

# Villingen 2007

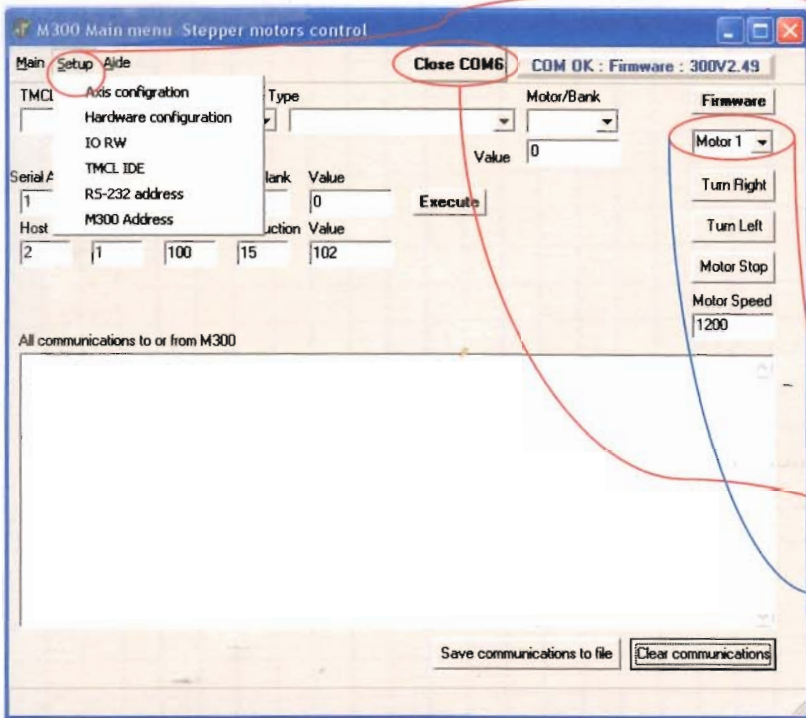
Start 28 August 2007 until 18 September 2007

Motors setup

Motor 1			Longitudinal			Motor 2		
V max acceleration	1200		V max acceleration	1200		V max acceleration	1200	
V max position	1200		V max position	1200		V max position	1200	
I max	800	mA	I max	800	mA	I max	800	mA
Screw	2.5	mm/turn	Screw	5	mm/turn	Screw	5	mm/turn
ADC1 @ 0	13	Counts	ADC2 @ 0	33	Counts	ADC2 @ 0	33	Counts
ADC1 @ 0	0.0635	V	ADC2 @ 0	0.1613	V	ADC2 @ 0	0.1613	V
ADC1 @ max	1012	Counts	ADC2 @ max	1021	Counts	ADC2 @ max	1021	Counts
ADC1 @ max	4.9462	V	ADC2 @ max	4.9902	V	ADC2 @ max	4.9902	V
Stepper Motor	L702		Stepper Motor	L702		Stepper Motor	L702	
Steps/turn	200	Steps	Steps/turn	200	Steps	Steps/turn	200	Steps
Microstep/turn	64	Steps	Microstep/turn	64	Steps	Microstep/turn	64	Steps
Max steps	3256713	Steps	Max steps	817613	Steps	Max steps	817613	Steps
Motor Steps / mm	5120	Steps	Motor Steps / mm	2560	Steps	Motor Steps / mm	2560	Steps
Motor step/ADC count	3259.97	Steps	Motor step/ADC count	827.54	Steps	Motor step/ADC count	827.54	Steps
Motor Steps/1 turn Screw	12800	Steps	Motor Steps/1 turn Screw	12800	Steps	Motor Steps/1 turn Screw	12800	Steps

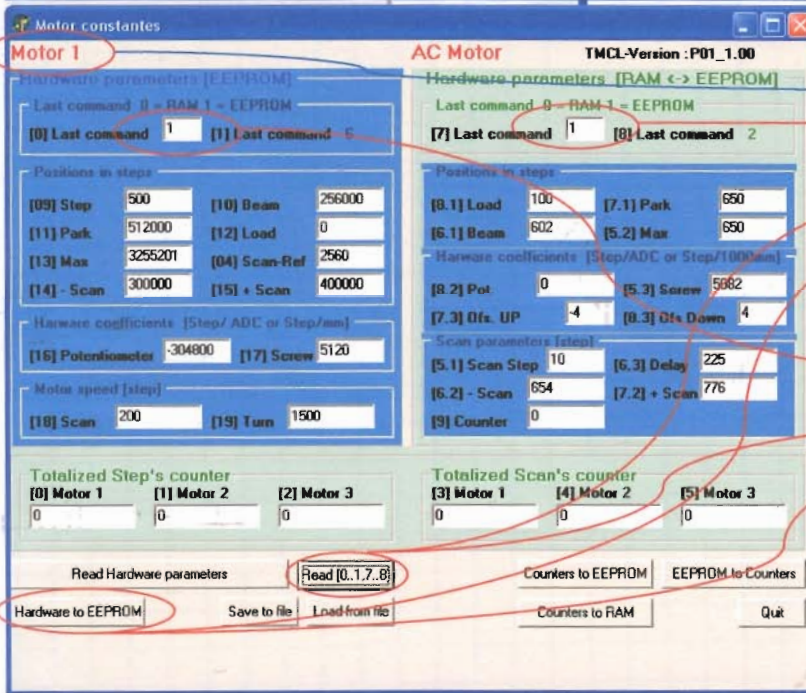
Motor 3			Motor AC		
V max acceleration	1200		Screw	2.5	mm/turn
V max position	1200		ADC7 @ 0	102	Counts
I max	800	mA	ADC7 @ 0	0.4985	V
Screw	5	mm/turn	Position	78	mm
ADC3 @ 0	29	Counts	ADC7 @ max	1002	Counts
ADC3 @ 0	0.1417	V	ADC7 @ max	4.8974	V
ADC3 @ max	1019	Counts	Position	357	mm
ADC3 @ max	4.9804	V	Motor AC	AC220V	
Stepper Motor	L702		mm/step	0.31	mm
Steps/turn	200	Steps	mV/mm	15.767	mV
Microstep/turn	64	Steps	Max steps	1000	Steps
Max steps	823587	Steps	Max mm	310.00	mm
Motor Steps / mm	2560	Steps			
Motor step/ADC count	831.91	Steps			
Motor Steps/1 turn Screw	12800	Steps			

Motor 1 Left Back (-) Right (+) thru the beam  
 Motor 2 XY Chamber }  
 Motor 3 holder } +: direction to the motor  
 (direction of flow-river in  
 one set up)



### Main menu

- Axis configuration  
Setup motor parameters
- Hardware configuration  
Movement of the tables
- IO RW  
Position readout
- TMCL IDE  
Processor control
- RS-232 address  
Setting parameters *COM1*
- M100 Address  
Hardware board address
- Motor selection
- Open communication *COM1*

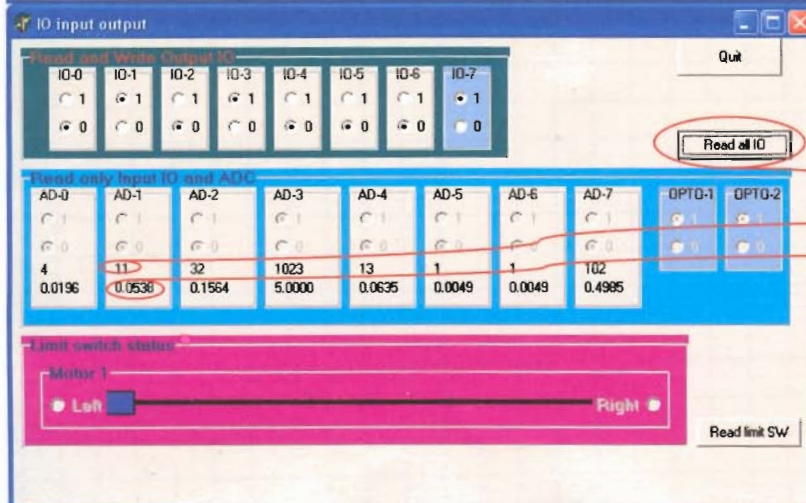


### Hardware configuration for Motor AC

- 1) Select Motor 1 only for AC
- 2) Set the motor movement  
Should be 1 before writing the new command, if not just read data first
- 3) Send command to the motor

### Hardware configuration for Motor 1,2,3

- 1) Select Motor 1 or 2 or 3
- 2) Set the motor movement  
Should be 1 before writing the new command, if not just read data first
- 3) Send command to the motor



### IO RW for Motor 1, 2, 3 and AC

- 1) Refresh all the values
- 2) ADC value
- 3) Voltage value

**Motor 1** : AD-1  
**Motor 2** : AD-2  
**Motor 3** : AD-3  
**Motor AC** : AD-7

c:\vipligen-2007\Motors\M300...exe

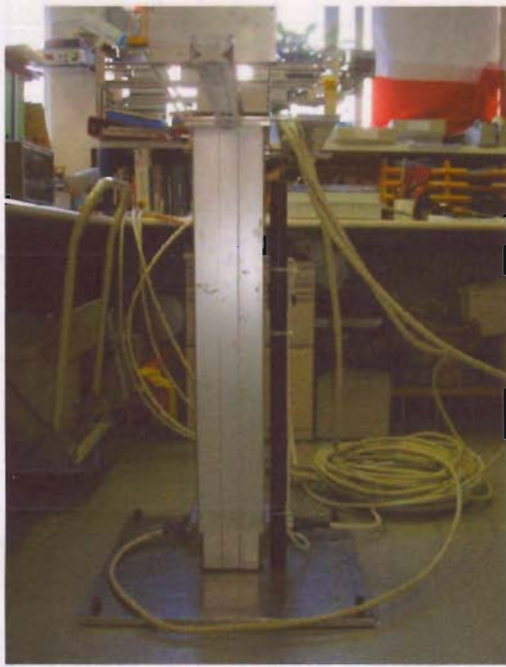
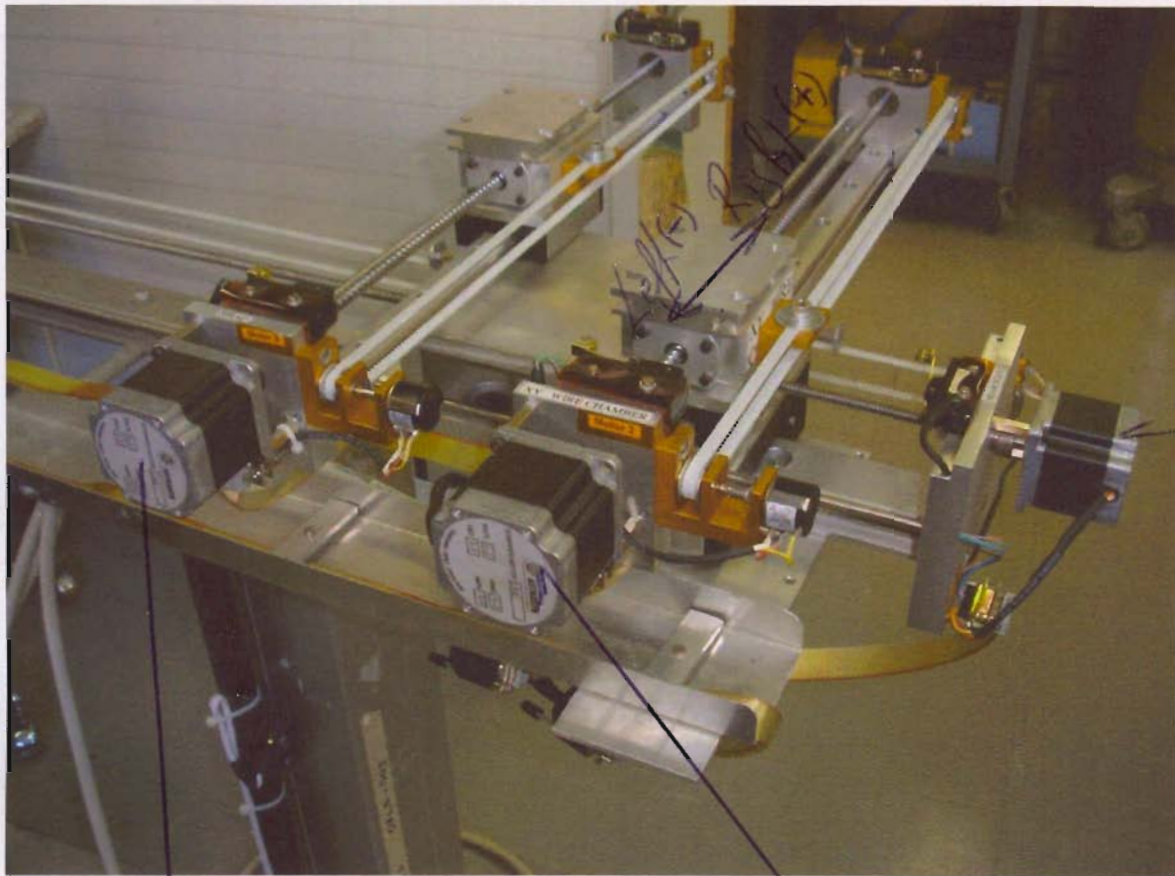


Figure 1



Figure 2

AC Motor  
UP  
Down



Beam

Motor 1

Motor 3 Slide holder Figure 3

Motor 2 XY Chamber



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9

29-8-2007

Silicon-1 Praha 001

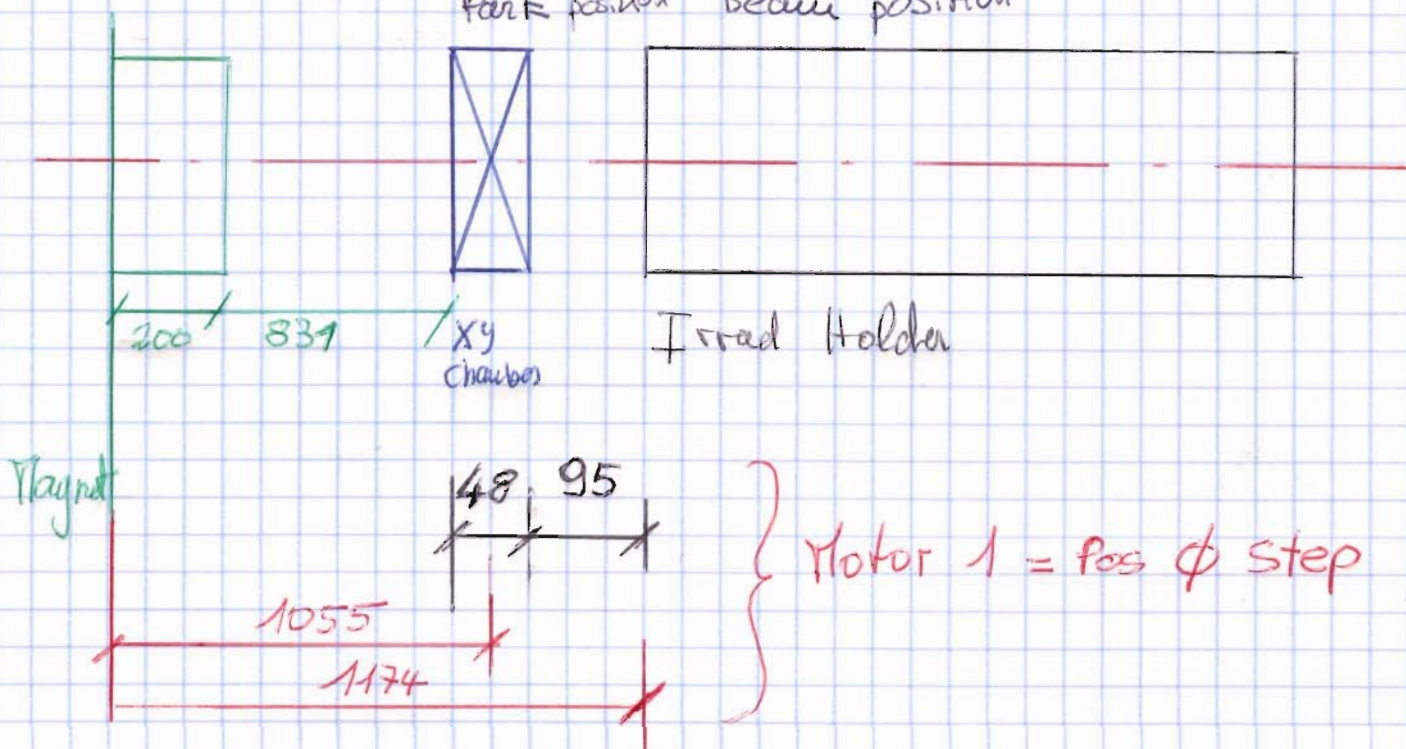
(5)

Machine MGP 8064 - 680psu

Host 137.138.78.219 → 220

Port 4242

Part position Beam position



The holder is 3mm below from the center of the XY Chamber

31-8-07

Done Backward the table 260mm

Connecting to the local PC:

PC2619.psi.ch  
Username: l-sensor  
Password: emspixel

login via ssh: ssh l-sensor@pc2619

cd /home/l-sensor/irrad-PE1/

labview

open from lib. /home/l-sensor/LabView-vis/IV/k487.llb

the to I-4-487.vi

PC in Control Room: PC3171

Username: l-td50  
password: irradiation

Alu Ge ⇒

This side

Resp Area Beam Setup

Beam Setup

Eikenberg Jost 2340 for T. Kman

Wiedemeier Martin 4225

~~B~~ Deiter Konrad 4241 056 442  
2359

- Renker Dieter 4213 (Hollidays)

- Munich

~~07157-07054~~

Damm Manfred 056 4414644

Actual Settings -- Mon Sep 03 11:56:46 2007

Device	DAC	ADC	Scaling
QTH51	-3137	-379.4	1.0
QTH52	680	81.4	1.0
QTH53	1263	77.7	1.0
ASZ51	2294	280.1	1.0
QTB51	-1641	-198.5	1.0
QTB52	788	94.5	1.0
ASY51	1940	234.3	1.0
QSL51	737	90.7	1.0
QSL52	-2476	-150.5	1.0
ASL51	33001	249.3	1.0
QSL53	1305	158.4	1.0
QSL54	-1712	-206.3	1.0
FSH51	400	0.4987	4.1
FSH52	500	0.5011	4.1
DSC51	55	0.0547	4.1
DSC52	55	0.0569	4.1
FS51-O	500	0.4989	4.1
FS51-U	500	0.4989	4.1
FS51-L	500	0.4984	4.1
FS51-R	500	0.4994	4.1

30-August 2007.

(7)

- 1) Recheck of the focus with XY chamber
- Before moving motor set Bias to 2000 V (slowly)
- No Beam! Vacuum windows was not installed.

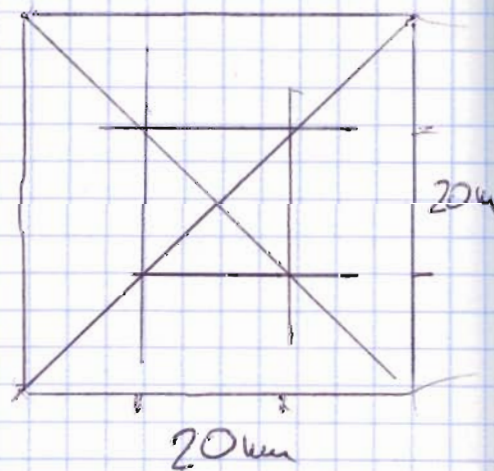
3-Sept. 2007

12<sup>00</sup> Film in Beam RUN 1 Beam ON  
 If  $10^{14}$  p/Days  $\rightarrow$  4 Gy/minute  $1.9 \cdot 10^{-7}$  A SEC

12<sup>15</sup> Beam OFF Film detached. 1725 pA HE

12<sup>28</sup> Film RUN 2 Beam ON  $1.9 \cdot 10^{-7}$  A SEC  
 12:33 Beam OFF

- Pos 1
- " 9
- " 19
- " 29
- " 39



12:54 Run 3 in Beam

Al $10 \times 10$	1	2	3	4	5	6	7	Pos
Al $5 \times 5$	8	9	10	11	12	13	14	
Film $10 \times 10$	HD1	2	3	4	5	6	7	
Si $8 \times 8$	8	12	16	20	24	28	32	Pos
	E1	B9	E11	G3	E8	E2	E3	

SEC =  $\emptyset$

14:24 Beam OFF Stop Sec = 0.00101133 A.s

14:50 Beam ON Start Sec = 0

Film, 7 pieces Run 4

14:56 Beam OFF Stop SEC =  $5.825 \times 10^{-5}$  A.s

16:04 Beam ON Irradiation START LogBook 2  
Start SEC=0 HE=1752  $\mu$ A  
SEC<sub>5</sub>=1.833 E-7 A-S

16:48 Beam OFF Stop SEC=4.583 E-4  
→ We moved the table 40mm Backwards  
18:03 Beam ON Start SEC=0

18:17 Beam OFF STOP SEC = ?

19:14 Beam ON START SEC = 0 HE=1890  $\mu$ A  
SEC<sub>5</sub>=1.97E-7 A-S

21:38 Beam OFF Stop Sec=0.00109121 SEC<sub>5</sub>=2.03E-7  
HE=1900

21:44 Beam On Start SEC=0.00109223

21:49 Beam OFF Stop SEC=0.00115478

21:57 Beam ON Start SEC=0.00115483

22:42 Beam OFF Stop SEC=0.0014128

22:47 Beam ON Start SEC=0.00141289 → logbook 2

65/66 + 64/63  
and Al-19  
HE=1400  
SEC<sub>5</sub>=1.572E-7

~~9:33 Beam OFF Stop SEC=0.00629686~~

4-Sept. 2007

9:33 Beam OFF Stop SEC=0.00629686

9:38 Took out all sample from Beam

Run 4

9:34 installation of 4 film pos: 0, 50, 100, 150 Bea

9:38 Beam ON Start SEC=0.00629686

9:44 Beam OFF Stop SEC=0.00635595

Film Remad Irradiation Resumed

9:54 Beam ON Start SEC=0.00635597

10:22 Beam OFF Stop SEC=0.00667683

The tray was moved back 100mm

Installation of 4 Film, Run 5, tray removed

10:30 Beam ON Start SEC=0.00668696

10:36 Beam OFF Stop SEC=0.00675089

Removal of Run 5 Film, tray irradiation resumed



10:38 Beam ON Start SEC = 0.00675393 HE = 1850 uA  
 11:16 Beam OFF Stop SEC = — CRASH SEC = 1.9634 E-7 A<sub>3</sub>  
 11:02 SEC = 6.968798 E-3 + 14 min

11:54 Beam ON <sup>Start</sup> SEC = 0 The SEC apparatus was moved SEC = 1.3 E-7 A<sub>3</sub>

12:02 The Tray table was moved back 4.5 mm.

12:31 Beam OFF Stop SEC 0.000118262

Run 6 4 films 0, 50, 100, 150 Dose table + 120

12:37 Beam ON Start SEC = 0.000119733

12:40 Beam OFF Stop SEC = 0.000134925

12:44 Beam ON Start SEC = 0.000136435 SEC = 1.25 E-7  
 ← Film exchanged with Tray

15:34 SEC = 1.115775 E-3

15:35 Surge - Δ SEC = 0.0000120937

15:43 SEC = 0

16:34 Beam OFF Stop SEC = 0.00018548

16:39 Beam ON Start SEC = 0.00018616

Alu-36 5x5 for Calibration in Per 22

19:36 Beam OFF Stop SEC = 0.00103329 Removing Aluminum and replacing (37)

19:44 Beam ON Start SEC = 0.00103913

22:40 Beam OFF Stop SEC = .00206268

22:42 Beam ON Start SEC = .0020655

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00:47 Beam OFF Stop SEC = 0.00280945

1:10 Beam ON Start SEC

9:19 Beam OFF Stop SEC = 0.00576859

9:33 Beam ON Start SEC = 0.00577167

18:59 Beam OFF Stop SEC = 0.00675847

Removing and Replacing Aluminum (38)

SEC/s = 1.1252 e-7

19:08 Beam ON Start SEC = 0.00676107

20:10 Restart SEC counter

Stop SEC = 0.007663 Start SEC = 0

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22:05 SEC/s = 1.21107 e-7  
HE = 1905

9:38 Current SEC = 0.0054734 A.s

SEC/s = 1.13928 e-7  
HE = 1911

17:52 Restart SEC counter

Stop SEC = 0.00850841 Start SEC = 0

18:51 Beam OFF SEC value = 0.000395986  
Remove Al 38, replace by Al 39  
current = 1.105 e-7

19:02 Beam ON Start SEC = 0.000398473

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18:47 Beam OFF SEC = 0.0106342

Remove Al-39, replace by Al-40

18:55 Beam ON SEC = 0.0106371

19:20 Beam OFF SEC = 0.0108236

19:29 Beam ON SEC = 0.0108247

20:30 Restarting SEC counter

Stop SEC = 0.01128 Start SEC = 0

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18:41 Beam OFF SEC = 0.00896393

Replacing Al-40 with Al-41, restarting SEC

18:47 Beam ON SEC = 0

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- 9:48 Beam OFF stop SEC = 0.00681849  
Placing 1E13 detectors in beam.
- 9:54 Beam ON start SEC = 0.00681868
- 11:27 Beam OFF SEC = 0.00753423  
removing 1E13 detectors, adding 3e13
- 11:41 Beam ON SEC = 0.00753518
- 15:43 Beam OFF SEC = 0.00935374  
removing 3e13 detectors
- 15:50 Beam ON SEC = 0.00935614
- 18:37 Beam OFF SEC = 0.0106141  
Removing <sup>front</sup> half 1e15, adding 2e14  
Replaced A1 41 w/ 42
- 19:06 Beam ON SEC = 0.0106163
- 19:07 Restart SEC = 0

10 - Sept. 2007

- 11:09 Beam OFF SEC = 0.00585563
- 11:14 Beam ON SEC = 0.00586174
- 15:08 Beam OFF SEC = 0.00754766  
putting in 5e14
- 15:13 Beam ON SEC = 0.00755332
- 18:28 Beam OFF SEC = 0.00899456  
Replacing A1-42 w/ A1-43, restarting SEC
- 18:36 BEAM ON SEC = 0

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- 18:20 Beam OFF SEC = 0.0109812  
Replacing A1-43 w/ A1-44, restarting SEC
- 18:32 Beam ON SEC = 0

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8:37 Beam off SEC = 0.0067003

Take out samples with target force  $2 \cdot 10^{14}$   
(slot 8-15) total integrated SEC = 0.02667  $\approx 2.67 \cdot 10^{15}$

Put in:

Slot 10	F172 + S172 W331 EG V67 + AL 18	} $1 \cdot 10^{14}$
Slot 11	V68 V69 V70	
Slot 12	V80-82 + AL 20	$48 \cdot 10^{14}$ "
		(will receive $< 4 \cdot 10^{14}$ )
Slot 13	V71-73 + AL 22	$105 \cdot 10^{14}$

9:11 BEAM ON SEC = 0.0067468

14:44 BEAM OFF SEC = 0.0093763

Put in Slot 14 F163/S163 W331-E4  
Target  $2 \cdot 10^{14}$   
Slot 14

14:52 BEAM ON SEC = 0.0093296

14:56 BEAM OFF SEC = 0.00940889

took out F163/S163 + W331-E4  
→ freezer

put in F164/S164 + W331-E5  
Target  $2 \cdot 10^{12}$   
Slot 14

15:02 BEAM ON SEC = 0.00941265

15:34 BEAM OFF SEC = 0.00968141

took out F164/S164 + W331-E5  
→ freezer

put in S165/F165 + W331-F10  
+ AL "165" target:  $4 \cdot 10^{12}$   
slot 14

15:42 BEAT ON SEC = 0.00966402

17:35 BEAT OFF SEC = 0.0104795

removed: samples S165/F165 + W331-F10  
no freezer  
AL "165"

exchanged AL 44 → AL 45

17:40 BEAT ON SEC = 0

13/09/07

~8:50

BEAT OFF ✓ SEC 0.00721284

put in Sample: S170/F170  
slot 14 W331-E10  
AL "170"

Target  $\phi$   $2 \cdot 10^{13}$  (SL)

~~BEAT ON~~

BEAT ON 9:02 SEC = 0.00721406

9:47 BEAM OFF 0.00756584

took out  $1 \cdot 10^{15}$  back

→ freezer (with alii)

9:56 BEAM ON SEC=0.00756986

16:20 BEAM OFF SEC=0.0103693

Freezer {

look out

slot ~~10+11~~ → 10: F1728 S172  
W331E6 } 1E14

slot 14 11: V67+M18  
V68, V69, V70

16: S170/F170, W331-E10, 1E13  
AL170

exchange AL 45 → AL 46 (stays to the end!)

16:30 BEAM ON SEC=0

put in S 166, W331F6, 1E13  
AL "166"  
10

19:42 BEAM OFF SEC=0.00141161

out: S166, W331-F6, AL "166"

19:48 BEAM ON SEC 0.00141411

4/09/07

9<sup>47</sup>

BEAM OFF

SEC = 0,00766926 (15)

10<sup>02</sup>

BEAM ON

SEC = 0,00767328

in slot 10811 [3E13] w/ AL1112  
slot 13814 [1E13] w/ AL1111  
1,5E13 needed  
5E12 needed

out slot 13 1,5E14  
U71-73 AL22 } freeze

11:35 BEAM OFF SEC = 0,00840447

out [1E13] (SE12 still needed)  
AL 1111

11:41 BEAM ON SEC = 0,00840541

15:25 Major problems at the accelerator

BEAM OFF SEC = 0.00971929

out "3E13" + AL 1111  
↳ freeze

15:37 Reset SEC = 0  
OPENED Beam

18:39 Beam OFF SEC = 0.00115619

18:42 Beam ON SEC = 0.00116078

Beam was off!

Thanks  
Tilman

15/09/07 23:15 SEC = 0.00126848

Reset SEC = 0 Switch beam ON!

6-09-07

20:42

Beam OFF SEC = 0.00808372

Al-46 out - in freezer, not in a small bag  
"Ze15" out - in freezer  
"8e14" out - in freezer  
5e14 out - in freezer

End of Irradiation

To Whom it may  
Concern,

There are two  
Aluminium labeled  
"Al-19". One was  
put in and taken  
out with the Ge13  
~~samples~~ samples 3/9/07 - 5/9/07  
and another was  
put in and taken  
out with the Ze14  
samples 9/9/07 - 12/9/07.  
The one with the Ge13  
samples is in lead box  
and the one with the  
Ze14 samples is in Freezer  
- Chris