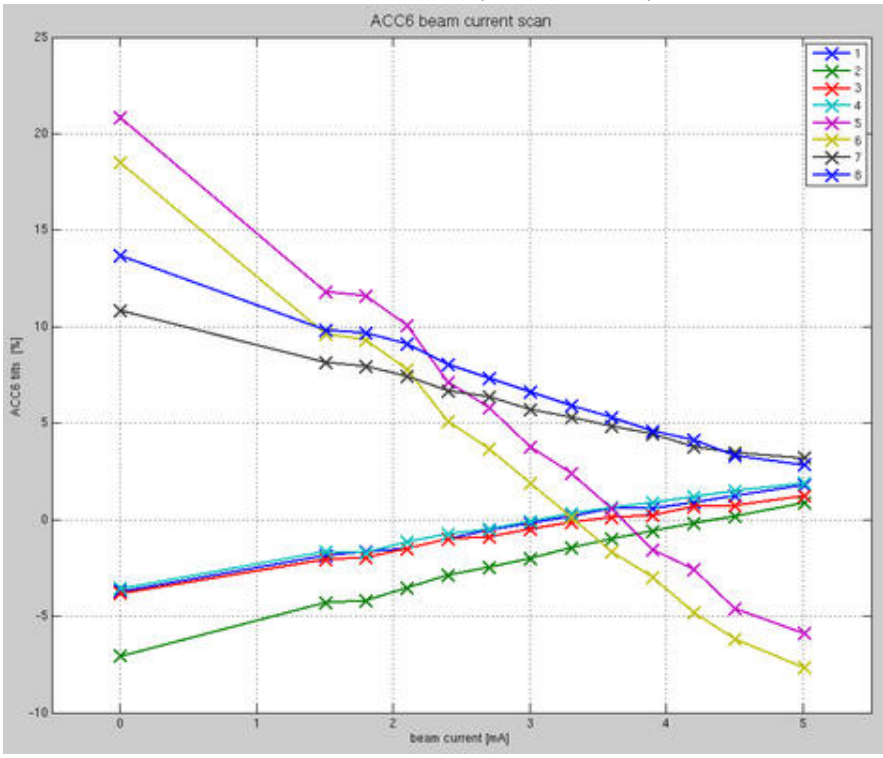
? 08.02.2011	07:03	oracle	**Shift summary**

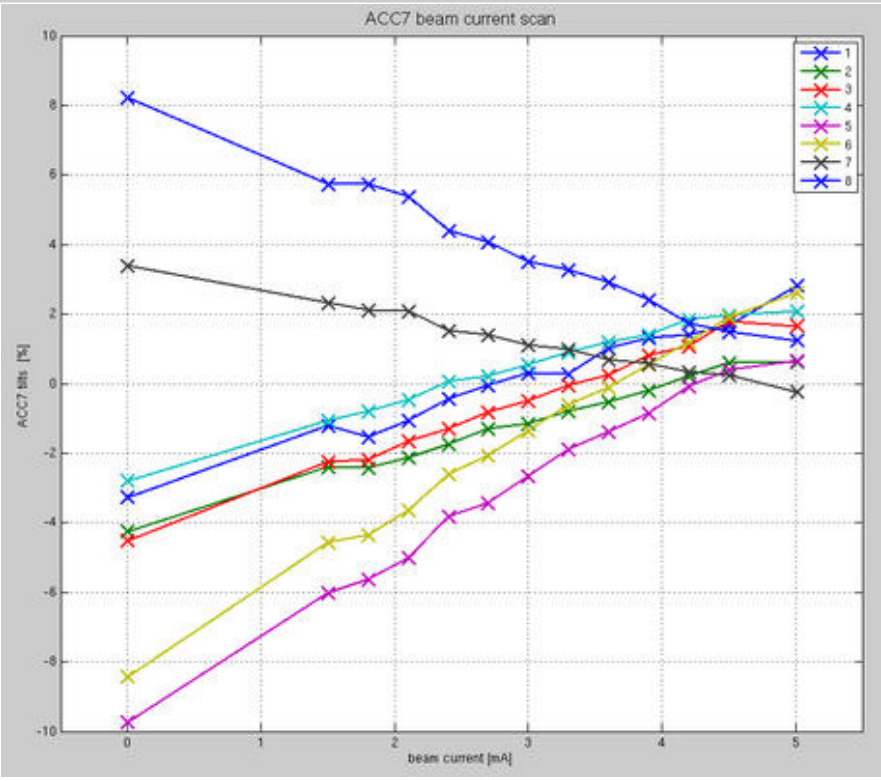
08.02.2011	07:01	Carwardine, Walker	**ACC6 beam current scan with additional point at 5mA**

Charge was increased to 1.7nC, so we added the extra point to the plots from the end of last shift



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:01:04-00.png

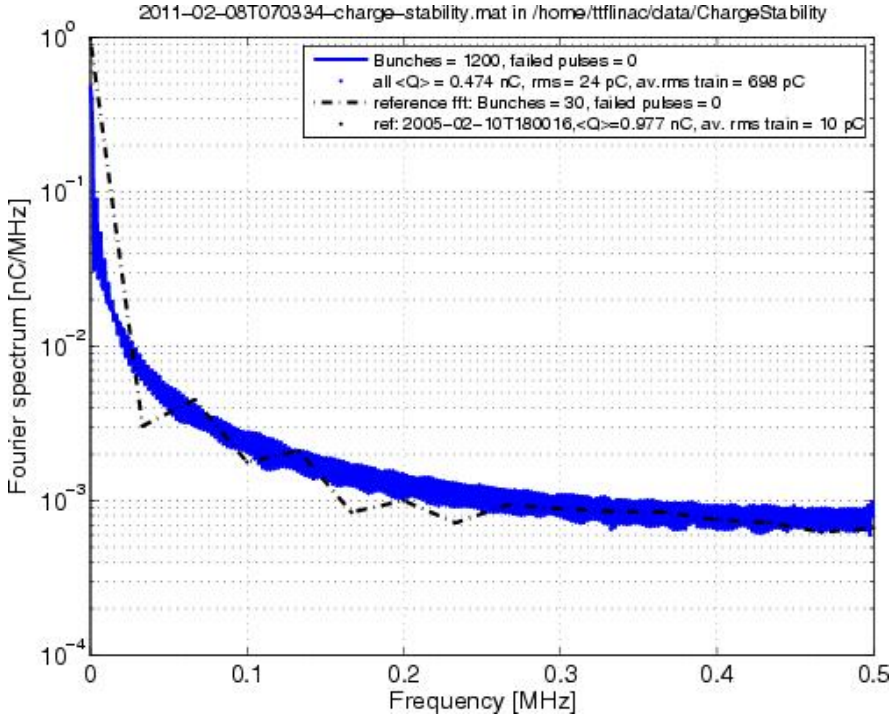
08.02.2011	07:03	Carwardine, Walker	**ACC7 beam current scan with additional point at 5mA**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:03:09-00.png

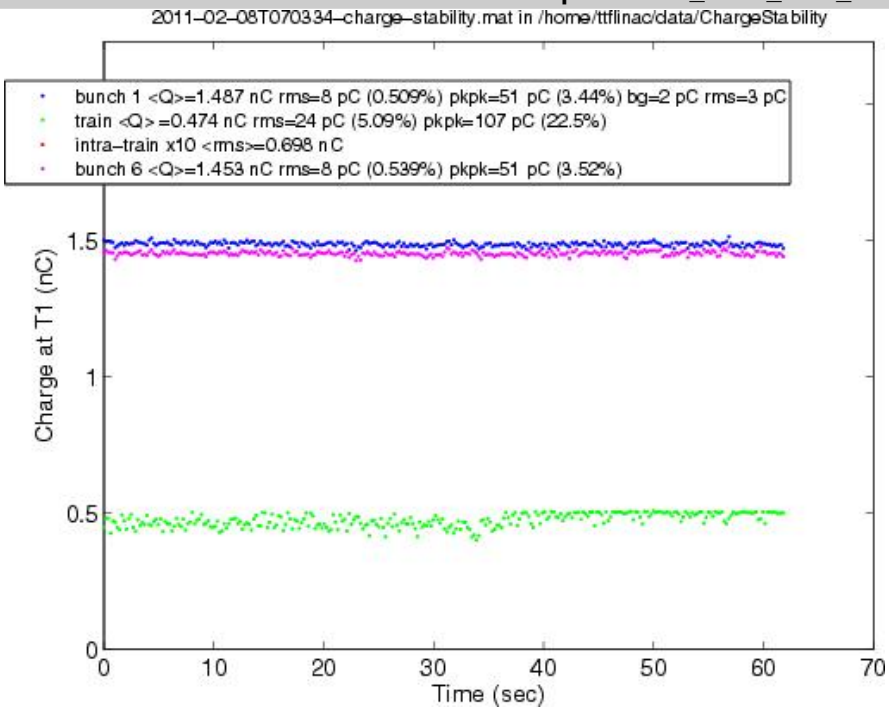
08.02.2011 07:04 ttflinac **tp4e00e26d_98a8_4137_8b31_6466c05fa54b.ps**

start sift documentation



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:04:55-00.ps

08.02.2011 07:05 ttflinac **tp6f7573c3_7db2_4b7f_abf0_54c9d2096ad4.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:05:03-00.ps

08.02.2011 07:13 ttflinac **Main linac parameters**

shift documentation

Laser
Number of bunches 1200
Bunch frequency ..... 3000 kHz
Macropulse rep'rate .... 5.0 Hz
Pump time_3 ..... 0.0030 ms

Gun
Feedforward/Feedback ... on/on
FSM ..... on
Pfwd SP 3.64
VS ampl. 18.34

```
Pump current_3 ......... 5.00 V
Pre-amp start time ..... 2.59 ms
Booster start time ..... 2.69 ms
Attenuator SP .......... 5.77
Iris diameter .......... 17248 steps
Iris diameter .......... 2.05 mm
```

```
Phase SP ............... -8.20 deg
VS phase ............... 7.31 deg
Pfwd (peak) ............ 3.832 MW
Prefl (peak) ........... 2.831 MW
Pfwd sample point ...... 700
Pfwd (at sample point) . 18.352 MW
Prefl sample point ..... 720
Prefl (at sample point)  5.749 MW
Flat top ............... 460 us
Water temperature SP ... 72.32 deg C
Main solenoid (RBV) .... -300.54 A
Bucking coil (RBV) ..... 20.70 A
Gun dipole (RBV) ....... 0.000 A
Charge 3GUN(T1) ........ 1.49 nC
DC kicker delay ........ 6.80 ms
DC kicker HV ........... not local
DC kicker HV ........... enabled
DC kicker HV ........... on
DC kicker SP ........... 0.00 V
DC kicker start ........ 124.00 ns
```

ACC1

```
Feedforward/Feedback ... on/on
Feedback gain .......... 2.0
Pfwd SP ................ 163.70
Pfwd RBV ............... 163.71
Phase SP ............... 2.70 deg
Phase RBV .............. 2.74 deg
Pfwd C1.ACC1 ........... 181.7 kW
Pfwd C5.ACC1 ........... 175.1 kW
Flat top ............... 800 us
Dipole BC2 (RBV) ....... 73.11 A
Pyro 9DBC2.1 ........... -0.1959 V
Radiator 9DBC2 ......... out
Slow phase feedback .... off
Slow ph. FB target/gain  -0.400/-0.1
Slow ph. FB pyrodet.used Pyro 9DBC2.1 (fine, old ADC)
```

ACC39

```
Feedforward/Feedback ... on/on
Feedback gain .......... 8.0
Pfwd SP ................ 19.10
Phase SP ............... 109.00 deg
Pfwd C1.ACC39 .......... <error>
Flat top ............... 800 us
```

ACC2/3

```
Feedforward/Feedback ... on/on
Feedback gain .......... 2.0
Pfwd SP ................ 297.50
Pfwd RBV ............... 295.72
Phase SP ............... 2.00 deg
Phase RBV .............. 2.44 deg
Pfwd C5.ACC2 ........... 131.61 kW
Pfwd C1.ACC3 ........... 229.46 kW
Flat top ............... 450 us
Dipole BC3 (RBV) ....... 56.00 A
Pyro 4DBC3.1 ........... -0.0282 V
Pyro 4DBC3.3 ........... 0.0017 V
Radiator 4DBC3 ......... out
```

ACC4/5

```
Feedforward/Feedback ... on/on
Feedback gain .......... 40.0
Pfwd SP ................ 250.00
Pfwd RBV ............... 250.18
Phase SP ............... -8.90 deg
Phase RBV .............. -8.43 deg
Pfwd C1.ACC4 ........... 115.90 kW
Pfwd C2.ACC5 ........... 100.21 kW
Pfwd C1.ACC6 ........... 0.61 kW
Flat top ............... 800 us
```

ACC6/7

```
Feedforward/Feedback ... on/on
Feedback gain .......... 50.0
Pfwd SP ................ 289.50
Pfwd RBV ............... 284.03
Phase SP ............... -5.00 deg
Phase RBV .............. -3.59 deg
Pfwd C1.ACC6 ........... 188.02 kW
Pfwd C1.ACC7 ........... 212.06 kW
Flat top ............... 800 us
```

Bypass

```
Dipole D1BYP (RBV) ..... 0.00 A
Energy bypass .......... 1211.4 MeV
RF vector sum ALL ...... 684.0 MeV
Charge 16BYP ........... -0.01 nC
```

Collimator

```
Dipole D1ECOL (RBV) .... 176.89 A
Energy dogleg .......... 1008.0 MeV
Charge 7ORS ............ 1.52 nC
```

Undulator

```
1SFUND1 gap RBV ........ 220.0 mm
1SFUND2 gap RBV ........ 220.0 mm
1SFUND3 gap RBV ........ 220.0 mm
1SFUND4 gap RBV ........ 180.0 mm
```

Dump

```
Dipole D9SMATCH (RBV) .. 0.00 A
Dipole D1DUMP (RBV) .... 0.00 A
Dipole D6DUMP (RBV) .... 212.20 A
Rotator RD13DUMP (RBV) . 9.13 A
Charge 9DUMP ........... 1.39 nC
```

Feedbacks

```
Charge feedback gain ... <error>
Charge feedback SP ..... <error>
PTO feedback ........... on
```

Photon beamline

```
Aperture 1 ............ 10 mm
Offset h/v ............ 0/-1 mm
Aperture 2 ............ 10 mm
Offset h/v ............ 1/0 mm
```

```
Status saved in machine file 2011-02-08T07_13_08+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-08T071308
```

```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110208T071308.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110208T071308.sr
from computer: flashbkr3.desy.de
```

08.02.2011 07:15 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 1008.03 MeV / 6.2 nm
Charge:              1.49 nC
Main solenoid:       -300.5 A
Bucking coil:        +20.7 A
Dipoles BC2/BC3:     +73.1 A / +56.0 A
```

RF parameters

	GUN	ACC1	ACC39	ACC2/3	ACC4/5	ACC6/7
Power/Gradient	+3.640	+163.70	+19.10	+297.50	+250.00	+289.50
Readback	3.84	163.7	19.1	295.8	250.2	284.0
Phase	-8.20	+2.70	+109.00	+2.00	-8.90	-5.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	7.4	2.7	108.9	2.4	-8.4	-3.5

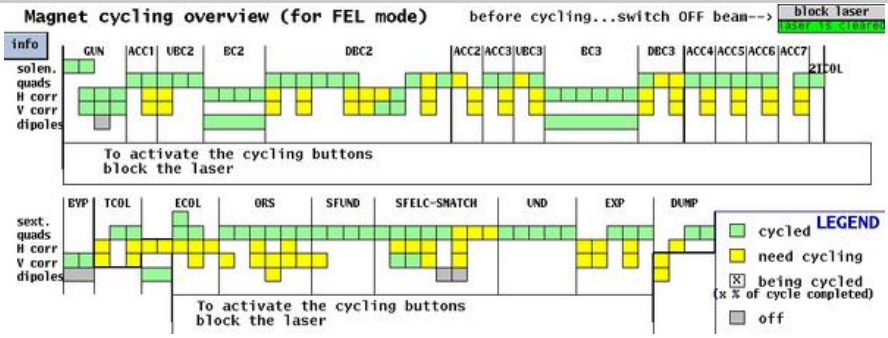
Undulator steerers and aircoils

H7SMATCH	H12SMATCH
+0.254	**-1.978**
V7SMATCH	V12SMATCH
-0.083	**-1.978**

Intra-undulator steerers

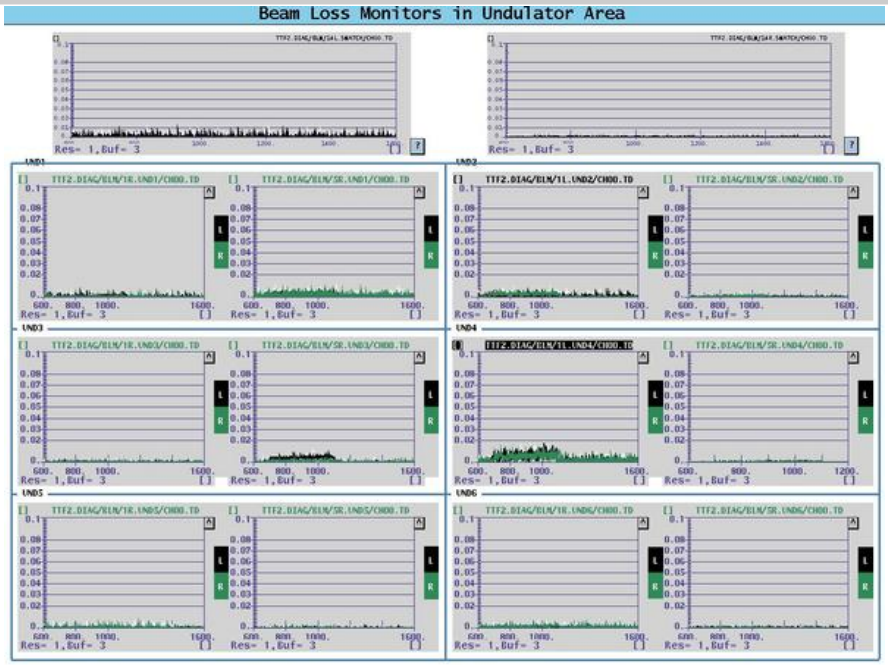
H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.90	**-5.00**	**-4.90**	**-4.70**	**-4.90**	**-5.00**

08.02.2011 07:15 ttflinac **ttflinac@:magnet_cycle_overview_fel**



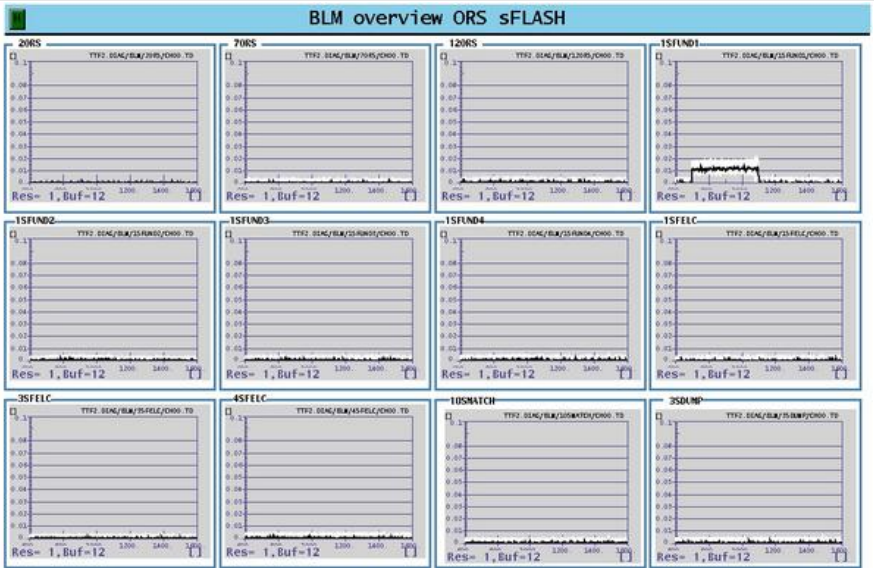
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:15:31-00.JPG

08.02.2011 07:16 ttflinac **ttflinac@:BLM_UNDULATORS**



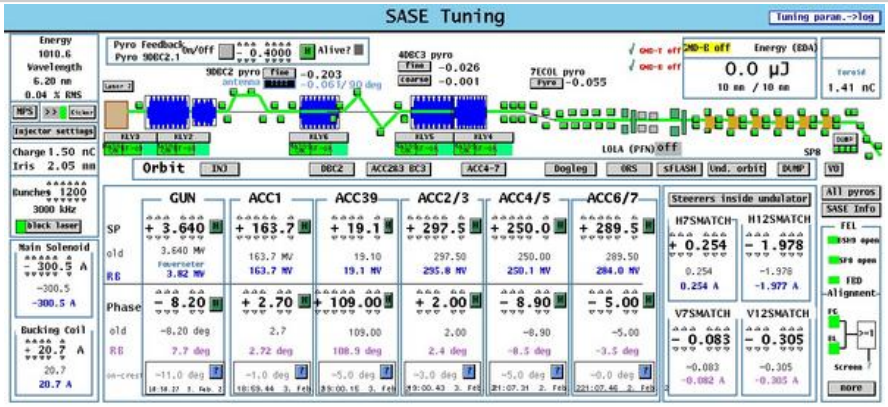
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:16:04-00.JPG

08.02.2011 07:16 ttflinac **ttflinac@:blm_overview_ORS**



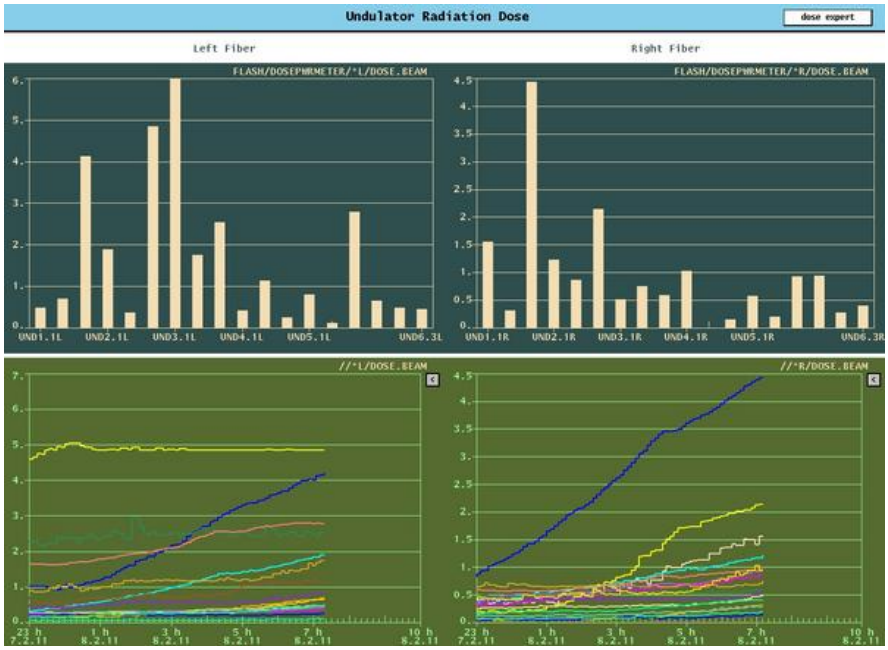
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:16:23-00.JPG

08.02.2011 07:17 ttflinac **ttflinac@:SASE_tuning**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:17:47-00.JPG

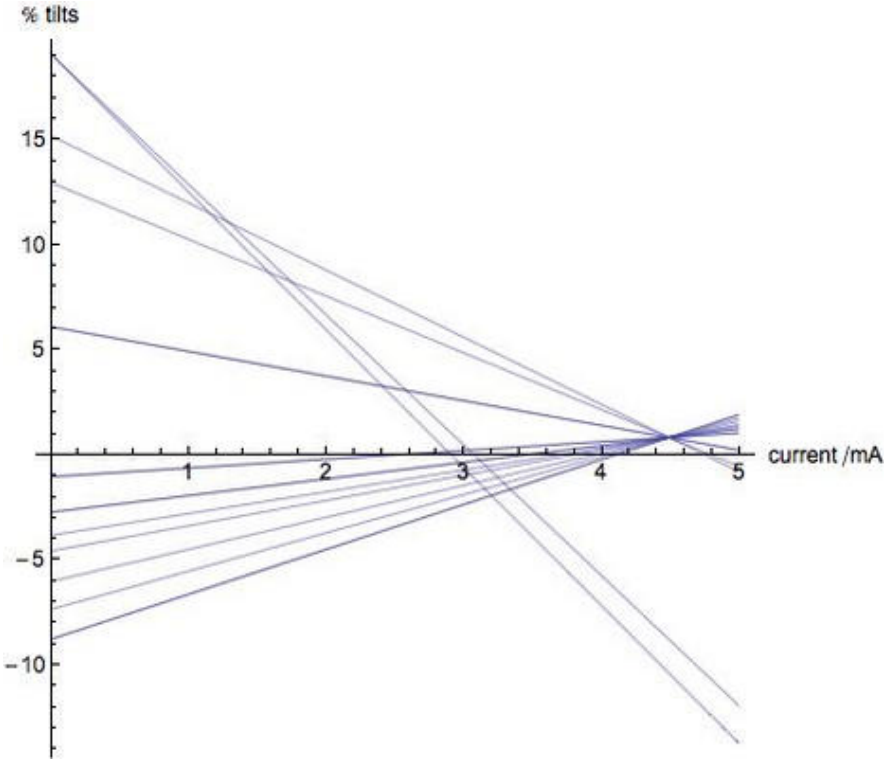
08.02.2011 07:18 ttflinac **ttflinac@:dose_und**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:18:30-00.JPG

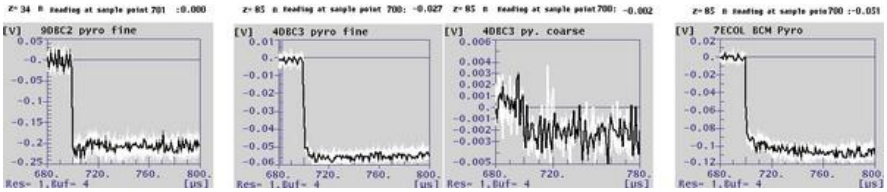
08.02.2011	07:20	Walker	**Modelled current dependency on gradient slopes**

Plot shows the predicted "tilts" in % (over 400us beam pulse) for a 4.5mA solution close to that implemented in the machine. The vector sum is adjusted to be constant.



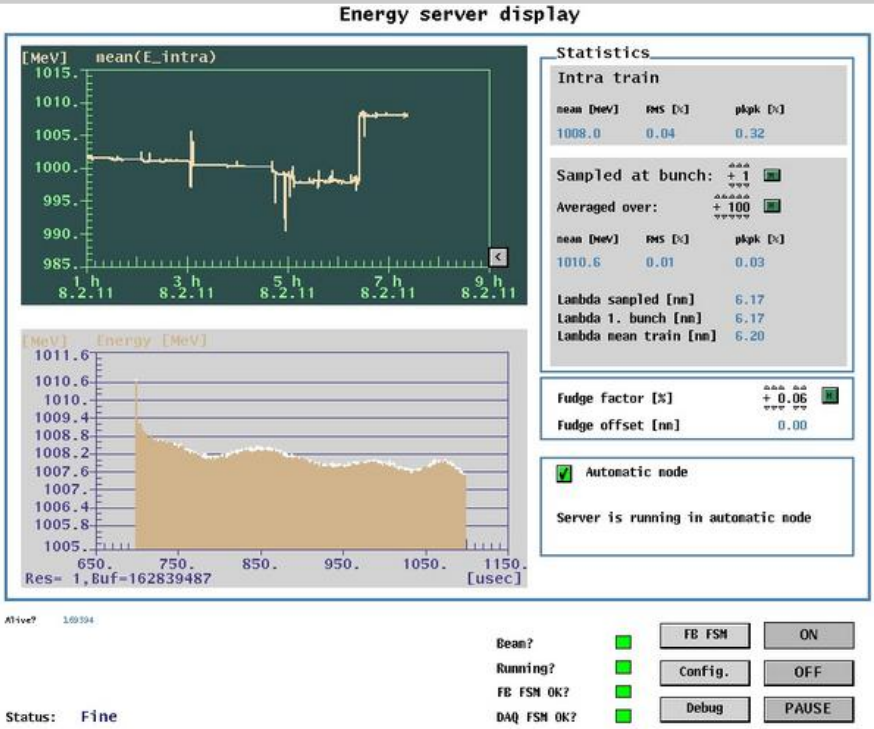
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:20:11-00.jpg

08.02.2011	07:20	ttflinac	**ttflinac@:All_BCM**



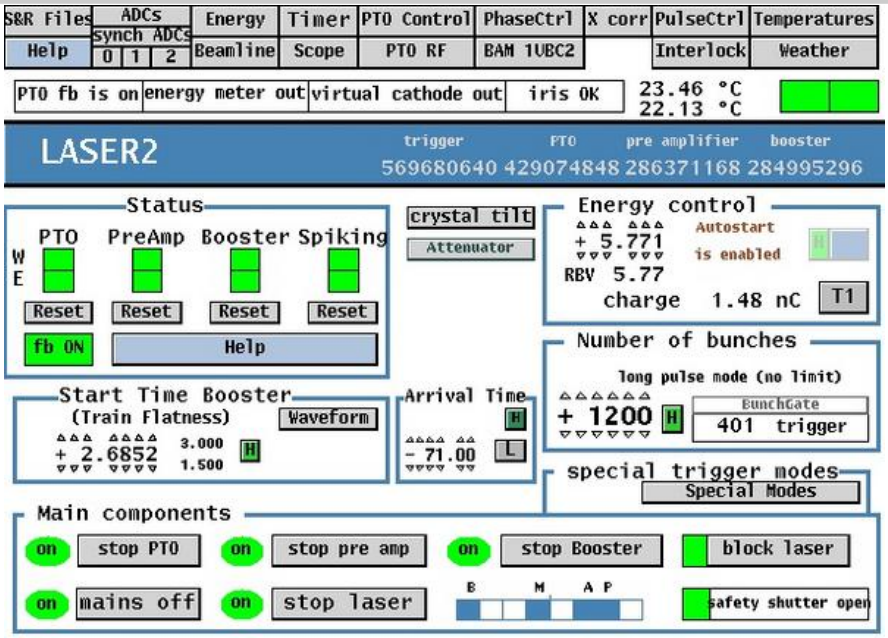
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:20:16-00.JPG

08.02.2011 07:21 ttflinac **ttflinac@:Energyfbm_display**



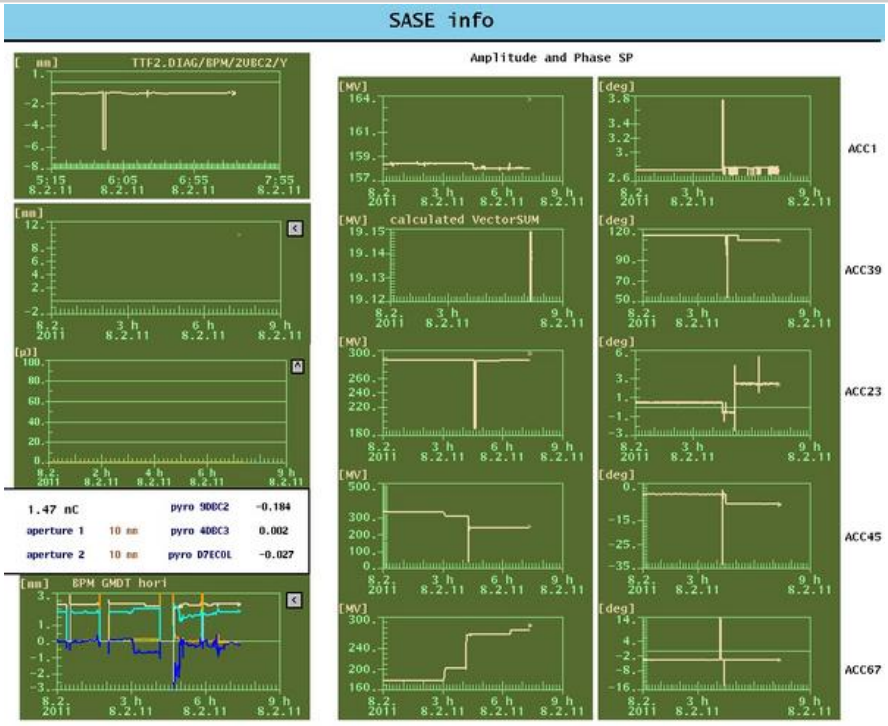
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:21:09-00.JPG

08.02.2011 07:23 ttflinac **ttflinac@:laser2_control**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:23:08-00.JPG

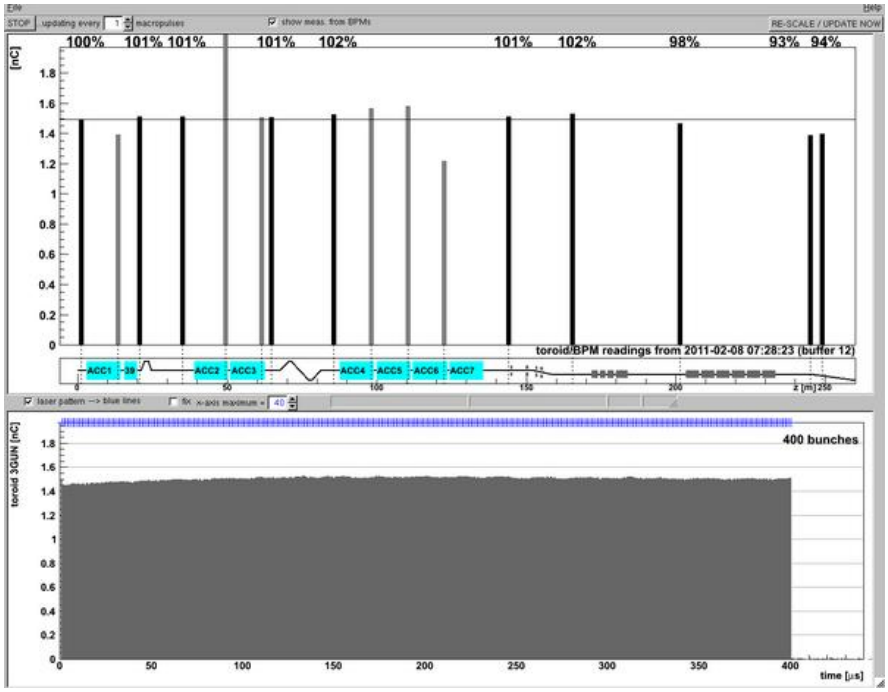
08.02.2011 07:23 ttflinac **ttflinac@:SASE_info**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:23:56-00.JPG

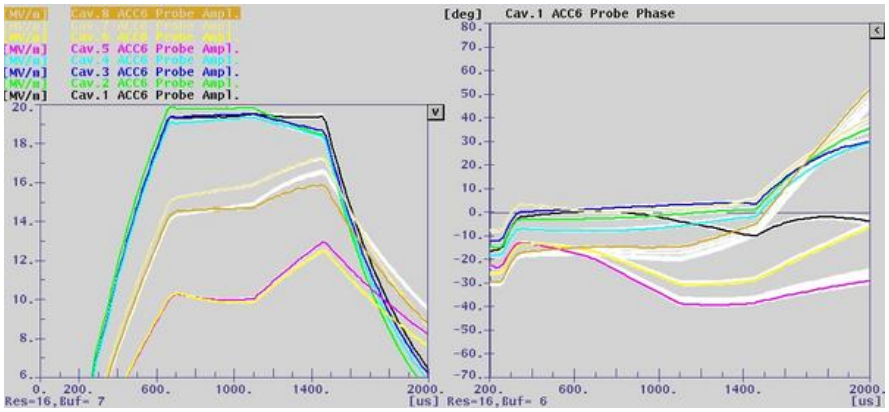
08.02.2011 07:28 ttflinac **toroid charge readings**

```
400*3 = 1200 bunches
end of shift documentation
```



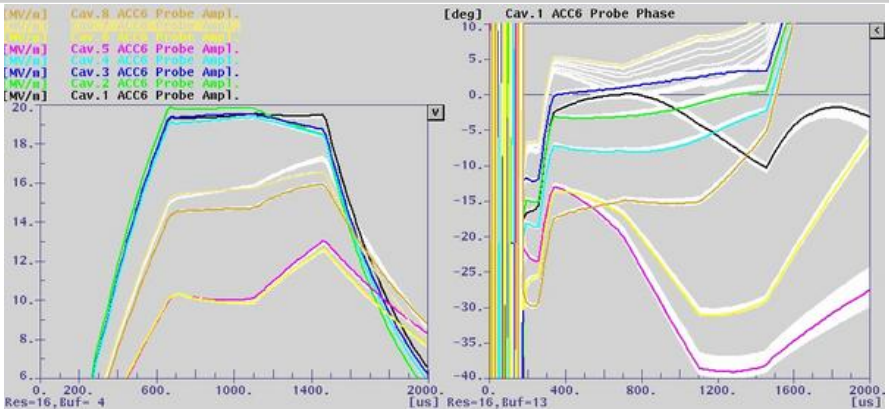
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:28:45-00.ps

08.02.2011 07:36 ttflinac **ttflinac@:9mA_probe**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:36:02-00.JPG

08.02.2011 07:49 ttflinac **ttflinac@:9mA_probe**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T07:49:29-00.JPG

08.02.2011 08:09

Cavity#	Loaded Q	Detuning
1	2.01e+06	75.58
2	1.76e+06	216.69
3	1.92e+06	195.65
4	1.93e+06	209.68
5	4.82e+06	54.09
6	4.33e+06	123.14
7	2.99e+06	219.07
8	3.38e+06	305.82

Thresholds (Grad QI

12

1.5 5.5

600

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T08:09:19-01.png

08.02.2011 08:15

Cavity#	Loaded Q	Detuning
1	2.01e+06	78.51
2	1.76e+06	219.24
3	1.92e+06	205.60
4	1.93e+06	212.69
5	4.82e+06	62.08
6	4.33e+06	125.93
7	2.76e+06	236.13
8	3.38e+06	306.37

Thresholds (Grad QI

12

1.5 5.5

600

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T08:15:19-00.png

08.02.2011 08:17

Cavity#	Loaded Q	Detuning
1	2.02e+06	80.81
2	1.76e+06	220.39
3	1.92e+06	200.25
4	1.93e+06	216.25
5	4.82e+06	60.26
6	4.34e+06	126.34
7	2.56e+06	255.07
8	3.36e+06	309.43

Thresholds (Grad QI

12

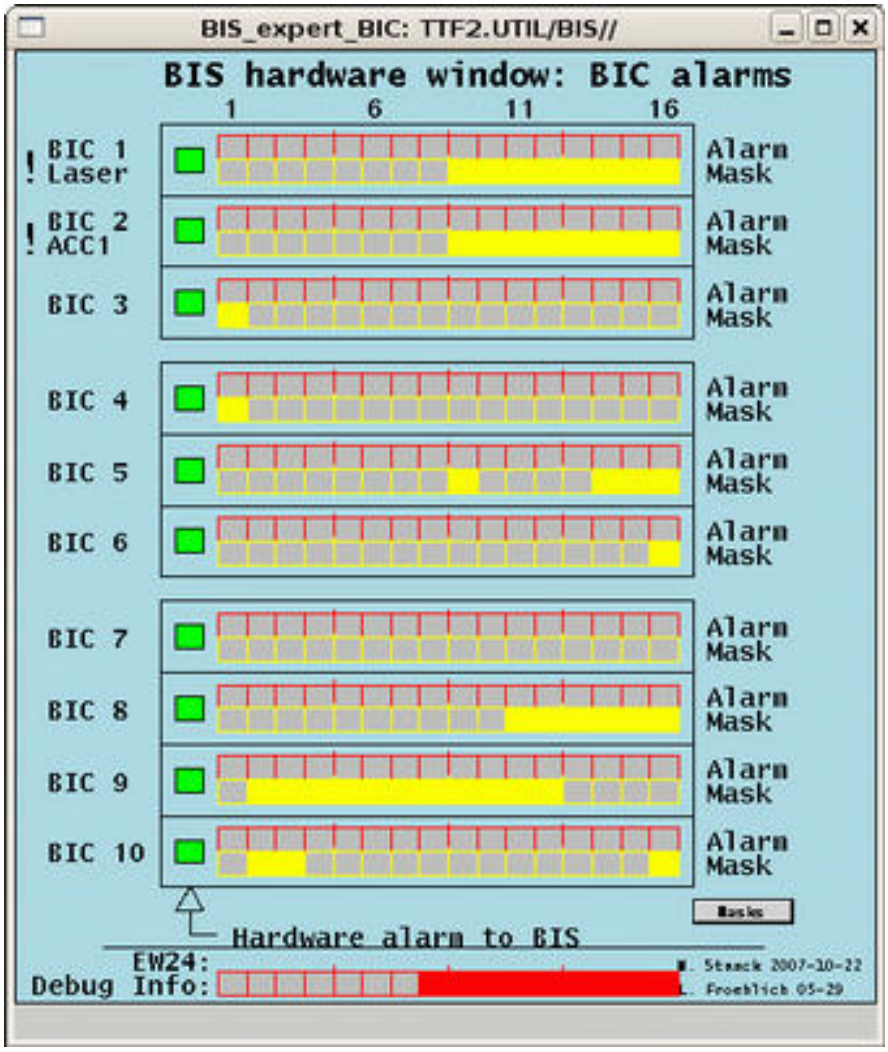
1.5 5.5

600

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T08:17:25-00.png

08.02.2011 08:35 M. Staack **TPS FEL-2 masked out**

I masked out TPS FEL-2 (2UBC2-9DUMP) by default, as well the Integration alarm and the Single Bunch alarm from TPS FEL-1 as it had been set in the night manually. At least only the TPS BYP-2 is fully active.



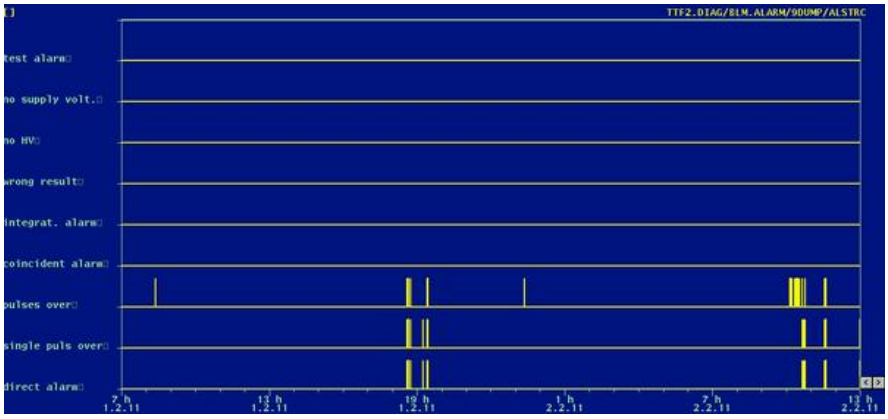
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T08:35:36-00.gif

08.02.2011	08:44	Carwardine	**Manual scan of the coupler positions on ACC67**

```
Increased loaded Q on C7 ACC6 back to the original value of 3.2e6, and now moving one tick up again
 to 3.4e6
Previously had done three ticks down to 2.8e6 in 0.2e6 steps (approximately steps of 10,000 on the
 coupler motor positions gives 0.2e6 delta)
```

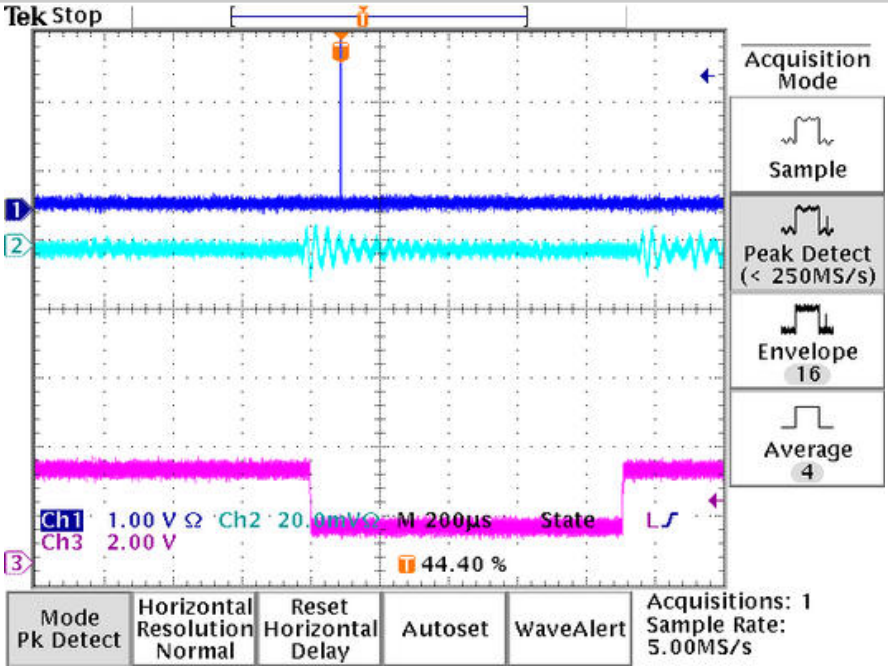
08.02.2011	09:29	A. Kaukher	**9DUMP alarm history for 1 February.**

```
The "Multi pulses" threshold for 9dump BLM is too low ?
See also
http://ttfinfo.desy.de/elog/servlet/XMLlist?file=/TTFelog/data/2011/06/08.02_M/2011-02-08T09:29:59-01.xml&xsl=/e
and
http://ttfinfo.desy.de/elog/servlet/XMLlist?file=/TTFelog/data/2011/06/08.02_M/2011-02-08T09:29:56-02.xml&xsl=/e
```



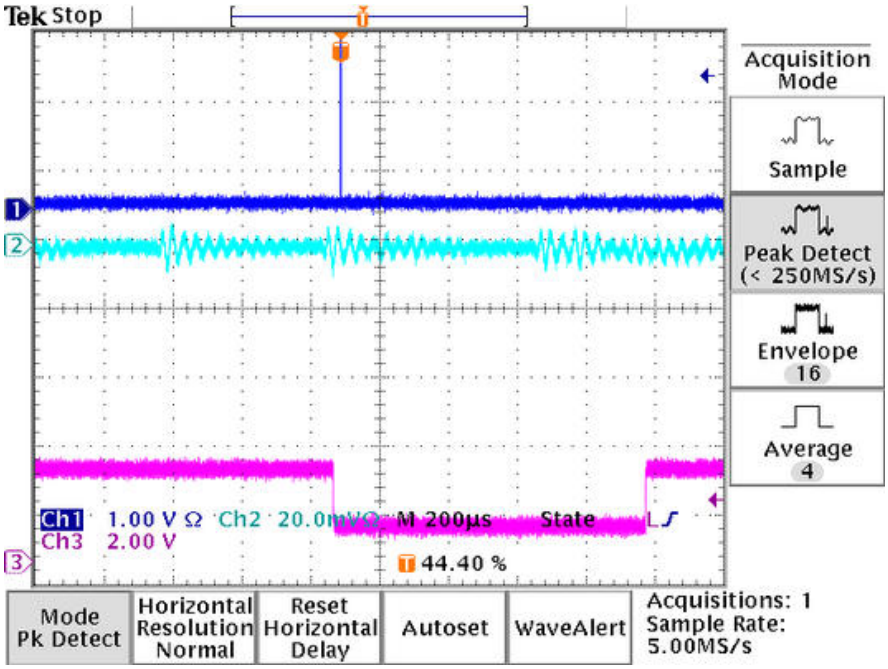
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T09:29:50-00.JPG

08.02.2011 09:29 A. Kaukher **9DUMP alarm at 08:23:10**



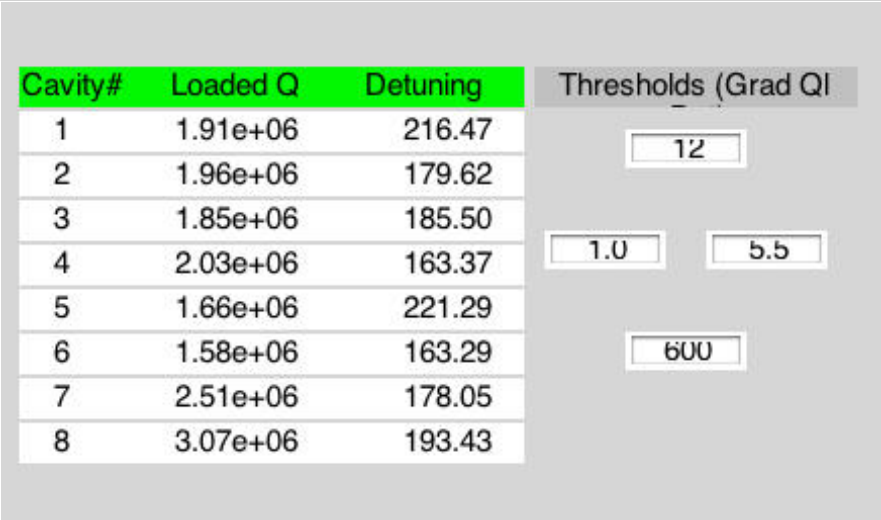
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T09:29:56-02.png

08.02.2011 09:29 A. Kaukher **9DUMP alarm at 23:22:21**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T09:29:59-01.png

08.02.2011 10:25 Ayvazyan,Carwardine,Walker **ACC7 before scan**



Cavity#	Loaded Q	Detuning
1	1.91e+06	216.47
2	1.96e+06	179.62
3	1.85e+06	185.50
4	2.03e+06	163.37
5	1.66e+06	221.29
6	1.58e+06	163.29
7	2.51e+06	178.05
8	3.07e+06	193.43

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T10:25:53-00.png

08.02.2011 11:51 Ayvazyan,Carwardine,Walker **ACC6/7 Loded Qs scan for 4.5mA**

ACC6:

Cavity	Ql/tuner position	Ql/tuner position	Ql/tuner position	Ql/tuner position	Ql/tuner position	Ql/tuner position
1	2.00/347800	2.19/336900	2.40/325800	1.83/358800	1.62/373800	2.01/347800
2	1.75/345400	1.95/332400	2.15/321400	1.55/359400	1.35/375400	1.73/345400
3	1.91/383000	2.21/363000	2.41/352000	1.71/389000	1.50/419000	1.90/383000
4	1.92/328400	2.11/317400	2.31/306800	1.72/341400	1.51/357400	1.91/328400
8	3.40/231000	3.65/221000	3.12/241000	2.90/251000	2.70/265000	3.14/241000

ACC7:

Cavity	Ql/tuner position	Ql/tuner position	Ql/tuner position	Ql/tuner position	Ql/tuner position	Ql/tuner position
1	1.91/96300	2.11/76300	2.41/58300	1.71/110300	1.51/127300	1.91/96300
2	1.96/132600	2.16/118600	2.36/106600	1.86/432600	2.56/391600	2.76/380600
3	1.86/150400	2.06/132400	2.26/117400	1.72/171400	2.46/111400	2.67/99400
4	2.02/223000	2.22/209800	2.43/195800	1.82/236000	1.62/251000	2.02/223000
5	1.66/132000	1.86/115000	2.06/101000	1.44/150000	1.37/170000	2.25/96800
6	1.58/125000	1.78/108000	1.98/94000	2.18/75600	2.38/65600	1.37/145000
7	2.51/195000	2.71/18500	2.91/175000	2.32/205000	2.13/221000	2.51/195000
8	3.06/93000	3.26/75000	3.48/65000	2.86/103000	2.67/113000	3.00/93000

08.02.2011 12:07 ttflinac **SASE tuning parameters**

The sase tuning parameters were printed again, because we are confused about different values for V12SMATCH printed in the shift docu (compare screenshot of sase panel and the value printed for "sase tuning parameters" at 7:15 am). The assumption is that the value printed for V12SMATCH is always the same as for H12SMATCH...

Misc. parameters

```
Energy / Wavelength: 1008.26 MeV / 6.2 nm
Charge:              1.48 nC
Main solenoid:       -300.5 A
Bucking coil:        +20.7 A
Dipoles BC2/BC3:     +73.1 A / +56.0 A
```

RF parameters

	GUN	ACC1	ACC39	ACC2/3	ACC4/5	ACC6/7
Power/Gradient	+3.640	+163.70	+19.10	+297.50	+250.00	+289.50
Readback	3.87	163.7	19.1	295.8	250.2	284.0
Phase	-8.20	+2.70	+109.00	+2.00	-8.90	-5.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	7.2	2.7	108.9	2.4	-8.4	-3.5

Undulator steerers and aircoils

H7SMATCH	H12SMATCH
+0.224	**-2.008**

V7SMATCH	V12SMATCH
-0.083	**-2.008**

Intra-undulator steerers

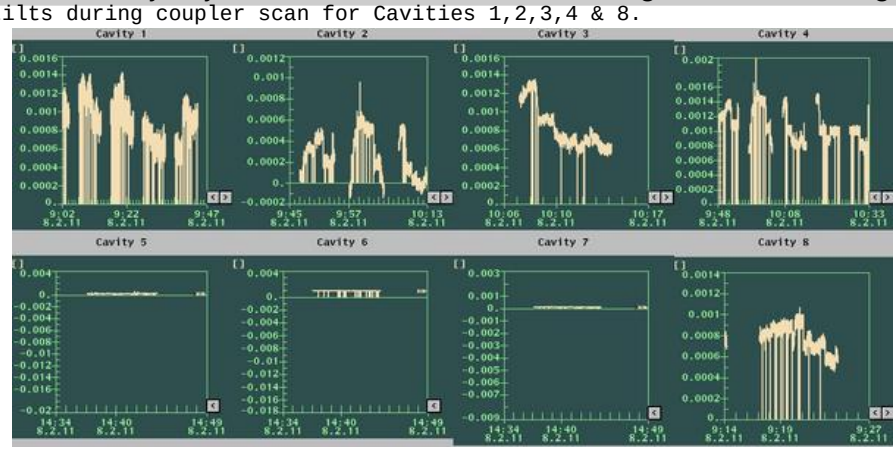
H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.90	**-5.00**	**-4.90**	**-4.70**	**-4.90**	**-5.00**

08.02.2011 12:12 Carwardine, Walker **Starting a semi-automatic optimization of ACC67 tilts**

Moving ACC6/C7 coupler from 307000 to 317000
Moving ACC7/C1 from 96300 to 97300
Moving ACC7/C1 from 96300 to 98300
Moving ACC7/C4 from 223000 to 233000
Moving ACC7/C4 back from 233000 228000
It's converging, but...
Our metric is the cavity gradient tilts computed by the diagnostics server. Are they computing over the entire rf flat-top or over just the beam-on period? We suspect the latter.
W. Cichalewski comment:
You are right - tilts are calculated during the beam period. The slope is calculated with offset of 10 us - from the first and last bunch in time (now - from 710us up to 1090).

08.02.2011 14:58 Ayvazyan **ACC6 gradient tilts during coupler scan**

ACC6 gradient tilts during coupler scan for Cavities 1,2,3,4 & 8.



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_M/2011-02-08T14:58:13-00.JPG