

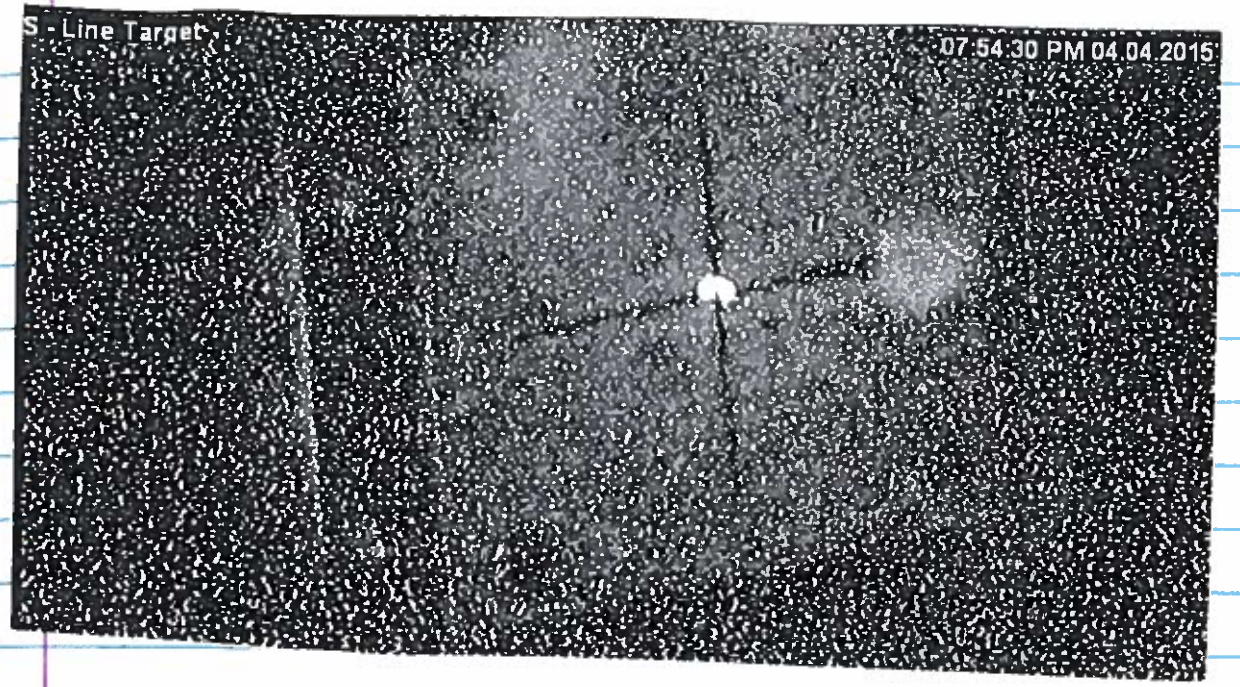
Run comment: 24mg K600 angle: 0 deg K600 field: Q: -455.276
 Run #: 3111 Start: 18:25 Current: 3.9 nA Trigger rate: 265 Hz D1: 413.802 A VDC efficiency
 Stop: 19:08 CI Range: 6 Data rate: 96 kB/s H: -2.860 A U1: 92.6
 Target: 24mg Collimator: #3 Trigger evts: 589309 D2: 271.665 A X2: 87
 Target angle: _____ Scaler evts: 2484 K: 2.860 A U2: 96.7

Run comment: MT Halo K600 angle: 0 deg K600 field: Q: _____
 Run #: 3112 Start: 19:09 Current: 3.5 nA Trigger rate: 80 Hz D1: 5.1 A VDC efficiency
 Stop: 19:28 CI Range: 6 Data rate: 33 kB/s H: _____ A U1: _____
 Target: MT Collimator: #3 Trigger evts: _____ D2: 11.5 A X2: _____
 Target angle: _____ Scaler evts: _____ K: _____ A U2: _____

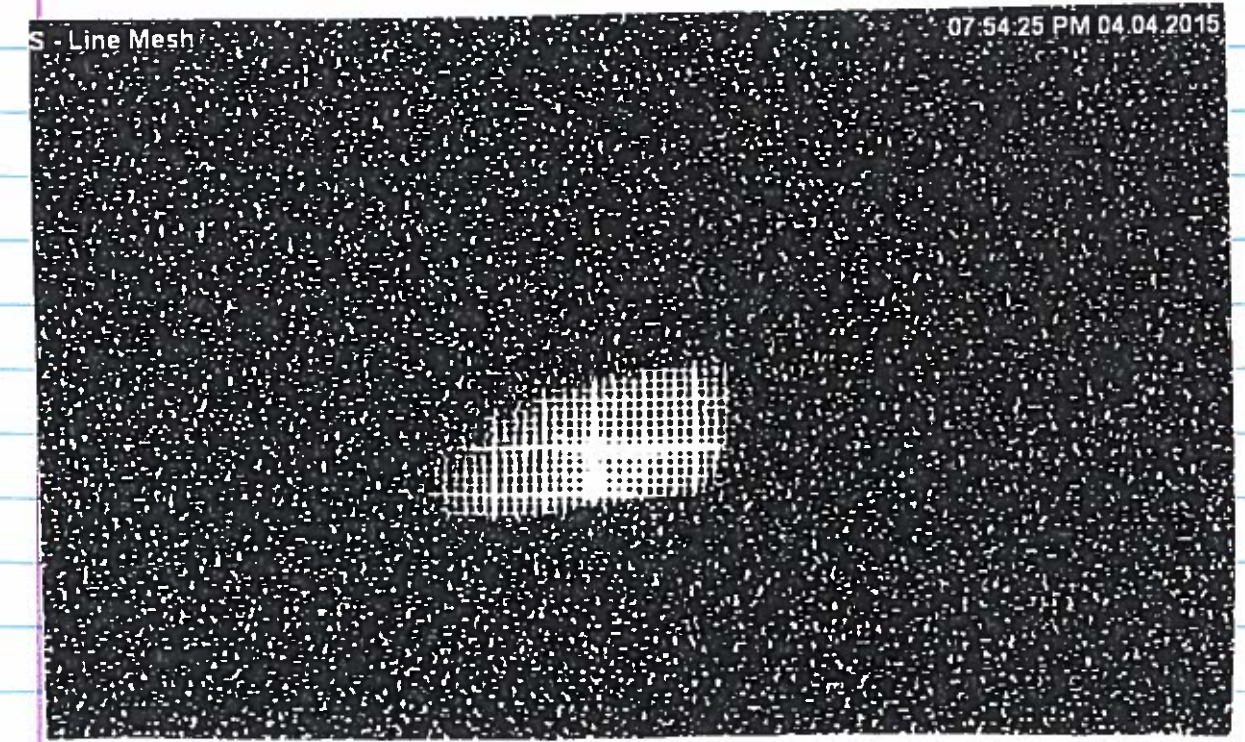
Run comment: Pb data K600 angle: 0 deg K600 field: Q: _____
 Run #: 3113 Start: 19:30 Current: 2.8 nA Trigger rate: 90 Hz D1: 5 A VDC efficiency
 Stop: 19:46 CI Range: 6 Data rate: _____ kB/s H: _____ A U1: 91.5
 Target: Pb Collimator: 3 Trigger evts: 955524 D2: 4.2 A X2: 82.8
 Target angle: 11.3 Scaler evts: _____ K: 4.2 A U2: 94.7

We suspect halo increase
 put in viewer to look at alignment

20:00 SWAPPED VDC gas bottle to new one.



Look at halo
 Run 3114 Empty target
 6 Hz @ 3.2 nA
 VDC's not on during run 3114



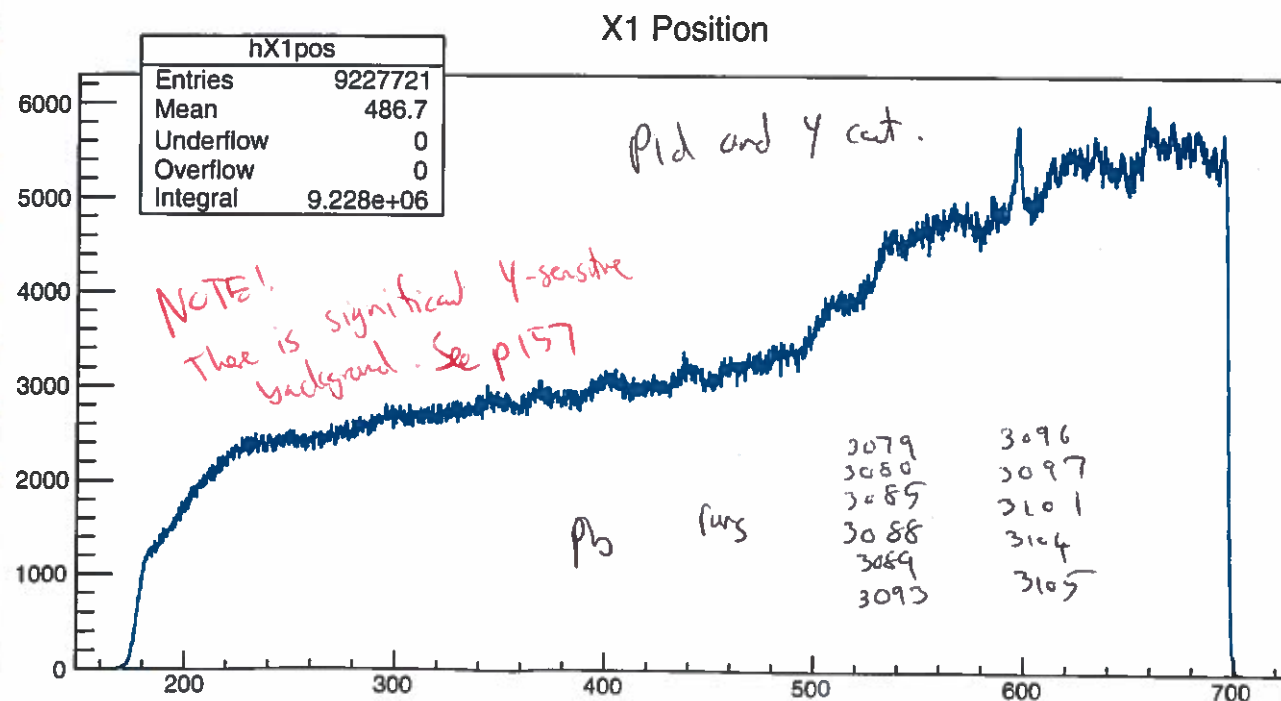
beam was
 slightly to
 the right
 only in
 Hatanaka

Run comment: Pb data
 Run #: 3115
 Start: 20:21 Current: 3 nA Trigger rate: 960 Hz
 Stop: 20:21 CI Range: 6 Data rate: kB/s
 Target: Pb Collimator: #3 Trigger evts:
 Target angle: -118 Scaler evts:
 K600 angle: 0 deg K600 field:
 Q: S A VDC efficiency
 D1: A A X1
 H: A A U1
 D2: ME A X2
 K: A A U2

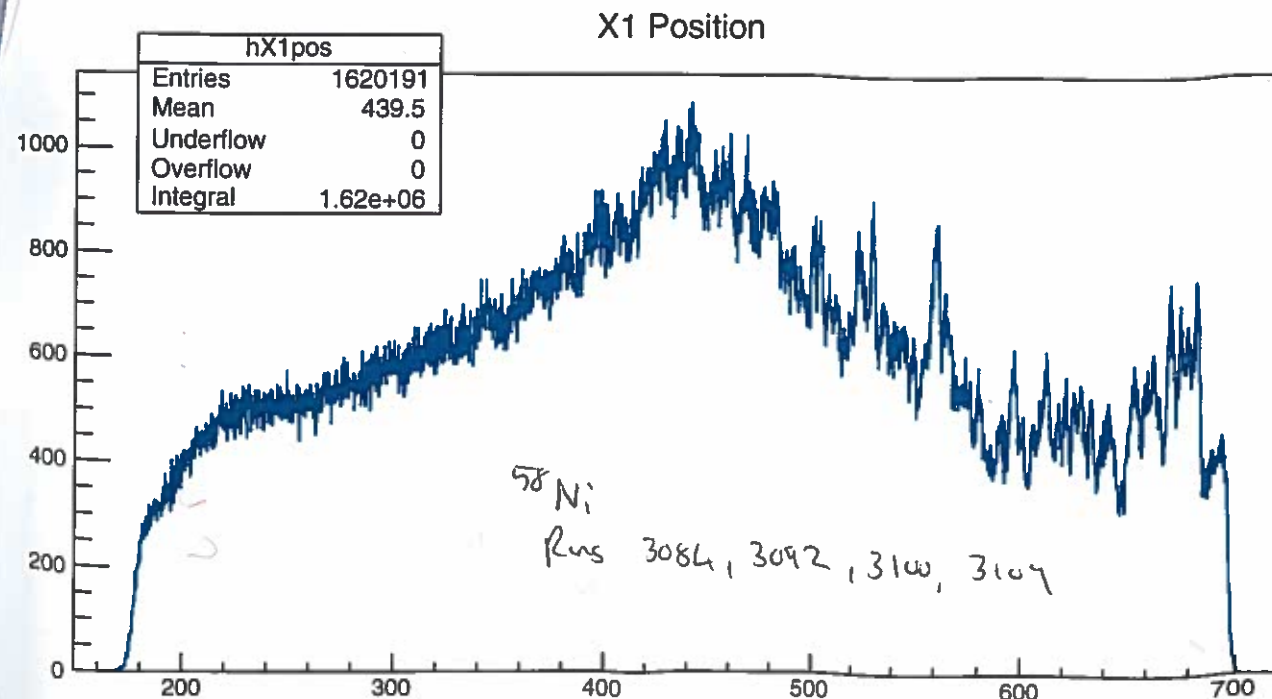
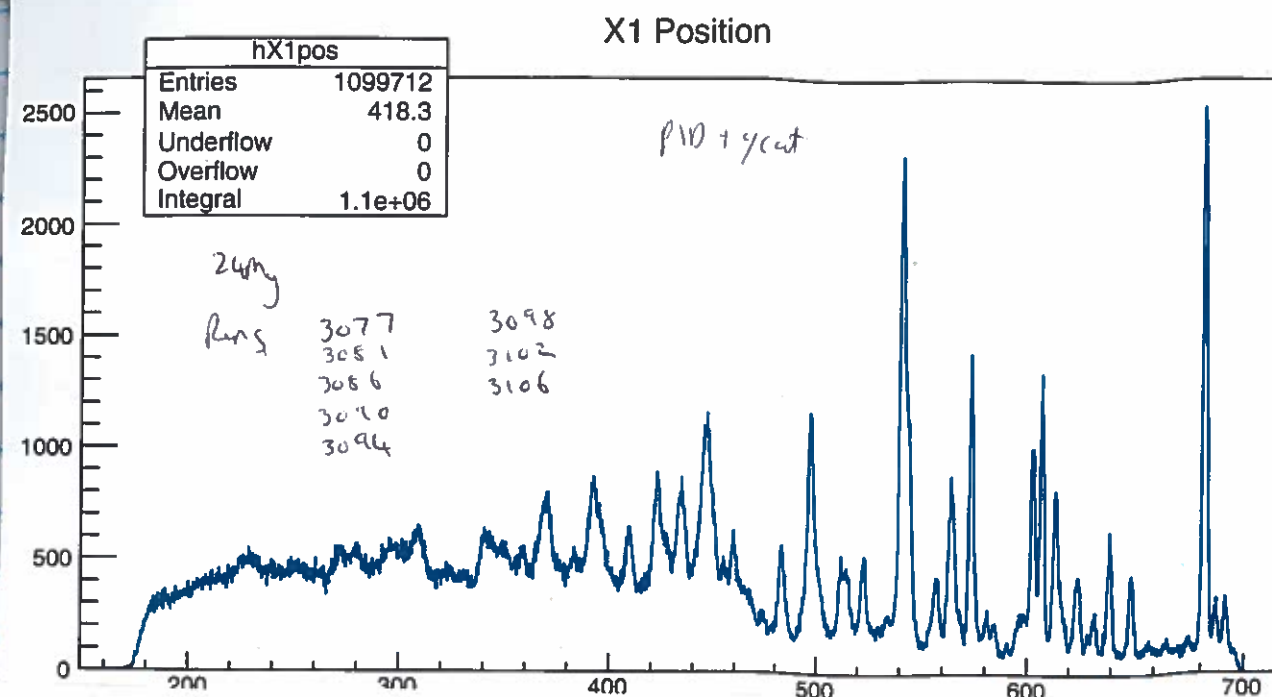
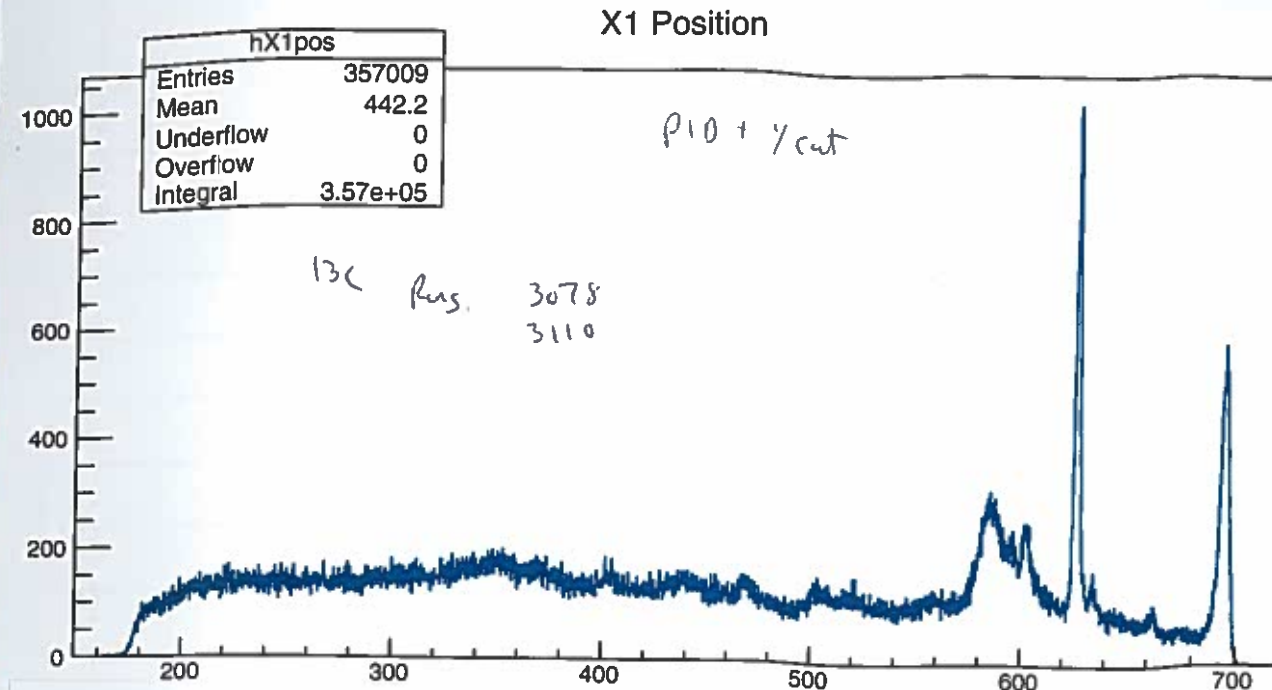
[VDC1 tripped at 20:21, but was turned back on,

Run comment: 58 Ni
 Run #: 3116
 Start: 21:23 Current: 30 nA Trigger rate: 281 Hz
 Stop: 22:28 CI Range: 6 Data rate: kB/s
 Target: 58 Ni Collimator: Trigger evts:
 Target angle: -118.0 Scaler evts:
 K600 angle: 0 deg K600 field:
 Q: A VDC efficiency
 D1: A X1
 H: A U1
 D2: A X2
 K: A U2

Run comment: 208 Pb Data
 Run #: 3117
 Start: 22:28 Current: 29 nA Trigger rate: 940 Hz
 Stop: 22:54 CI Range: 6 Data rate: 405 kB/s
 Target: 208 Pb Collimator: #3 Trigger evts: 1343
 Target angle: -118 Scaler evts: 1928
 K600 angle: 0 deg K600 field:
 Q: S A VDC efficiency
 D1: A A X1 92
 H: ME A U1 466
 D2: ME A X2 83
 K: A A U2 917



We had a luck at the beam dump never but decided it is too risky to try and move the beam closer to the side of the VDC's see p153



Run comment: H₂O K600 angle: 0 deg K600 field: _____
 Run #: 3118 Q: _____ A VDC efficiency
 Start: 22:57 Current: (2.9) nA D1: S A X1 _____
 Stop: 23:02 CI Range: #3 H: A A U1 _____
 Target: MT Collimator: #3 D2: M A X2 _____
 Target angle: -118 Trigger rate: 45 Hz K: E A U2 _____
 Data rate: 1.17 kB/s
 Trigger evts: 12172
 Scaler evts: 303

Run comment: 24Mg K600 angle: 0 deg K600 field: _____
 Run #: 3119 Q: S A VDC efficiency
 Start: 23:03 Current: 3.6 nA D1: A A X1 93
 Stop: 23:36 CI Range: 6 H: M A U1 94
 Target: 24Mg Collimator: #3 D2: E A X2 89
 Target angle: -118 Trigger rate: 220 Hz K: _____ A U2 95
 Data rate: 91 kB/s
 Trigger evts: 267052
 Scaler evts: 1891

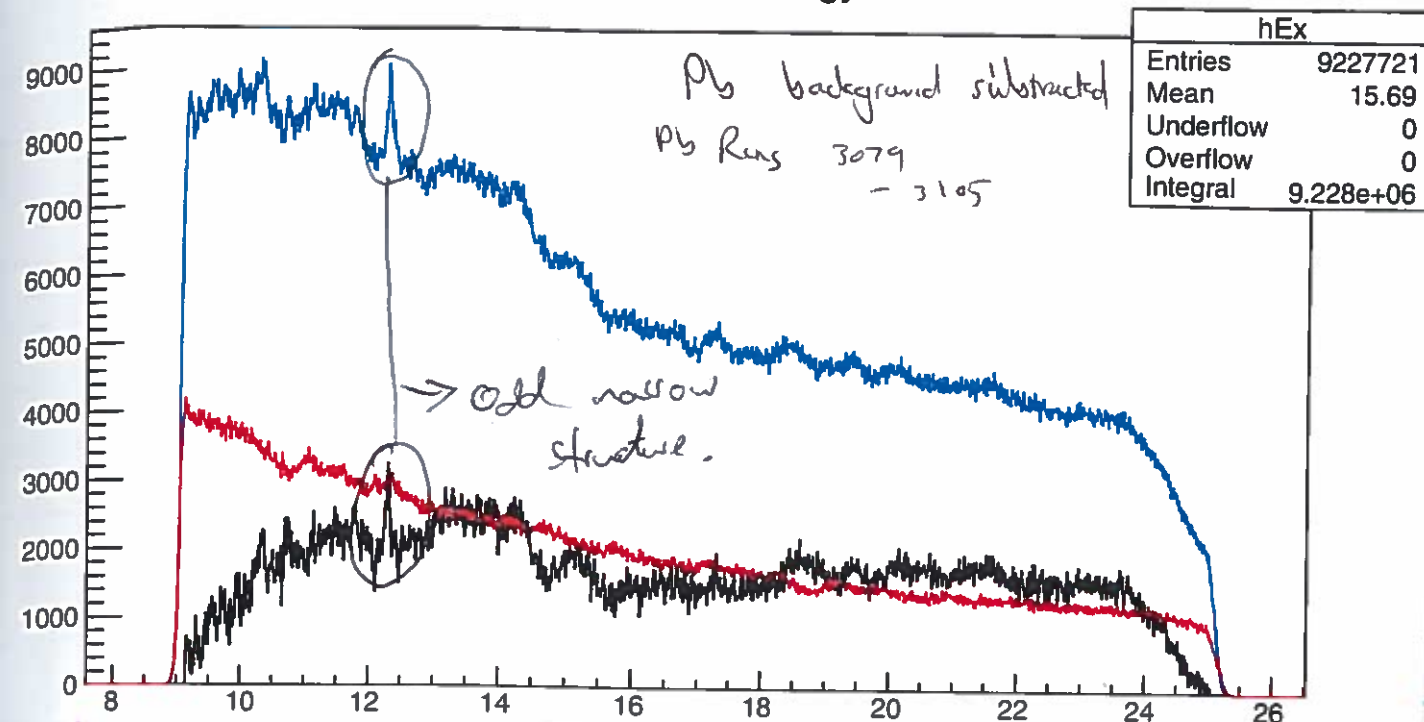
Run comment: MT K600 angle: 0 deg K600 field: _____
 Run #: 3120 Q: S A VDC efficiency
 Start: 23:38 Current: 3.6 nA D1: A A X1 94
 Stop: 23:51 CI Range: 6 nA H: M A U1 95
 Target: MT Collimator: #3 D2: E A X2 86
 Target angle: -118 Trigger rate: 64 Hz K: E A U2 94
 Data rate: 22 kB/s
 Trigger evts: 34921
 Scaler evts: 668

Run comment: 208Pb K600 angle: 0 deg K600 field: _____
 Run #: 3121 Q: S A VDC efficiency
 Start: 23:53 Current: 3.4 nA D1: A A X1 92
 Stop: 00:54 CI Range: 6 nA H: M A U1 95
 Target: 208Pb Collimator: #3 D2: E A X2 83
 Target angle: -118 Trigger rate: 1104 Hz K: _____ A U2 95
 Data rate: 445 kB/s
 Trigger evts: 3.973M
 Scaler evts: 3511

Run comment: MT Hab check K600 angle: 0 deg K600 field: _____
 Run #: 3122 Q: S A VDC efficiency
 Start: 00:56 Current: 2.6 nA D1: A A X1 94
 Stop: 01:07 CI Range: 6 nA H: M A U1 95
 Target: MT Collimator: #3 D2: E A X2 88
 Target angle: -118 Trigger rate: 57 Hz K: E A U2 94
 Data rate: 23 kB/s
 Trigger evts: 32123
 Scaler evts: 579

Run comment: 13C K600 angle: 0 deg K600 field: _____
 Run #: 3123 Q: S A VDC efficiency
 Start: 01:09 Current: 3.7 nA D1: A A X1 93
 Stop: 02:09 CI Range: 6 nA H: M A U1 94
 Target: 13C Collimator: #3 D2: E A X2 88
 Target angle: _____ Trigger rate: 1119 Hz K: E A U2 95
 Data rate: 58 kB/s
 Trigger evts: 487566
 Scaler evts: 3499

Excitation energy



Run comment: 24Mg K600 angle: 0 deg K600 field: _____
 Run #: 3124 Q: S A VDC efficiency
 Start: 02:11 Current: 2.7 nA D1: S A X1 _____
 Stop: 02:14 CI Range: 6 nA H: A A U1 _____
 Target: 24Mg Collimator: #3 D2: M A X2 _____
 Target angle: -118 Trigger rate: 152 Hz K: E A U2 _____
 Data rate: 61 kB/s
 Trigger evts: 20
 Scaler evts: 184

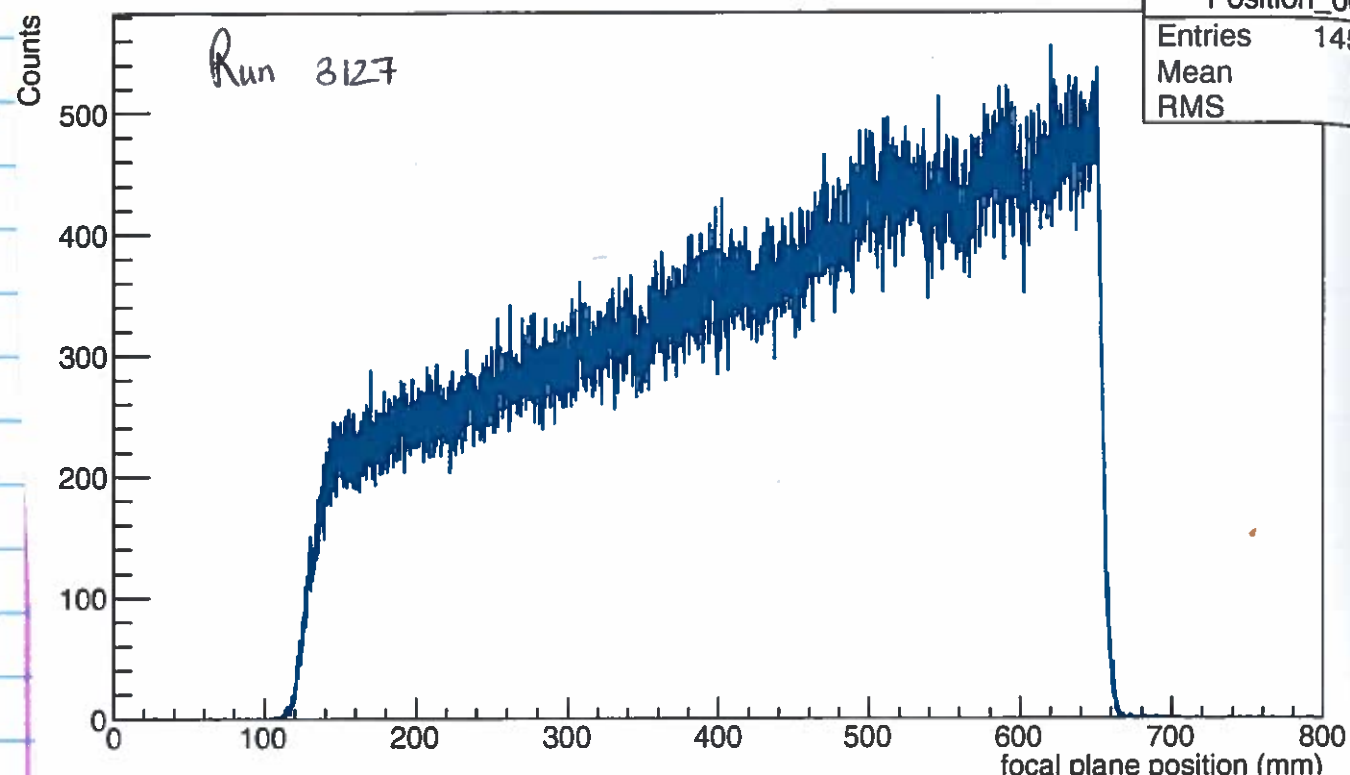
Beam tripped 3m into start of the run.
 Restarting a new run.

Run comment: 24Mg K600 angle: 0 deg K600 field: _____
 Run #: 3125 Q: _____ A VDC efficiency
 Start: 02:16 Current: 2.7 nA D1: S A X1 93
 Stop: 02:46 CI Range: 6 nA H: M A U1 95
 Target: 24Mg Collimator: #3 D2: E A X2 87
 Target angle: -118 Trigger rate: 135 Hz K: _____ A U2 94
 Data rate: 59 kB/s
 Trigger evts: 269222
 Scaler evts: 1756

Run comment: MT K600 angle: 0 deg K600 field: _____
 Run #: 3126 Q: S A VDC efficiency
 Start: 02:48 Current: 4.1 nA D1: A A X1 94
 Stop: 02:58 CI Range: 6 nA H: M A U1 95
 Target: MT Collimator: #3 D2: E A X2 88
 Target angle: -118 Trigger rate: 60 Hz K: E A U2 94
 Data rate: 24 kB/s
 Trigger evts: 35135
 Scaler evts: 588

Run comment: 208Pb K600 angle: 0 deg K600 field: _____
 Run #: 3127 Q: S A VDC efficiency
 Start: 03:00 Current: 3.6 nA D1: A A X1 92
 Stop: 04:00 CI Range: 6 nA H: M A U1 95
 Target: 208Pb Collimator: #3 D2: E A X2 83
 Target angle: -118 Trigger rate: 1153 Hz K: E A U2 95
 Data rate: 479 kB/s
 Trigger evts: 3.820M
 Scaler evts: 3513

Position: X1 (chisq<0.2)



Position_000	
Entries	1456628
Mean	427.9
RMS	147.5

Run comment: 24Mg

K600 angle: 0 deg K600 field:

Run #: 3129

Start: 05:06

Current: 2.1 nA

Trigger rate: 119 Hz

Q: S A VDC efficiency

Stop: 05:36

CI Range: 6nA

Data rate: 44 kB/s

D1: A A X1 93

Target: 24Mg

Collimator: #3

Trigger evts: 225708

H: M A U1 94

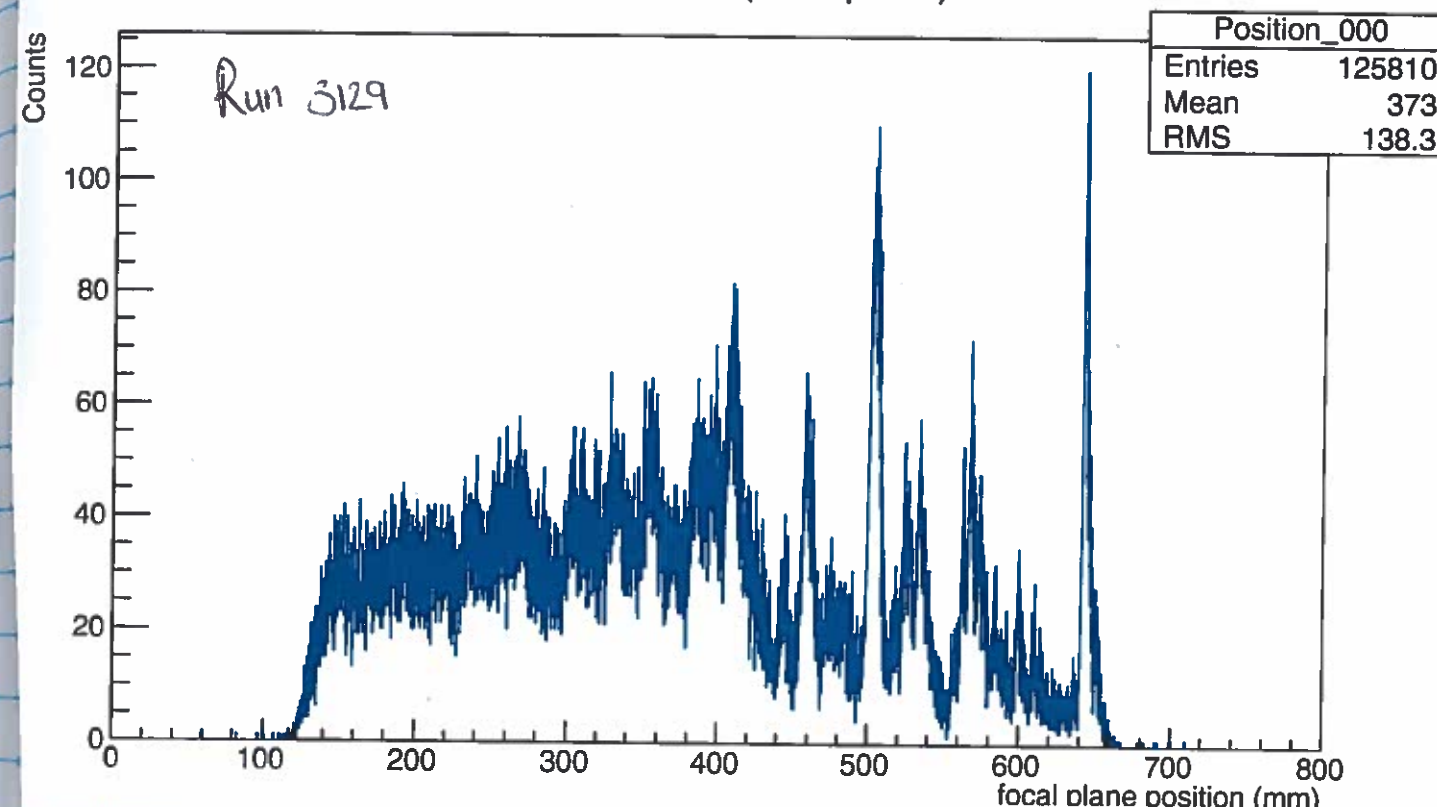
Target angle: -118

Scaler evts: 1744

D2: E A X2 88

K: E A U2 95

Position: X1 (chisq<0.2)



Position_000	
Entries	125810
Mean	373
RMS	138.3

Run comment: 58Ni

K600 angle: 0 deg K600 field:

Run #: 3128

Start: 04:03

Current: 2.4 nA

Trigger rate: 227 Hz

Q: S A VDC efficiency

Stop: 05:04

CI Range: 6nA

Data rate: 93 kB/s

D1: A A X1 73

Target: 58Ni

Collimator: #3

Trigger evts: 813110

H: M A U1 94

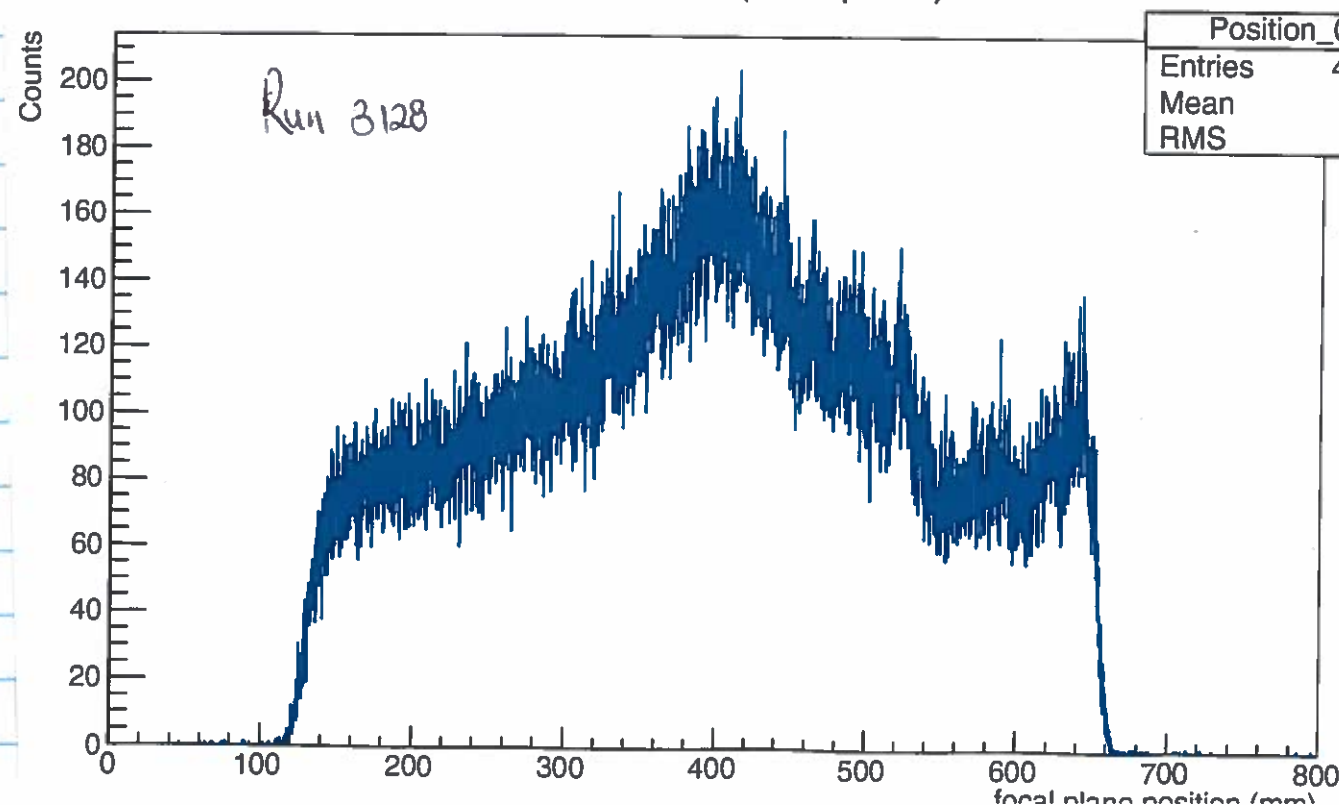
Target angle: -118

Scaler evts: 3510

D2: E A X2 87

K: E A U2 95

Position: X1 (chisq<0.2)



Position_000	
Entries	441336
Mean	396.5
RMS	137.1

Run comment: MT

K600 angle: 0 deg K600 field:

Run #: 3130

Start: 05:39

Current: 2.9 nA

Trigger rate: 41 Hz

Q: S A VDC efficiency

Stop: 05:49

CI Range: 6nA

Data rate: 16 kB/s

D1: A A X1 94

Target: MT

Collimator: #3

Trigger evts: 29906

H: A A U1 93

Target angle: -118

Scaler evts: 577

D2: M A X2 87

K: E A U2 93

Run comment: 208Pb

K600 angle: 0 deg K600 field:

Run #: 3131

Start: 05:51

Current: 3.6 nA

Trigger rate: 1118.5 Hz

Q: S A VDC efficiency

Stop: 06:51

CI Range: 6nA

Data rate: 472 kB/s

D1: A A X1 92

Target: 208Pb

Collimator: #3

Trigger evts: 3.558M

H: M A U1 95

Target angle: -118

Scaler evts: 3498

D2: E A X2 83

K: E A U2 95

Run comment: 13C

K600 angle: 0 deg K600 field:

Run #: 3132

Start: 06:54

Current: 2.3 nA

Trigger rate: 103 Hz

Q: S A VDC efficiency

Stop: 07:54

CI Range: 6nA

Data rate: 42 kB/s

D1: A A X1 93.3

Target: 13C

Collimator: #3

Trigger evts: 396827

H: M A U1 94.15

Target angle: -118

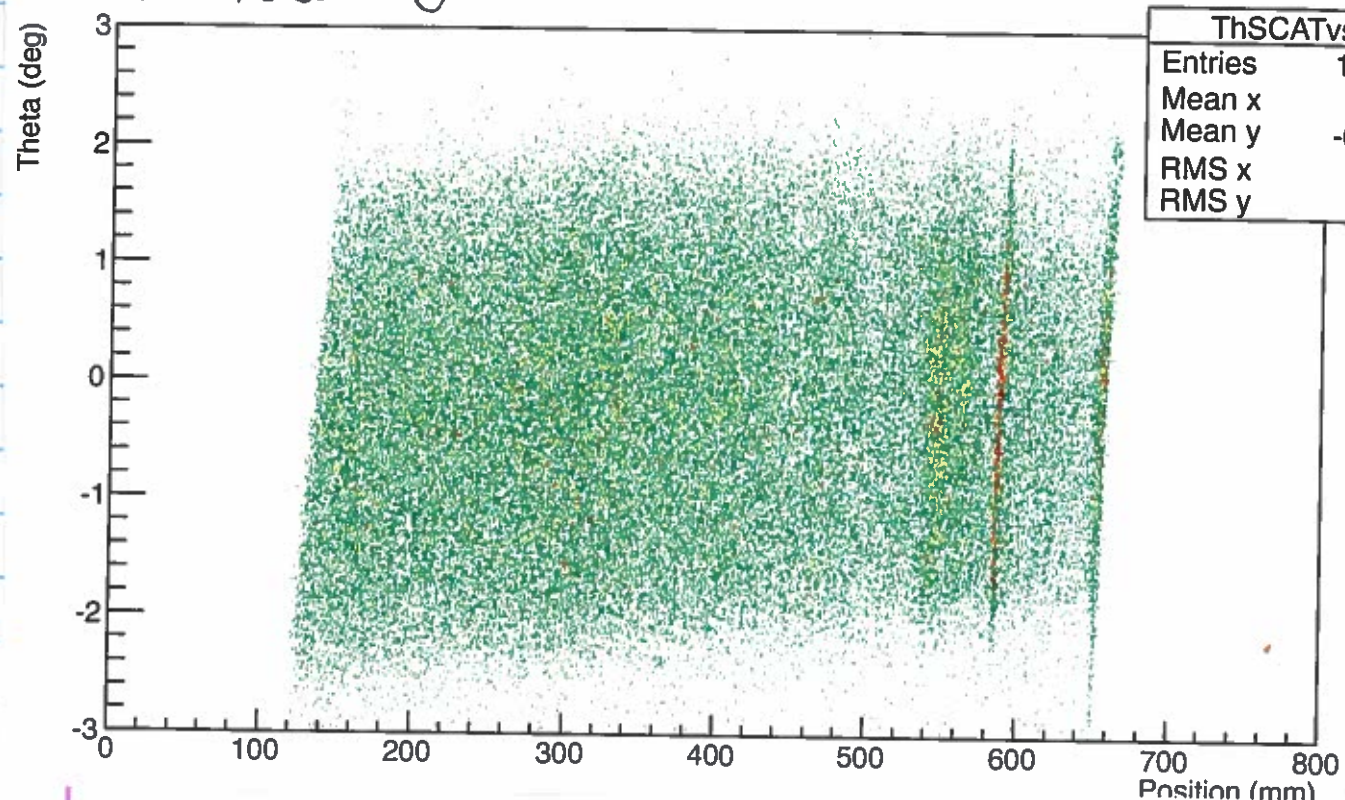
Scaler evts: 3530

D2: E A X2 88.24

K: E A U2 94.66

Run # 3132 ¹³C

ThSCAT vs X1



Run comment: 24Mg K600 angle: 0 deg K600 field: _____

Run #: 3133

Start: 07:57 Current: 1.8 nA Trigger rate: 110 Hz

Stop: 08:28 CI Range: 6 Data rate: 43 kB/s

Target: 24Mg Collimator: #3 Trigger evts: 267885

Target angle: -118° Scaler evts: 1803

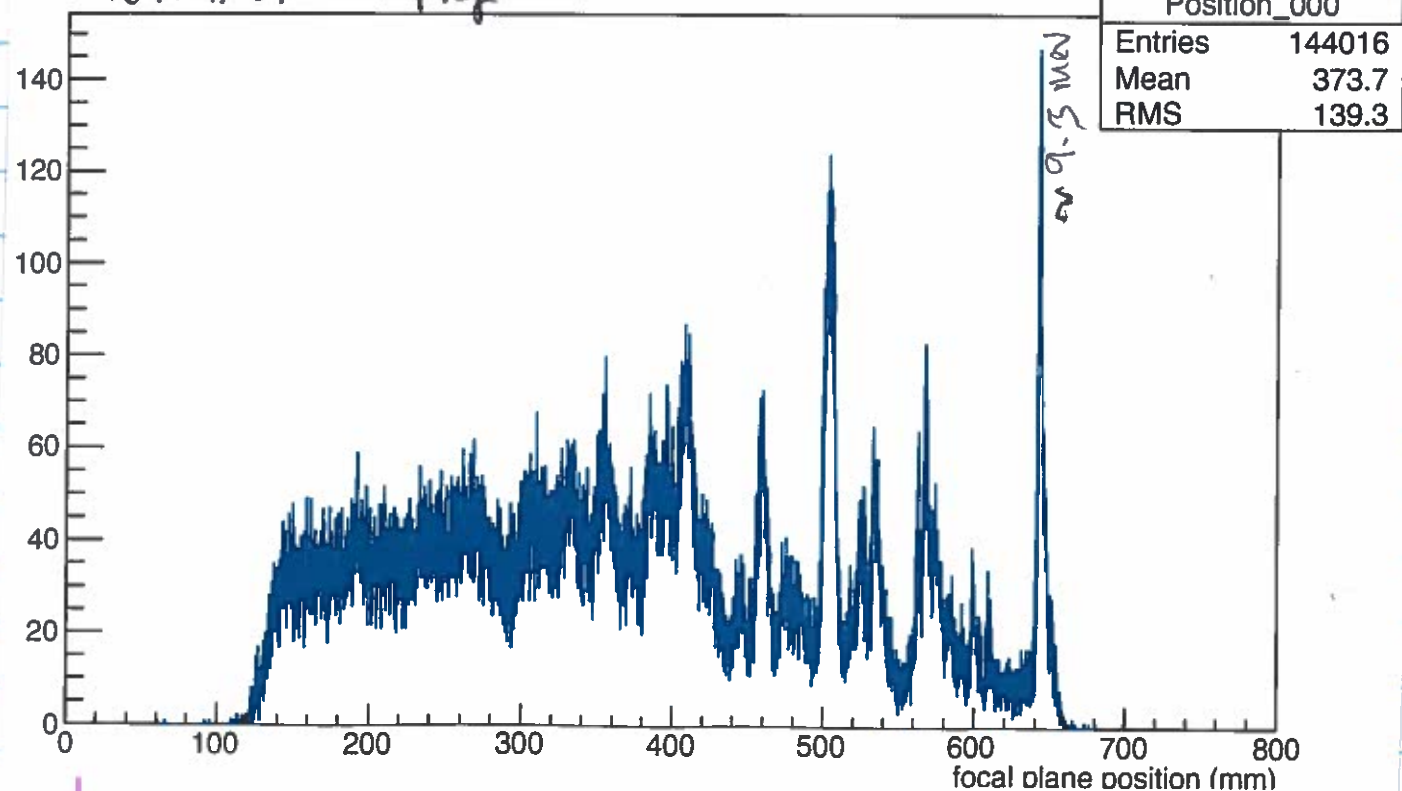
Q: _____ A VDC efficiency _____

D1: S A X1 93.54

H: A A U1 94.03

D2: M A X2 89.08

K: E A U2 94.77

Run # 3133 ²⁴Mg Position: X1 (chisq<0.2)Run comment: EMPTY

K600 angle: 0 deg K600 field: _____

Run #: 3134

Start: 08:31 Current: 2.7 nA Trigger rate: 33 Hz

Stop: 08:41 CI Range: 6 Data rate: 13 kB/s

Target: EMPTY Collimator: #3 Trigger evts: 6448

Target angle: -118 Scaler evts: 4911

Q: _____ A VDC efficiency _____

D1: S A X1 94

H: A A U1 93

D2: M A X2 84

K: E A U2 94

8:41 Ion source went off \Rightarrow waiting for beam

\Rightarrow nothing happened. Beam is back.

Run comment: EMPTY

K600 angle: 0 deg K600 field: _____

Run #: 3135

Start: 8:50 Current: 2.7 nA Trigger rate: 36 Hz

Stop: 8:58 CI Range: 6 Data rate: 14 kB/s

Target: EMPTY Collimator: #3 Trigger evts: 199

Target angle: -118 Scaler evts: 446

Q: _____ A VDC efficiency _____

D1: S A X1 93.6

H: A A U1 95

D2: M A X2 87

K: E A U2 94

Run comment: 208Pb

K600 angle: 0 deg K600 field: _____

Run #: 3136

Start: 9:01 Current: 2.4 nA Trigger rate: 775 Hz

Stop: _____ CI Range: 6 Data rate: 321 kB/s

Target: 208Pb Collimator: #3 Trigger evts: 3.495 M

Target angle: -118° Scaler evts: 3573

Q: _____ A VDC efficiency _____

D1: S A X1 91.9

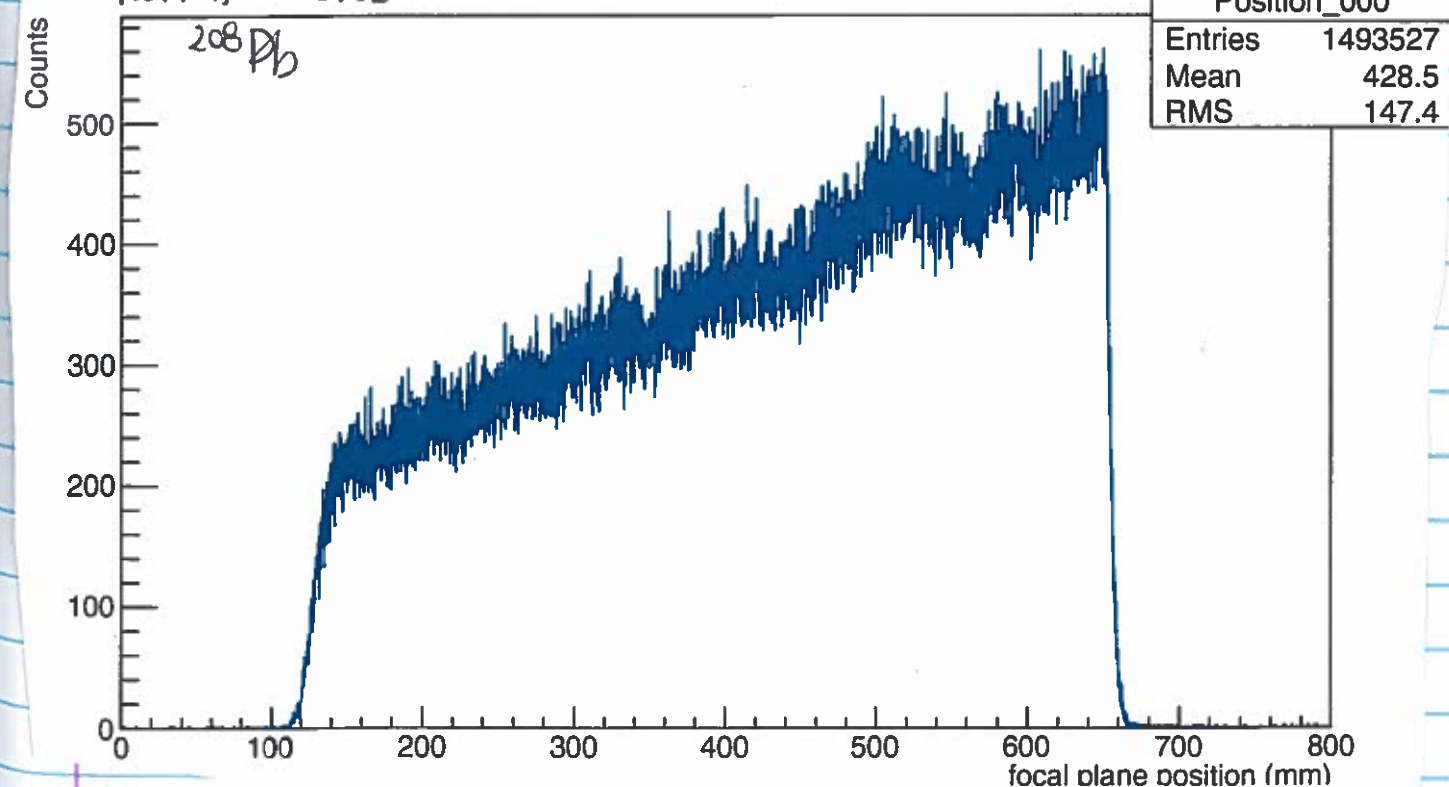
H: A A U1 94.97

D2: M A X2 83.44

K: E A U2 94.80

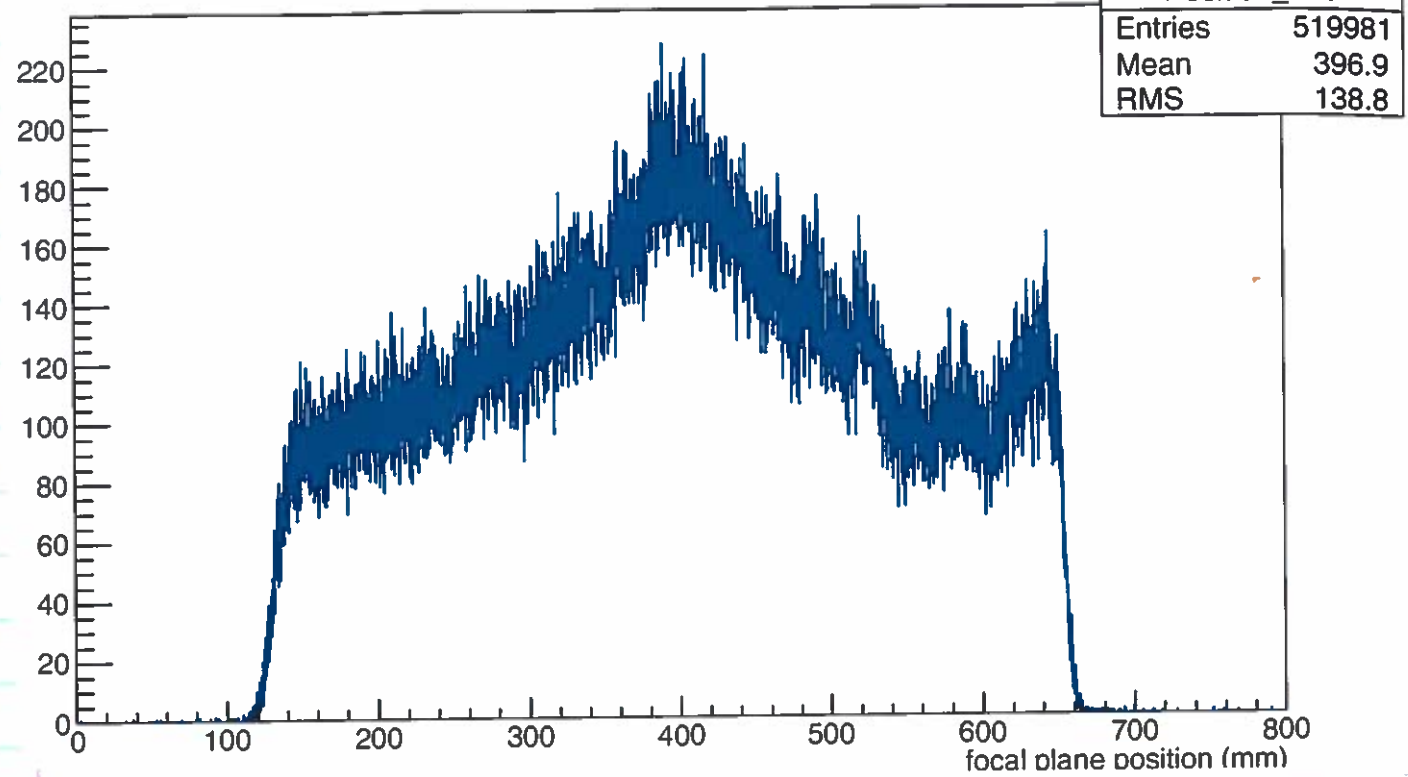
Run # ~~3136~~ 3136

Position: X1 (chisq<0.2)



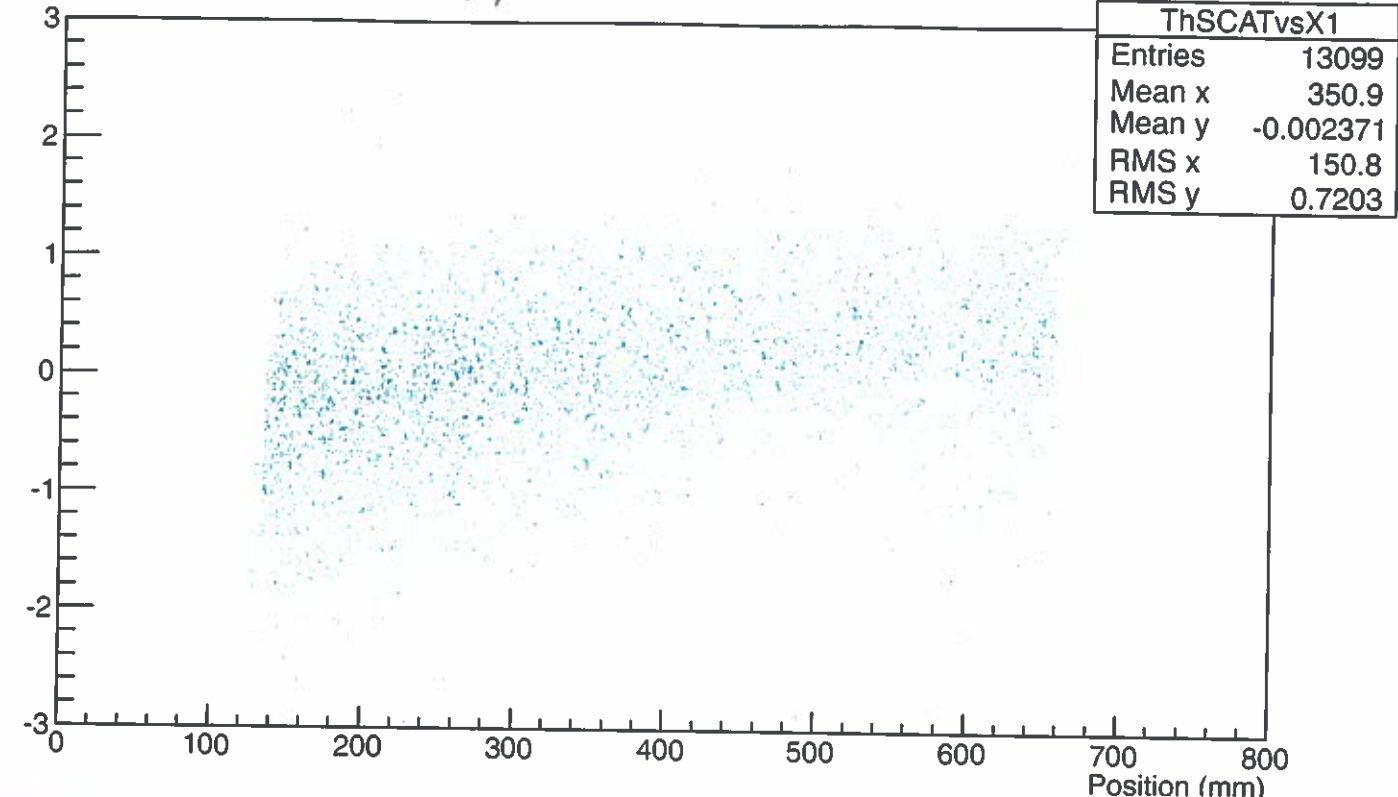
Run comment: 58Ni K600 angle: 0 deg K600 field: _____
Run #: 3137
Start: 10:06 Current: 2.4 nA Trigger rate: 248 Hz
Stop: 11:06 CI Range: 6 Data rate: 105 kB/s
Target: 58Ni Collimator: #3 Trigger evts: 1.061M
Target angle: -118° Scaler evts: 3512
Q: _____ A VDC efficiency
D1: S A X1 92.77
H: A A U1 94.34
D2: M A X2 86.02
K: E A U2 94.74

Run # 3137 ⁵⁸Ni Position: X1 (chisq<0.2)



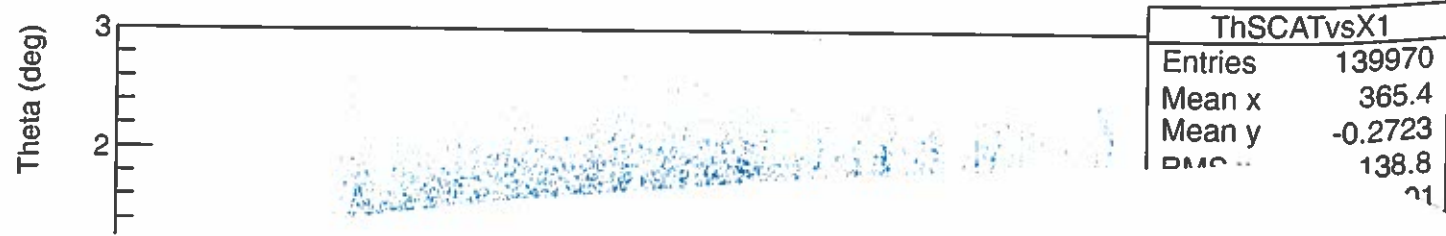
Run comment: EMPTY K600 angle: 0 deg K600 field: _____
Run #: 3139
Start: 11:42 Current: 2.4 nA Trigger rate: 141 Hz
Stop: 11:54 CI Range: 6 Data rate: 57 kB/s
Target: EMPTY Collimator: #3 Trigger evts: 97790
Target angle: -118° Scaler evts: 672
Q: _____ A VDC efficiency
D1: S A X1 92.97
H: A A U1 94.63
D2: M A X2 86.13
K: E A U2 94.18

Run # 3139 EMPTY ThSCAT vs X1



Run comment: 24Mg K600 angle: 0 deg K600 field: _____
Run #: 3138
Start: 11:06 Current: 2.4 nA Trigger rate: 174 Hz
Stop: 11:40 CI Range: 6 Data rate: 74 kB/s
Target: 24Mg Collimator: #3 Trigger evts: 451289
Target angle: -118° Scaler evts: 1875
Q: S A VDC efficiency
D1: A A X1 92.95
H: A A U1 94.14
D2: E A X2 86.64
K: E A U2 94.61

ThSCAT vs X1



Run comment: 208Pb K600 angle: 0 deg K600 field: _____
Run #: 3140
Start: 11:55 Current: 2.3 nA Trigger rate: 958 Hz
Stop: 13:00 CI Range: 6 Data rate: 348 kB/s
Target: 208Pb Collimator: #3 Trigger evts: 3.841M
Target angle: -118° Scaler evts: 3794
Q: _____ A VDC efficiency
D1: S A X1 91.89
H: A A U1 94.69
D2: M A X2 83.41
K: E A U2 94.73

Run # 3140 ²⁰⁸Pb Position: X1 (chisq<0.2)



Run comment: 13C
 Run #: 3141
 Start: 13:01 Current: 2.3 nA Trigger rate: 250 Hz
 Stop: 14:02 CI Range: 6 Data rate: 98 kB/s
 Target: 13C Collimator: #3 Trigger evts: 782134
 Target angle: -118 Scaler evts: 3533
 K600 angle: 0 deg K600 field: _____
 Q: _____ A VDC efficiency
 D1: SA A X1 92.6
 H: SA A U1 94.2
 D2: M A X2 85.99
 K: E A U2 94.7

Run comment: 24Mg data
 Run #: 3142
 Start: 14:05 Current: 2.4 nA Trigger rate: 270 Hz
 Stop: 14:35 CI Range: 6 Data rate: 100 kB/s
 Target: 24Mg Collimator: #3 Trigger evts: 439895
 Target angle: -118 Scaler evts: 1806
 K600 angle: 0 deg K600 field: _____
 Q: _____ A VDC efficiency
 D1: SA A X1 92.7
 H: SA A U1 94.2
 D2: E A X2 86.2
 K: _____ A U2 94.6

Trigger rate increased from ~170 Hz on ²⁴Mg (run 3138) to ~270 Hz in run 3142.

Run comment: MT Check
 Run #: 3143
 Start: 14:42 Current: 2.1 nA Trigger rate: 120 Hz
 Stop: 14:52 CI Range: 6 Data rate: 60 kB/s
 Target: MT#1 Collimator: #3 Trigger evts: 79659
 Target angle: -118 Scaler evts: 585
 K600 angle: 0 deg K600 field: _____
 Q: _____ A VDC efficiency
 D1: SA A X1 93
 H: _____ A U1 95
 D2: M A X2 87
 K: E A U2 94

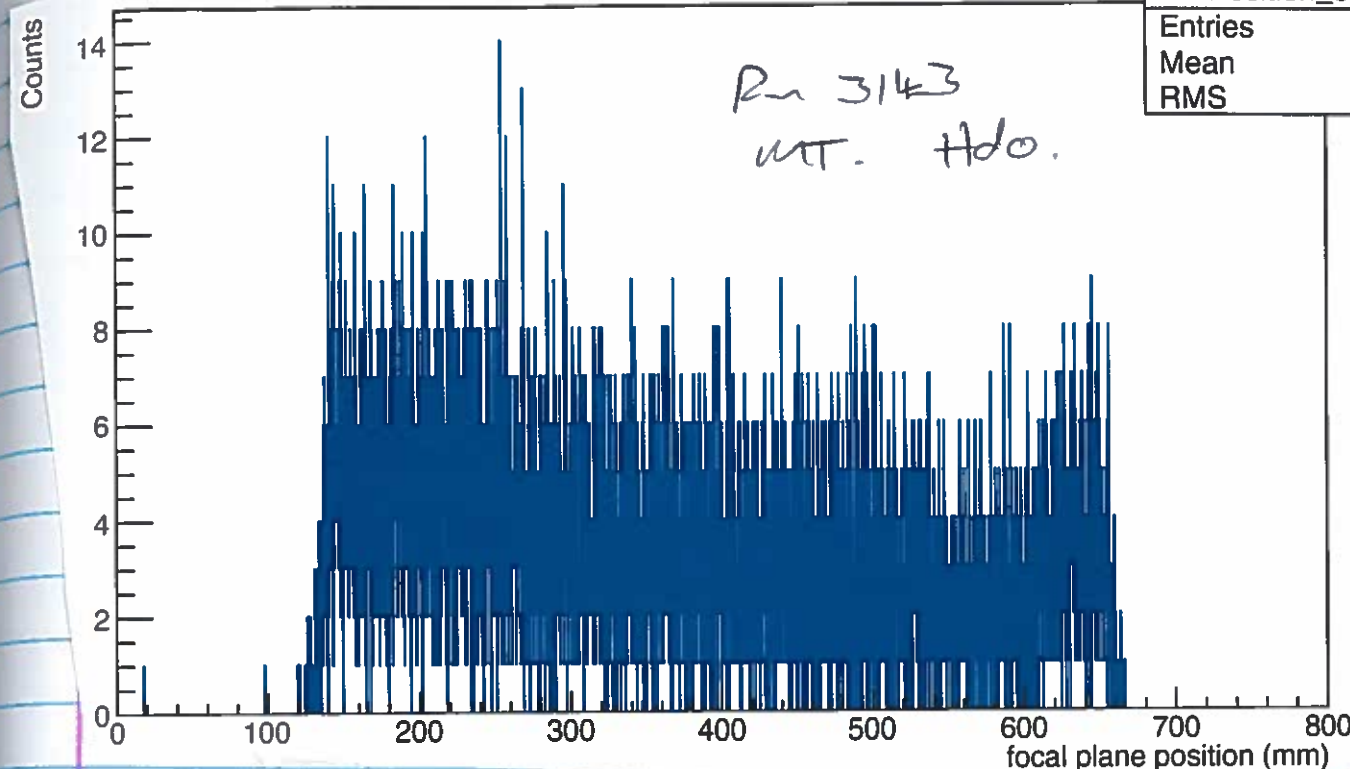
JJ pointed out that the Lolo is picking up a SA. Now 120 @ 2.1 nA Hz

OK for now. Should check again later.

Run comment: 202Pb data
 Run #: 3144
 Start: 14:55 Current: 2.0 nA Trigger rate: 850 Hz
 Stop: 15:56 CI Range: 6 Data rate: 350 kB/s
 Target: Pb Collimator: #3 Trigger evts: 4.194M
 Target angle: -118 Scaler evts: 3629
 K600 angle: 0 deg K600 field: _____
 Q: _____ A VDC efficiency
 D1: SA A X1 92
 H: SA A U1 95
 D2: M A X2 83
 K: E A U2 95

Changed scale on scalars plot to max 20000 → Useful for Pb runs.

Position: X1 (chisq<0.2)



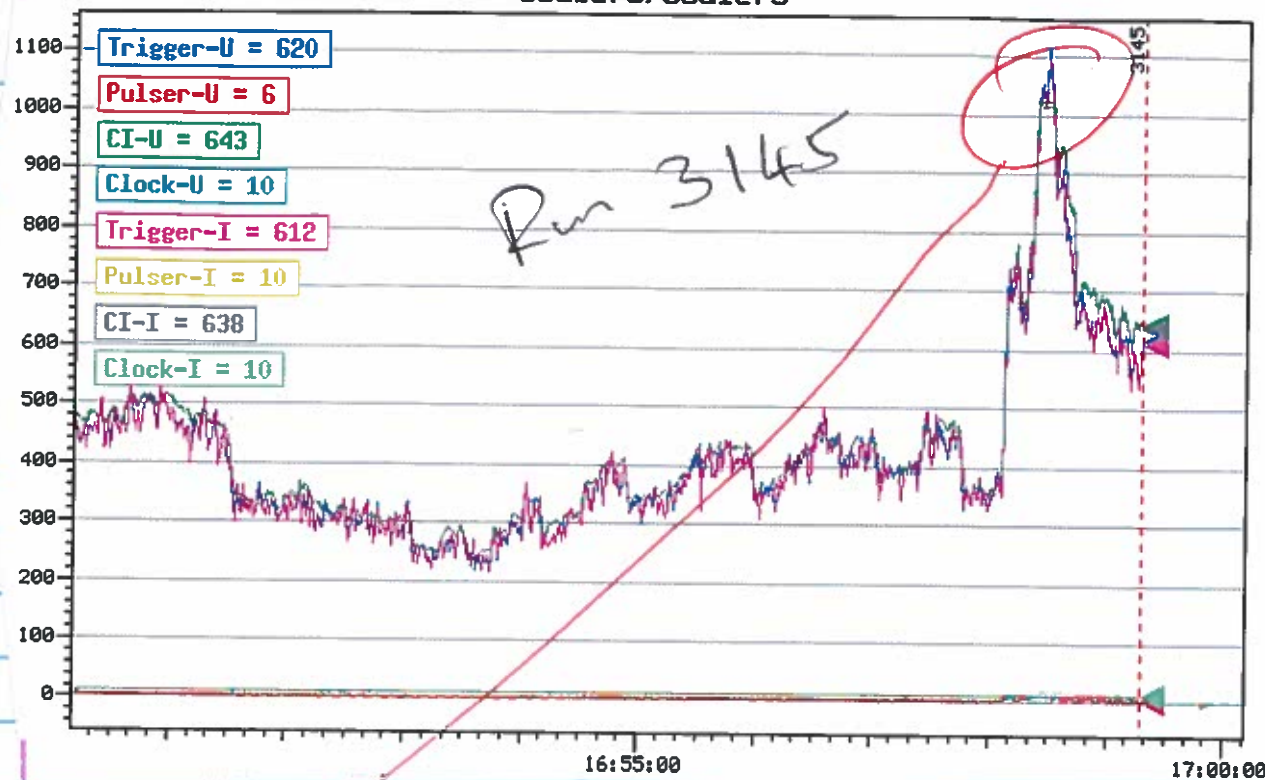
Brown up to 3.0 nA. Rate 1200 Hz.

On my little glance @ Trigger-U and Trigger-I → some slight deadtime effects in run 3144

→ Ah. I failed to keep an eye on the # of triggers. I stopped at 4.194 M below the ~~event limit~~ event limit @ 4.196 M (22) & should be OK. Seems to be running OK.

Run comment: Ni data
 Run #: 3145
 Start: 16:06 Current: 2.0 nA Trigger rate: 370 Hz
 Stop: 16:57 CI Range: 6 Data rate: 160 kB/s
 Target: 58Ni Collimator: #3 Trigger evts: 1.341M
 Target angle: -118 Scaler evts: 3109
 K600 angle: 0 deg K600 field: _____
 Q: _____ A VDC efficiency
 D1: SA A X1 92
 H: SA A U1 94
 D2: M A X2 85
 K: E A U2 95

See note!



Current went above 6nA for a moment
End of run 3145.

Run comment: 24Mg K600 angle: 0 deg K600 field: _____
Run #: 3146 Start: 17:01 Current: 4.2 nA Trigger rate: 460 Hz VDC efficiency _____
Stop: 17:31 CI Range: 6n Data rate: 200 kB/s X1 _____
Target: 24Mg Collimator: #3 Trigger evts: _____ U1 _____
Target angle: -118° Scaler evts: _____ D2: M A X2 _____
K: E A U2 _____

(No slow in run 3146. Checked CI and it didn't appear to saturate at any point).

Run comment: MT K600 angle: 0 deg K600 field: _____
Run #: 3147 Start: 17:33 Current: 3.0 nA Trigger rate: 220 Hz VDC efficiency _____
Stop: _____ CI Range: 6n Data rate: 100 kB/s X1 _____
Target: MT Collimator: #3 Trigger evts: _____ U1 _____
Target angle: -118° Scaler evts: _____ D2: M A X2 _____
K: E A U2 _____

Hold rate increasing. Will ask for volume with new targets.

Changed targets.



1 μ m Si

diamond-like ^{nat}C $\approx 9 \times 10^{21} \text{ cm}^{-2}$

SiO ($\approx 10 \text{ ng cm}^{-2}$ thick)

Note: we found that the 2nd K600 turbo pump also switched off this morning: err message: pump not up to speed. I managed to switch both on again.

3-4 nA \rightarrow 200 Hz
 1.5 nA \rightarrow 50 Hz

2 nA \rightarrow 70 Hz

Run comment: DLC 12 nA K600 angle 0 deg K600 field: _____
 Run #: 3149 Q: S A VDC efficiency _____
 Start: 19.34 Current: 2.0 nA Trigger rate: 220 Hz D1: A A X1: 93
 Stop: 20.16 CI Range: 6.0 Data rate: 90 kB/s H: A A U1: 74
 Target: DLC #5 Collimator: #3 Trigger evts: 308570 D2: E A X2: 87
 Target angle: -118 Scaler evts: 1907 K: E A U2: 95

Run comment: Si K600 angle 0 deg K600 field: _____
 Run #: 3150 Q: S A VDC efficiency _____
 Start: 20.18 Current: 1.6 nA Trigger rate: 100 Hz D1: A A X1: _____
 Stop: _____ CI Range: 6.0 Data rate: 40 kB/s H: A A U1: _____
 Target: #4 Si Collimator: #3 Trigger evts: _____ D2: E A X2: _____
 Target angle: -118 Scaler evts: _____ K: E A U2: _____

ThSCAT vs X1

