Sm
 Run #: 2456 Date 30 Oct '16 Day Sunday
 Start 21h45 Current 0.7 nA Trigger rate 6 Hz
 Stop 22h41 CI Range 6 Trigger evts 179M
 Target 112 154 Sm Scaler evts 3531

Clover L1-4 Rates (Hz) L1: 11343 L2: 15857 L3: 15855 L4: 13753
 Clover R1-4 Rates (Hz) R1: 13172 R2: 16280 R3: 22258 R4: 9593
 LaBr Rates (Hz) 1: 9878 2: 21973

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: A VDC efficiency X1 94.2 U1 95.2
 D2: A K: A

Run comment: 154 Sm
 Run #: 2461 Date 31/10/16 Day Monday
 Start 02.27 Current 0.8 nA Trigger rate 606 Hz
 Stop 03.26 CI Range 6 Trigger evts 1.865M
 Target 154 Sm #2 Scaler evts 3440

Clover L1-4 Rates (Hz) L1: 15104 L2: 14161 L3: 14168 L4: 12159
 Clover R1-4 Rates (Hz) R1: 12129 R2: 15125 R3: 20151 R4: 8175
 LaBr Rates (Hz) 1: 9132 2: 20173

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: A VDC efficiency X1 92.4 U1 93.4
 D2: A K: A

Run comment: 154 Sm
 Run #: 2457 Date 30 Oct '16 Day Sunday
 Start 22h50 Current 0.6 nA Trigger rate 488 Hz
 Stop 23h50 CI Range 6 Trigger evts: Scaler evts:
 Target 112 154 Sm

Clover L1-4 Rates (Hz) L1: 13.9K L2: 14K L3: 14K L4: 11.8K
 Clover R1-4 Rates (Hz) R1: 11.5K R2: 14.5K R3: 13.7K R4: 7.9K
 LaBr Rates (Hz) 1: 9.1K 2: 20K

K600 angle: 0 deg Mental Health Level:
 Q: S D1: A H: M VDC efficiency X1 92.7 U1 94.2
 D2: E K: A

Run comment: 154 Sm
 Run #: 2462 Date 30/10/16 Day Monday
 Start 03.27 Current 0.6 nA Trigger rate 519 Hz
 Stop 04.26 CI Range 6 Trigger evts: 1.725 Scaler evts: 3527
 Target 154 Sm #2

Clover L1-4 Rates (Hz) L1: 16147 L2: 15192 L3: 1614 L4: 1316
 Clover R1-4 Rates (Hz) R1: 1217 R2: 1710 R3: 2112 R4: 913
 LaBr Rates (Hz) 1: 918 2: 210

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: M VDC efficiency X1 95.456 U1 93.7311
 D2: A K: A

Run comment: 154 Sm BRIGEL IN
 Run #: 2458 Date 30 Oct '16 Day Sunday
 Start 23:53 Current 0.7 nA Trigger rate 666 Hz
 Stop 00:53 CI Range 6 Trigger evts: 1.861 Scaler evts: 3483
 Target 154 Sm #2

Clover L1-4 Rates (Hz) L1: 16.14 L2: 15.40 L3: 15.63 L4: 13.0
 Clover R1-4 Rates (Hz) R1: 12.8 R2: 16.1 R3: 21.4 R4: 9.5
 LaBr Rates (Hz) 1: 10.28 2: 22.60

K600 angle: 0 deg Mental Health Level:
 Q: S D1: A H: M VDC efficiency X1 93.60 U1 94.36
 D2: E K: A

Run comment: 154 Sm BabE1
 Run #: 2463 Date 31/10/16 Day MONDAY
 Start 04.27 Current 0.8 nA Trigger rate 514 Hz
 Stop 05.28 CI Range 6 Trigger evts: 1.725 Scaler evts: 3612
 Target 154 Sm #2

Clover L1-4 Rates (Hz) L1: 16.30 L2: 16.56 L3: 16.01 L4: 13.90
 Clover R1-4 Rates (Hz) R1: 12.02 R2: 15.1 R3: 22.0 R4: 8.88
 LaBr Rates (Hz) 1: 8.9 2: 20.6

K600 angle: 0 deg Mental Health Level:
 Q: S D1: A H: M VDC efficiency X1 92.63 U1 94.14
 D2: E K: A

Run comment: 24 Mg
 Run #: 2459 Date 30/10/16 Day Sunday
 Start 00:54 Current 0.6 nA Trigger rate 74 Hz
 Stop 01:25 CI Range 6 Trigger evts: 111533 Scaler evts: 1724
 Target 24 Mg

Clover L1-4 Rates (Hz) L1: 2.02 L2: 1.7 L3: 1.8 L4: 1.6
 Clover R1-4 Rates (Hz) R1: 1.8 R2: 1.7 R3: 2.12 R4: 1.3
 LaBr Rates (Hz) 1: 3.4 2: 7.3

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: M VDC efficiency X1 94.14 U1 93.03
 D2: A K: A

Run comment: 24 Mg
 Run #: 2464 Date 31/10/16 Day MONDAY
 Start 05:30 Current 0.5 nA Trigger rate 73 Hz
 Stop 06:00 CI Range 6 Trigger evts: 111880 Scaler evts: 1705
 Target 24 Mg #4

Clover L1-4 Rates (Hz) L1: 1.8 L2: 1.7 L3: 1.9 L4: 1.8
 Clover R1-4 Rates (Hz) R1: 1.7 R2: 1.3 R3: 2.4 R4: 1.3
 LaBr Rates (Hz) 1: 3.4 2: 7.4

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: M VDC efficiency X1 93.2847 U1 94.8984
 D2: A K: A

Run comment: 54 Sm
 Run #: 2460 Date 30/10/16 Day SUNDAY
 Start 01:26 Current 0.6 nA Trigger rate 452 Hz
 Stop 02:27 CI Range 6 Trigger evts: 1.863 Scaler evts: 3516
 Target 154 Sm

Clover L1-4 Rates (Hz) L1: 15.04 L2: 14.61 L3: 14.68 L4: 13.59
 Clover R1-4 Rates (Hz) R1: 12.29 R2: 15.25 R3: 20.51 R4: 8.75
 LaBr Rates (Hz) 1: 9.32 2: 20.73

K600 angle: 0 deg Mental Health Level:
 Q: A D1: A H: M VDC efficiency X1 93.81 U1 94.168
 D2: A K: A

$Q_1 = -365.57$
 $B M_1 = 318.4$
 $H = 0.032$
 $B M_2 = 21.21$
 $K = 18.29$

* The Beam was taken away at 06:00 am Monday the 31st October 2016.

The end of the experiment was smooth without any major issue.

* Nitrogen Tank was taken from K600 vault to ~~ATR2000E~~ vault.

* SV-02 and SV-14 were closed.

* Magnets put to sleep.

* VDC bias off.

END OF PREB

Fin de la transmisión

- Chamber vented, target ladder under ~~vacuum~~ vacuum
Source in target position.

Trigger signal had a "rebound" from one of the signal going to the patch panel.

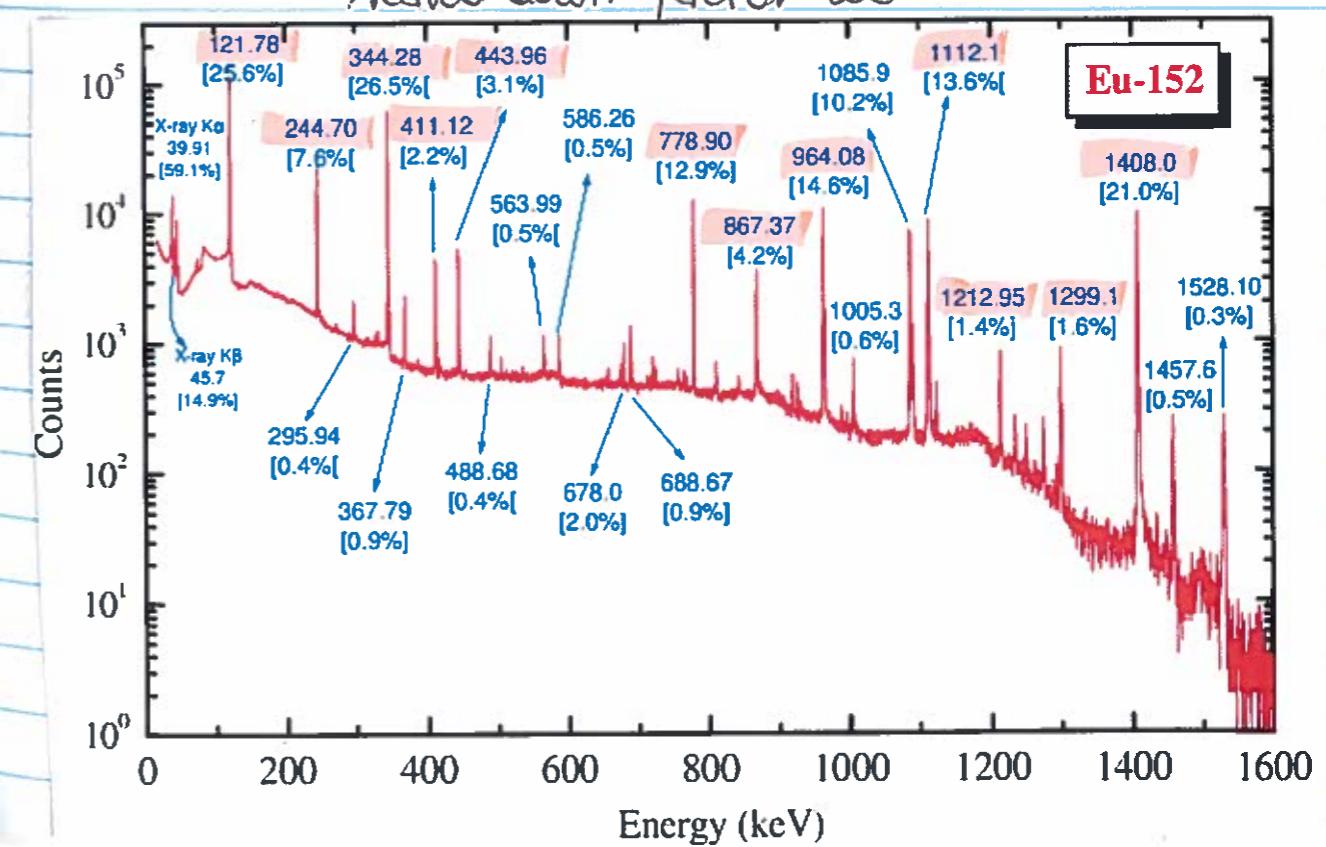
Efficiency calibration runs starting from Run 3000. / 3007 not good

Number of triggers 1/20

Run 3002 ^{152}Eu - efficiency calib.
Start: 10:33 events 1900 Hz

. Run 3003 / 3004 / 3005 / 3008 / 3009 / 3010 - 3015
 ^{152}Eu - efficiency calibration

scaled down factor 20



we put in ^{60}Co source in target position. (# 3016).

↳ realised ^{60}Co cannot be used due to "activation" (o peaks appearing)

Tried ^{55}Fe → source might be dead.

Tried ^{22}Na in the wooden box but seemin that the source or dead too!

We found another ^{22}Na in a fb box. $10\mu\text{Ci}$ 27/07/10
it seemin good enough.

Run # 3021 good run for LaBr efficiency.
 ^{22}Na in target position.

until ↓

Run # 3025