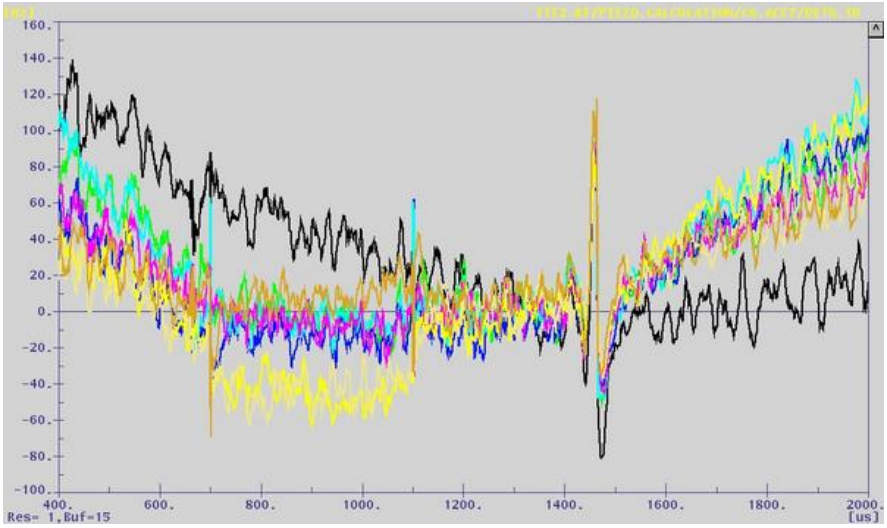
? 07.02.2011	23:06	oracle	**Shift summary**

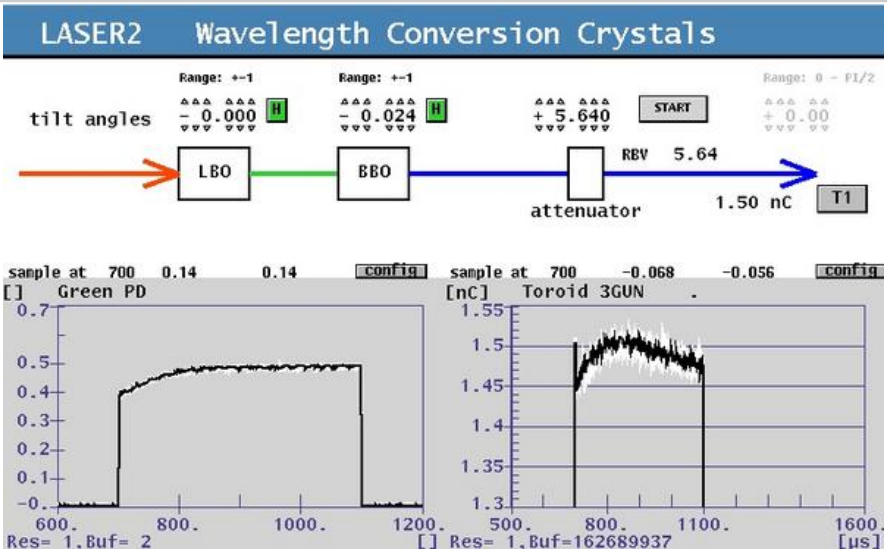
07.02.2011	23:01	M.Grecki, K.Przygoda	**Detuning in cavities of ACC7 after tuning by piezos**

Cavity 1 (black) cannot be tuned (piezo broken).



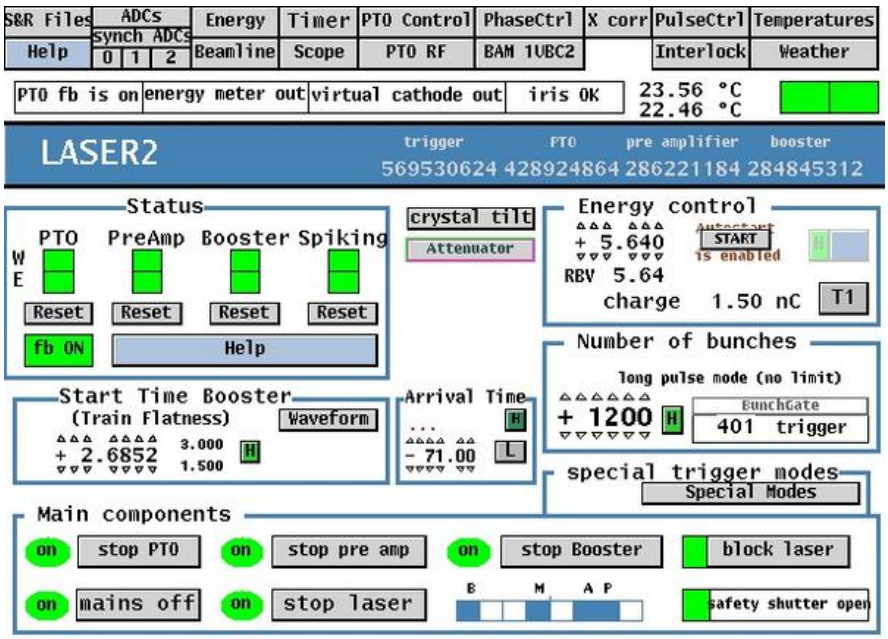
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:01:28-00.JPG

07.02.2011	23:02	ttflinac	**ttflinac@:laser_crystal_tuning**



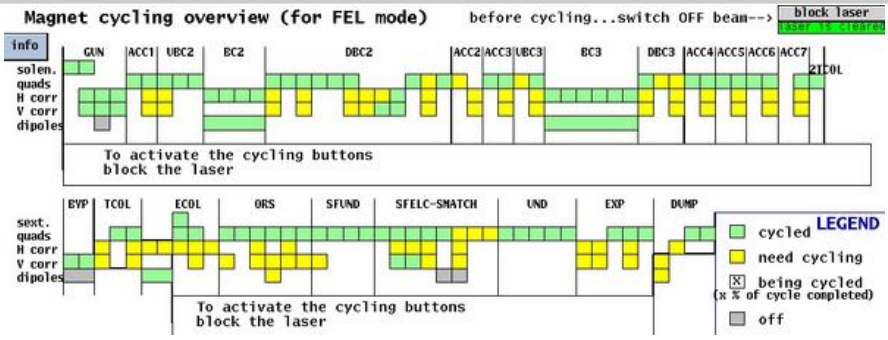
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:02:38-00.JPG

07.02.2011	23:03	ttflinac	**ttflinac@:laser2_control**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:03:07-00.JPG

07.02.2011 23:09 ttflinac **ttflinac@:magnet_cycle_overview_fel**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:09:23-00.JPG

07.02.2011 23:09 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 1002.07 MeV / 6.2 nm
Charge:              1.03 nC
Main solenoid:       -301.3 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	+164.10	+19.00	+297.50	+343.30	+187.00
Readback	3.82	164.1	18.9	295.8	343.0	184.0
Phase	-10.20	+2.70	+114.00	+0.00	-5.00	-5.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	5.9	2.7	114.0	0.4	-4.4	-3.8

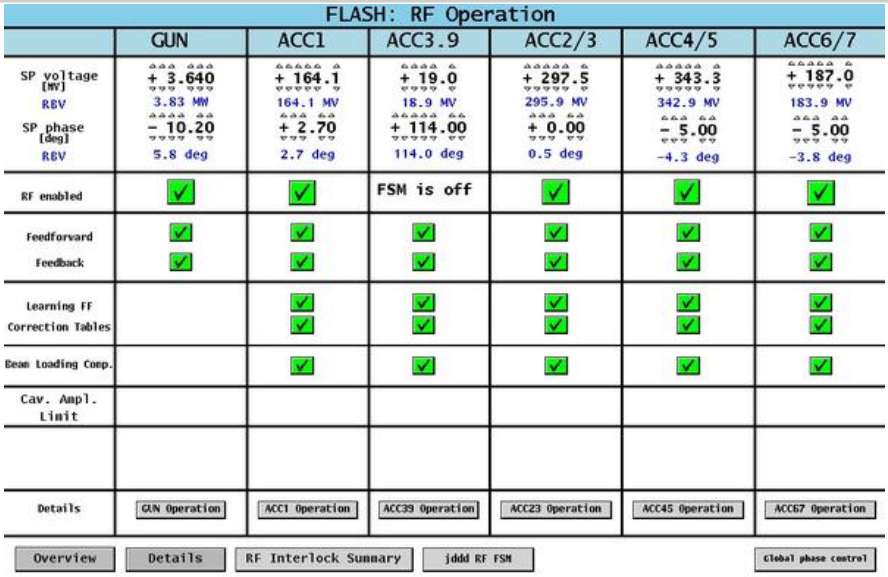
Undulator steerers and aircoils

H7SMATCH	H12SMATCH
+0.264	**-1.978**
V7SMATCH	V12SMATCH
-0.103	**-1.978**

Intra-undulator steerers

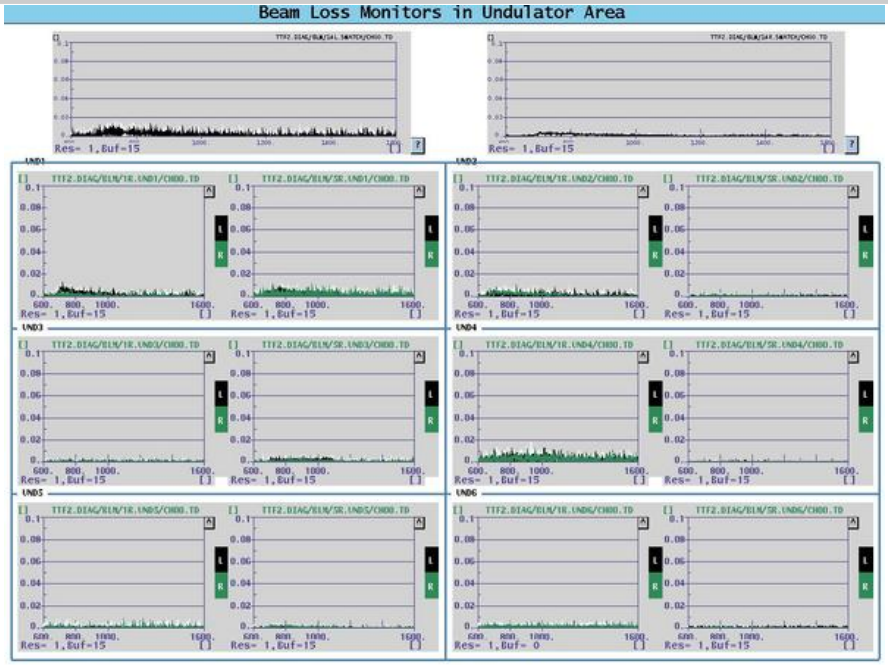
H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.90	**-4.30**	**-4.90**	**-4.70**	**-4.90**	**-5.00**

07.02.2011 23:09 ttflinac **ttflinac@:RF_OPERATION**



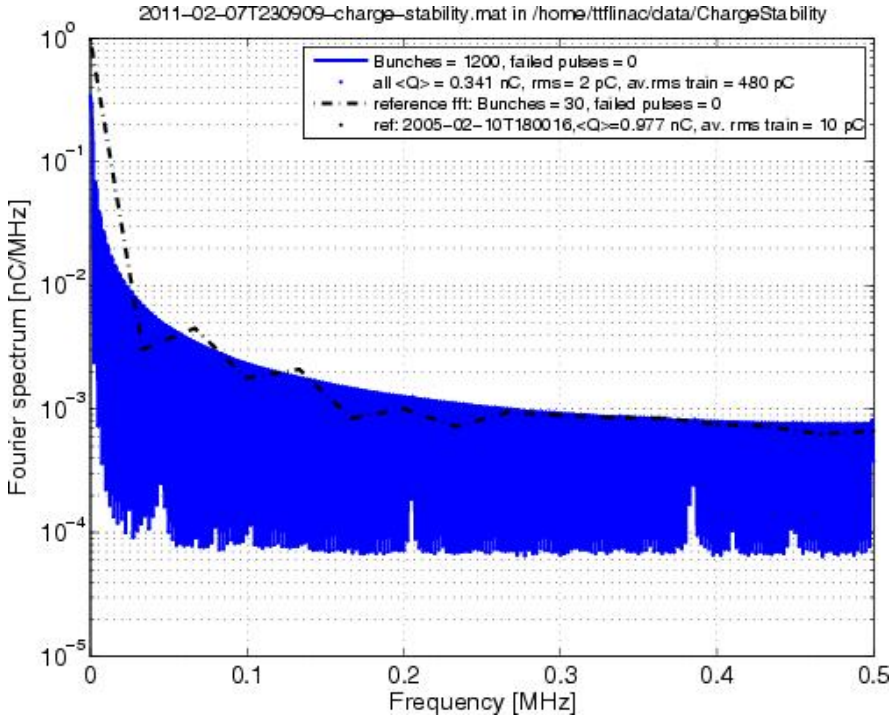
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:09:36-00.JPG

07.02.2011 23:09 ttflinac **ttflinac@:BLM_UNDULATORS**



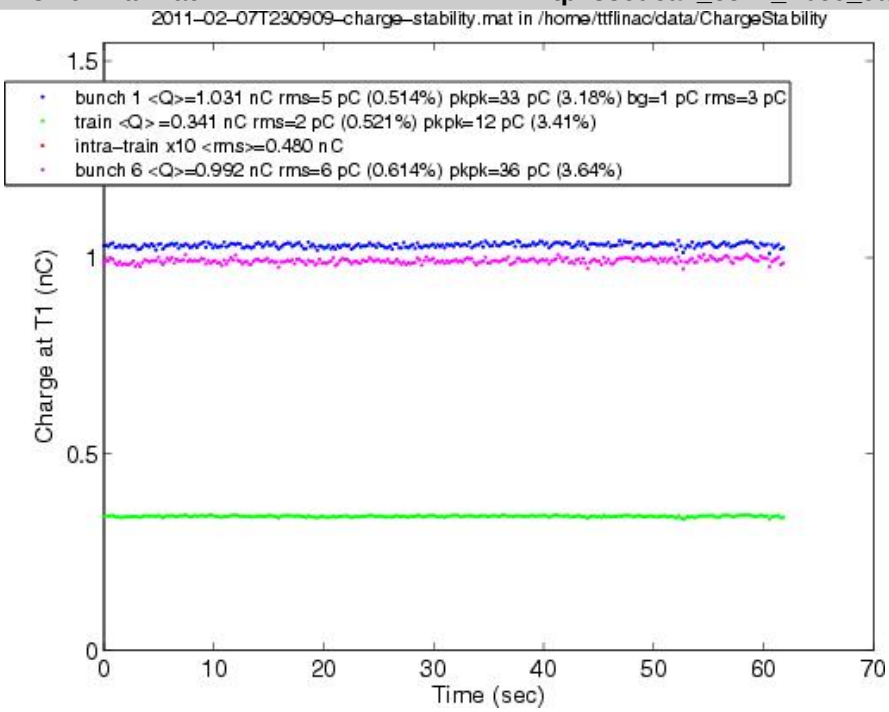
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:09:44-00.JPG

07.02.2011 23:10 ttflinac **tpf61b18cb_3d92_4967_b4b9_d56b9acb9be5.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:10:41-00.ps

07.02.2011 23:10 ttflinac **tp2886dea4_c514_4be0_9afc_cdf028ef0ba7.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:10:48-00.ps

07.02.2011 23:11 ttflinac **Main linac parameters**

1 nC, 1200 Bunches, 3MHz

Laser

```
Number of bunches ...... 1200
Bunch frequency ........ 3000 kHz
Macropulse rep'rate .... 5.0 Hz
Pump time_3 ........... 0.0030 ms
Pump current_3 ......... 5.00 V
Pre-amp start time ..... 2.59 ms
Booster start time ..... 2.69 ms
Attenuator SP .......... 5.23
```

Gun

```
Feedforward/Feedback ... on/on
FSM .................... on
Pfwd SP ................ 3.64
VS ampl. ............... 18.38
Phase SP ............... -10.20 deg
VS phase ............... 5.61 deg
Pfwd (peak) ............ 3.827 MW
Prefl (peak) ........... 2.825 MW
```

```
Iris diameter .......... 17088 steps
Iris diameter .......... 2.36 mm
```

```
Pfwd sample point ...... 700
Pfwd (at sample point) . 18.380 MW
Prefl sample point ..... 720
Prefl (at sample point)  5.907 MW
Flat top ............... 460 us
Water temperature SP ... 72.32 deg C
Main solenoid (RBV) .... -301.34 A
Bucking coil (RBV) ..... 20.70 A
Gun dipole (RBV) ....... 0.000 A
Charge 3GUN(T1) ........ 1.03 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 ................ 164.10
Pfwd RBV ............... 164.08
Phase SP ............... 2.70 deg
Phase RBV .............. 2.72 deg
Pfwd C1.ACC1 ........... 183.4 kW
Pfwd C5.ACC1 ........... 176.2 kW
Flat top ............... 800 us
Dipole BC2 (RBV) ....... 73.11 A
Pyro 9DBC2.1 ........... -0.0723 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 ................ 19.00
Phase SP ............... 114.00 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 ............... 295.68
Phase SP ............... 0.00 deg
Phase RBV .............. 0.49 deg
Pfwd C5.ACC2 ........... 130.75 kW
Pfwd C1.ACC3 ........... 225.76 kW
Flat top ............... 450 us
Dipole BC3 (RBV) ....... 56.00 A
Pyro 4DBC3.1 ........... -0.0138 V
Pyro 4DBC3.3 ........... 0.0020 V
Radiator 4DBC3 ......... out
```

ACC4/5

```
Feedforward/Feedback ... on/on
Feedback gain .......... 40.0
Pfwd SP ................ 343.30
Pfwd RBV ............... 343.01
Phase SP ............... -5.00 deg
Phase RBV .............. -4.32 deg
Pfwd C1.ACC4 ........... 164.30 kW
Pfwd C2.ACC5 ........... 172.08 kW
Pfwd C1.ACC6 ........... 0.61 kW
Flat top ............... 800 us
```

ACC6/7

```
Feedforward/Feedback ... on/on
Feedback gain .......... 50.0
Pfwd SP ................ 187.00
Pfwd RBV ............... 183.87
Phase SP ............... -5.00 deg
Phase RBV .............. -3.82 deg
Pfwd C1.ACC6 ........... 123.06 kW
Pfwd C1.ACC7 ........... 137.37 kW
Flat top ............... 800 us
```

Bypass

```
Dipole D1BYP (RBV) ..... 0.00 A
Energy bypass .......... 1211.4 MeV
RF vector sum ALL ...... 774.0 MeV
Charge 16BYP ........... -0.00 nC
```

Collimator

```
Dipole D1ECOL (RBV) .... 176.89 A
Energy dogleg .......... 1002.2 MeV
Charge 7ORS ............ 1.06 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) .... 210.60 A
Rotator RD13DUMP (RBV) . 9.13 A
Charge 9DUMP ........... 0.97 nC
```

Feedbacks

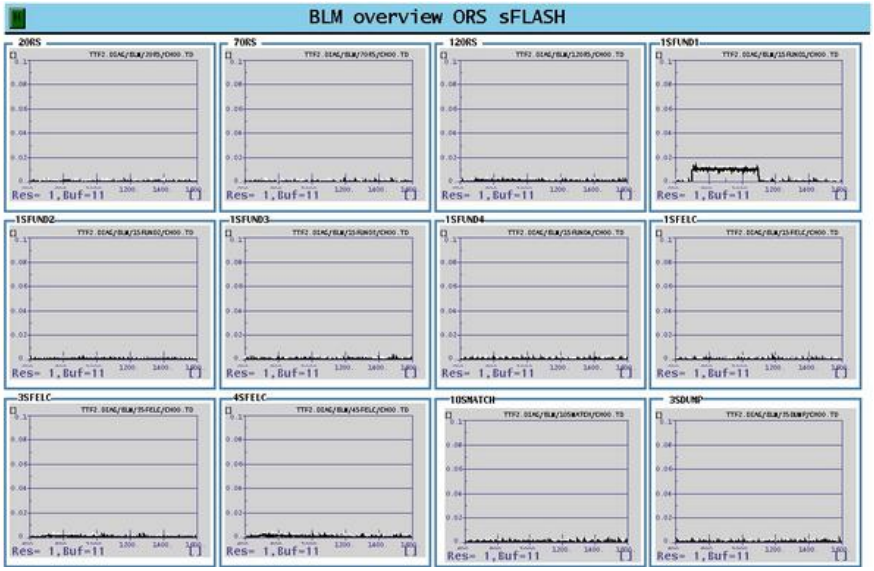
```
Charge feedback gain ... <error>
Charge feedback SP ..... <error>
PTO feedback ........... on
```

Photon beamline

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

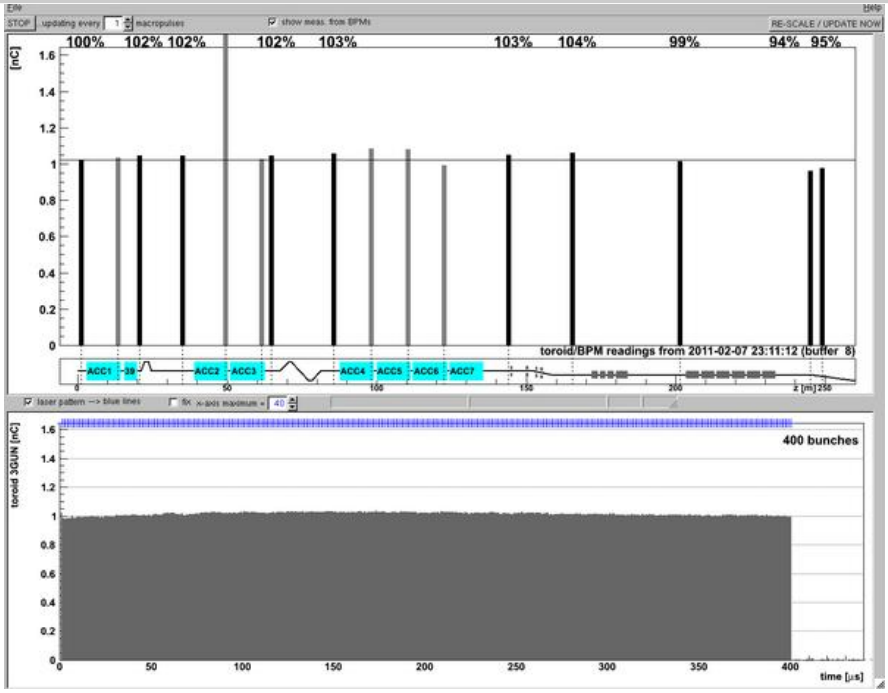
```
Status saved in machine file 2011-02-07T23_10_44+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-07T231044
```

```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110207T231044.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110207T231044.sr
from computer: flashbkr2
```



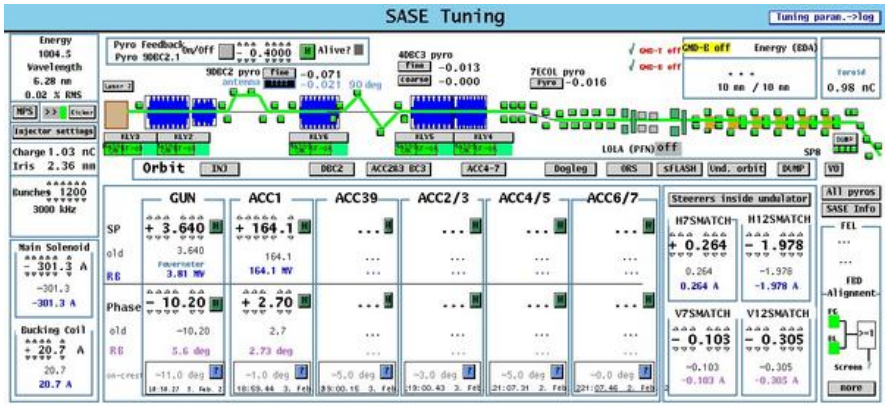
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:11:22-00.JPG

07.02.2011 23:11 ttflinac **toroid charge readings**



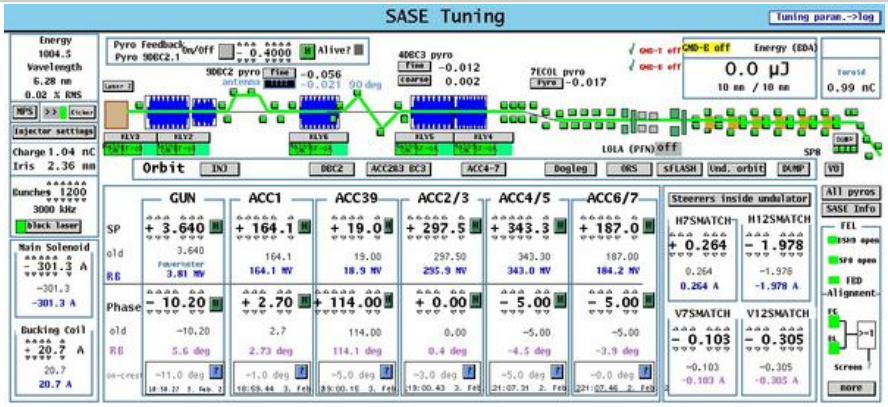
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:11:31-00.ps

07.02.2011 23:11 ttflinac **ttflinac@:SASE_tuning**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:11:56-00.JPG

07.02.2011 23:12 ttflinac **ttflinac@:SASE_tuning**

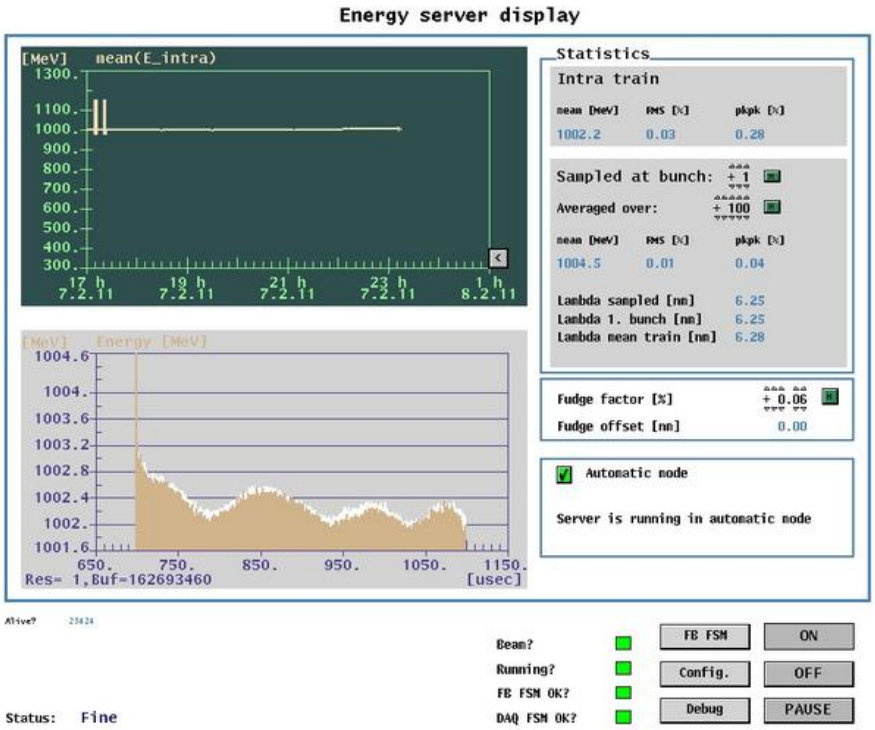


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:12:04-00.JPG

07.02.2011 23:12 ttflinac **ttflinac@:dose_und**

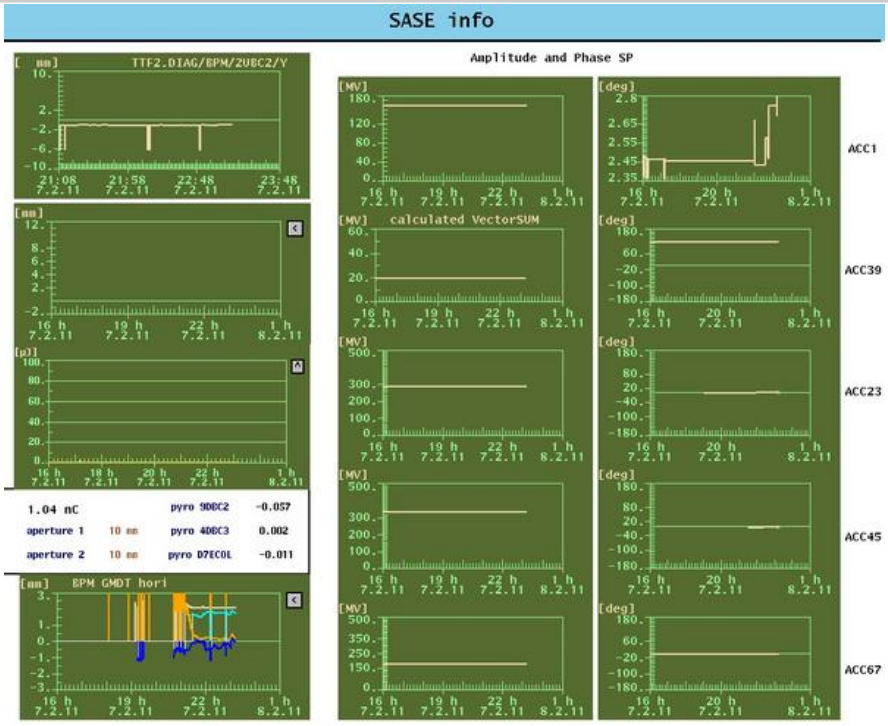
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:12:14-00.JPG

07.02.2011 23:14 ttflinac **ttflinac@:Energyfbm_display**



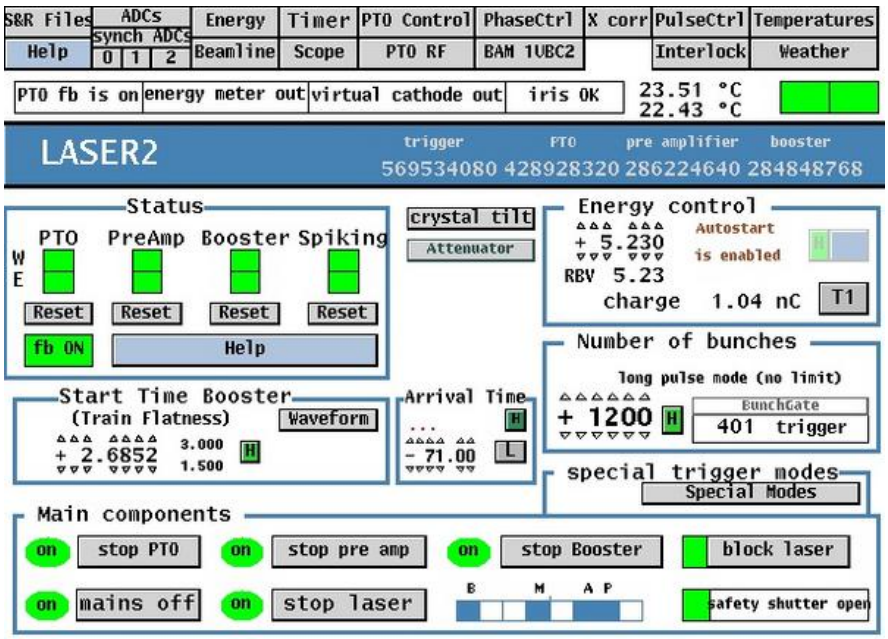
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:14:22-00.JPG

07.02.2011 23:14 ttflinac **ttflinac@:SASE_info**



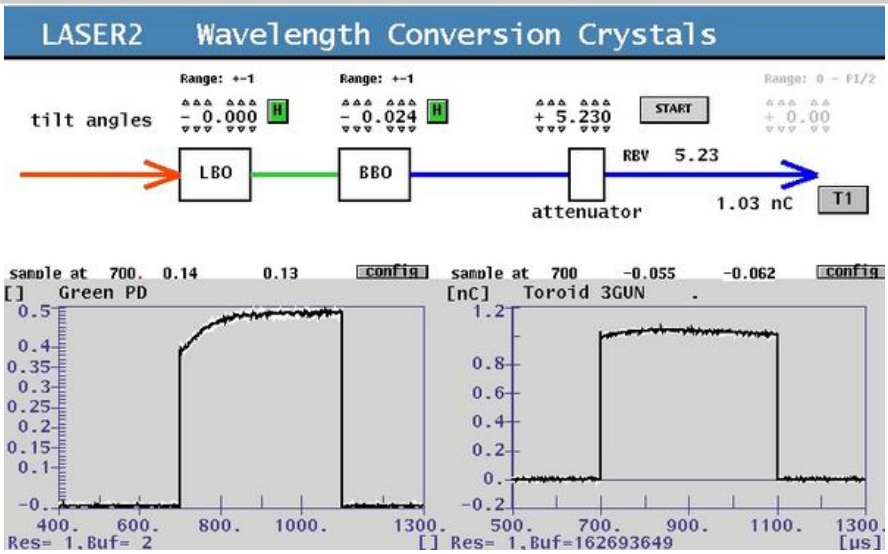
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:14:34-00.JPG

07.02.2011 23:14 ttflinac **ttflinac@:laser2_control**



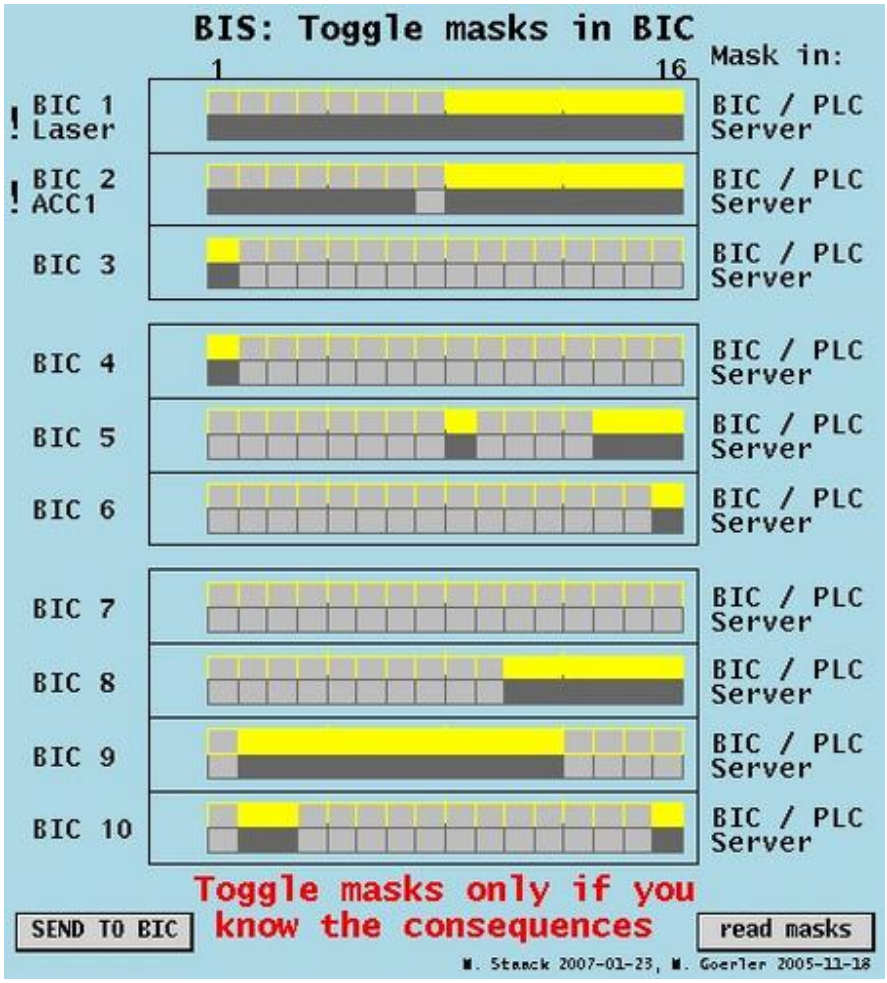
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:14:43-00.JPG

07.02.2011 23:15 ttflinac **ttflinac@:laser_crystal_tuning**



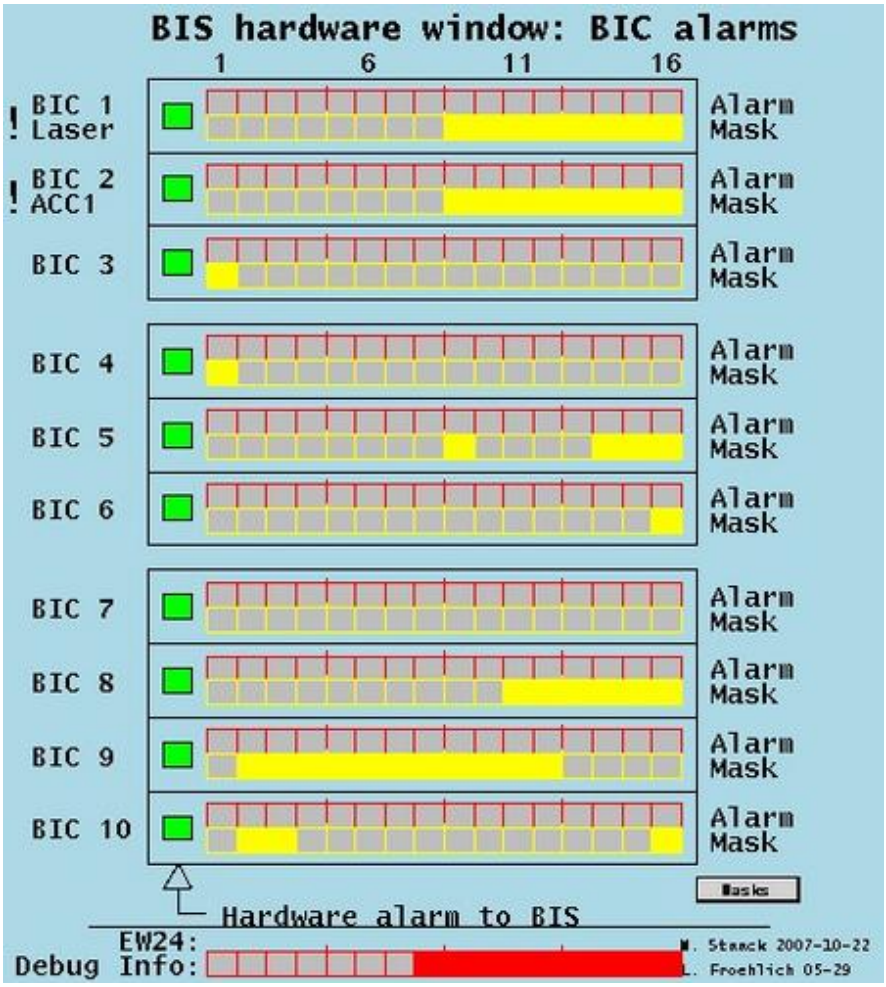
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:15:00-00.JPG

07.02.2011 23:20 ttflinac **ttflinac@:BIS_expert_BIC_masks**



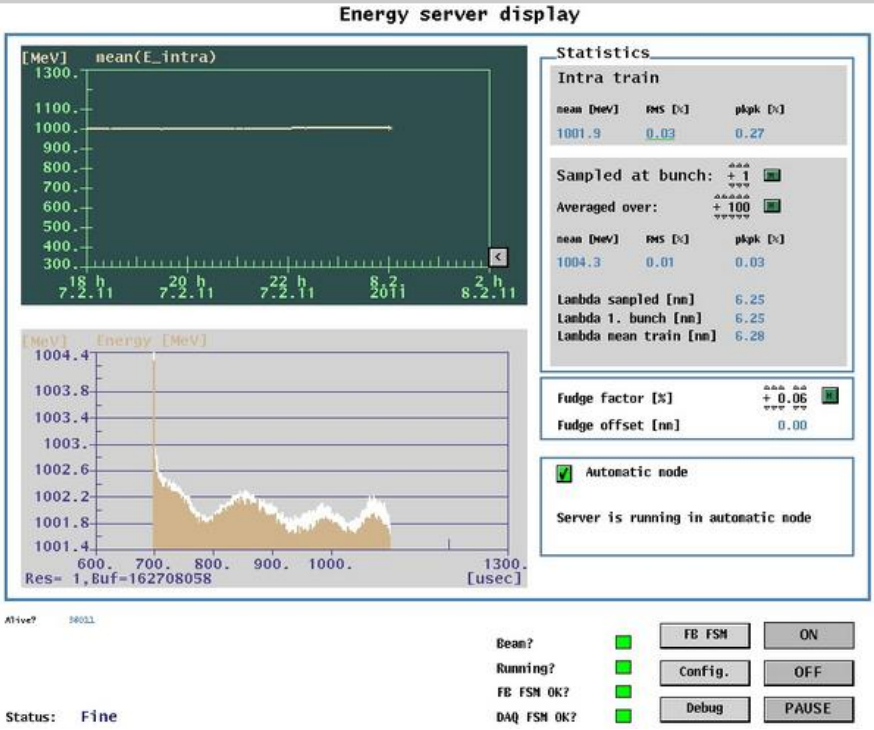
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:20:04-00.JPG

07.02.2011 23:20 ttflinac **ttflinac@:BIS_expert_BIC**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-07T23:20:11-00.JPG

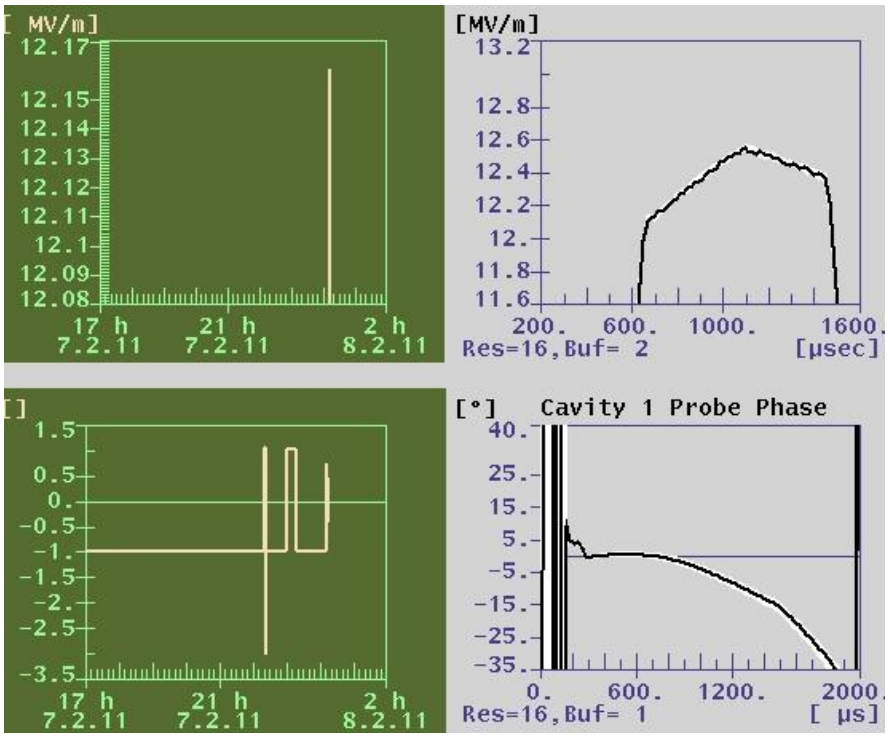
08.02.2011 00:03 ttflinac **ttflinac@:Energyfbm_display**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:03:02-00.JPG

08.02.2011 00:14 ttflinac **ttflinac@:ADC_RF_win2**

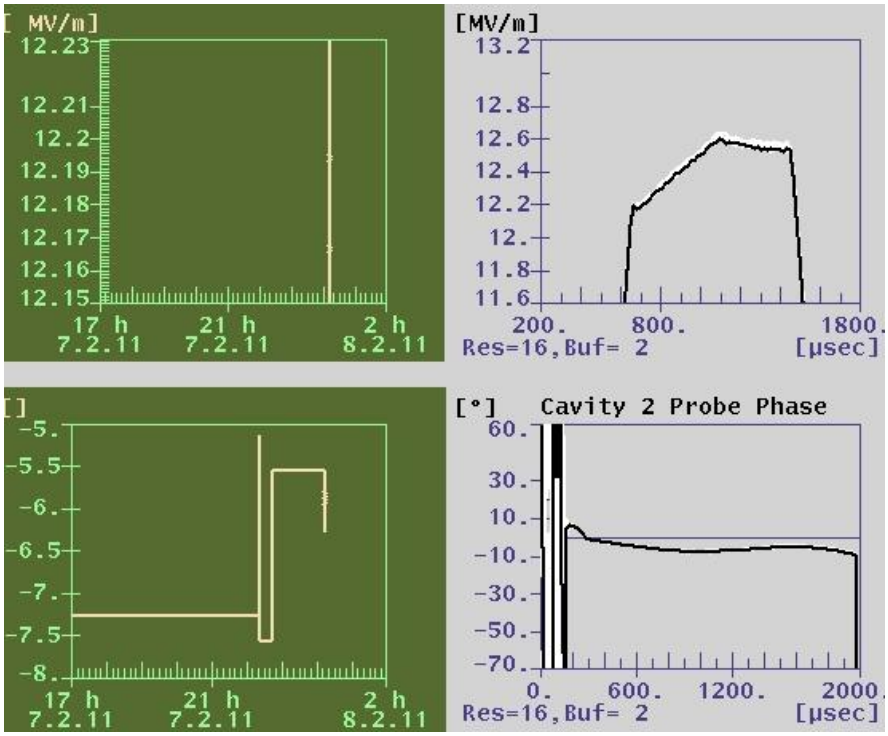
ACC6-cav1



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:14:35-00.JPG

08.02.2011 00:15 ttflinac **ttflinac@:ADC_RF_win2**

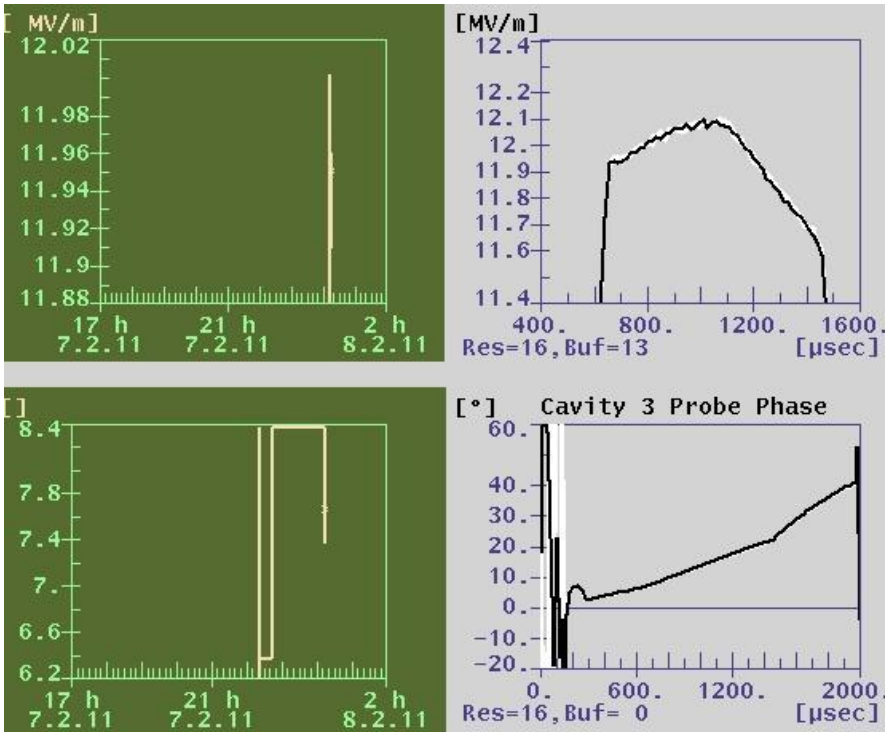
ACC6-cav2



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:15:01-00.JPG

08.02.2011 00:15 ttflinac **ttflinac@:ADC_RF_win2**

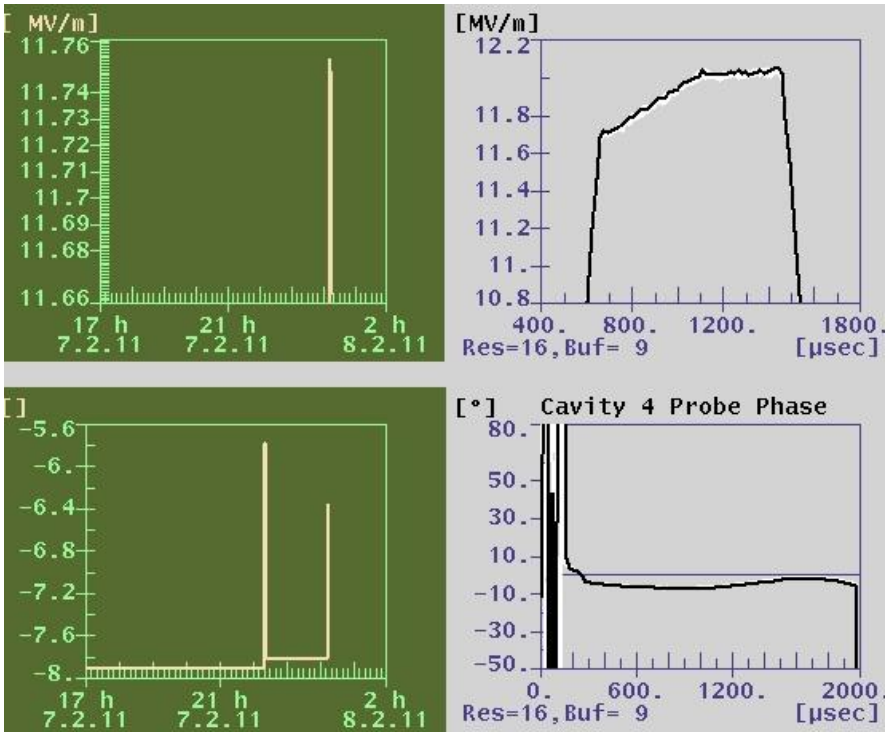
ACC6-cav3



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:15:12-00.JPG

08.02.2011 00:15 ttflinac **ttflinac@:ADC_RF_win2**

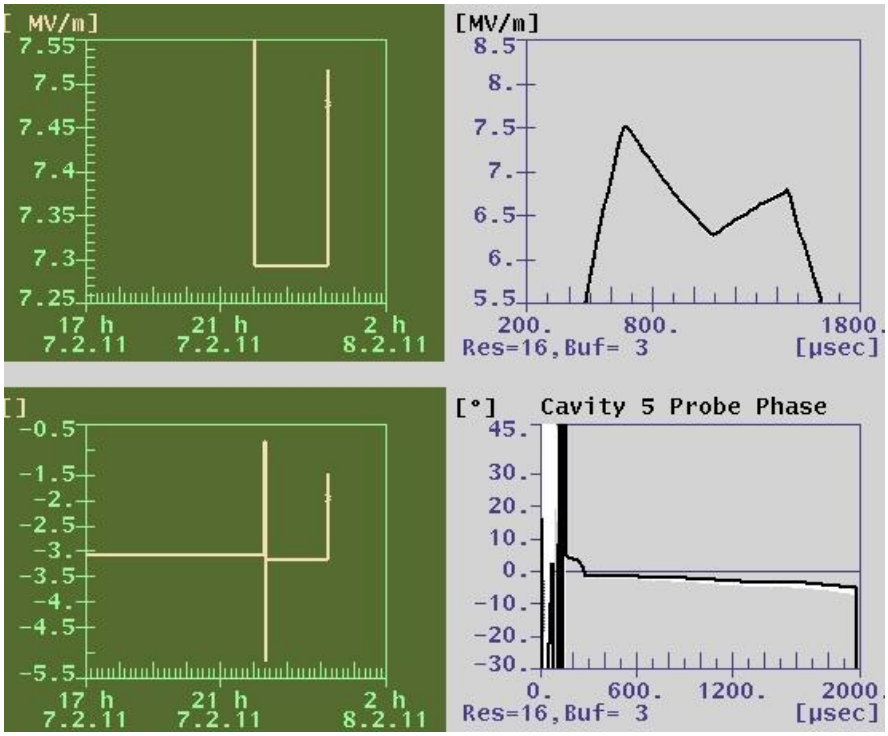
ACC6-cav4



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:15:28-00.JPG

08.02.2011 00:15 ttflinac **ttflinac@:ADC_RF_win2**

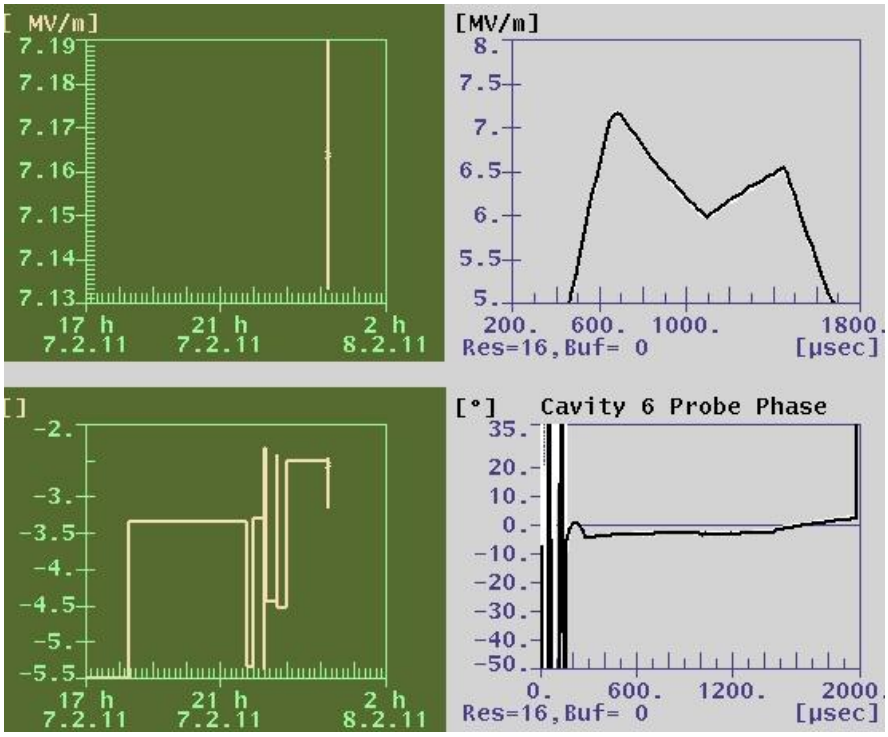
ACC6-cav5



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:15:45-00.JPG

08.02.2011 00:16 ttflinac **ttflinac@:ADC_RF_win2**

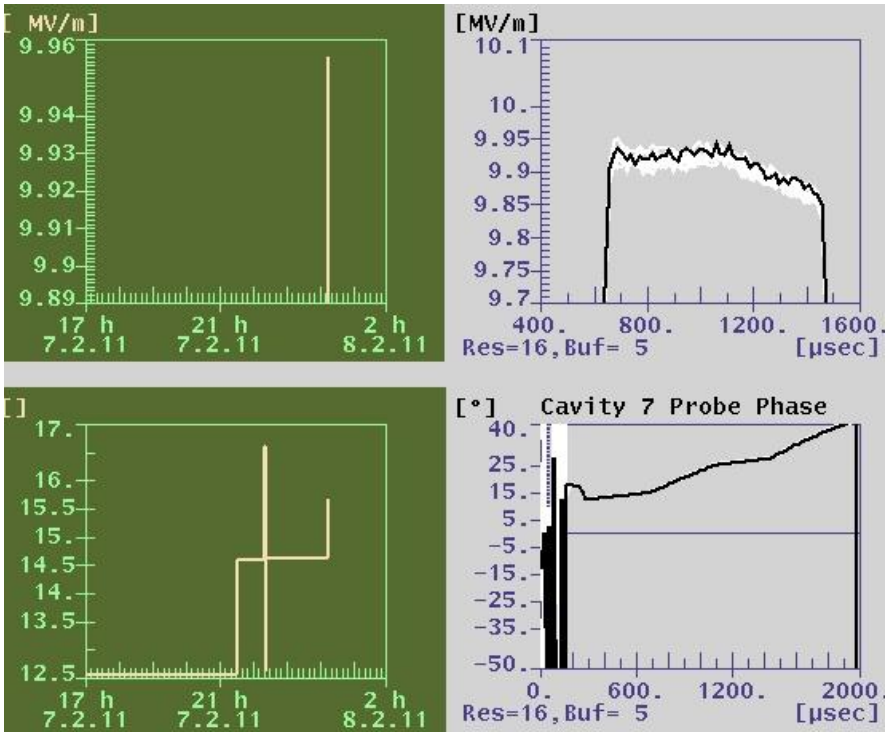
ACC6-cav6



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:16:03-00.JPG

08.02.2011 00:16 ttflinac **ttflinac@:ADC_RF_win2**

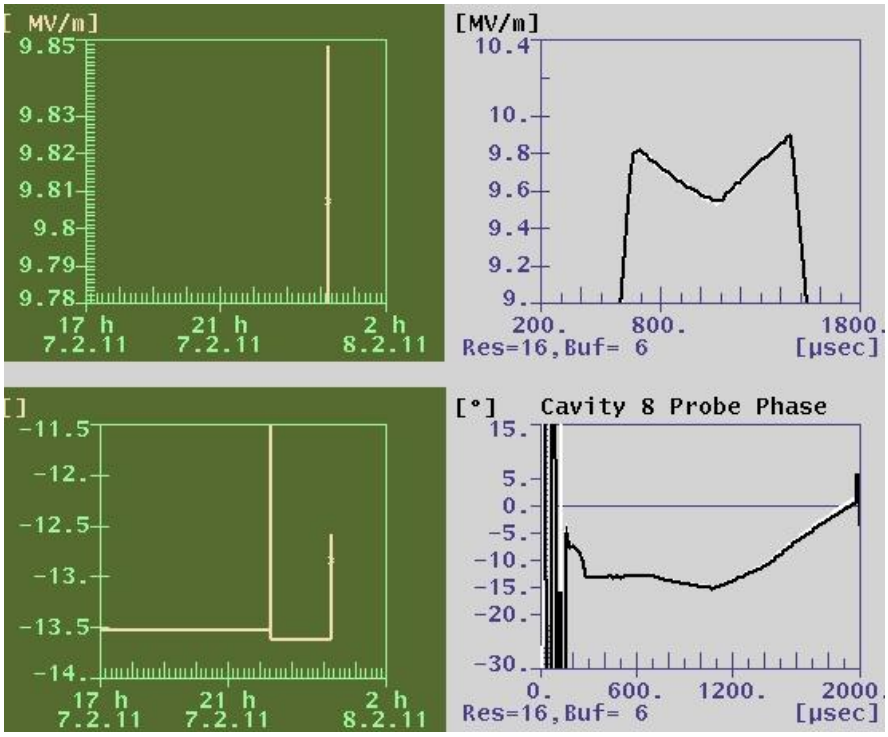
ACC6-cav7



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:16:28-00.JPG

08.02.2011 00:16 ttflinac **ttflinac@:ADC_RF_win2**

ACC6-cav8



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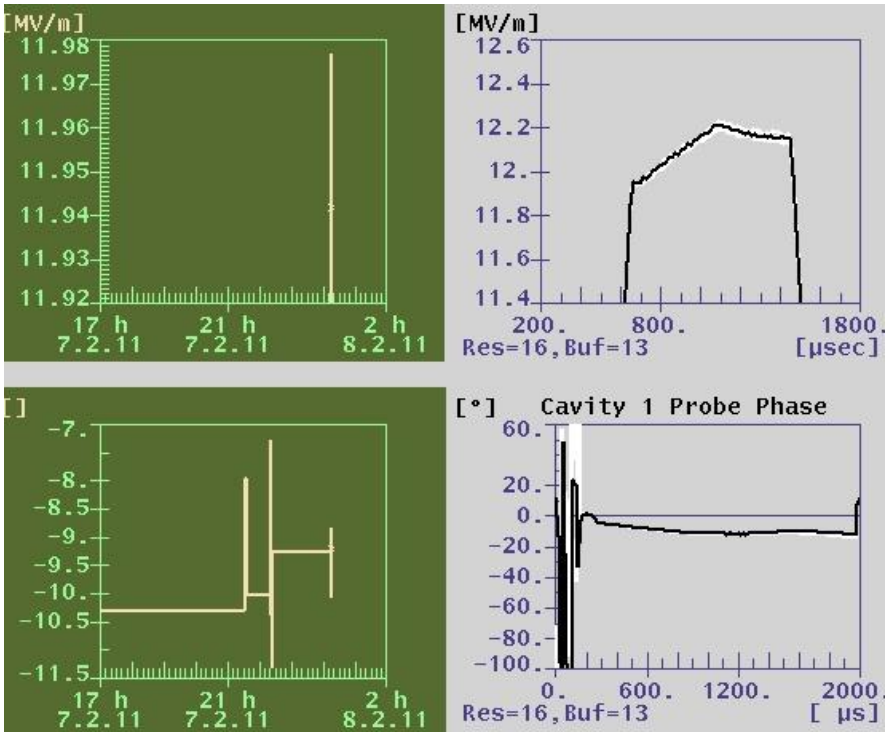
08.02.2011 00:17 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav1



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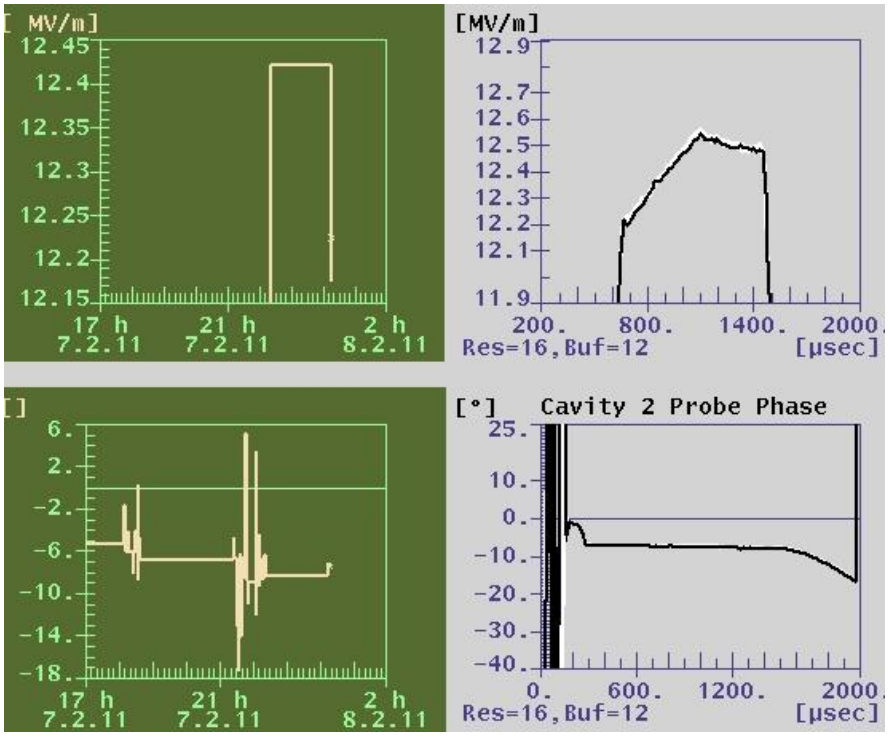
08.02.2011 00:17 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav2



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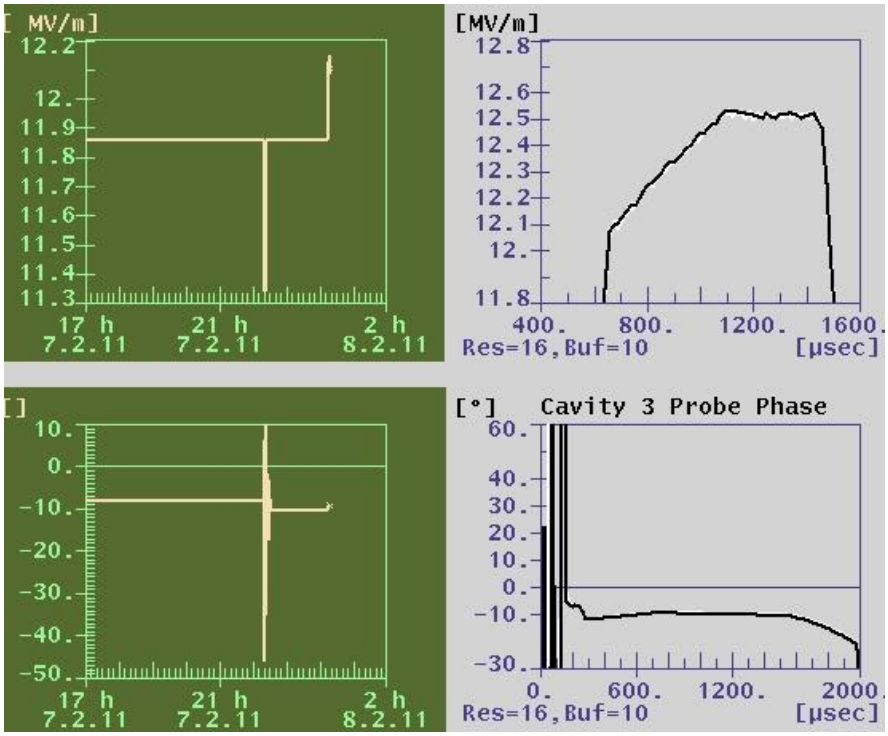
08.02.2011 00:17 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav3



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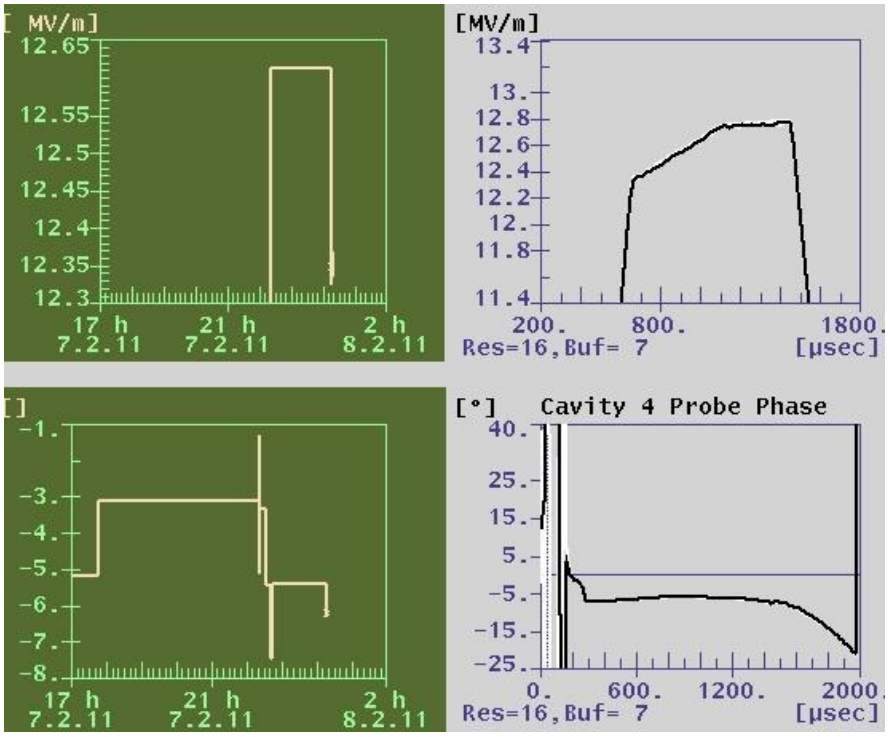
08.02.2011 00:18 ttflinac **ttflinac@:ADC_RF_win2**

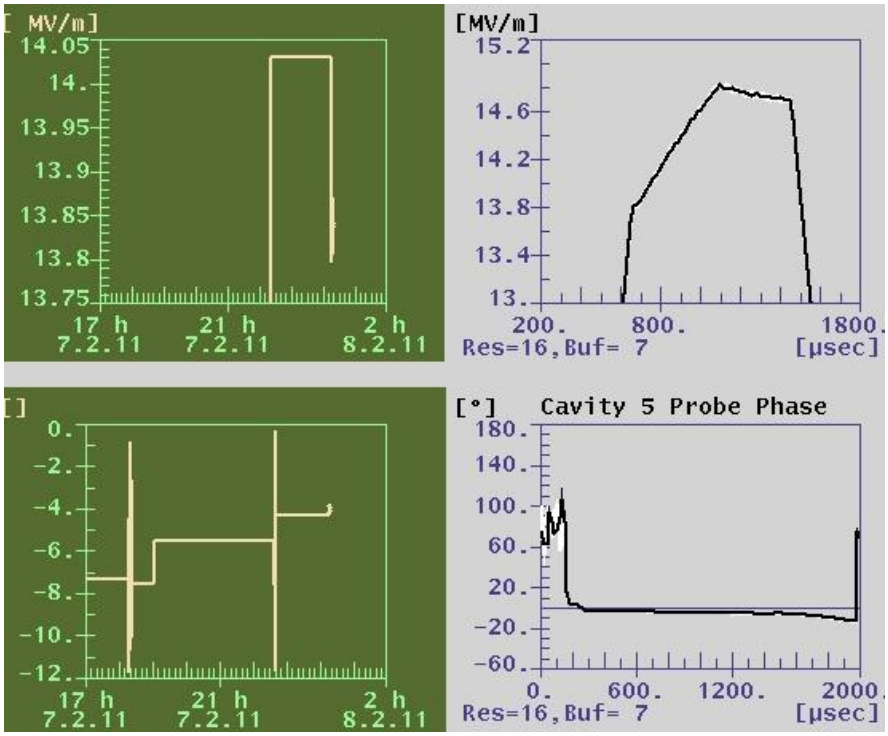
ACC7-cav4



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:18:06-00.JPG

08.02.2011 00:18 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav5



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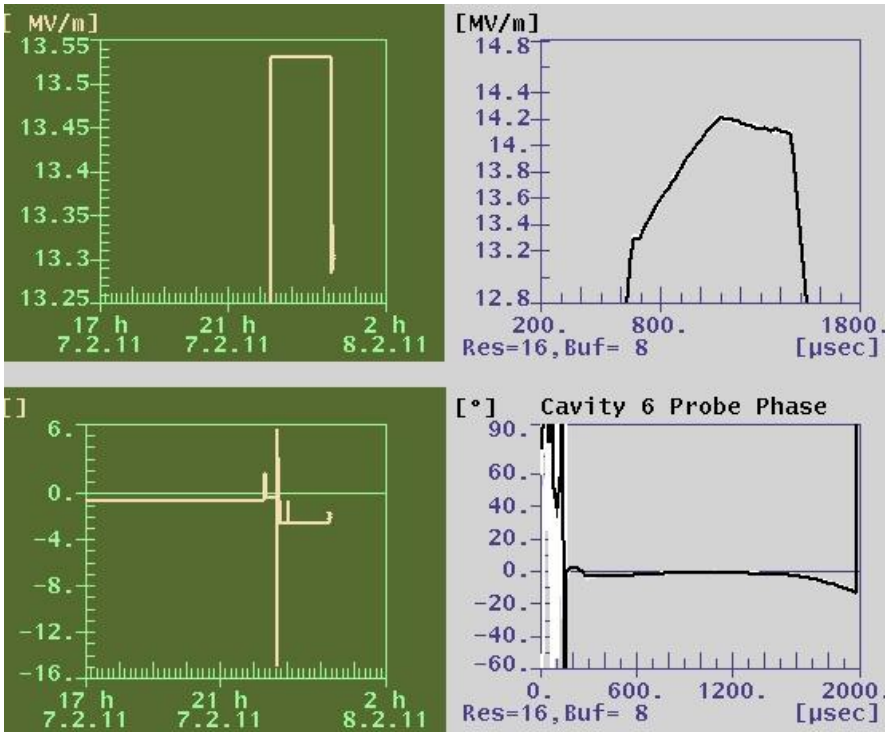
08.02.2011 00:18 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav6



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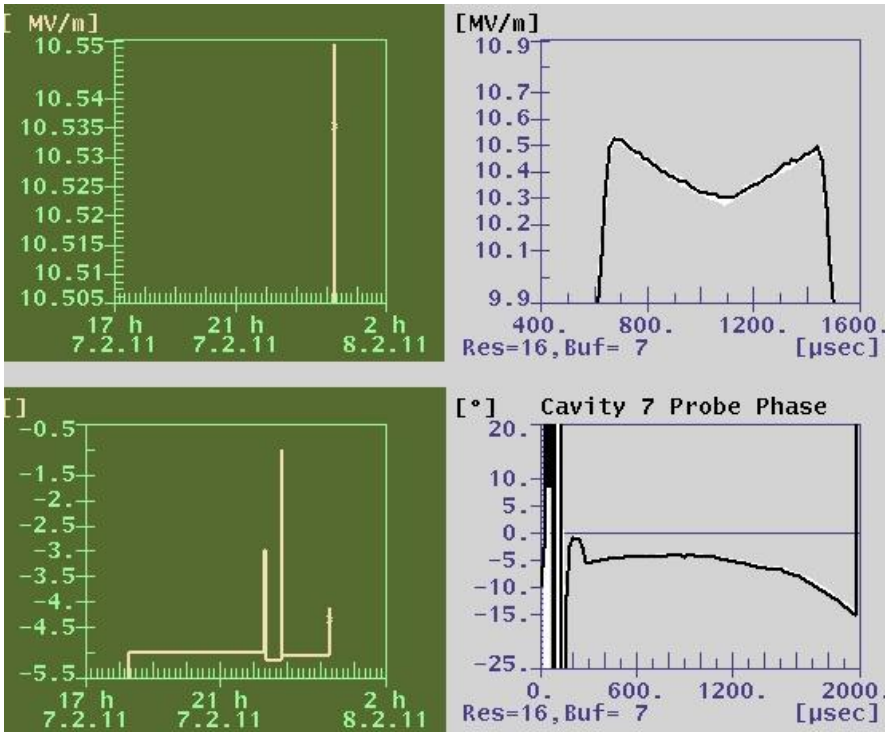
08.02.2011 00:18 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav7



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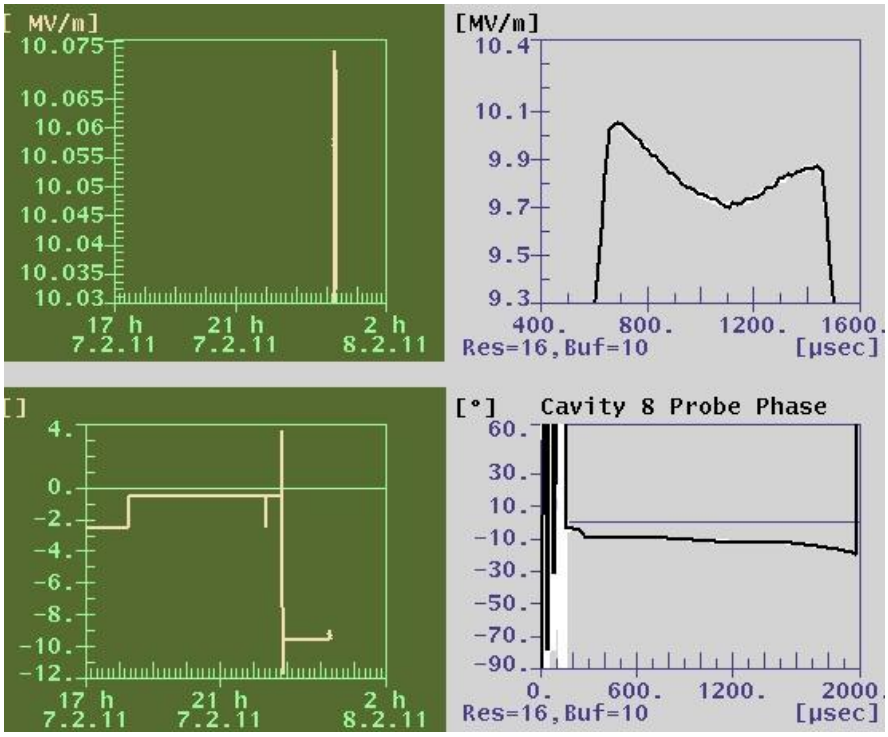
08.02.2011 00:19 ttflinac **ttflinac@:ADC_RF_win2**

ACC7-cav8



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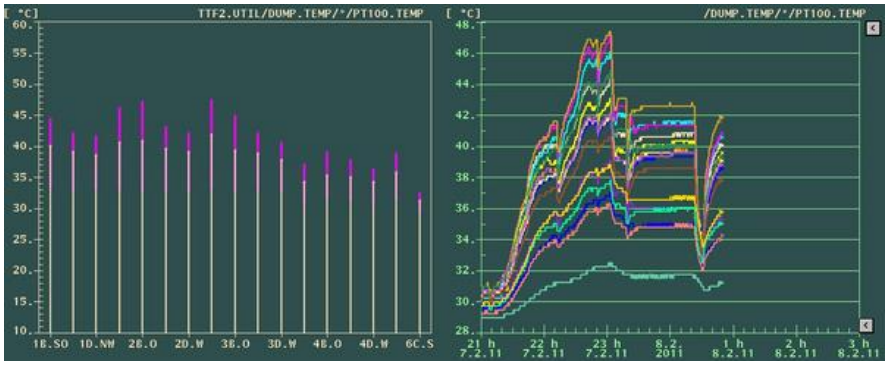
08.02.2011 00:26 ttflinac

Initial tilts for ACC6 and ACC7.

08.02.2011 00:49 ttflinac **ttflinac@:ttf2_dumptemp_plot_win**



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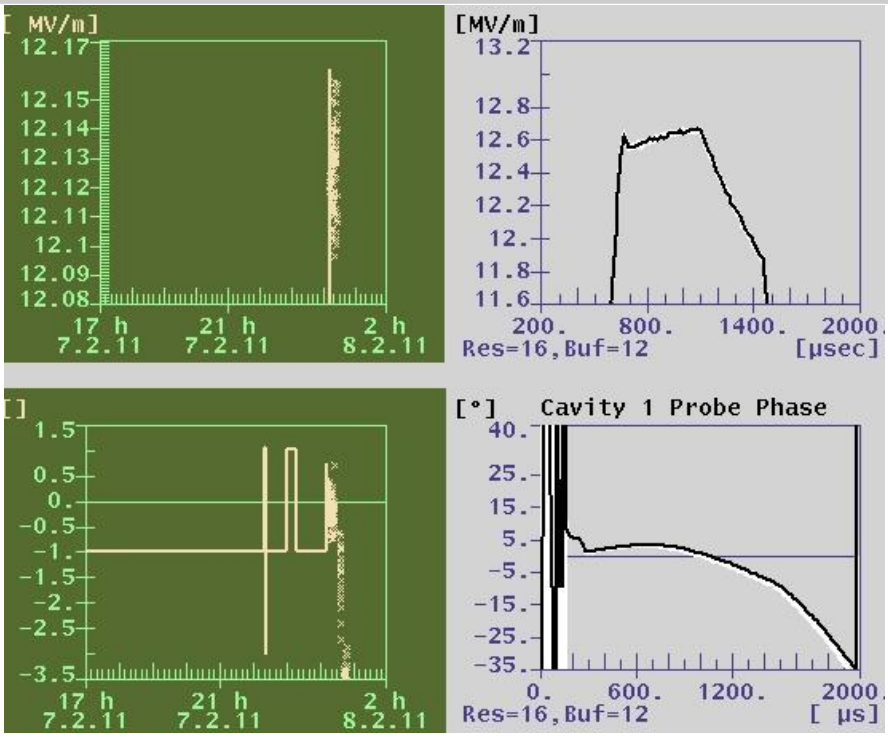
08.02.2011 00:53 ttflinac **ttflinac@:ADC_RF_win2**



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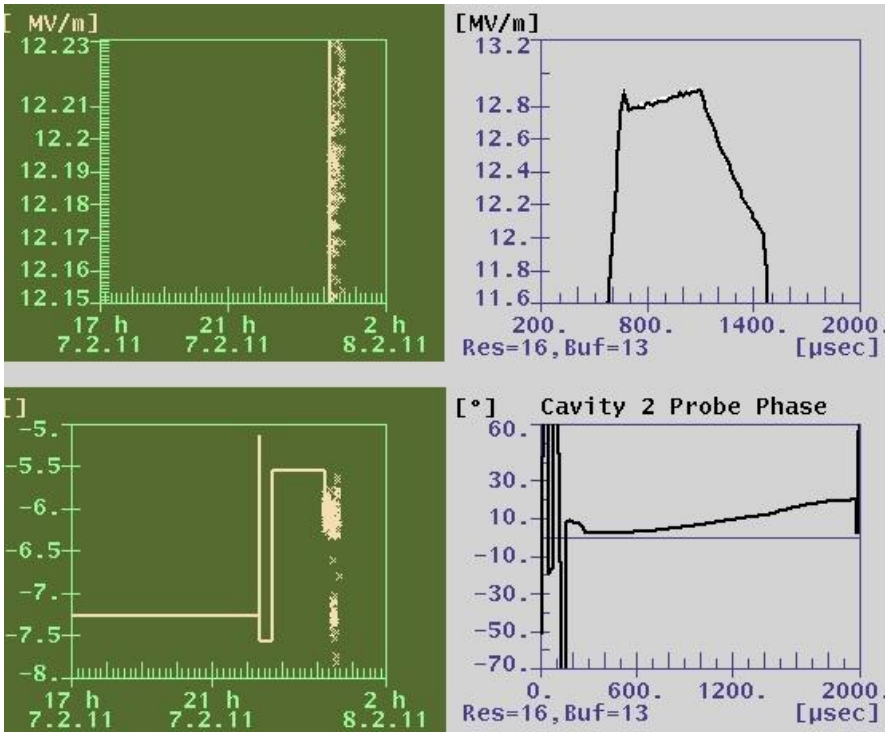
08.02.2011 00:53 ttflinac **ttflinac@:ADC_RF_win2**



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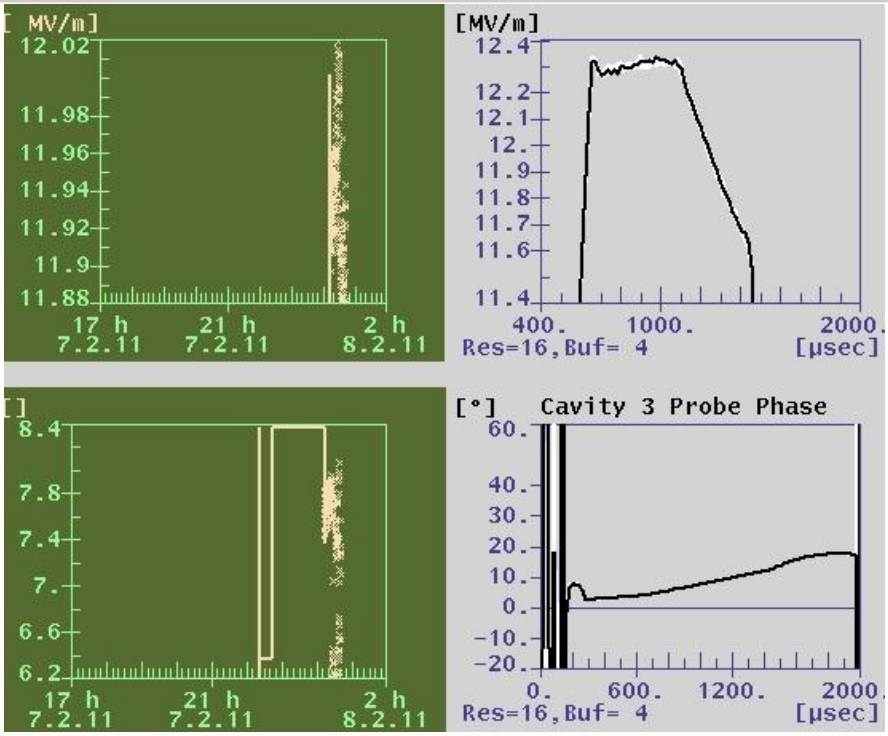
08.02.2011	00:53	ttflinac	**ttflinac@:ADC_RF_win2**



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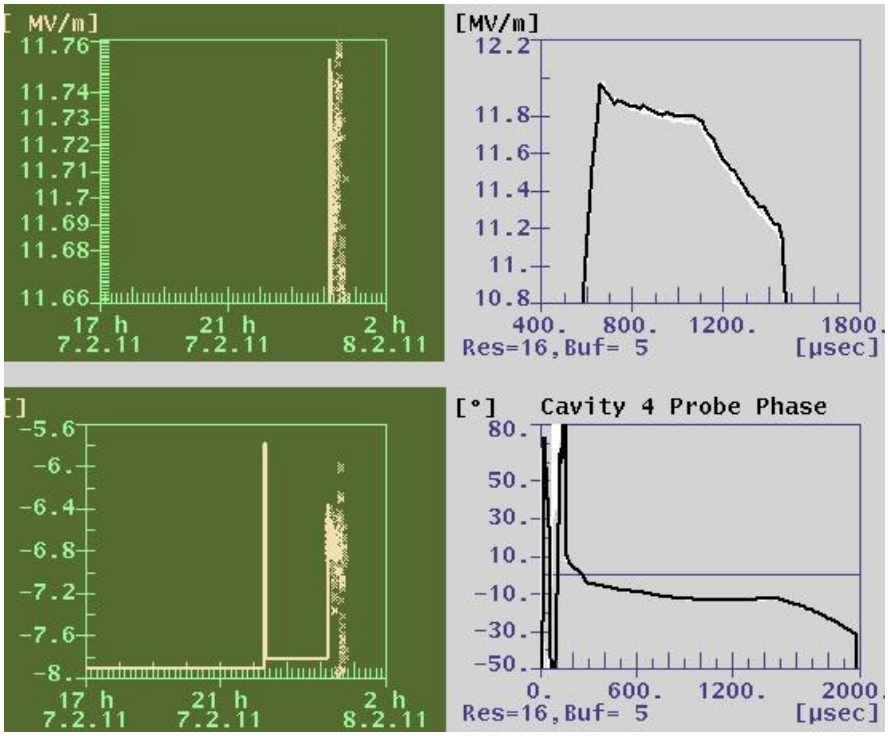
08.02.2011	00:53	ttflinac	**ttflinac@:ADC_RF_win2**



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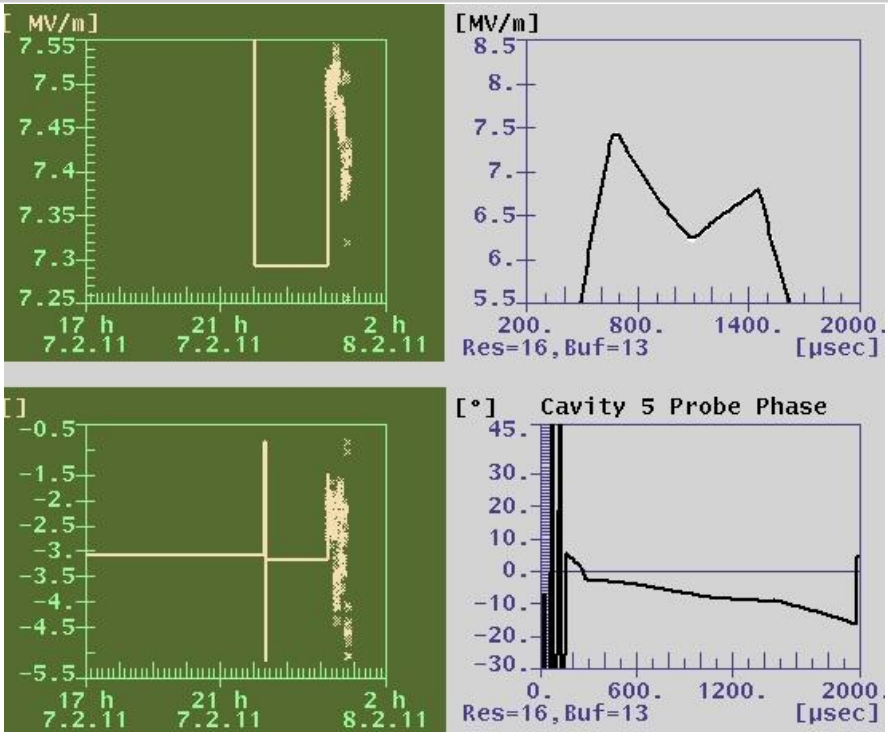
08.02.2011 00:53 ttflinac **ttflinac@:ADC_RF_win2**



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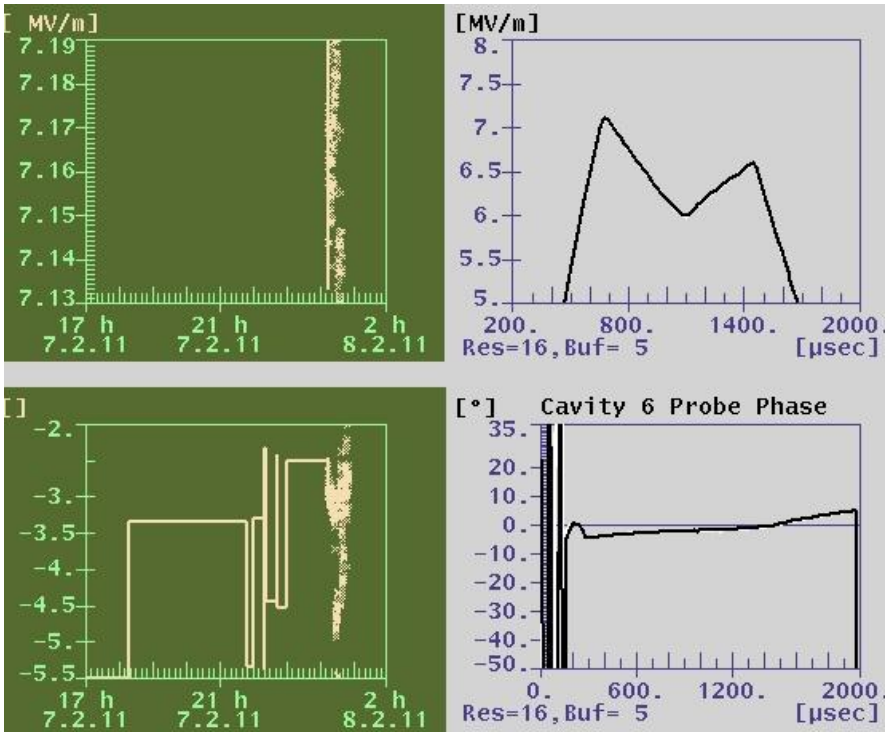
08.02.2011 00:53 ttflinac **ttflinac@:ADC_RF_win2**



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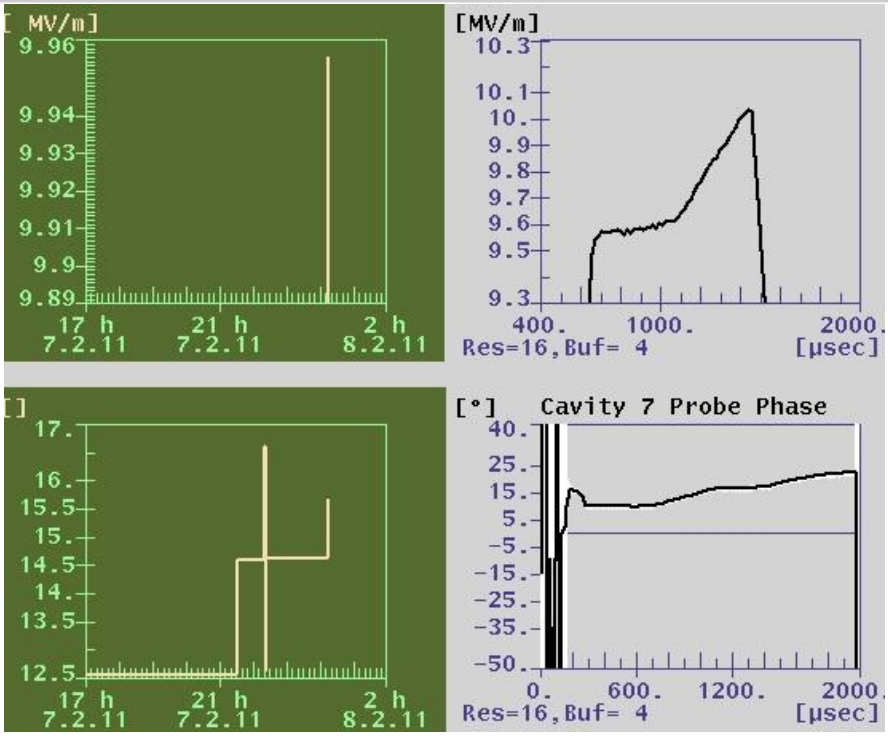
08.02.2011	00:54	ttflinac	**ttflinac@:ADC_RF_win2**



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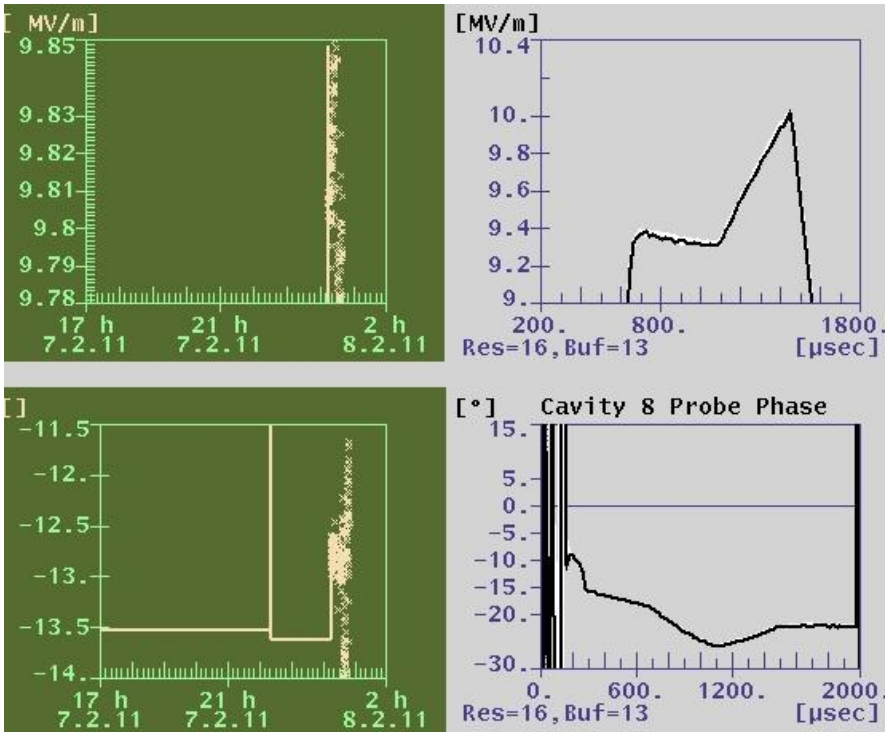
08.02.2011	00:54	ttflinac	**ttflinac@:ADC_RF_win2**



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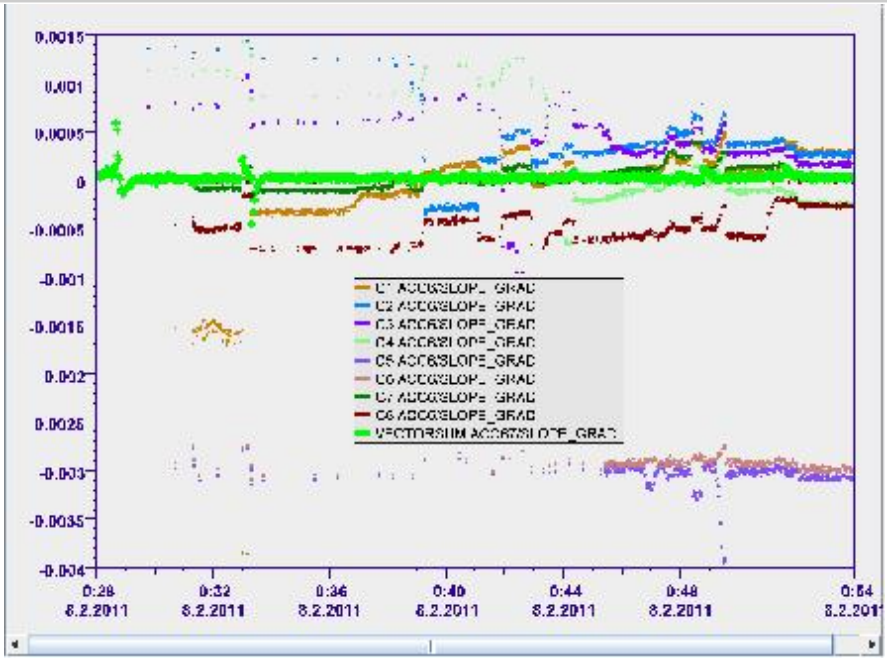
08.02.2011	00:56	ttflinac	**jddd Screenshot**



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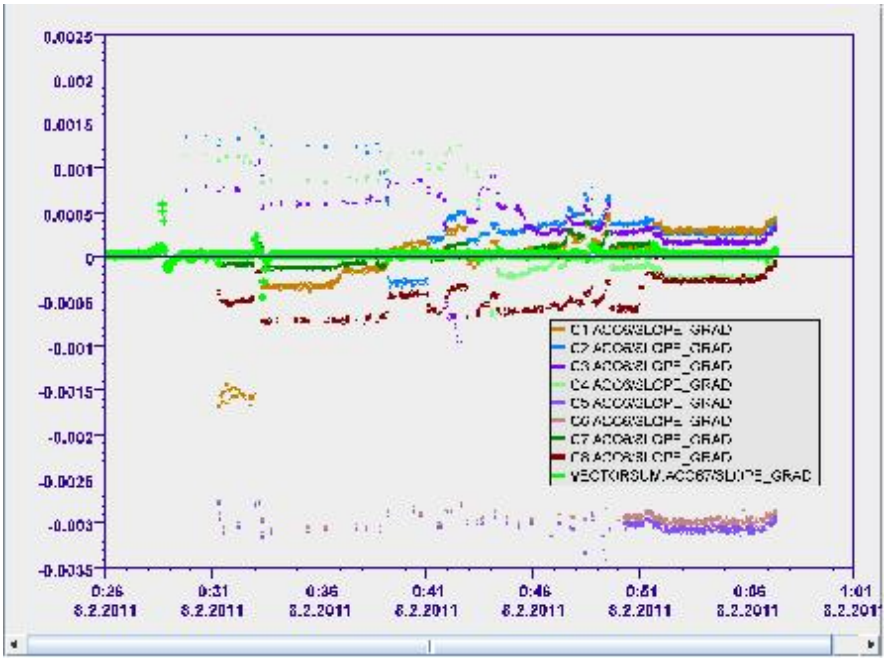
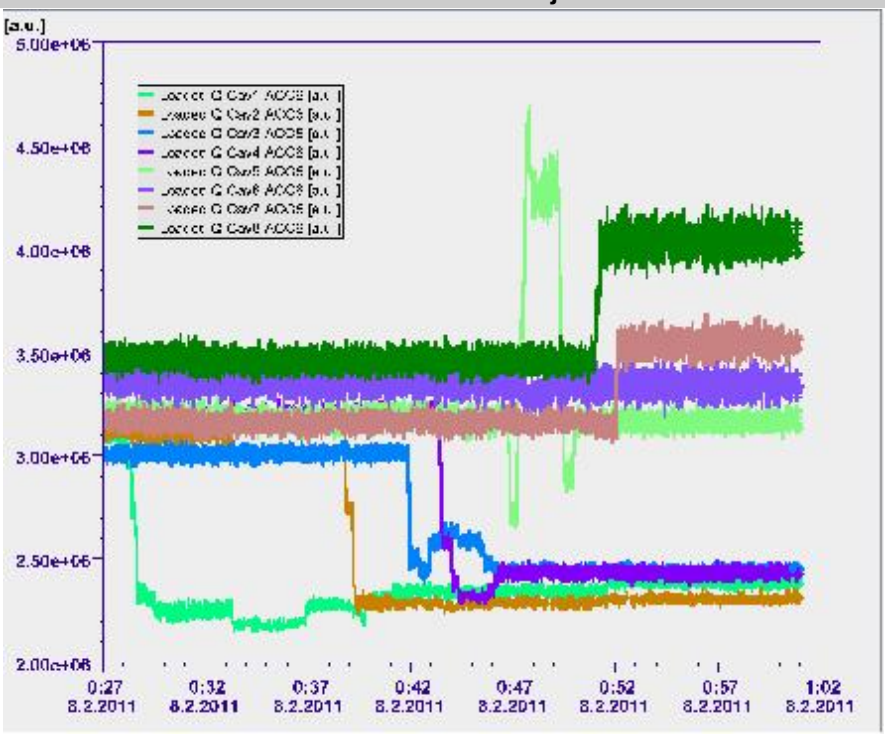
08.02.2011	00:57	ttflinac	**jddd Screenshot**



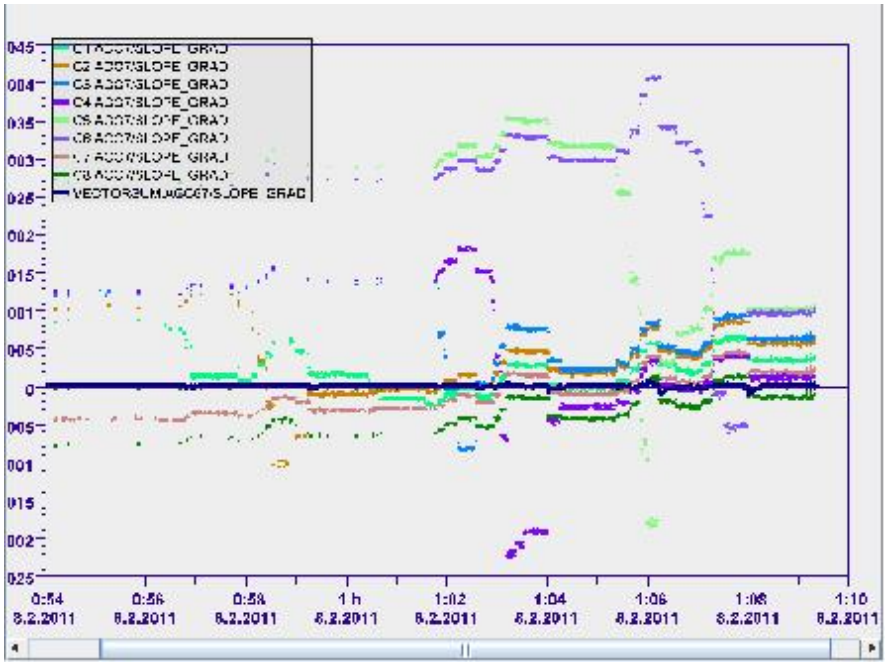
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T00:57:30-00.ps

08.02.2011 01:01 ttflinac **jddd Screenshot**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T01:01:02-00.ps

08.02.2011 01:09 ttflinac **jddd Screenshot**



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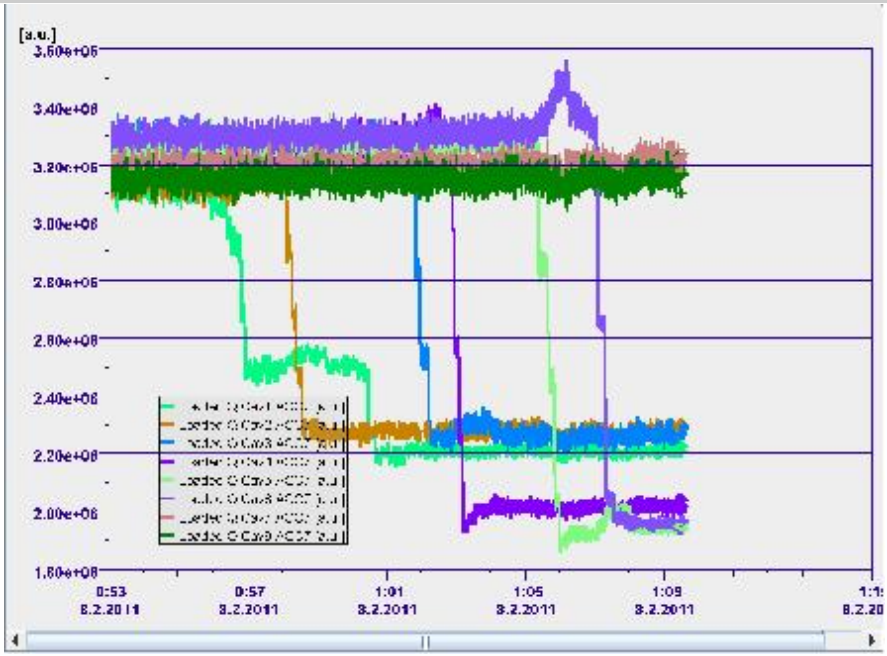
08.02.2011	01:09	ttflinac	**jddd Screenshot**



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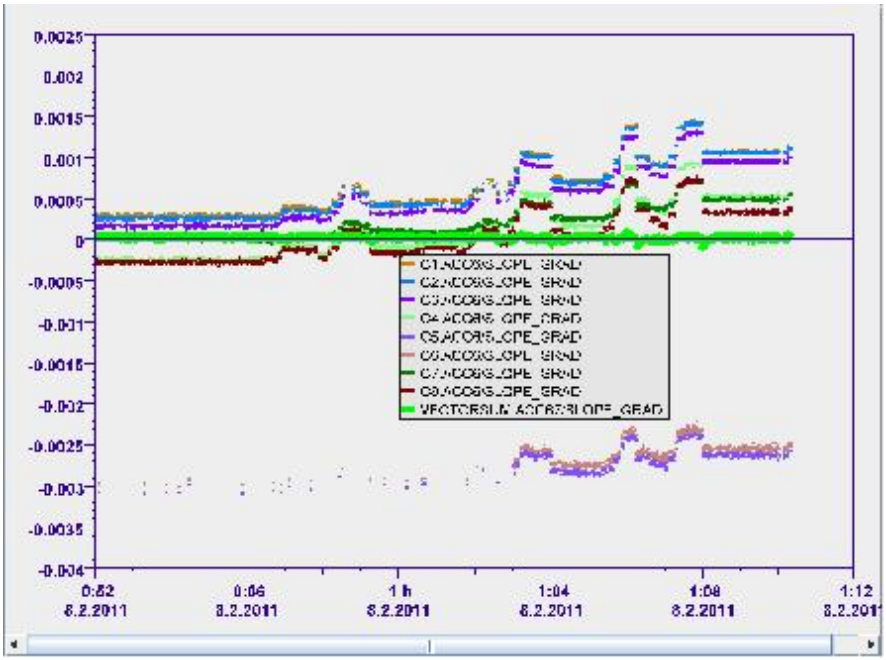
08.02.2011	01:10	ttflinac	**jddd Screenshot**



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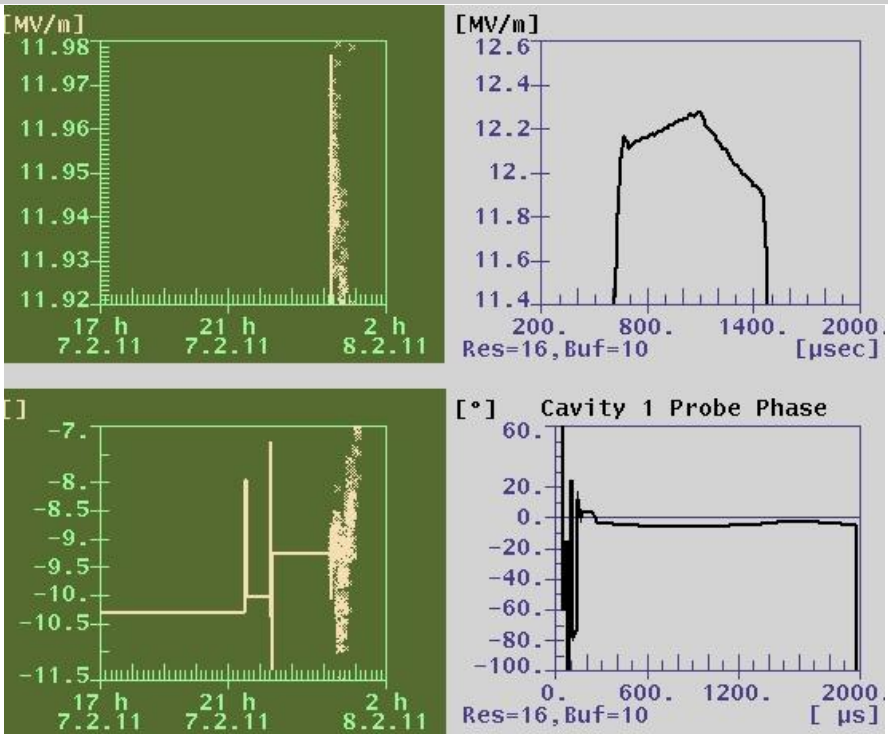
08.02.2011 01:11 ttflinac **ttflinac@:ADC_RF_win2**



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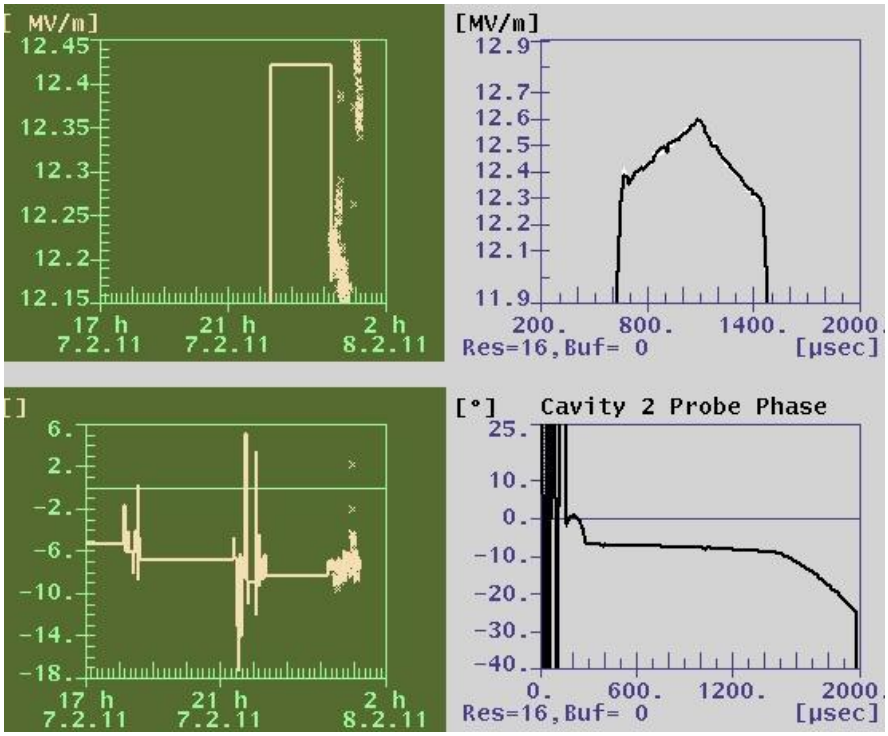
08.02.2011 01:11 ttflinac **ttflinac@:ADC_RF_win2**



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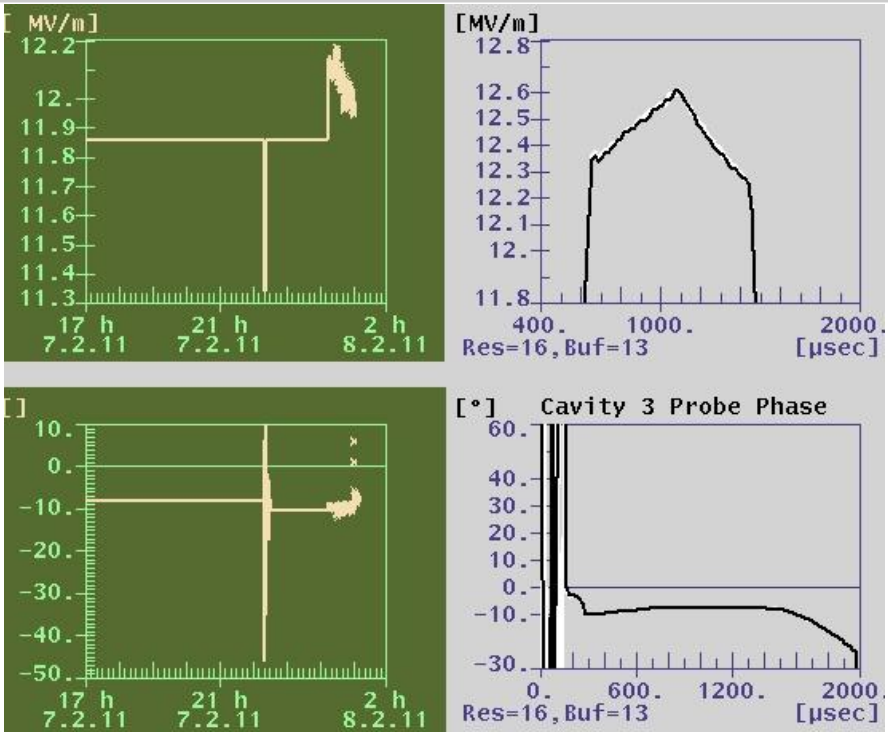
08.02.2011	01:11	ttflinac	**ttflinac@:ADC_RF_win2**



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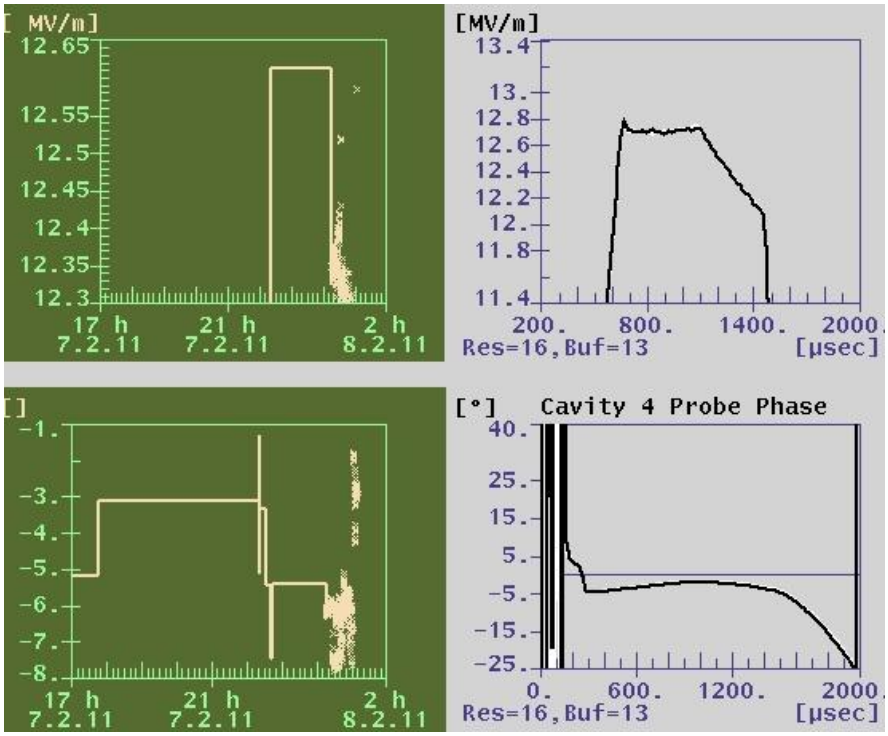
08.02.2011	01:11	ttflinac	**ttflinac@:ADC_RF_win2**



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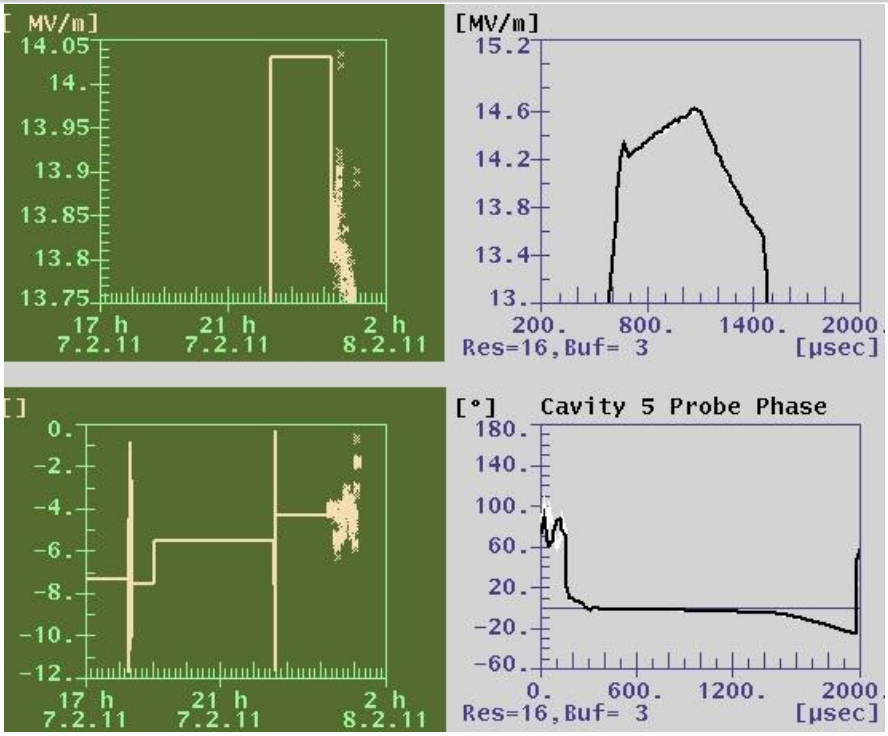
08.02.2011	01:11	ttflinac	**ttflinac@:ADC_RF_win2**



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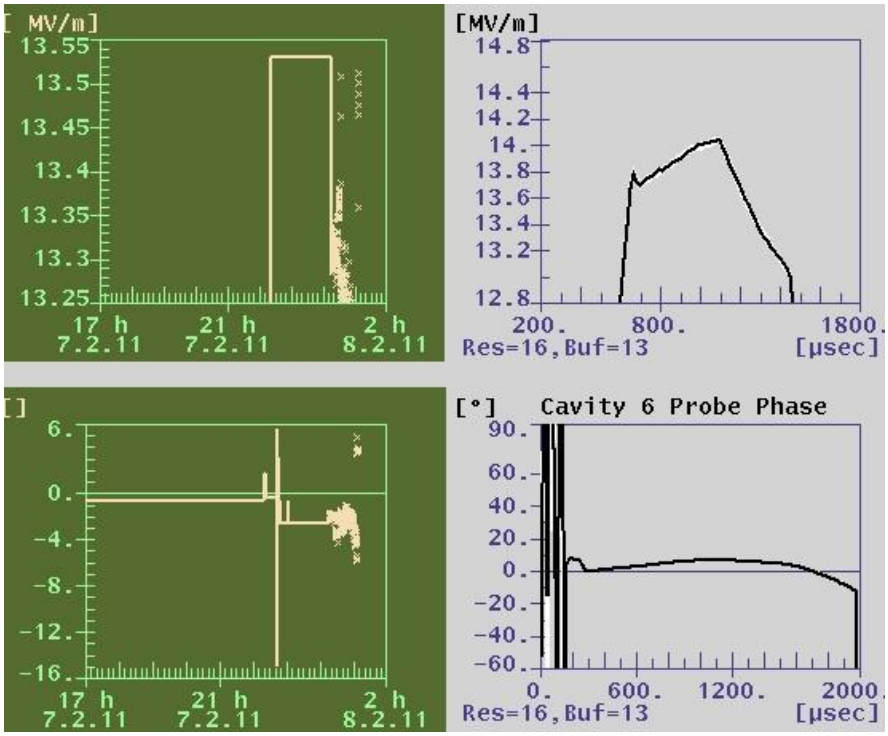
08.02.2011	01:11	ttflinac	**ttflinac@:ADC_RF_win2**



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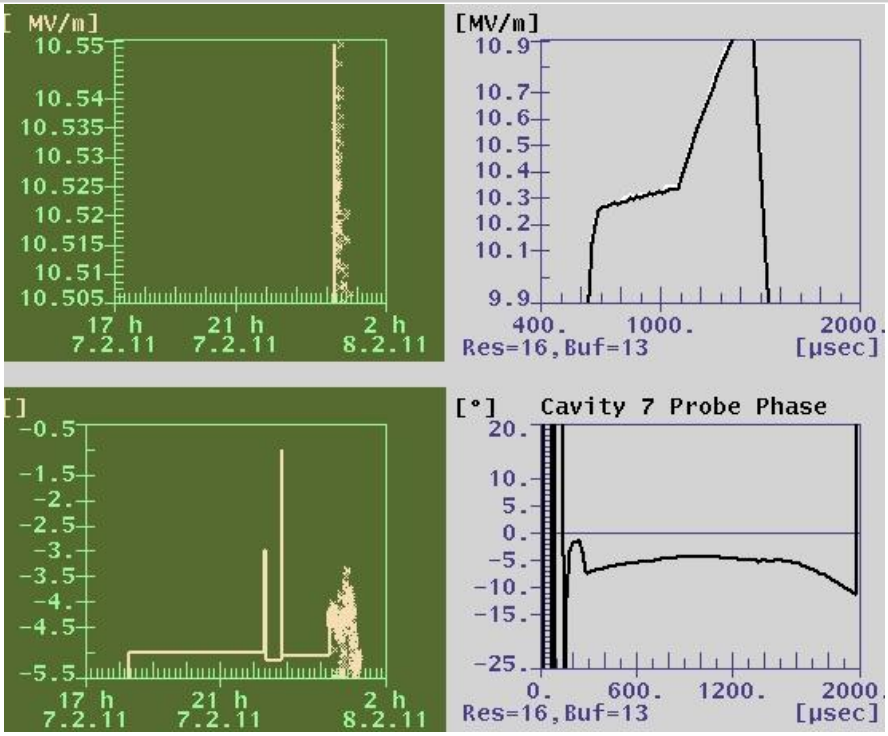
08.02.2011	01:11	ttflinac	**ttflinac@:ADC_RF_win2**



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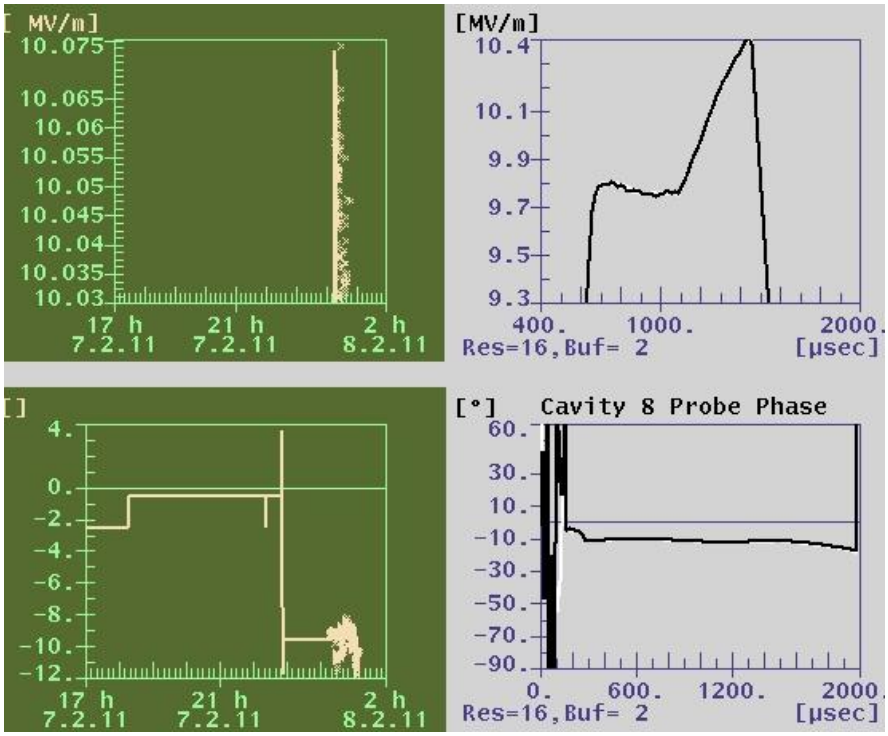
08.02.2011	01:11	ttflinac	**ttflinac@:ADC_RF_win2**



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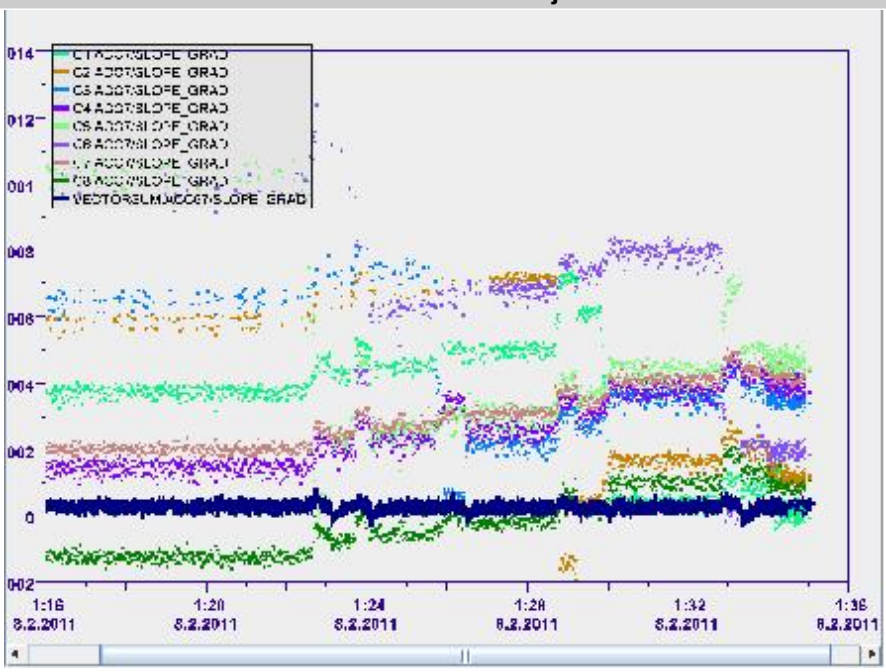
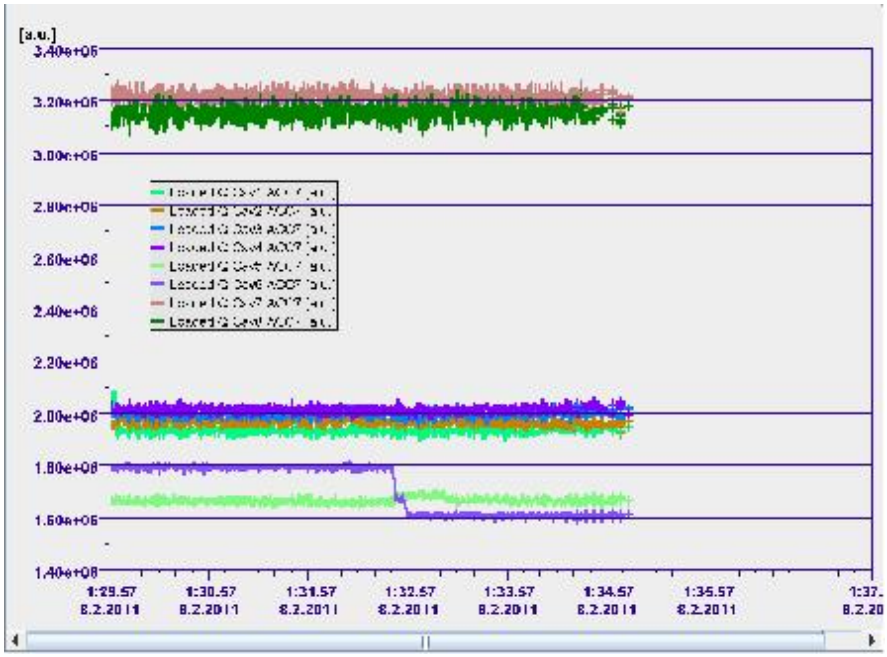
08.02.2011	01:35	ttflinac	**jddd Screenshot**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T01:35:12-00.ps

08.02.2011	01:35	ttflinac	**jddd Screenshot**



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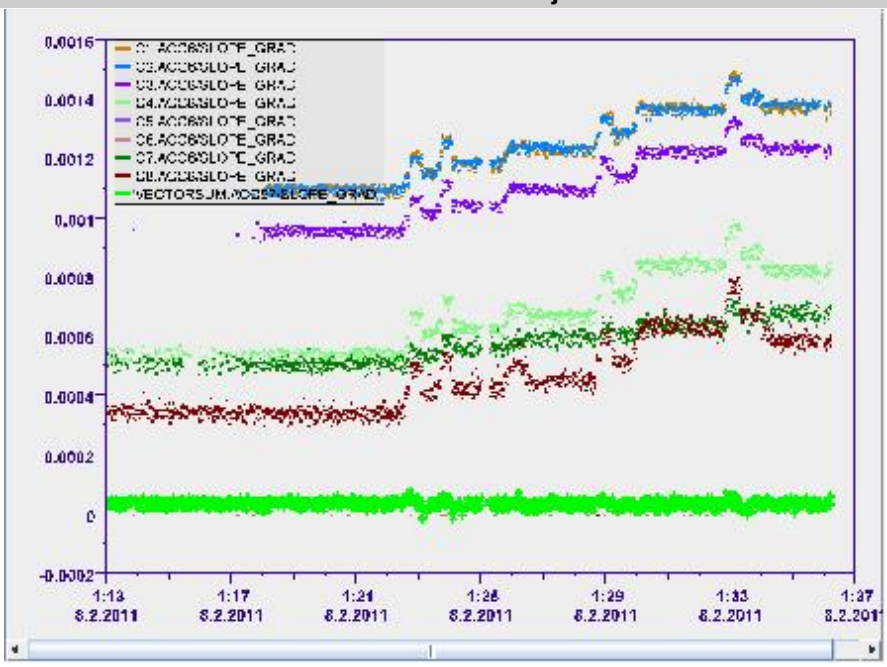
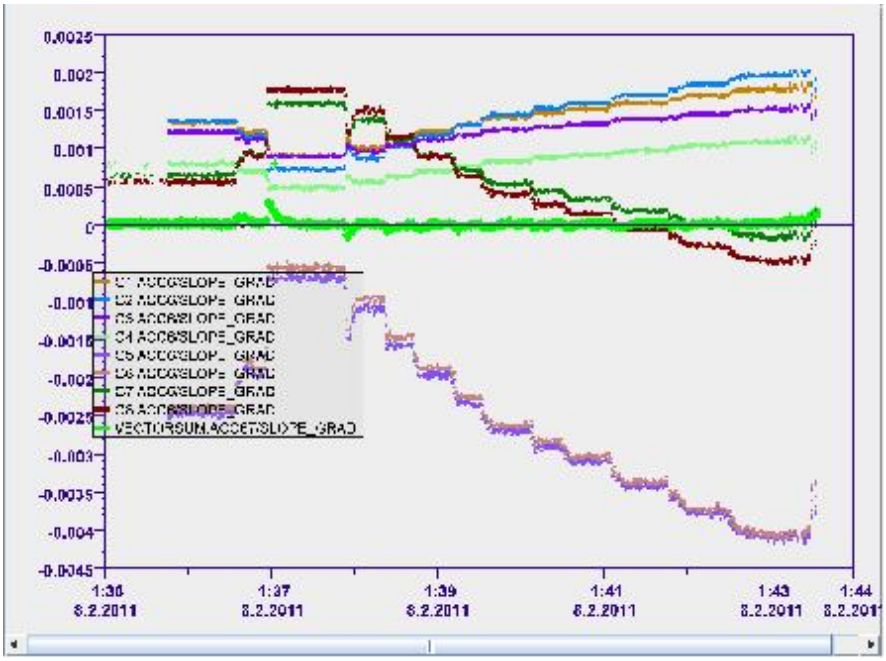
08.02.2011	01:36	ttflinac	**jddd Screenshot**



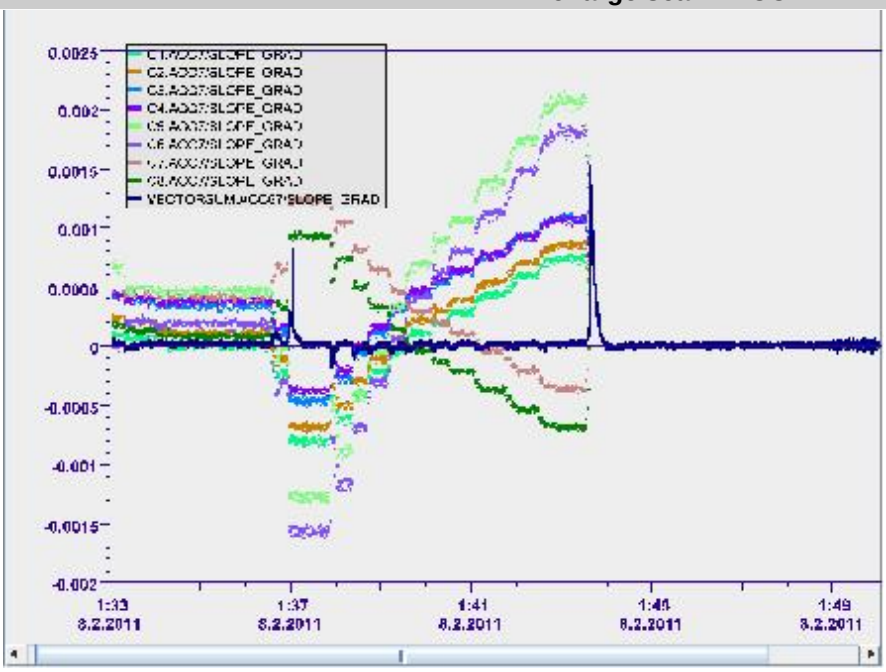
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T01:36:25-00.ps

08.02.2011	01:43	ttflinac	**Cavity gradients slopes during beam charge scan - ACC6**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T01:43:47-00.ps

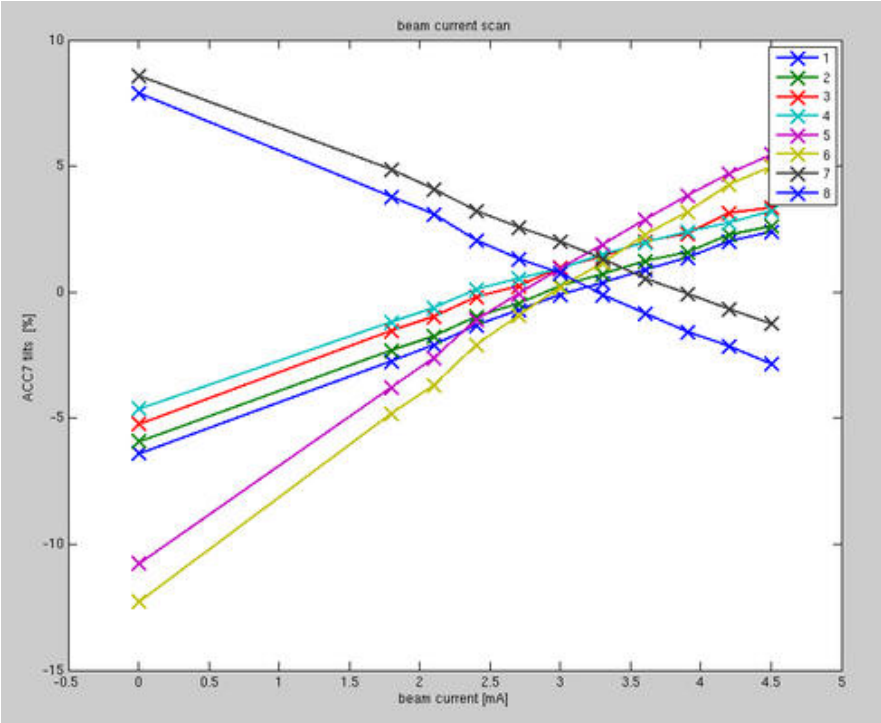
08.02.2011 01:50 ttflinac **Cavity gradients slopes during beam charge scan - ACC7**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T01:50:23-00.ps

08.02.2011 02:09

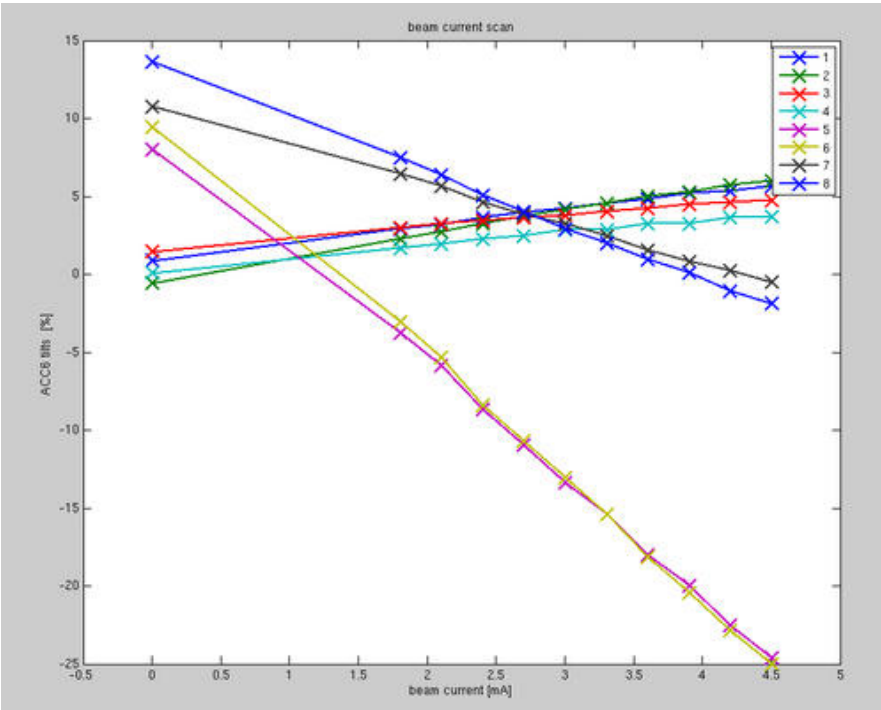
```
Beam scan, from 0.6nC to 1.5nC (3MHz).  (0.9 mA to 4.5mA)
ACC6 and ACC7 optimized for 3mA.
```



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T02:09:39-01.png

08.02.2011 02:20

These are the drifts for ACC6
No effort was made to try to adjust cavity 5 and 6 of ACC6.



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T02:20:51-00.png

08.02.2011 02:22

comparison between simulated values and actual values
for ACC6

cavity	predicted Qls	final Ql	
1	2.2	2.3	
2	2.2	2.3	
3	2.4	2.4	
4	2.4	2.4	

5		3.1	
6		3.3	
7	3.5	3.5	
8	4.0	4.0	

for ACC7

cavity	predicted Qls	final Ql	
1	2.2	1.9	
2	2.2	2.0	
3	2.2	2.0	
4	2.0	2.0	
5	1.9	1.7	
6	1.9	1.6	
7	2.7	3.2	
8	2.7	3.1	

The values overall differ more for ACC7 than for ACC6 because we spent more time to tune ACC7. As a general rule, the first predicted value is a good match. But as we go and adjust the subsequent cavities, the match is not so good (we're fighting feedback)
So, several rounds of tuning iterations are necessary to get to smaller tilts.

08.02.2011 02:23

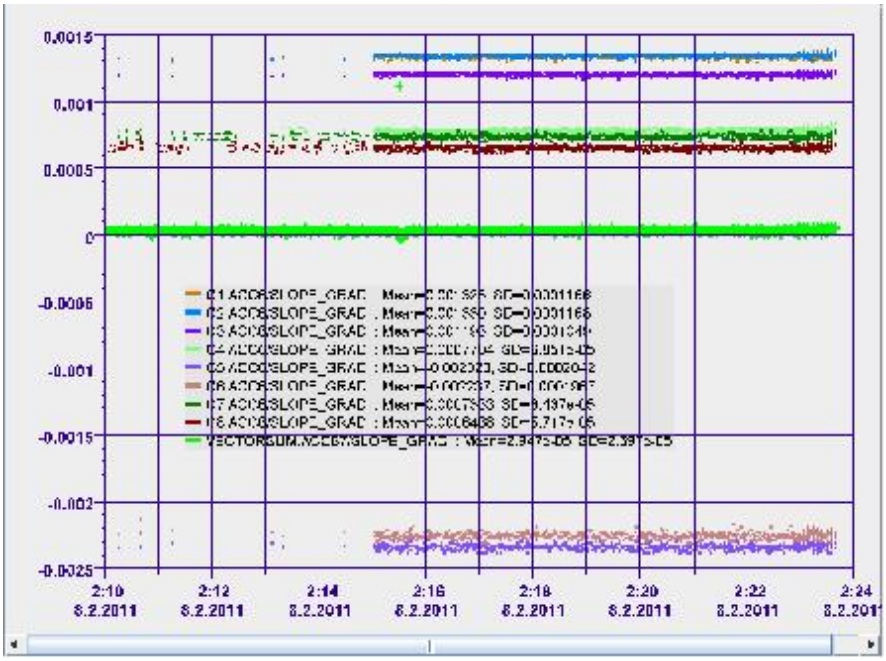
adjusted Qls for ACC6

Cavity#	Loaded Q	Detuning
1	2.32e+06	-128.12
2	2.30e+06	60.26
3	2.39e+06	52.62
4	2.39e+06	-72.59
5	3.14e+06	-26.53
6	3.30e+06	30.27
7	3.51e+06	38.71
8	4.02e+06	5.73

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T02:23:31-00.png

08.02.2011 02:23 ttflinac **jddd Screenshot**

drift analysis for ACC6 tilts



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T02:23:50-00.ps

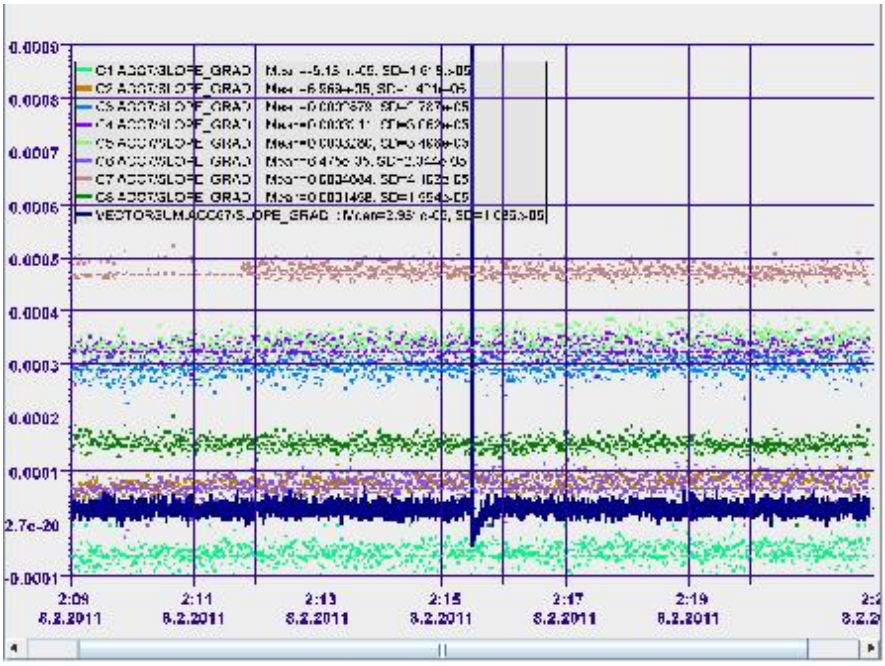
08.02.2011 02:23

```
adjusted Qls for ACC7
```

Cavity#	Loaded Q	Detuning
1	1.92e+06	-29.33
2	1.95e+06	-28.53
3	1.99e+06	-90.86
4	2.00e+06	-77.61
5	1.66e+06	-61.46
6	1.59e+06	-97.30
7	3.18e+06	-16.59
8	3.12e+06	-17.44

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T02:23:51-00.png

08.02.2011 02:24 ttflinac **jddd Screenshot**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T02:24:00-00.ps

08.02.2011 02:37

drift analysis for ACC7 tilts

08.02.2011 04:50 ttflinac

Main linac parameters: Start Docu 1nC, 1200 bunches, 3MHz, ACC45 250MV, ACC67 281MV

1200 bunches, 3MHz, ACC45 250MV, ACC67 281MV

Laser

```
Number of bunches ...... 1200
Bunch frequency ........ 3000 kHz
Macropulse rep'rate .... 5.0 Hz
Pump time_3 ............ 0.0030 ms
Pump current_3 ......... 5.00 V
Pre-amp start time ..... 2.59 ms
Booster start time ..... 2.69 ms
Attenuator SP .......... 5.21
Iris diameter .......... 17088 steps
Iris diameter .......... 2.36 mm
```

Gun

```
Feedforward/Feedback ... on/on
FSM .................... on
Pfwd SP ................ 3.64
VS ampl. ............... 18.36
Phase SP ............... -10.20 deg
VS phase ............... 5.85 deg
Pfwd (peak) ............ 3.806 MW
Prefl (peak) ........... 2.827 MW
Pfwd sample point ...... 700
Pfwd (at sample point) . 18.370 MW
Prefl sample point ..... 720
Prefl (at sample point)  5.844 MW
Flat top ............... 460 us
Water temperature SP ... 72.32 deg C
Main solenoid (RBV) .... -301.33 A
Bucking coil (RBV) ..... 20.70 A
Gun dipole (RBV) ....... 0.000 A
Charge 3GUN(T1) ........ 1.01 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 ............... 163.67
Phase SP ............... 2.70 deg
Phase RBV .............. 2.77 deg
Pfwd C1.ACC1 ........... 182.3 kW
Pfwd C5.ACC1 ........... 175.7 kW
Flat top ............... 800 us
Dipole BC2 (RBV) ....... 73.11 A
Pyro 9DBC2.1 ........... -0.0542 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 ................ 19.00
Phase SP ............... 114.00 deg
Pfwd C1.ACC39 .......... <error>
Flat top ............... 800 us
```

ACC2/3

ACC4/5

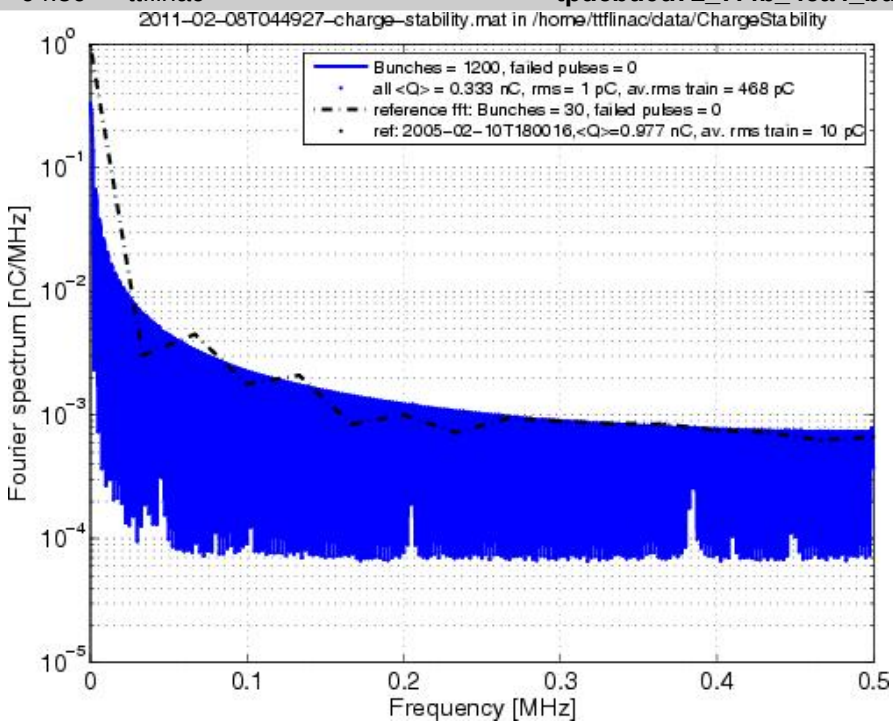
```
Feedforward/Feedback ... on/on
Feedback gain .......... 2.0
Pfwd SP ................ 297.50
Pfwd RBV ............... 295.93
Phase SP ............... -1.00 deg
Phase RBV .............. -0.50 deg
Pfwd C5.ACC2 ........... 130.53 kW
Pfwd C1.ACC3 ........... 227.94 kW
Flat top ............... 450 us
Dipole BC3 (RBV) ....... 56.00 A
Pyro 4DBC3.1 ........... -0.0104 V
Pyro 4DBC3.3 ........... 0.0017 V
Radiator 4DBC3 ......... out
ACC6/7
Feedforward/Feedback ... on/on
Feedback gain .......... 50.0
Pfwd SP ................ 281.50
Pfwd RBV ............... 276.40
Phase SP ............... -5.00 deg
Phase RBV .............. -3.59 deg
Pfwd C1.ACC6 ........... 185.17 kW
Pfwd C1.ACC7 ........... 208.59 kW
Flat top ............... 800 us
Collimator
Dipole D1ECOL (RBV) .... 176.89 A
Energy dogleg .......... 999.1 MeV
Charge 7ORS ............ 1.04 nC

Dump
Dipole D9SMATCH (RBV) .. 0.00 A
Dipole D1DUMP (RBV) .... 0.00 A
Dipole D6DUMP (RBV) .... 211.30 A
Rotator RD13DUMP (RBV) . 9.13 A
Charge 9DUMP ........... 0.96 nC
Photon beamline
Aperture 1 ............ 10 mm
Offset h/v ............ 0/-1 mm
Aperture 2 ............ 10 mm
Offset h/v ............ 1/0 mm
```

```
Feedforward/Feedback ... on/on
Feedback gain .......... 40.0
Pfwd SP ................ 250.00
Pfwd RBV ............... 250.01
Phase SP ............... -8.90 deg
Phase RBV .............. -8.48 deg
Pfwd C1.ACC4 ........... 113.54 kW
Pfwd C2.ACC5 ........... 95.67 kW
Pfwd C1.ACC6 ........... 0.61 kW
Flat top ............... 800 us

Bypass
Dipole D1BYP (RBV) ..... 0.00 A
Energy bypass .......... 1211.4 MeV
RF vector sum ALL ...... 683.8 MeV
Charge 16BYP ........... 0.00 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
Feedbacks
Charge feedback gain ... <error>
Charge feedback SP ..... <error>
PTO feedback ........... on
```

```
Status saved in machine file 2011-02-08T04_50_22+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-08T045022
```

```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110208T045022.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110208T045022.sr
from computer: flashbkr3.desy.de
```

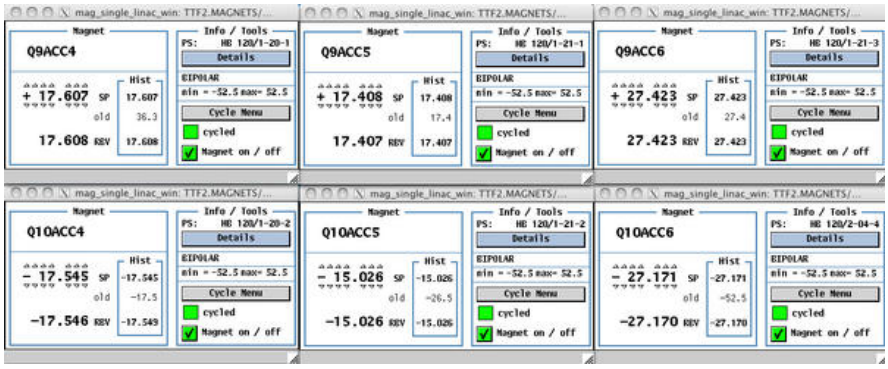
08.02.2011 04:50 ttflinac **tpd6bd0d72_7f4b_46a4_bd56_db3923a97c6e.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:51:03-00.ps

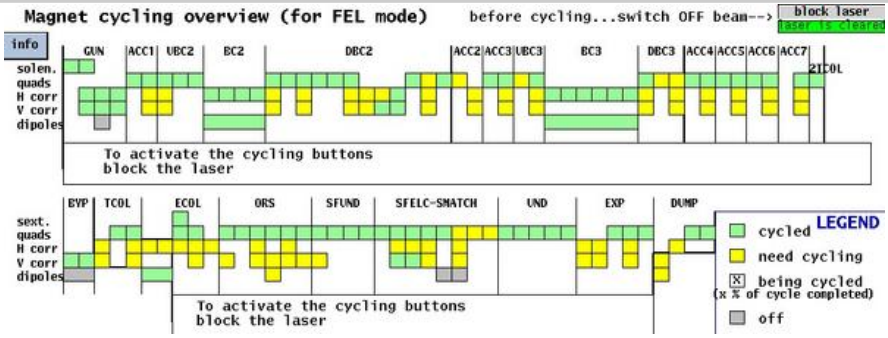
08.02.2011 04:50 klose **Only these Quads loaded and cycled from Sunday 06.02.11, 19:32h**

For old energy distribution between ACC45 and ACC67



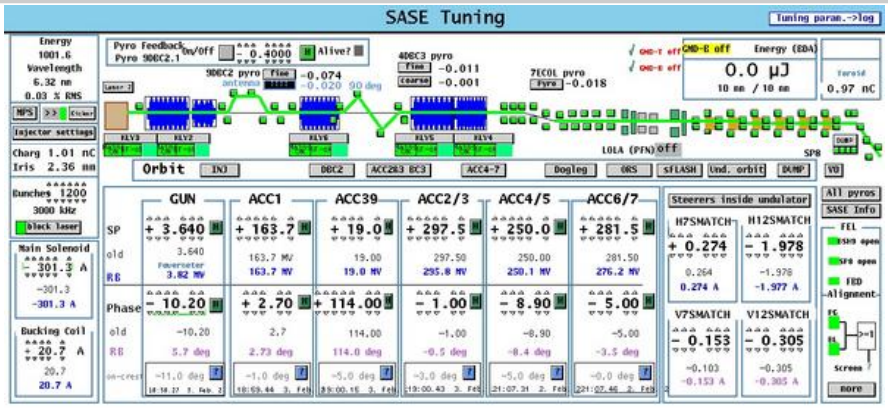
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:08:06-00.png

08.02.2011 04:51 ttflinac **ttflinac@:magnet_cycle_overview_fel**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:50:51-00.JPG

08.02.2011 04:51 ttflinac **ttflinac@:SASE_tuning**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:50:41-00.JPG

08.02.2011 04:51 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 999.16 MeV / 6.3 nm
Charge:              1.00 nC
Main solenoid:       -301.3 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	+19.00	+297.50	+250.00	+281.50
Readback	3.81	163.7	19.0	295.8	250.0	276.3
Phase	-10.20	+2.70	+114.00	-1.00	-8.90	-5.00

```
on-crest |         |   -1.0  |         |   -3.0  |   -5.0  |   -0.0  |
Readback |    5.8  |    2.7  |   114.0 |   -0.6  |   -8.4  |   -3.5  |
```

Undulator steerers and aircoils

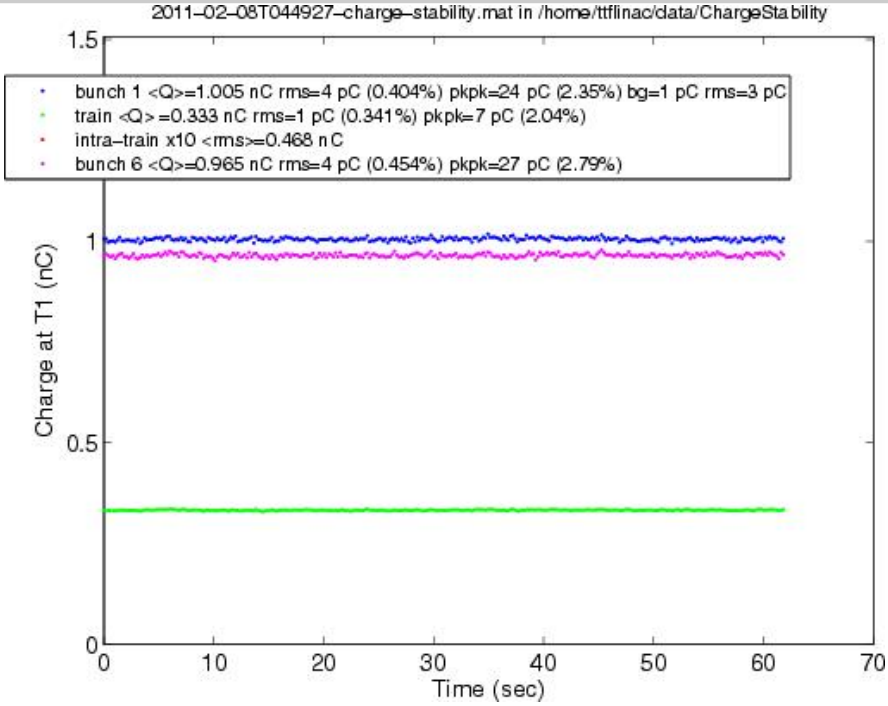
H7SMATCH	H12SMATCH
+0.274	**-1.978**

V7SMATCH	V12SMATCH
-0.153	**-1.978**

Intra-undulator steerers

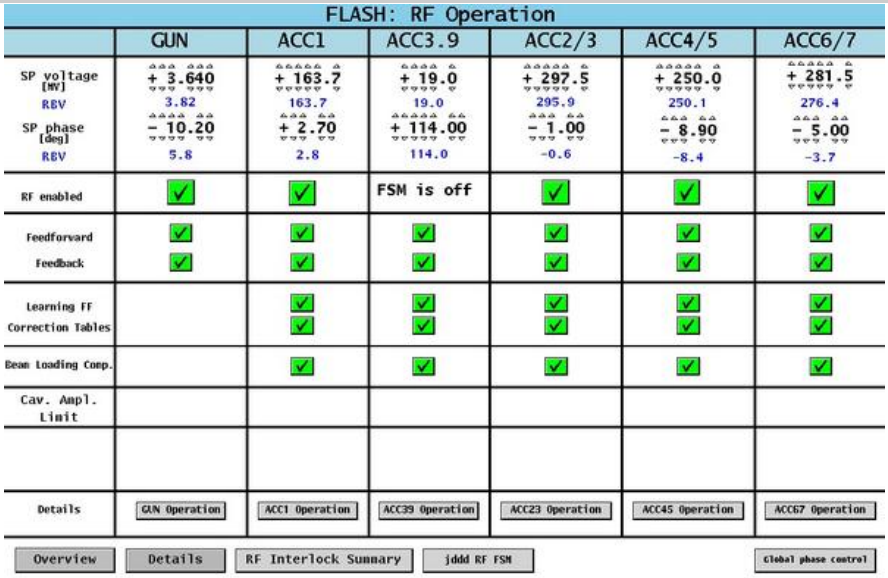
H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.90	**-4.30**	**-4.90**	**-4.70**	**-4.90**	**-5.00**

08.02.2011 04:51 ttflinac **tp56ad061b_a8b8_4cdc_a1c8_fae3a78a8b45.ps**



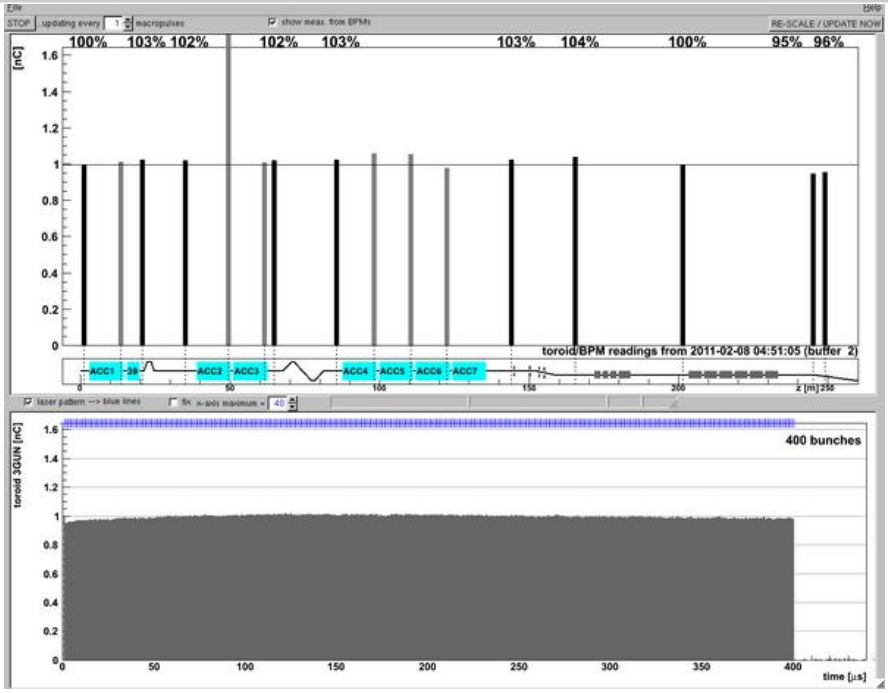
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:51:16-00.ps

08.02.2011 04:51 ttflinac **ttflinac@:RF_OPERATION**



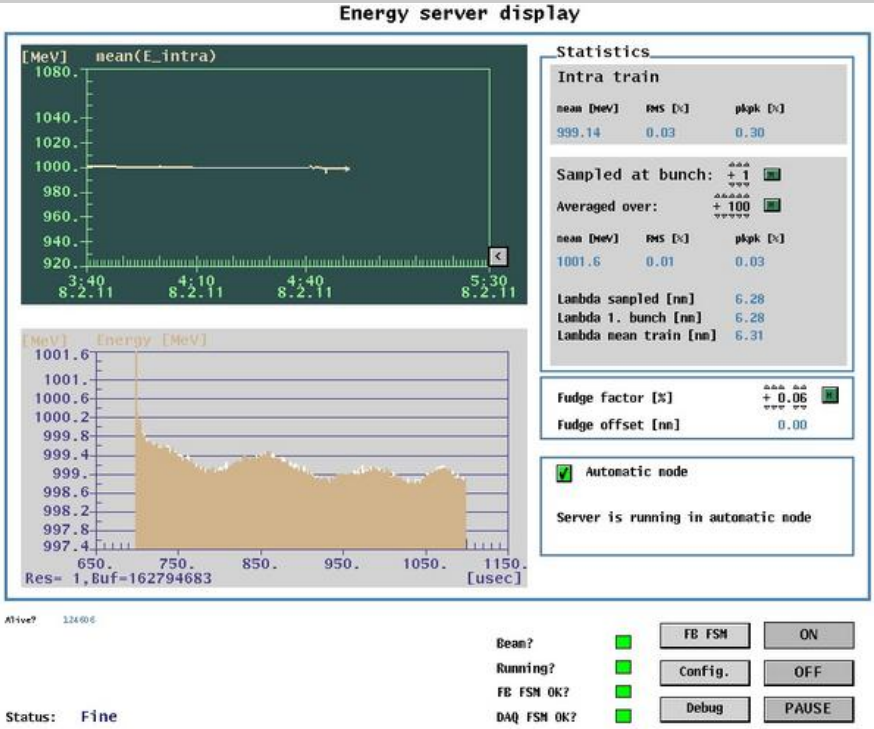
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:51:22-00.JPG

08.02.2011 04:51 ttflinac **toroid charge readings**



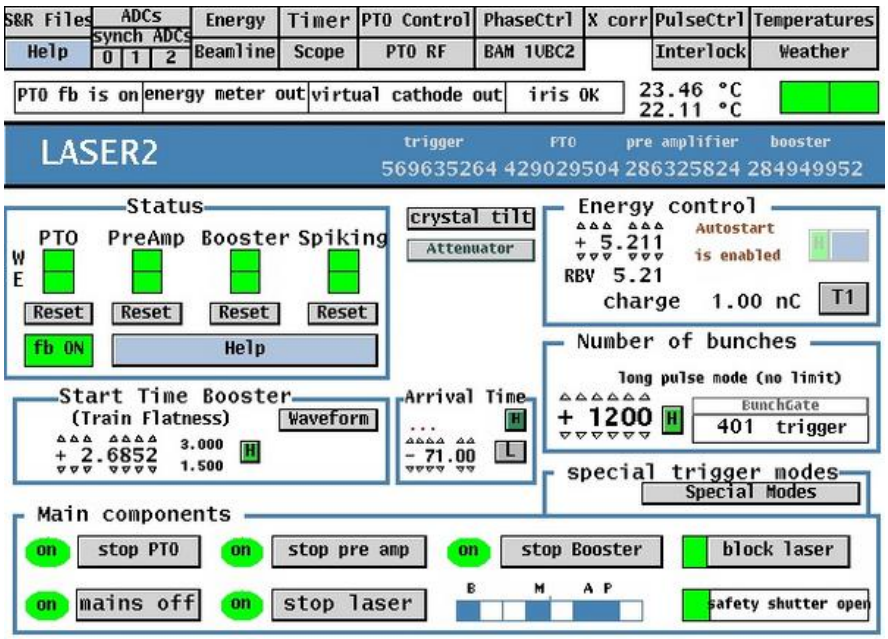
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:51:31-00.ps

08.02.2011 04:51 ttflinac **ttflinac@:Energyfbm_display**



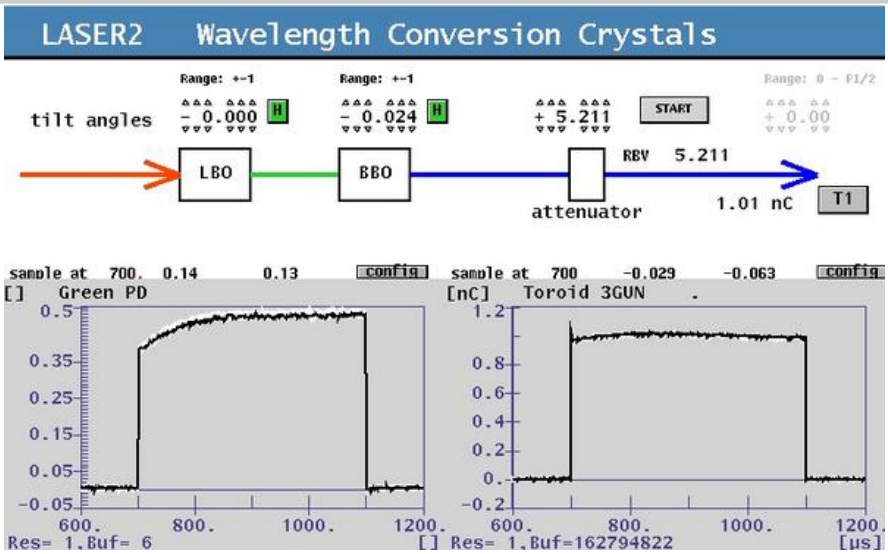
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:51:56-00.JPG

08.02.2011 04:52 ttflinac **ttflinac@:laser2_control**



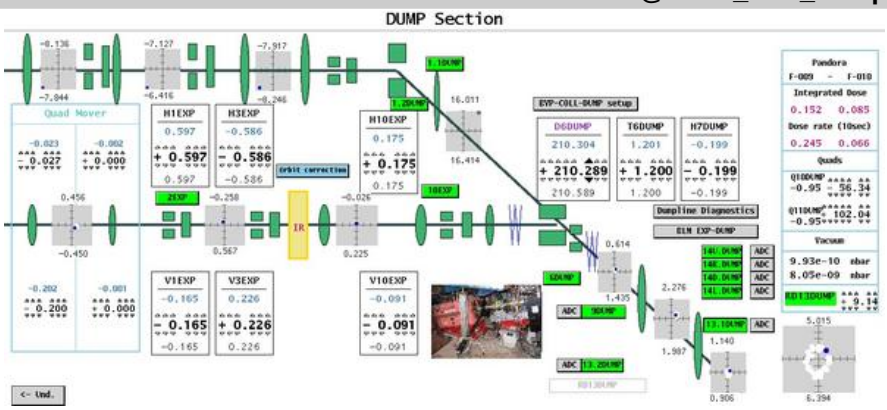
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:52:04-00.JPG

08.02.2011 04:52 ttflinac **ttflinac@:laser_crystal_tuning**



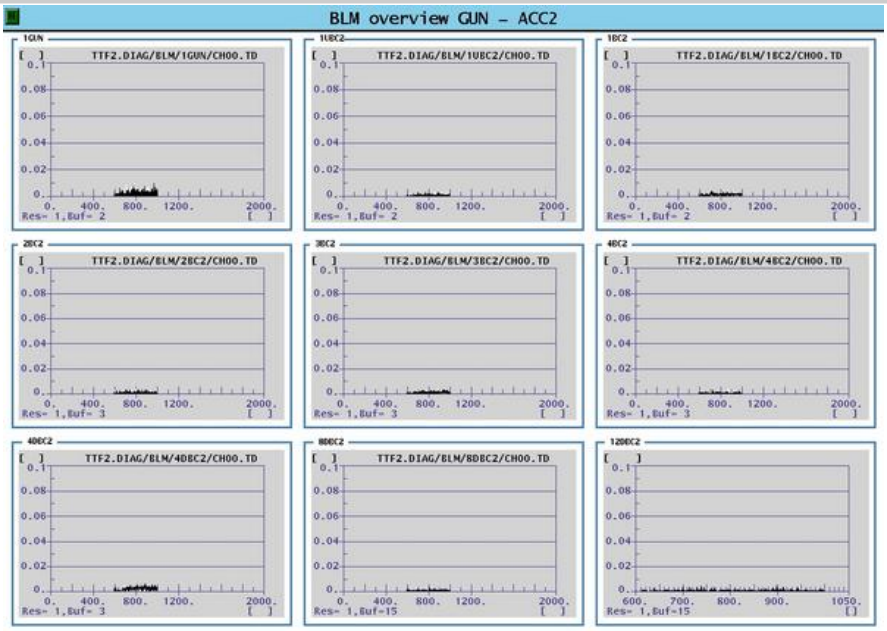
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:52:14-00.JPG

08.02.2011 04:54 ttflinac **ttflinac@:orbit_corr_dump**



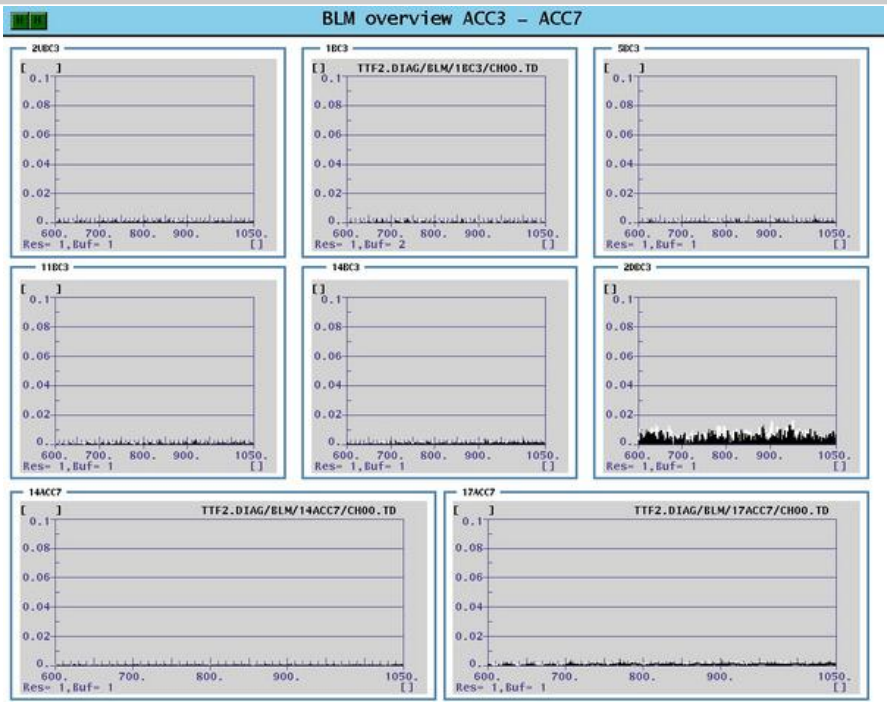
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:54:17-00.JPG

08.02.2011 04:54 ttflinac **ttflinac@:blm_overview_from_GUN_to_ACC2**



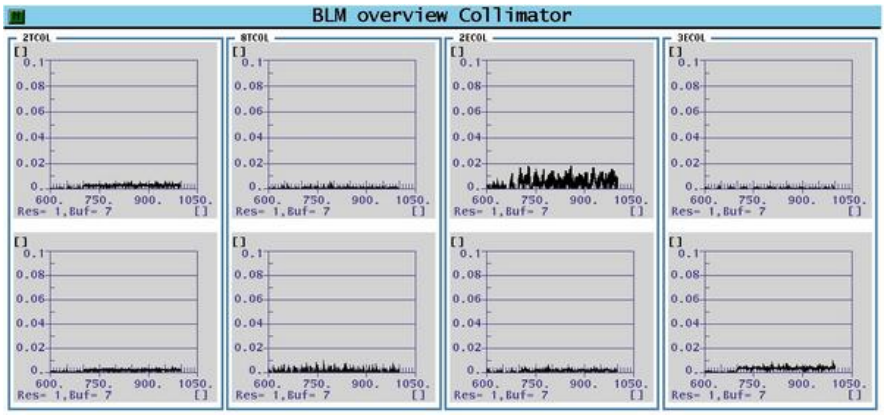
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:54:36-00.JPG

08.02.2011 04:54 ttflinac **ttflinac@:BLM_ACC3_ACC7**



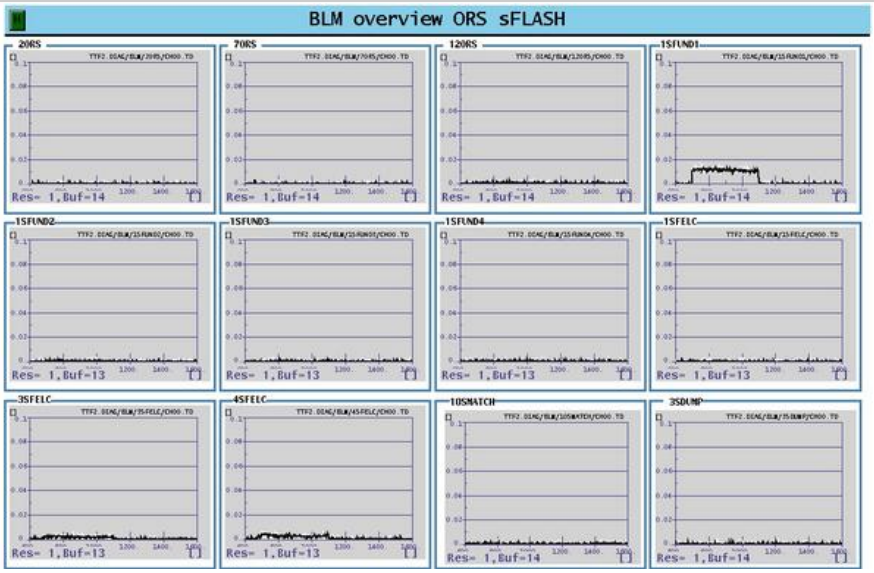
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:54:46-00.JPG

08.02.2011 04:54 ttflinac **ttflinac@:blm_overview_COL**



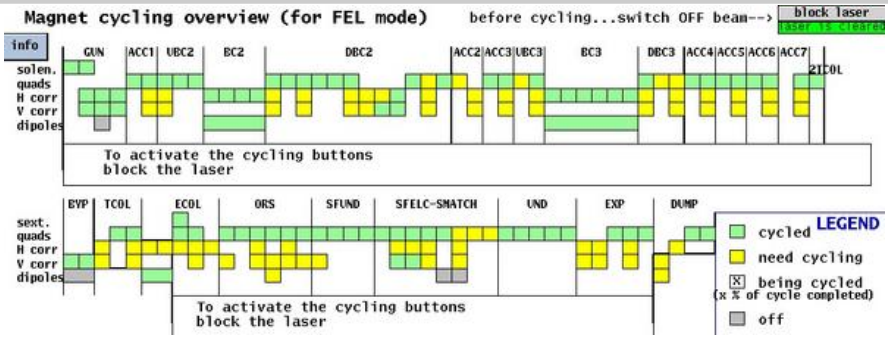
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:54:56-00.JPG

08.02.2011 04:55 ttflinac **ttflinac@:blm_overview_ORS**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T04:55:12-00.JPG

08.02.2011 05:10 ttflinac **ttflinac@:magnet_cycle_overview_fel**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:10:38-00.JPG

08.02.2011 05:10 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 997.80 MeV / 6.3 nm
Charge:              1.49 nC
Main solenoid:       -301.3 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	+19.00	+297.50	+250.00	+281.50
Readback	3.82	163.7	19.0	295.8	250.2	276.4
Phase	-9.20	+2.70	+109.00	+2.00	-8.90	-5.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	6.5	2.7	109.0	2.4	-8.4	-3.5

Undulator steerers and aircoils

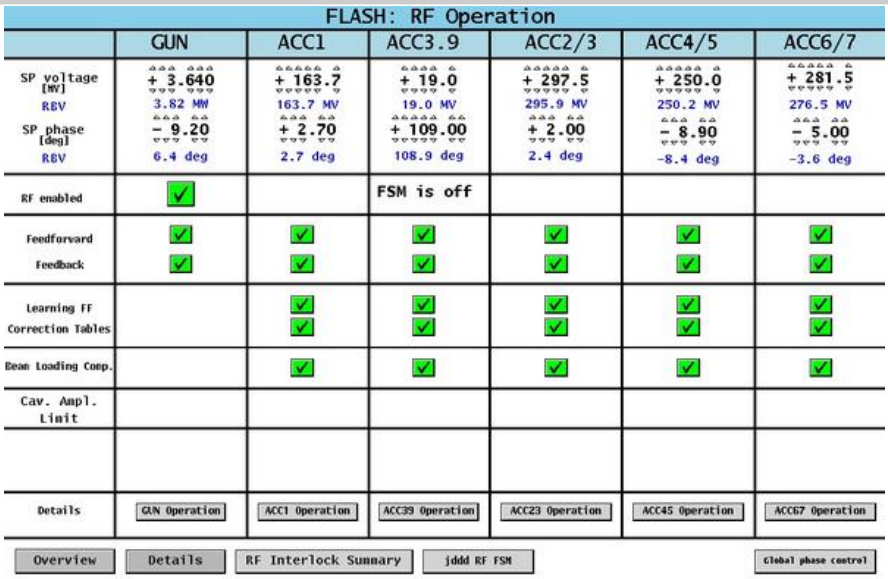
H7SMATCH	H12SMATCH
+0.224	**-1.978**

V7SMATCH	V12SMATCH
-0.153	**-1.978**

Intra-undulator steerers

H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.90	**-4.30**	**-4.90**	**-4.70**	**-4.90**	**-5.00**

08.02.2011 05:10 klose **End Docu 1nC, 1200 bunches, 3MHz, ACC45 250MV, ACC67 281MV**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:10:51-00.JPG

08.02.2011 05:11 ttflinac **Main linac parameters**

1.5nC, 1200 bunches, 3MHz, ACC45 250MV, ACC67 281.5MV

Laser
Number of bunches 1200
Bunch frequency ..... 3000 kHz
Macropulse rep'rate .... 5.0 Hz
Pump time_3 ..... 0.0030 ms
Pump current_3 ..... 5.00 V
Pre-amp start time ..... 2.59 ms
Booster start time ..... 2.69 ms
Attenuator SP 5.68
Iris diameter ..... 17088 steps
Iris diameter ..... 2.36 mm

Gun
Feedforward/Feedback ... on/on
FSM ..... on
Pfwd SP 3.64
VS ampl. 18.36
Phase SP ..... -9.20 deg
VS phase ..... 6.91 deg
Pfwd (peak) ..... 3.821 MW
Prefl (peak) ..... 2.838 MW
Pfwd sample point 700
Pfwd (at sample point) . 18.356 MW
Prefl sample point 720
Prefl (at sample point) 5.890 MW
Flat top ..... 460 us
Water temperature SP ... 72.32 deg C
Main solenoid (RBV) .... -301.34 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

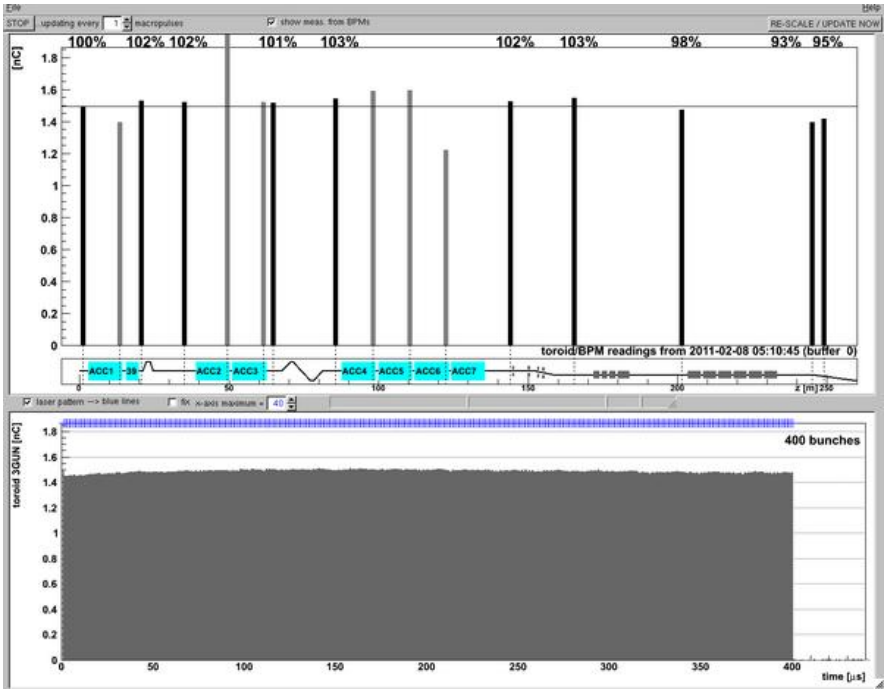
ACC39
Feedforward/Feedback ... on/on
Feedback gain 8.0
Pfwd SP 19.00

```
Pfwd RBV ............... 163.75                Phase SP ............... 109.00 deg
Phase SP ............... 2.70 deg              Pfwd C1.ACC39 .......... <error>
Phase RBV .............. 2.72 deg              Flat top ............... 800 us
Pfwd C1.ACC1 ........... 183.4 kW
Pfwd C5.ACC1 ........... 176.4 kW
Flat top ............... 800 us
Dipole BC2 (RBV) ....... 73.11 A
Pyro 9DBC2.1 ........... -0.2080 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)
ACC2/3                                         ACC4/5
Feedforward/Feedback ... on/on                 Feedforward/Feedback ... on/on
Feedback gain .......... 2.0                   Feedback gain .......... 40.0
Pfwd SP ................ 297.50               Pfwd SP ................ 250.00
Pfwd RBV ............... 295.90               Pfwd RBV ............... 250.17
Phase SP ............... 2.00 deg              Phase SP ............... -8.90 deg
Phase RBV .............. 2.39 deg              Phase RBV .............. -8.45 deg
Pfwd C5.ACC2 ........... 131.39 kW             Pfwd C1.ACC4 ........... 115.43 kW
Pfwd C1.ACC3 ........... 229.90 kW             Pfwd C2.ACC5 ........... 99.57 kW
Flat top ............... 450 us                Pfwd C1.ACC6 ........... 0.61 kW
Dipole BC3 (RBV) ....... 56.00 A                Flat top ............... 800 us
Pyro 4DBC3.1 ........... -0.0255 V
Pyro 4DBC3.3 ........... 0.0020 V
Radiator 4DBC3 ......... out
ACC6/7                                         Bypass
Feedforward/Feedback ... on/on                 Dipole D1BYP (RBV) ..... 0.00 A
Feedback gain .......... 50.0                  Energy bypass .......... 1211.4 MeV
Pfwd SP ................ 281.50               RF vector sum ALL ...... 684.0 MeV
Pfwd RBV ............... 276.50               Charge 16BYP ........... -0.00 nC
Phase SP ............... -5.00 deg
Phase RBV .............. -3.60 deg
Pfwd C1.ACC6 ........... 184.52 kW
Pfwd C1.ACC7 ........... 209.24 kW
Flat top ............... 800 us
Collimator                                     Undulator
Dipole D1ECOL (RBV) .... 176.89 A              1SFUND1 gap RBV ........ 220.0 mm
Energy dogleg .......... 997.8 MeV             1SFUND2 gap RBV ........ 220.0 mm
Charge 7ORS ............ 1.55 nC               1SFUND3 gap RBV ........ 220.0 mm
                                               1SFUND4 gap RBV ........ 180.0 mm
Dump                                           Feedbacks
Dipole D9SMATCH (RBV) .. 0.00 A                Charge feedback gain ... <error>
Dipole D1DUMP (RBV) .... 0.00 A                Charge feedback SP ..... <error>
Dipole D6DUMP (RBV) .... 210.30 A              PTO feedback ........... on
Rotator RD13DUMP (RBV) . 9.13 A
Charge 9DUMP ........... 1.41 nC
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 2011-02-08T05_13_35+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-08T051335
```

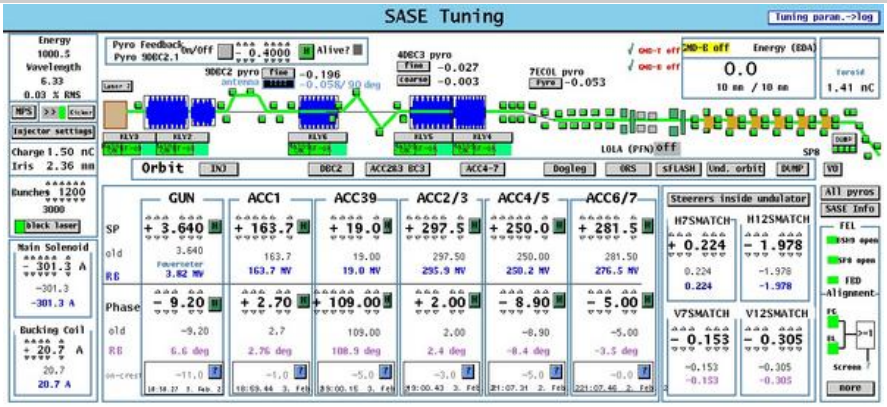
```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110208T051335.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110208T051335.sr
from computer: flashbkr3.desy.de
```

08.02.2011	05:11	Klose	**Start Docu 1.5nC, 1200 bunches, 3MHz, ACC45 250MV, ACC67 281MV**



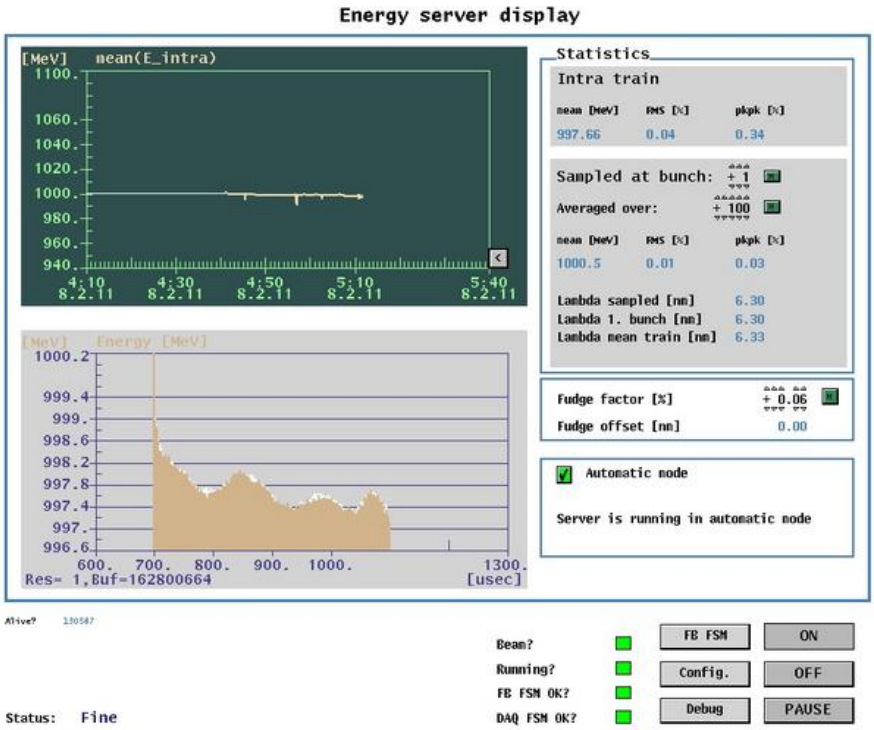
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:11:05-00.ps

08.02.2011 05:11 ttflinac **ttflinac@:SASE_tuning**



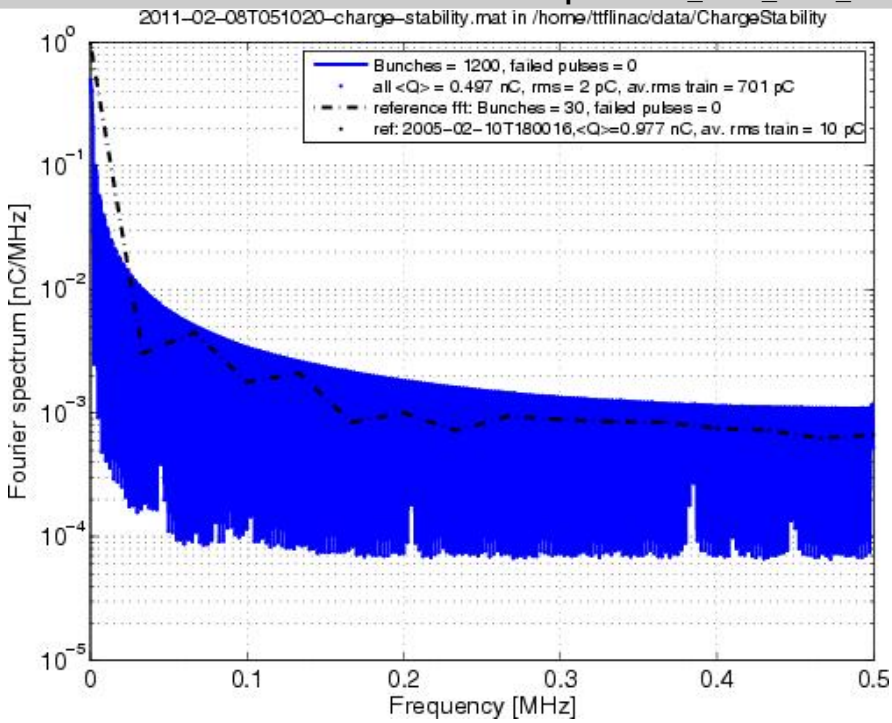
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:11:30-00.JPG

08.02.2011 05:11 ttflinac **ttflinac@:Energyfbm_display**



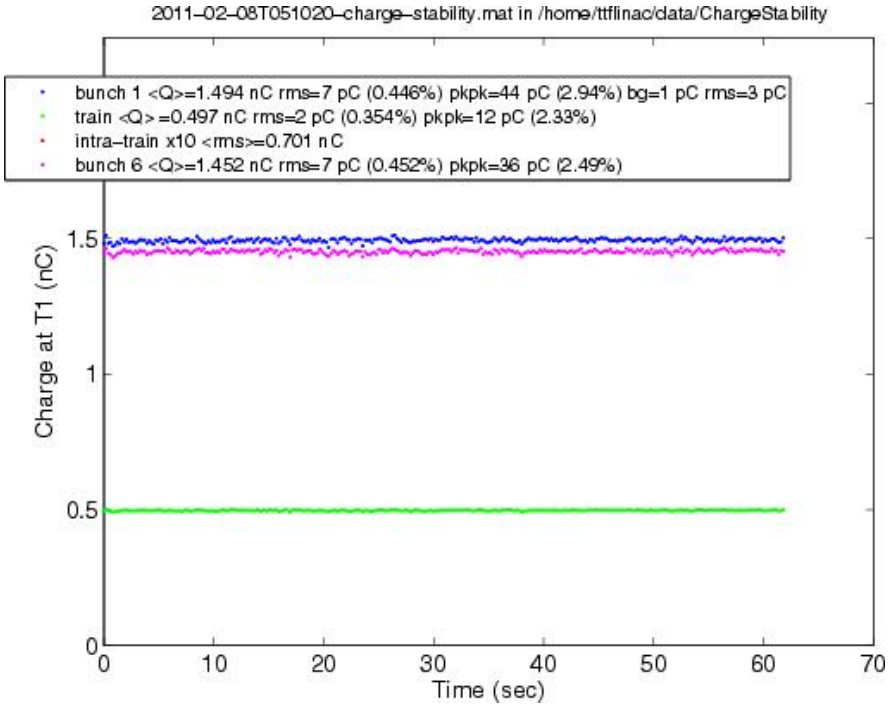
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:11:45-00.JPG

08.02.2011 05:11 ttflinac **tp684a1ff3_c128_4c5c_9d11_776e82469f9e.ps**



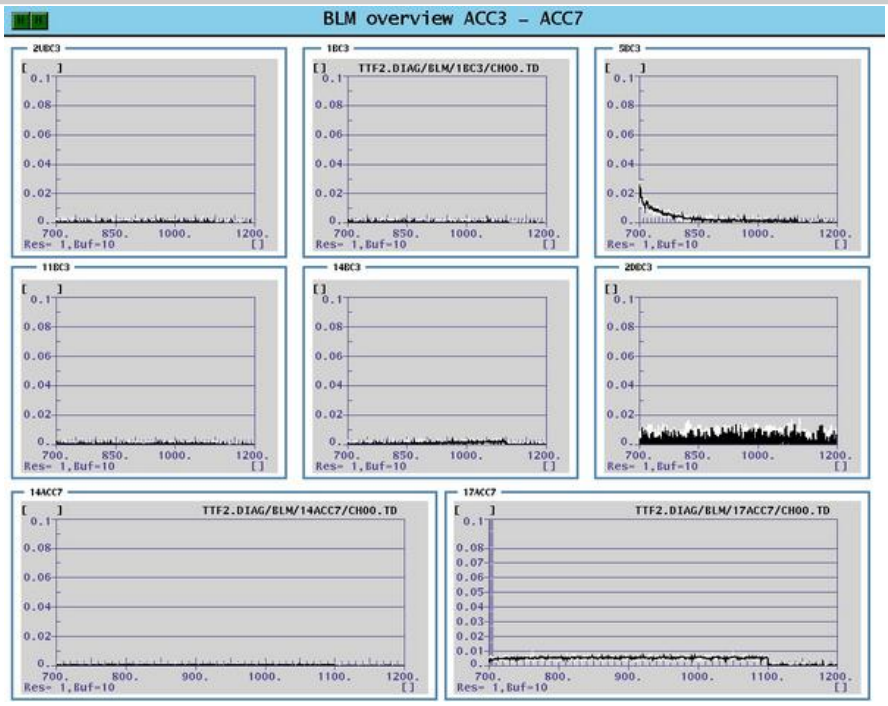
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:11:54-00.ps

08.02.2011 05:12 ttflinac **tpeb069d5e_70a9_49d6_9ea4_a7dddb648152.ps**



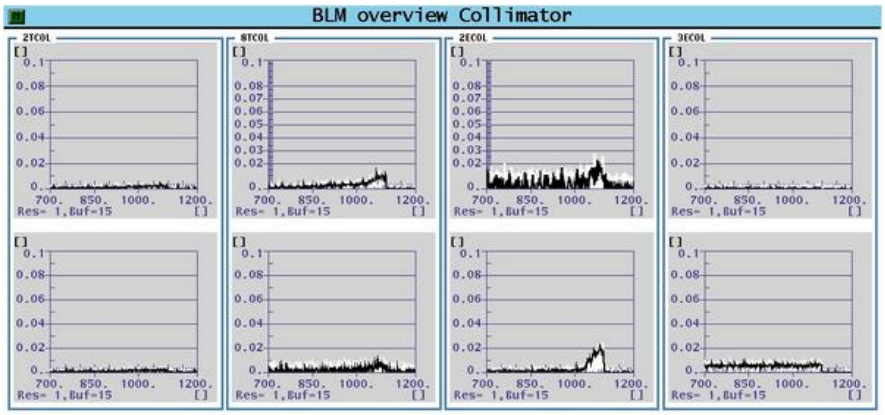
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:12:01-00.ps

08.02.2011 05:14 ttflinac **ttflinac@:BLM_ACC3_ACC7**



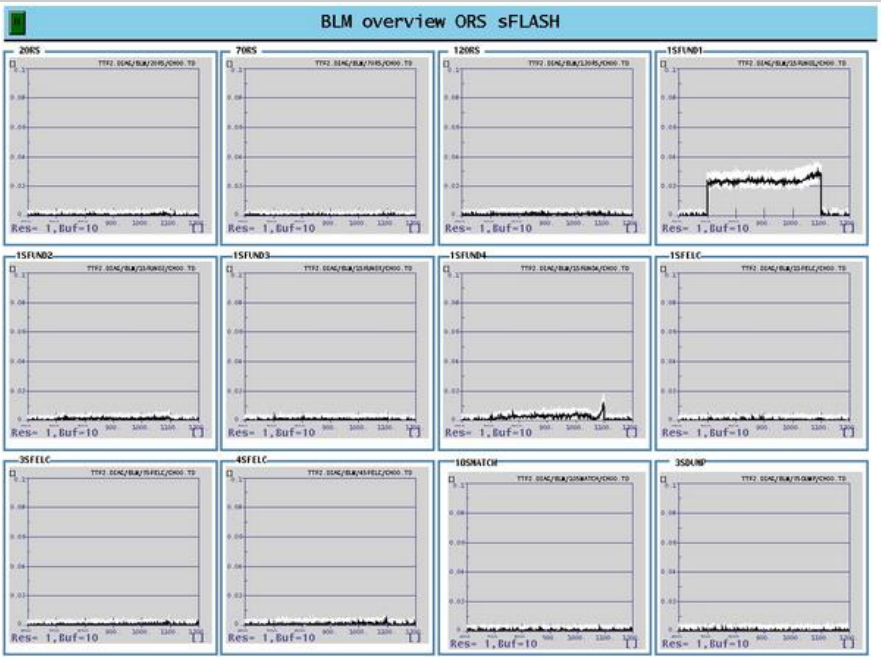
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:19:40-00.JPG

08.02.2011 05:14 klose **End Docu 1.5nC, 1200 bunches, 3MHz, ACC45 250MV, ACC67 281MV**



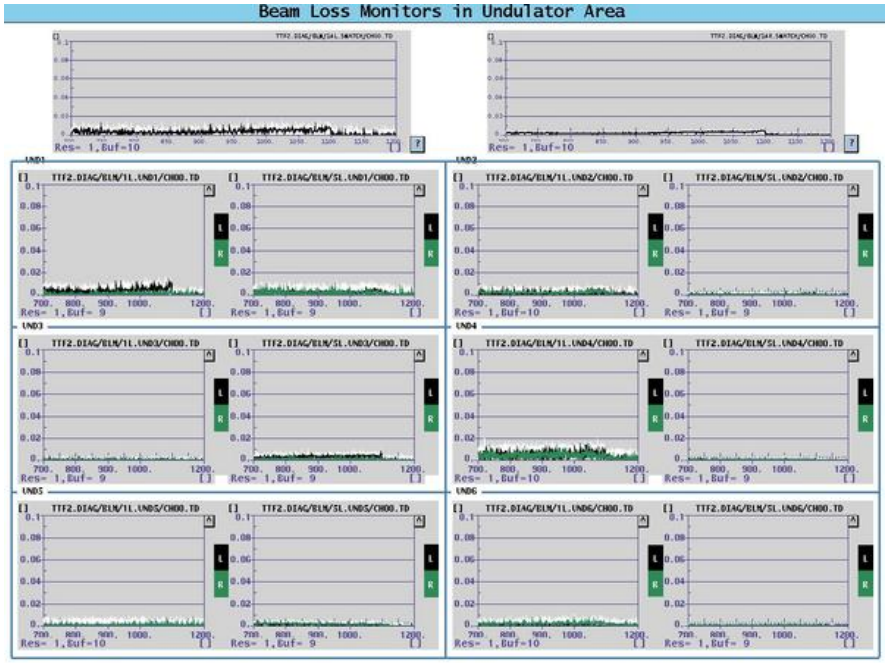
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:19:50-00.JPG

08.02.2011 05:14 ttflinac **ttflinac@:blm_overview_ORS**



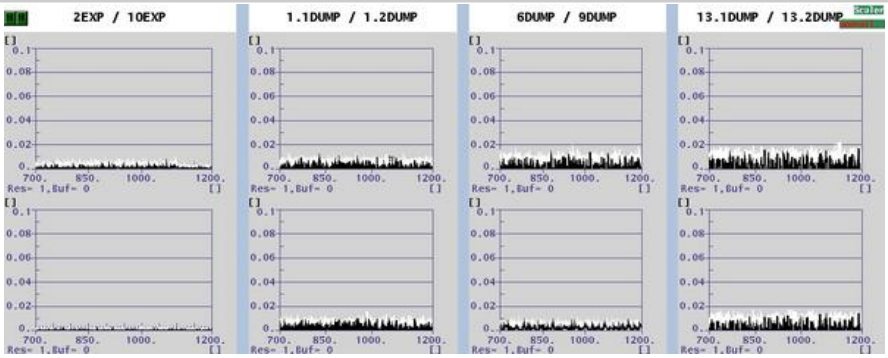
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:19:58-00.JPG

08.02.2011 05:14 ttflinac **ttflinac@:BLM_UNDULATORS**



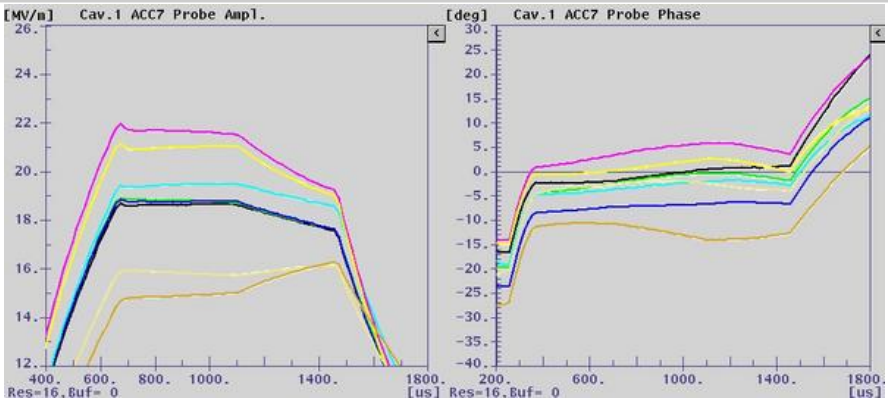
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:20:08-00.JPG

08.02.2011 05:14 ttflinac



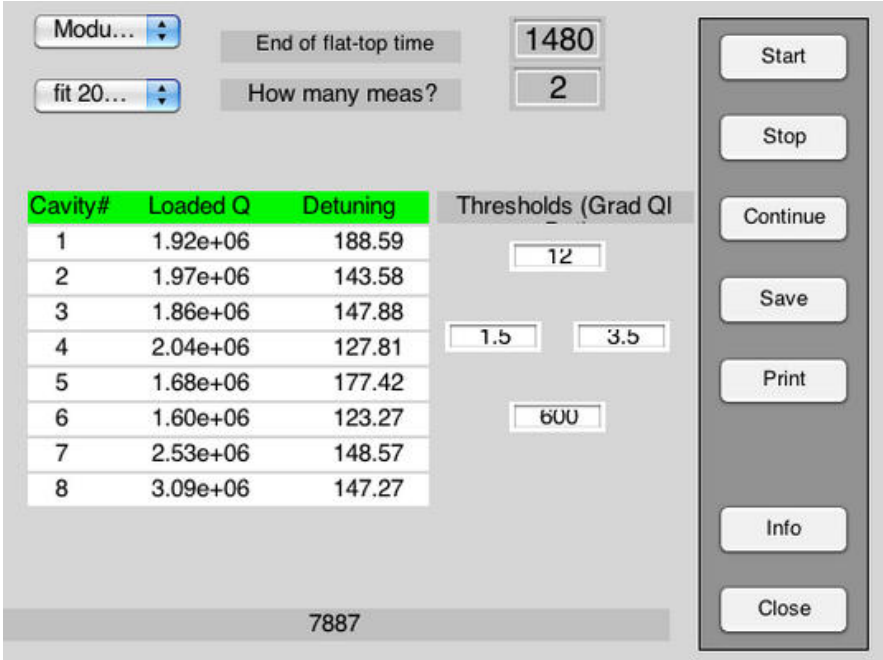
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:20:17-00.JPG

08.02.2011 05:14 ttflinac **ttflinac@:9mA_probe**



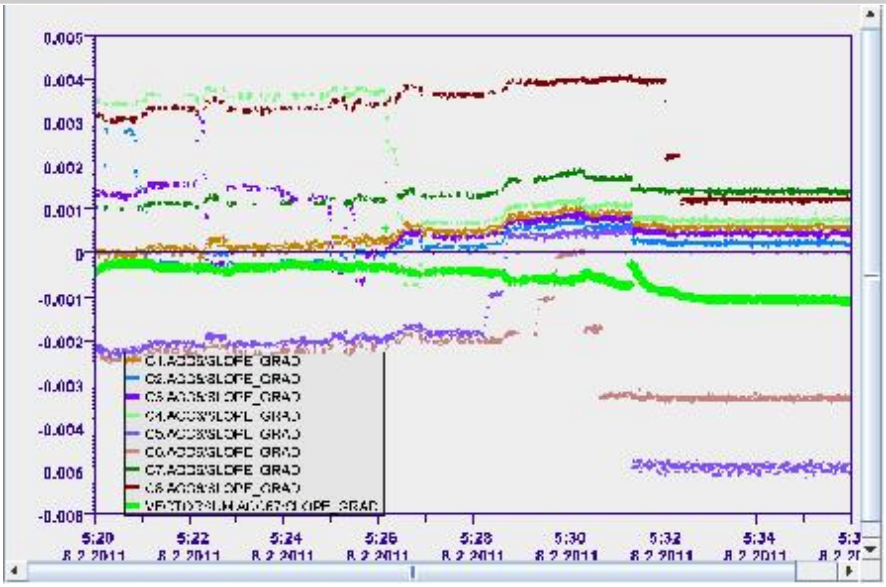
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:14:44-00.JPG

08.02.2011 05:15



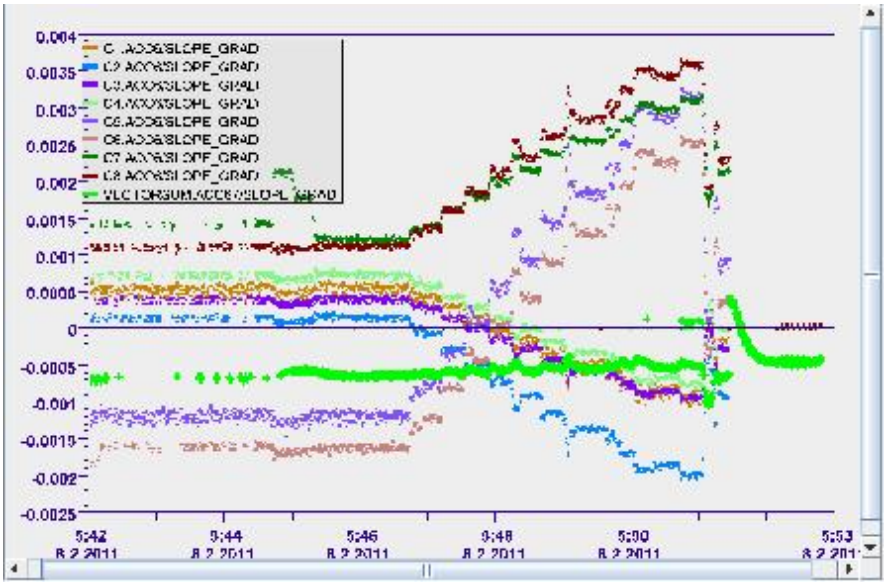
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:15:22-00.png

08.02.2011 05:37 ttflinac **jddd Screenshot**



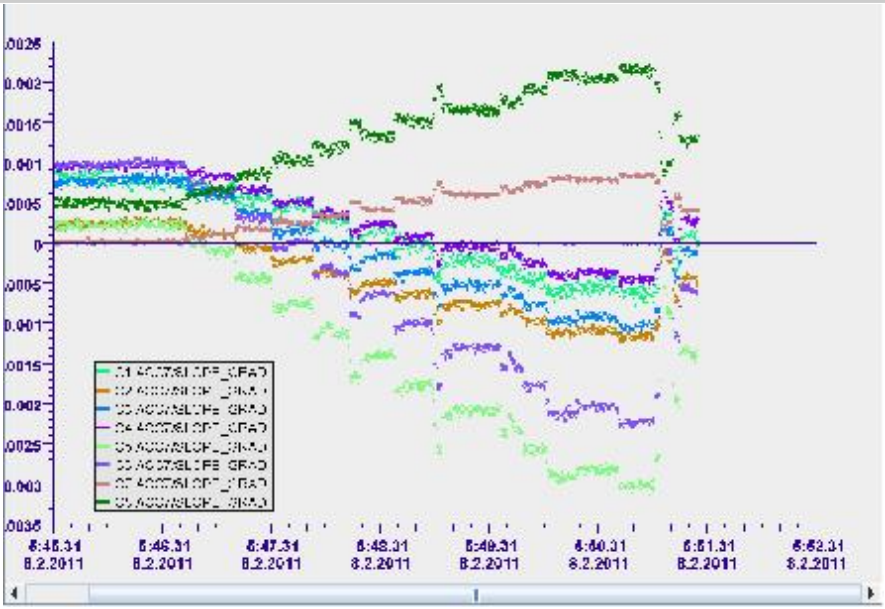
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:37:05-00.ps

08.02.2011 05:53 ttflinac **jddd Screenshot**



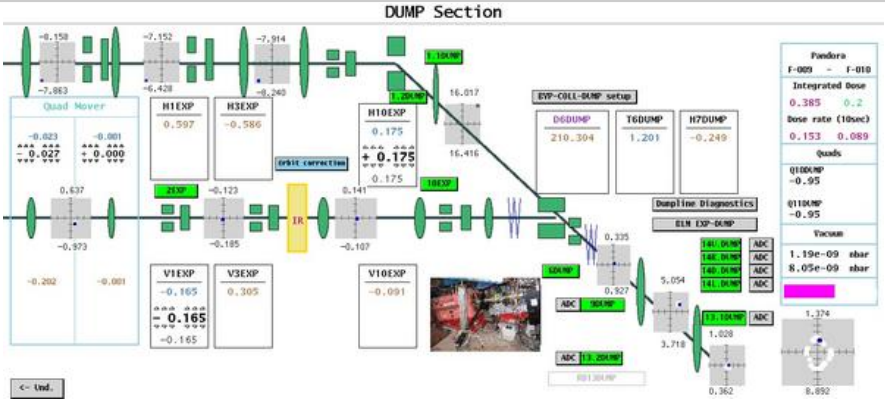
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:53:01-00.ps

08.02.2011 05:53 ttflinac **jddd Screenshot**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T05:53:17-00.ps

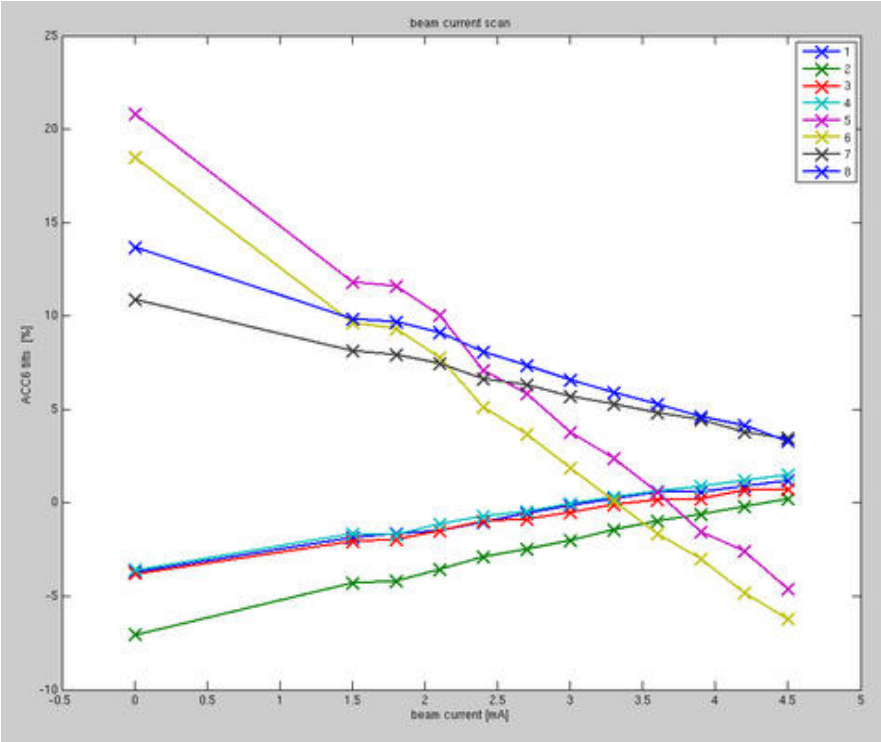
08.02.2011 06:07 ttflinac **ttflinac@:orbit_corr_dump**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:07:08-00.JPG

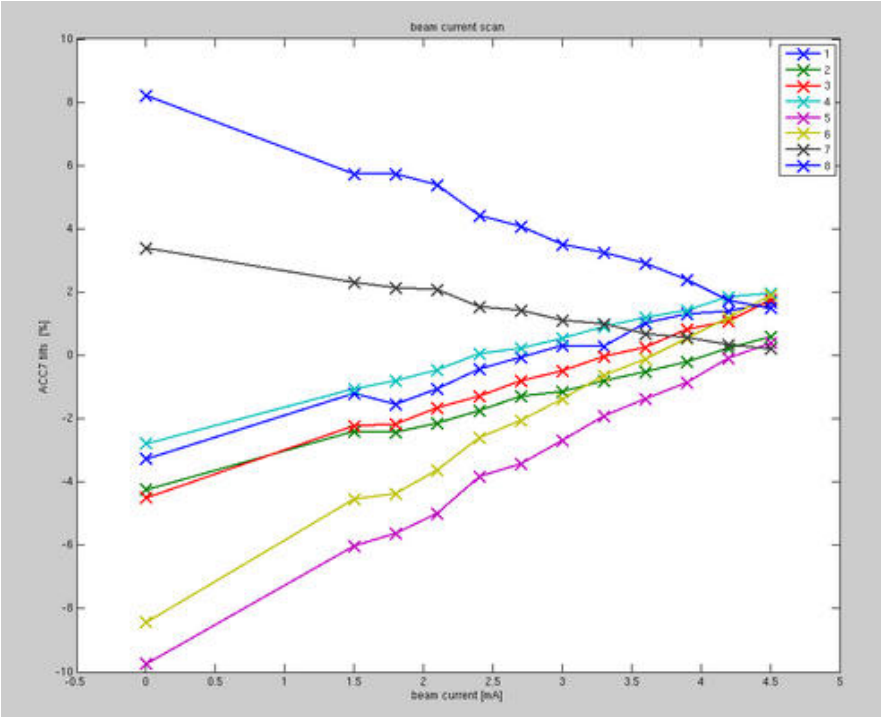
08.02.2011 06:16

beam scan with machine tuned up for 4.5 mA.



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:16:59-00.png

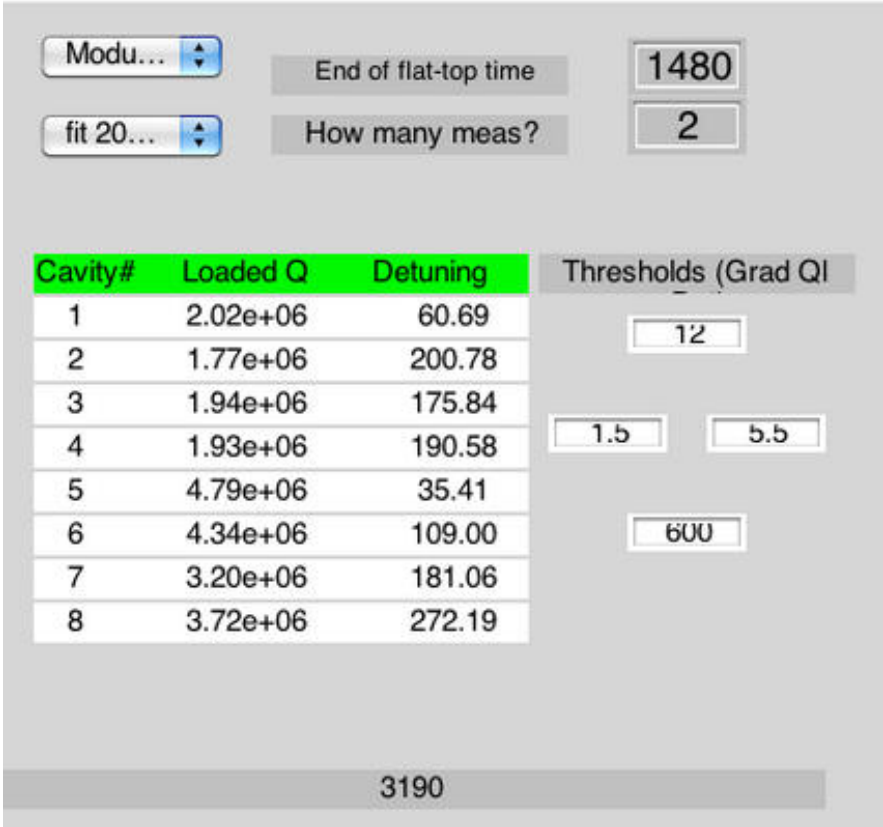
08.02.2011 06:17



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:17:31-01.png

08.02.2011 06:18

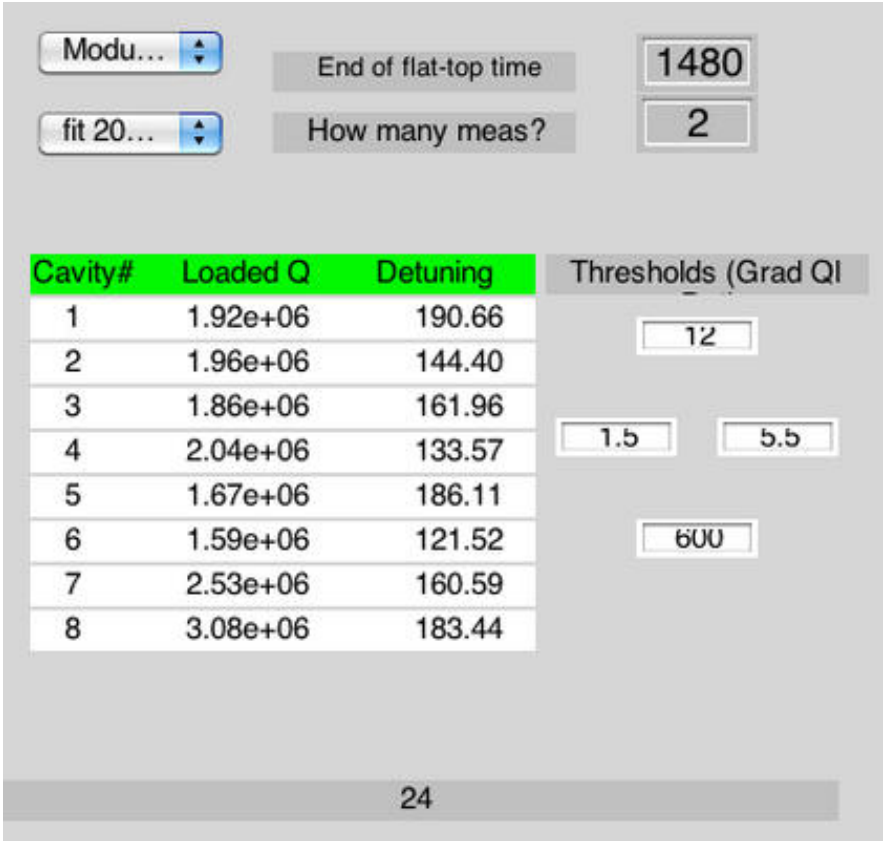
ACC6 settings



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:18:52-00.png

08.02.2011 06:19

ACC7 settings

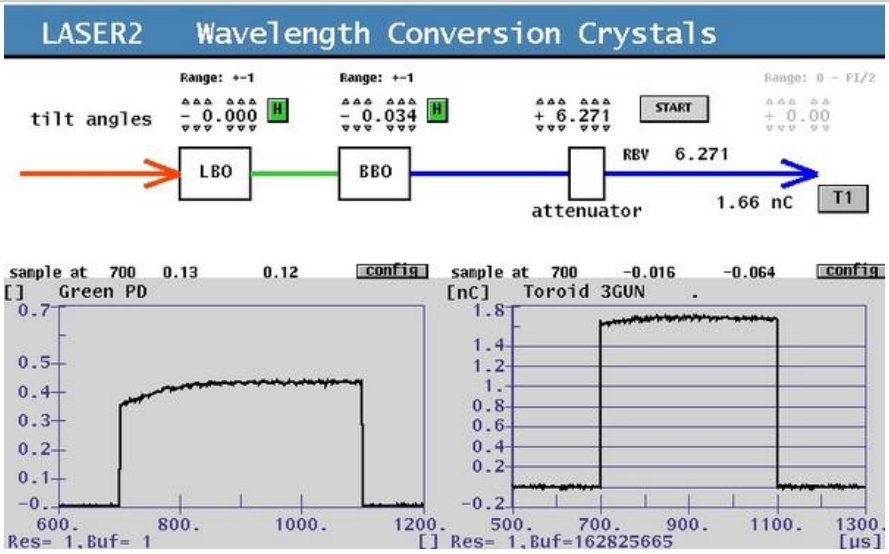


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:19:18-01.png

08.02.2011 06:19

```
Predicted Ql values
ACC6
1. 2.4
2. 2.4
3. 2.4
4. 2.4
5. 4.3
6. 4.4
7. 2.85
8. 2.85
ACC7
1. 2.4
2. 2.4
3. 2.4
4. 2.4
5. 2.1
6. 2.2
7. 2.8
8. 2.9
```

08.02.2011 06:35 ttflinac **ttflinac@:laser_crystal_tuning**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/07.02_n/2011-02-08T06:35:03-00.JPG