? 08.02.2011 15:11 oracle **Shift summary**

08.02.2011 15:12 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 1008.82 MeV / 6.2 nm
Charge:              1.47 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	3.89	163.7	19.0	295.9	250.2	284.1
Phase	-8.20	+2.70	+109.00	+2.00	-8.90	-5.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	7.0	2.7	108.8	2.4	-8.4	-3.6

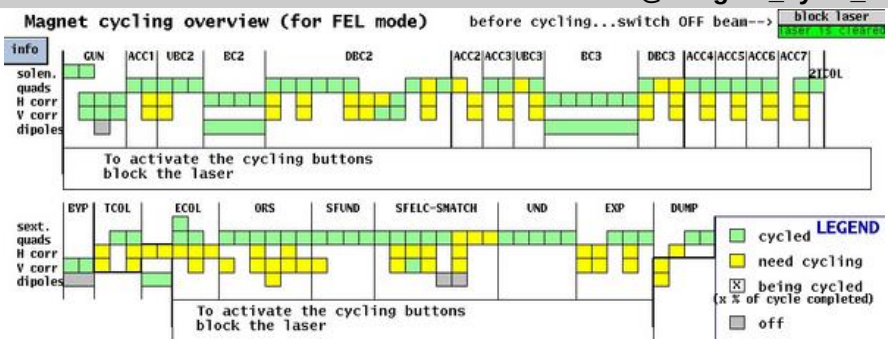
Undulator steerers and aircoils

H7SMATCH	H12SMATCH
+0.054	**-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 15:12 ttflinac **ttflinac@:magnet_cycle_overview_fel**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:12:28-00.JPG

08.02.2011 15:12 ttflinac **Main linac parameters**

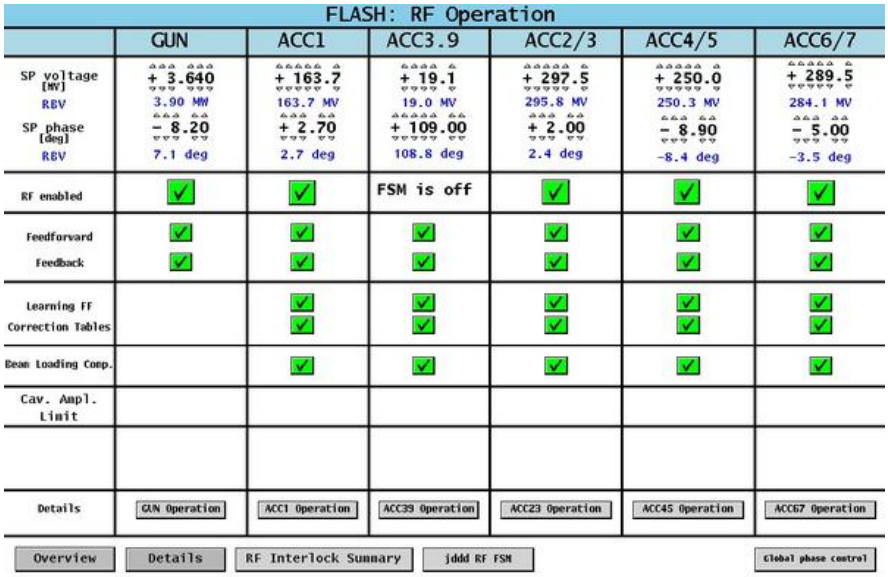
```
shift documentation
Laser
Number of bunches ...... 1200
Bunch frequency ........ 3000 kHz
Macropulse rep'rate .... 5.0 Hz
Pump time_3 ........... 0.0030 ms
Pump current_3 ......... 5.00 V
Pre-amp start time ..... 2.59 ms
Booster start time ..... 2.69 ms
Attenuator SP .......... 5.77
Iris diameter .......... 17248 steps
Iris diameter .......... 2.05 mm

ACC1
Feedforward/Feedback ... on/on

Gun
Feedforward/Feedback ... on/on
FSM .................... on
Pfwd SP ................ 3.64
VS ampl. ............... 18.36
Phase SP ............... -8.20 deg
VS phase ............... 7.29 deg
Pfwd (peak) ............ 3.888 MW
Prefl (peak) ........... 2.831 MW
Pfwd sample point ...... 700
Pfwd (at sample point) . 18.350 MW
Prefl sample point ..... 720
Prefl (at sample point)  5.789 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) ........ 1.48 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
ACC39
Feedforward/Feedback ... on/on
```

```
Feedback gain .......... 2.0                  Feedback gain .......... 8.0
Pfwd SP ............... 163.70               Pfwd SP ............... 19.10
Pfwd RBV .............. 163.65               Phase SP .............. 109.00 deg
Phase SP .............. 2.70 deg             Pfwd C1.ACC39 ......... <error>
Phase RBV ............. 2.76 deg             Flat top .............. 800 us
Pfwd C1.ACC1 .......... 181.9 kW
Pfwd C5.ACC1 .......... 174.9 kW
Flat top .............. 800 us
Dipole BC2 (RBV) ...... 73.11 A
Pyro 9DBC2.1 .......... -0.1801 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 .............. 295.70               Pfwd RBV .............. 250.21
Phase SP .............. 2.00 deg             Phase SP .............. -8.90 deg
Phase RBV ............. 2.51 deg             Phase RBV ............. -8.27 deg
Pfwd C5.ACC2 .......... 132.04 kW             Pfwd C1.ACC4 .......... 115.90 kW
Pfwd C1.ACC3 .......... 227.94 kW             Pfwd C2.ACC5 .......... 98.92 kW
Flat top .............. 450 us               Pfwd C1.ACC6 .......... 0.61 kW
Dipole BC3 (RBV) ...... 56.00 A              Flat top .............. 800 us
Pyro 4DBC3.1 .......... -0.0267 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 ............... 289.50               RF vector sum ALL ...... 683.9 MeV
Pfwd RBV .............. 283.66               Charge 16BYP ........... -0.00 nC
Phase SP .............. -5.00 deg
Phase RBV ............. -3.45 deg
Pfwd C1.ACC6 .......... 186.92 kW
Pfwd C1.ACC7 .......... 210.54 kW
Flat top .............. 800 us
Collimator                                   Undulator
Dipole D1ECOL (RBV) .... 176.89 A            1SFUND1 gap RBV ........ 220.0 mm
Energy dogleg .......... 1008.7 MeV          1SFUND2 gap RBV ........ 220.0 mm
Charge 7ORS ........... 1.52 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) .... 212.20 A            PTO feedback ........... on
Rotator RD13DUMP (RBV) . 9.13 A
Charge 9DUMP ........... 1.39 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 2011-02-08T15_12_01+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-08T151201
```

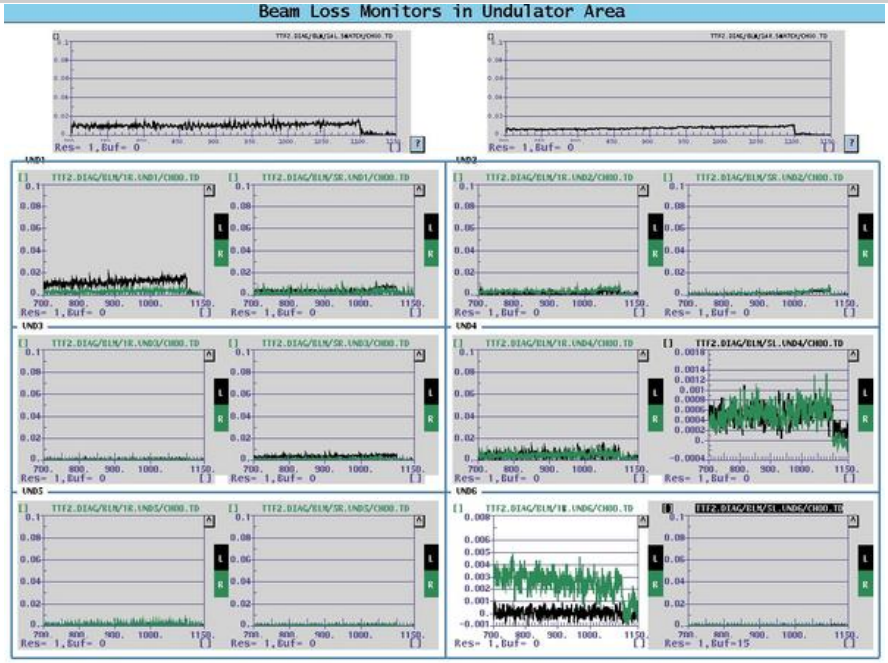
```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110208T151201.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110208T151201.sr
from computer: flashbkr1
```

08.02.2011 15:12 ttflinac **ttflinac@:RF_OPERATION**



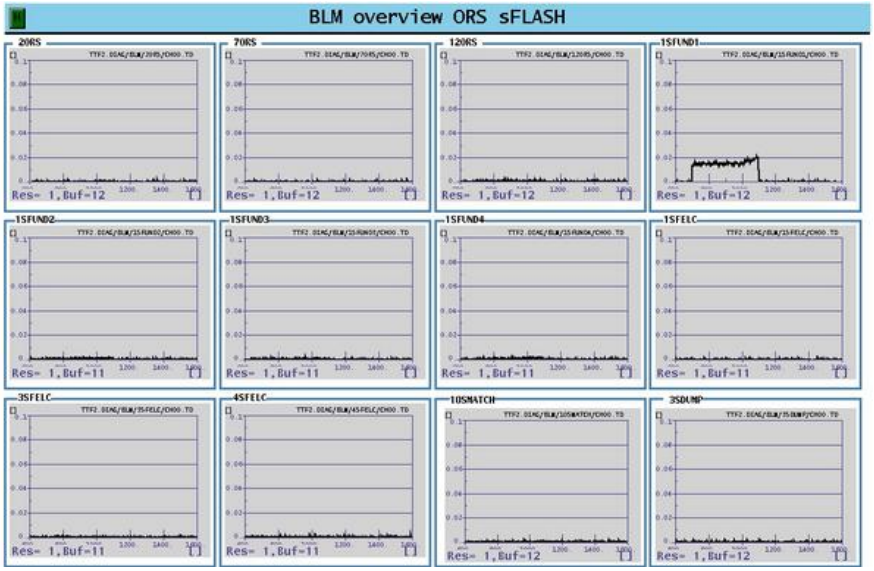
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:12:54-00.JPG

08.02.2011 15:13 ttflinac **ttflinac@:BLM_UNDULATORS**



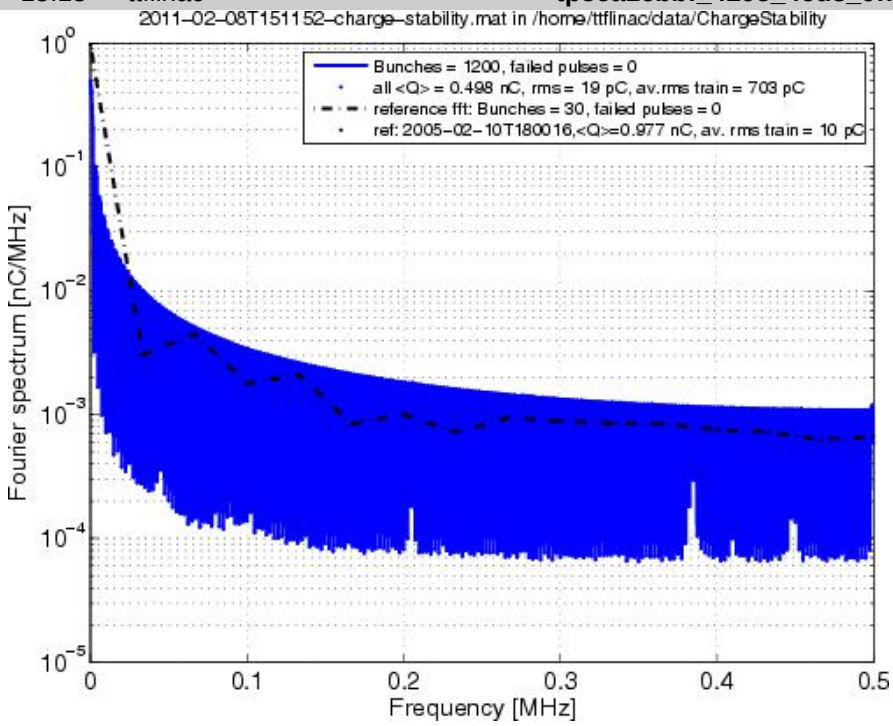
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:13:06-00.JPG

08.02.2011 15:13 ttflinac **ttflinac@:blm_overview_ORS**



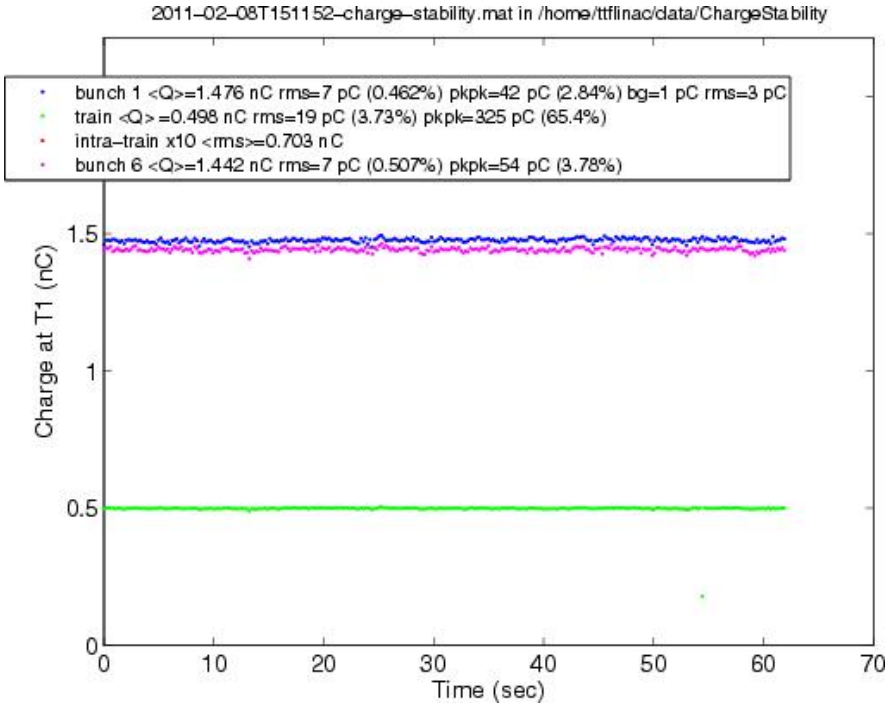
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:13:17-00.JPG

08.02.2011 15:13 ttflinac **tp5ca1ebbf_4295_4cd8_9ff7_3799fcb54544.ps**



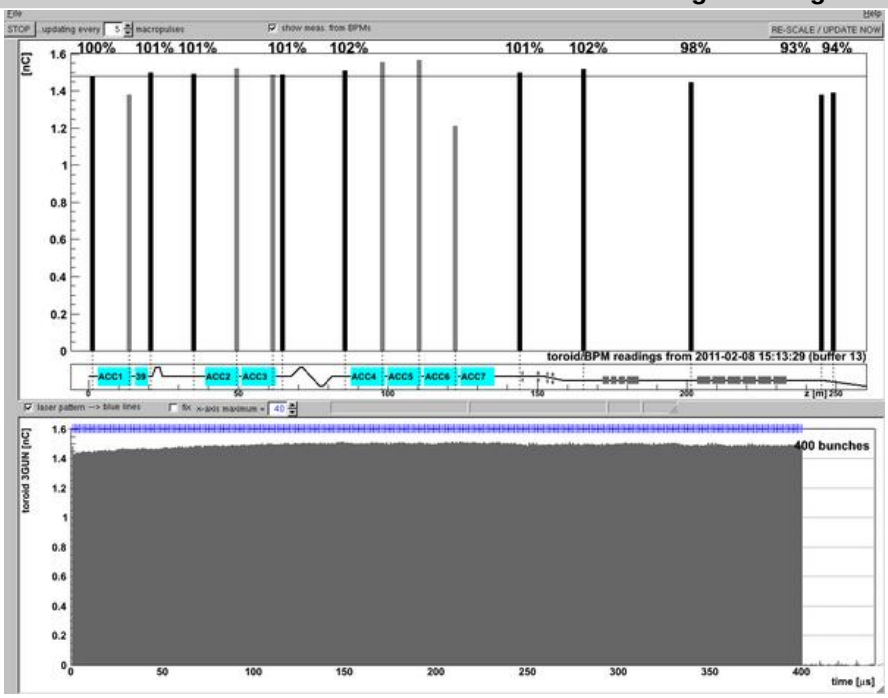
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:13:26-00.ps

08.02.2011 15:13 ttflinac **tp93d98c5e_d32a_4f43_985c_46435c8e4455.ps**



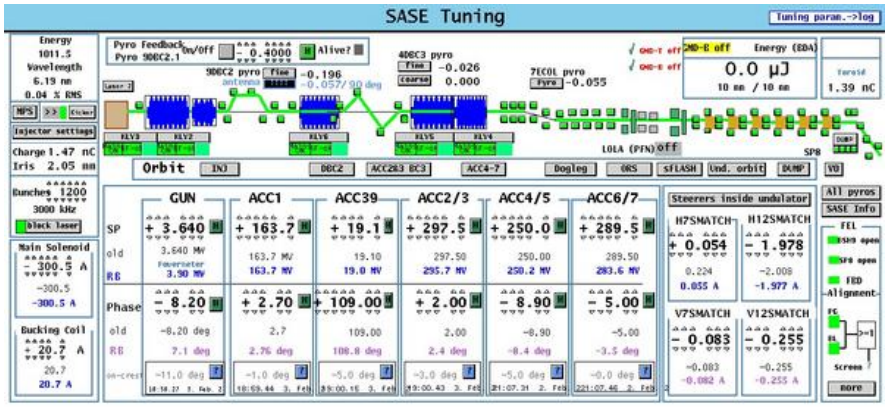
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:13:34-00.ps

08.02.2011 15:13 ttflinac **toroid charge readings**



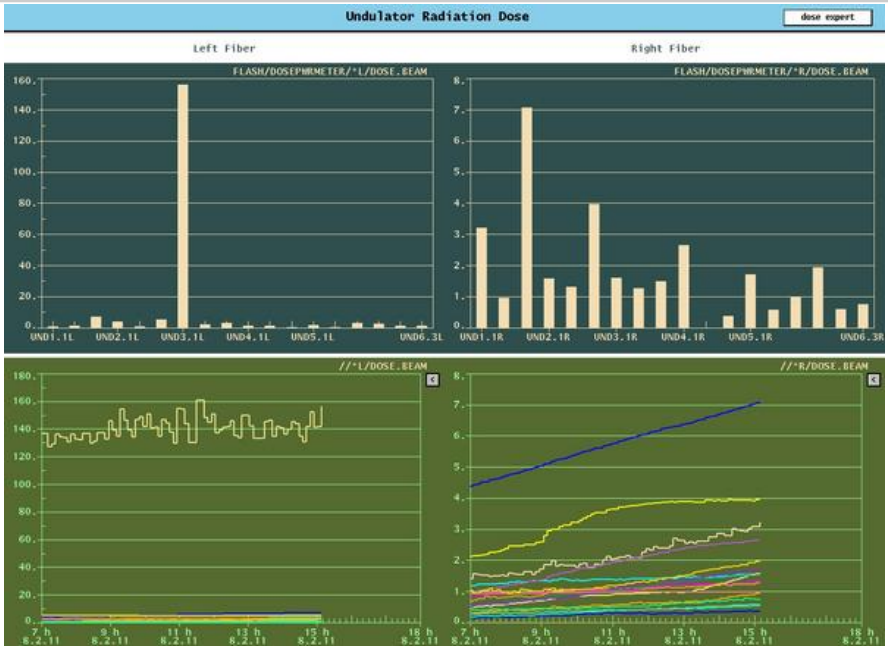
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:13:50-00.ps

08.02.2011 15:14 ttflinac **ttflinac@:SASE_tuning**



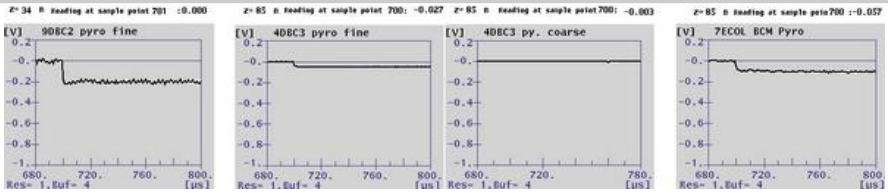
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:14:15-00.JPG

08.02.2011 15:14 ttflinac **ttflinac@:dose_und**



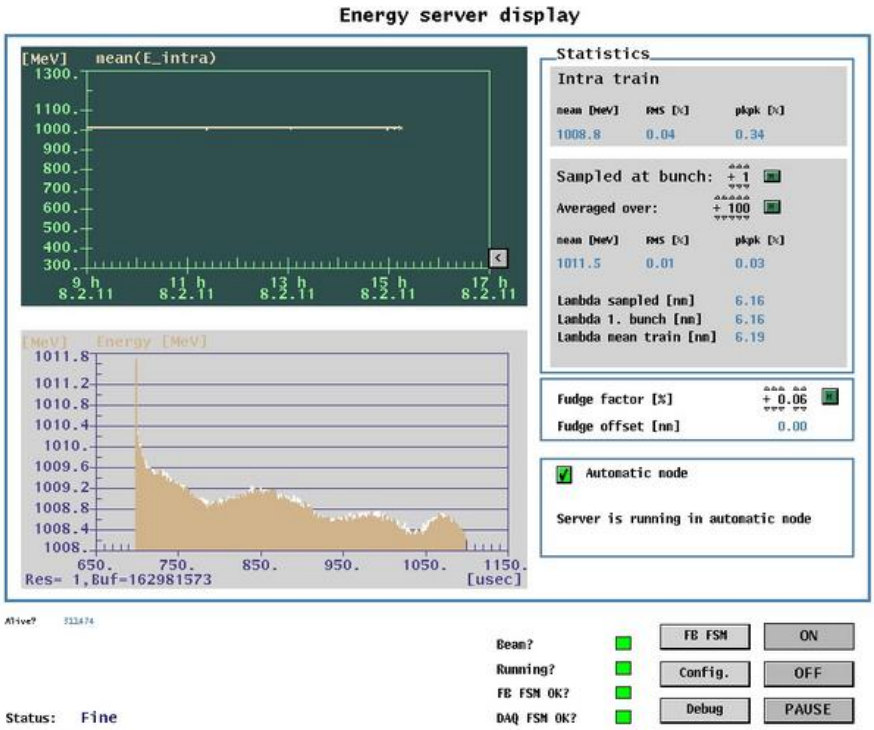
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:14:23-00.JPG

08.02.2011 15:14 ttflinac **ttflinac@:All_BCM**



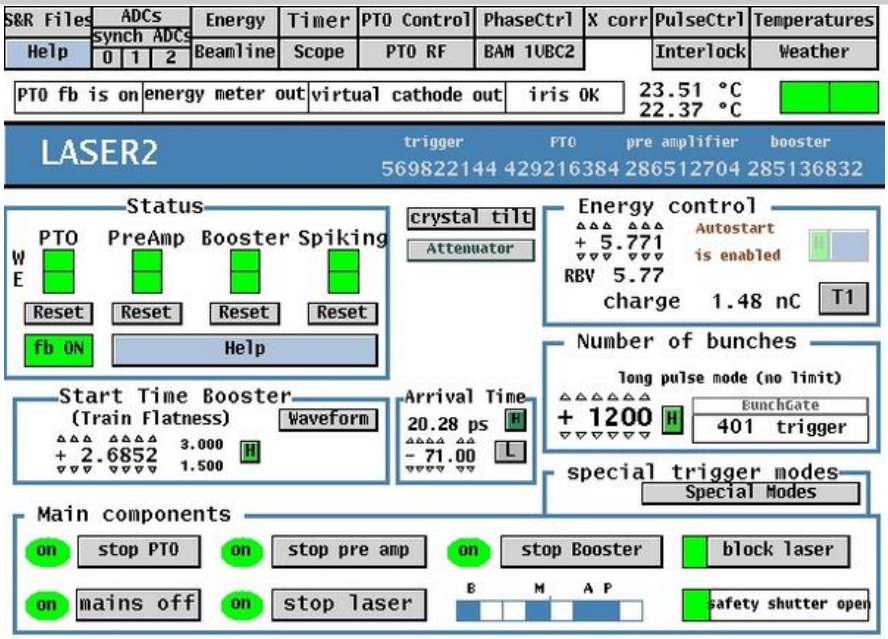
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:14:33-00.JPG

08.02.2011 15:14 ttflinac **ttflinac@:Energyfbm_display**



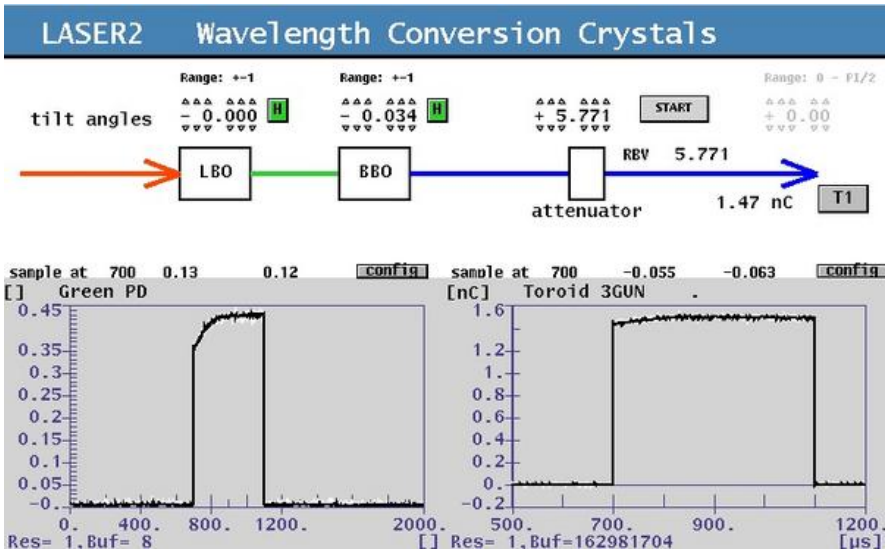
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:14:45-00.JPG

08.02.2011 15:14 ttflinac **ttflinac@:laser2_control**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:14:54-00.JPG

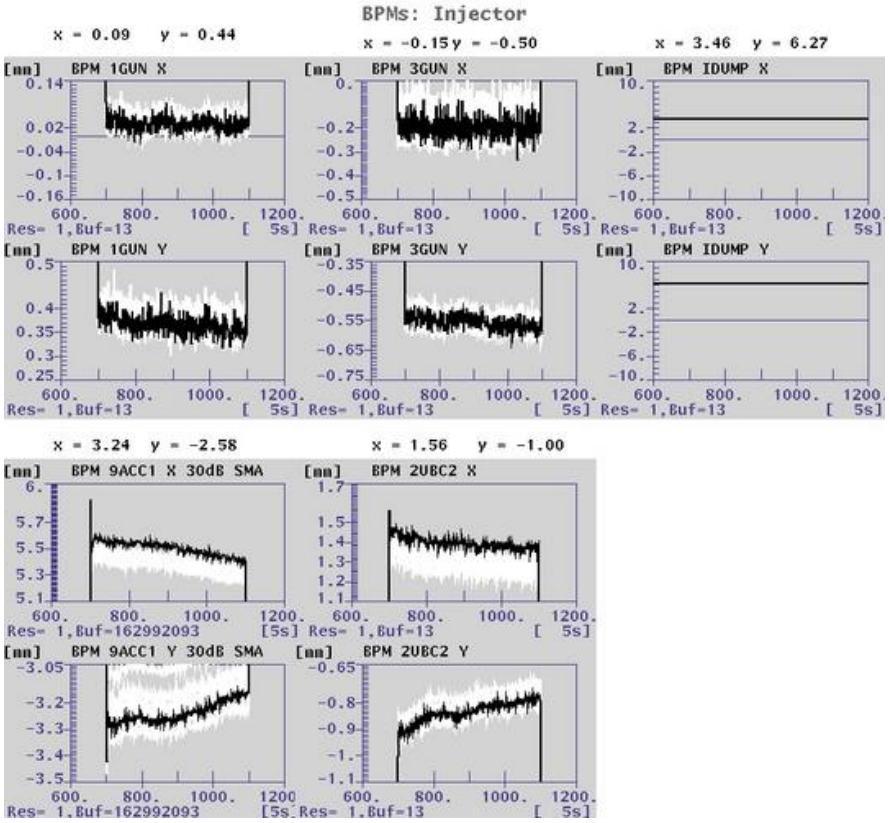
08.02.2011 15:15 ttflinac **ttflinac@:laser_crystal_tuning**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:15:11-00.JPG

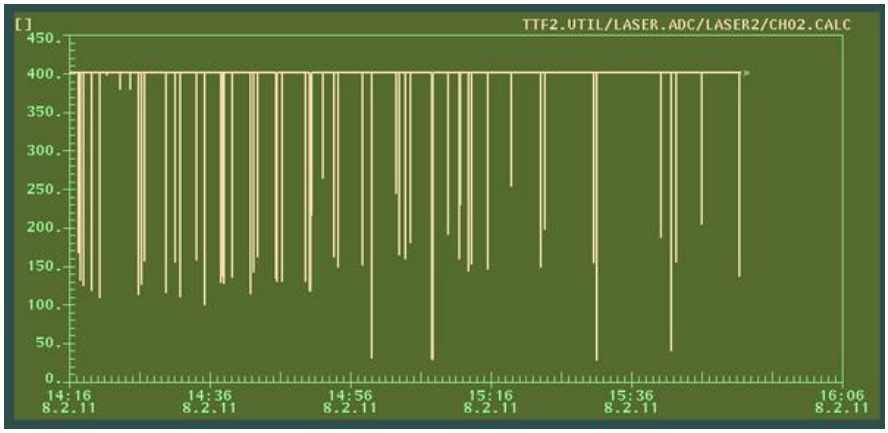
08.02.2011 15:49 Baboi **BPMs before and after ACC1 and ACC39**

Probably the effect on the first few bunches is due to wakes in ACC1 (possibly also ACC39).



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:49:45-00.JPG

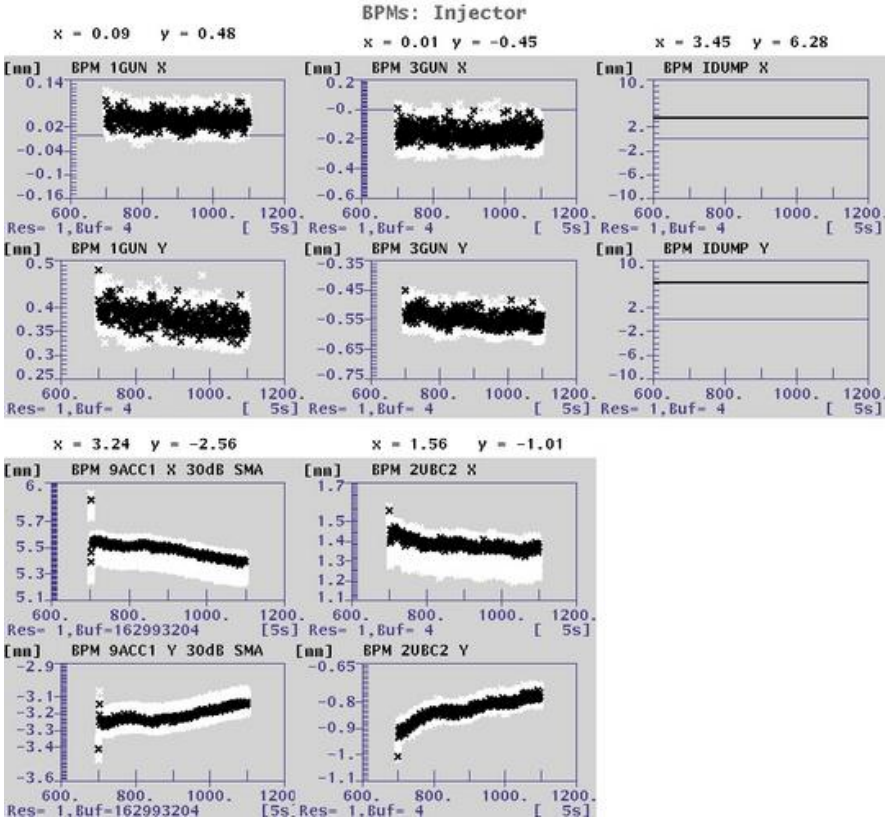
08.02.2011 15:52 ttflinac **ttflinac@flashbkr4.desy.de:Plot_hist**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:52:48-00.JPG

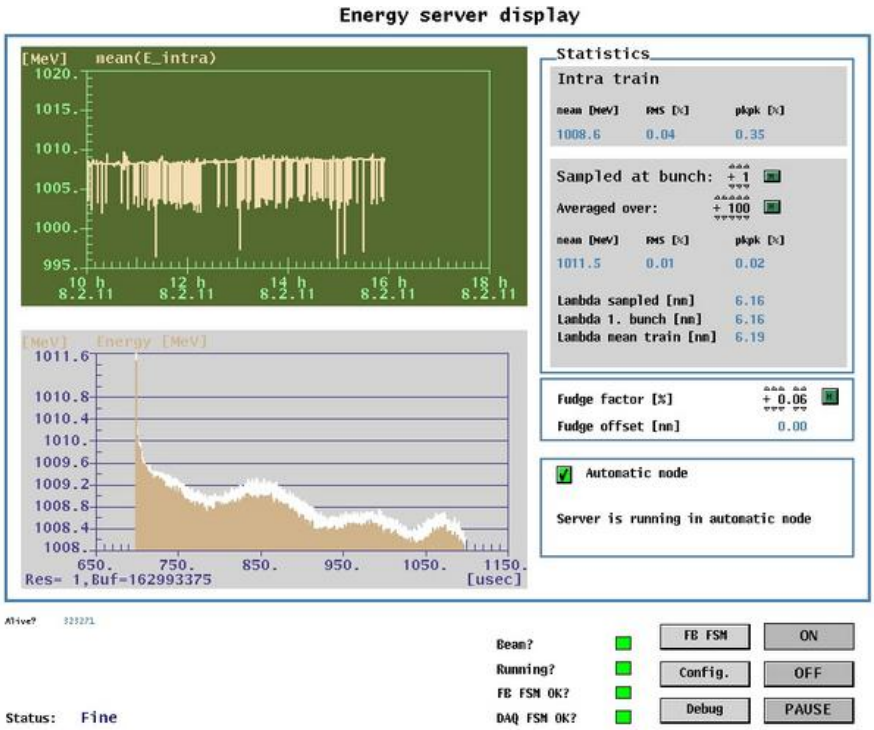
08.02.2011 15:53 Baboi **BPMs before and after ACC1 and ACC39**

similar to
http://ttfinfo.desy.de/TTFelog/show.jsp?dir=/2011/06/08.02_a&pos=2011-02-08T15:49:45



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:53:27-00.JPG

08.02.2011 15:54 ttflinac **ttflinac@flashbkr4.desy.de:Energyfbm_display**

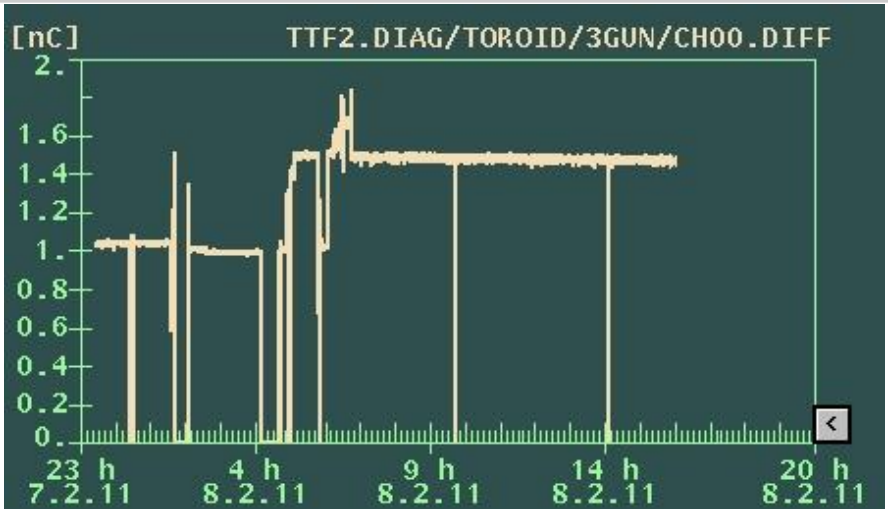


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:54:06-00.JPG

08.02.2011 15:58 R.Treusch **I closed the absorber for the FEL beamline**

in case that causes problems with the 9mA studies, call me at 9-2693

08.02.2011 15:58 ttflinac **ttflinac@:Plot_hist**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T15:58:59-00.JPG

08.02.2011 16:06 ttflinac **Energy scaling of magnet settings**

```
Energy scaling from machine file :
  timestamp: 2011-02-08T15:12:01+01  (ID = 14588)
  author(s):
  comment  : shift documentation
  beam energy (UND)  = 1008.7 MeV
  photon wavelength  = 6.20 nm
  SASE pulse energy  = 0.0 microJ
New file (scaled)  :
  timestamp: 2011-02-08T16:06:04+01
  author(s): vogtm
  comment  :  E=1008.56396 MeV (scaled from E=1008.56396 MeV, file=2011-02-08T15:12:01+01 ,
ID=14588)
  beam energy (UND)  = 1008.6 MeV
```

photon wavelength = 6.19 nm
(all energies in MeV)

Energy at...	prev. file	scaled file	change	change(%)
E(BC3)	450.0	450.0	0	0
E(9ACC4)	577.2	538.3	-38.9	-6.7%
E(9ACC5)	712.1	632.0	-80.1	-11.2%
E(9ACC6)	845.6	801.6	-44.0	-5.2%
E(UND)	1008.6	1008.6	0.0	0.0%

Energy gain	prev. file	scaled file	change
Egain(ACC45)	262.1	182.0	-80.1
Egain(ACC67)	296.5	376.6	80.1

from computer: flashbkr3.desy.de

08.02.2011 16:08 ttflinac **Energy scaling of magnet settings**

Energy scaling from machine file :
timestamp: 2011-02-08T15:12:01+01 (ID = 14588)
author(s):
comment : shift documentation
beam energy (UND) = 1008.7 MeV
photon wavelength = 6.20 nm
SASE pulse energy = 0.0 microJ
New file (scaled) :
timestamp: 2011-02-08T16:08:37+01
author(s): vogtm
comment : E=1008.56396 MeV (scaled from E=1008.56396 MeV, file=2011-02-08T15:12:01+01 , ID=14588)
beam energy (UND) = 1008.6 MeV
photon wavelength = 6.19 nm
(all energies in MeV)

Energy at...	prev. file	scaled file	change	change(%)
E(BC3)	450.0	450.0	0	0
E(9ACC4)	577.2	543.2	-34.0	-5.9%
E(9ACC5)	712.1	642.0	-70.1	-9.8%
E(9ACC6)	845.6	807.1	-38.5	-4.6%
E(UND)	1008.6	1008.6	0.0	0.0%

Energy gain	prev. file	scaled file	change
Egain(ACC45)	262.1	192.0	-70.1
Egain(ACC67)	296.5	366.6	70.1

from computer: flashbkr3.desy.de

08.02.2011 16:11 ttflinac **Energy scaling of magnet settings**

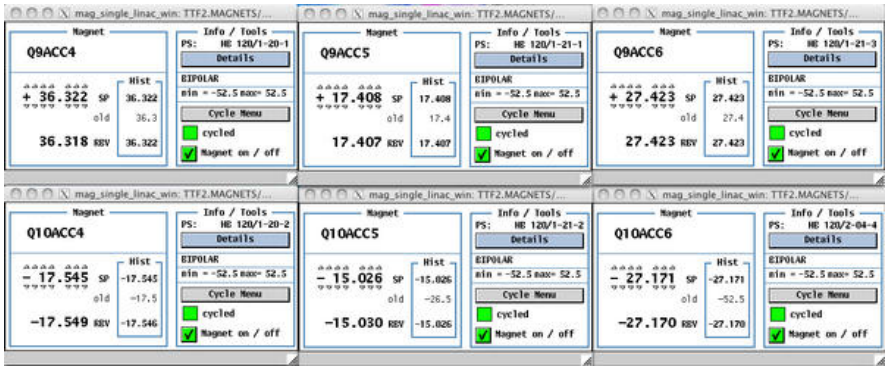
Energy scaling from machine file :
timestamp: 2011-02-08T15:12:01+01 (ID = 14588)
author(s):
comment : shift documentation
beam energy (UND) = 1008.7 MeV
photon wavelength = 6.20 nm
SASE pulse energy = 0.0 microJ
New file (scaled) :
timestamp: 2011-02-08T16:11:17+01
author(s): vogtm
comment : E=1008.56396 MeV (scaled from E=1008.56396 MeV, file=2011-02-08T15:12:01+01 , ID=14588)
beam energy (UND) = 1008.6 MeV
photon wavelength = 6.19 nm
(all energies in MeV)

Energy at...	prev. file	scaled file	change	change(%)
E(BC3)	450.0	450.0	0	0
E(9ACC4)	577.2	548.0	-29.2	-5.1%
E(9ACC5)	712.1	652.0	-60.1	-8.4%
E(9ACC6)	845.6	812.6	-33.0	-3.9%
E(UND)	1008.6	1008.6	0.0	0.0%

Energy gain	prev. file	scaled file	change
Egain(ACC45)	262.1	202.0	-60.1
Egain(ACC67)	296.5	356.6	60.1

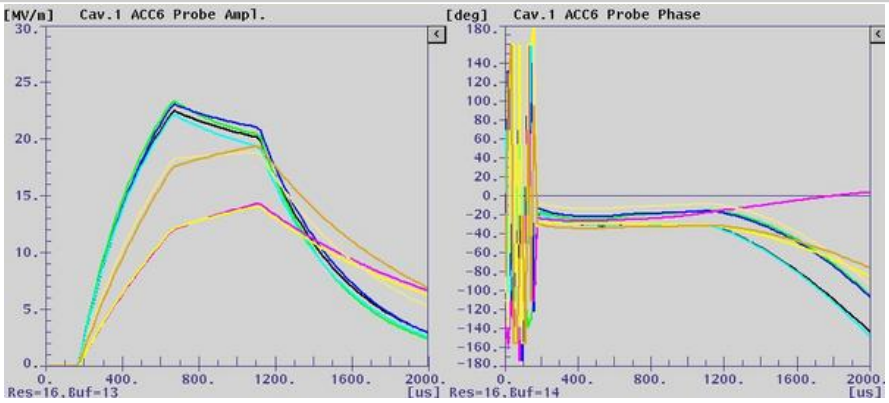
from computer: flashbkr3.desy.de

08.02.2011 16:28 **going for ACC67 +80MeV**



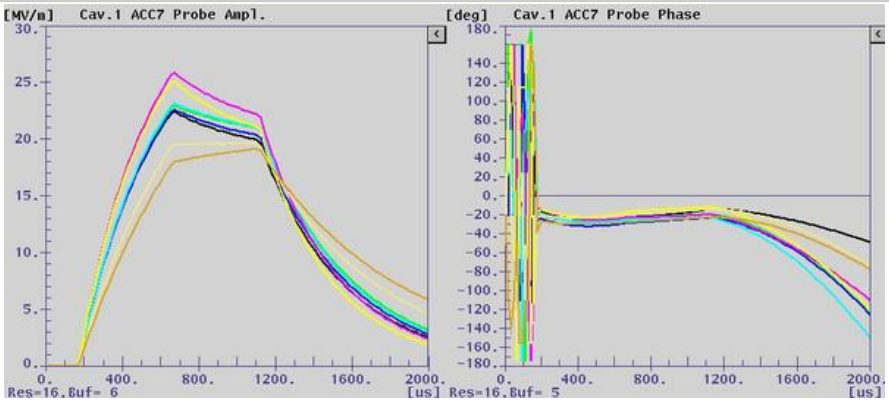
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T16:28:03-00.png

08.02.2011 18:00 ttflinac **ttflinac@ttfbkr6:9mA_probe**



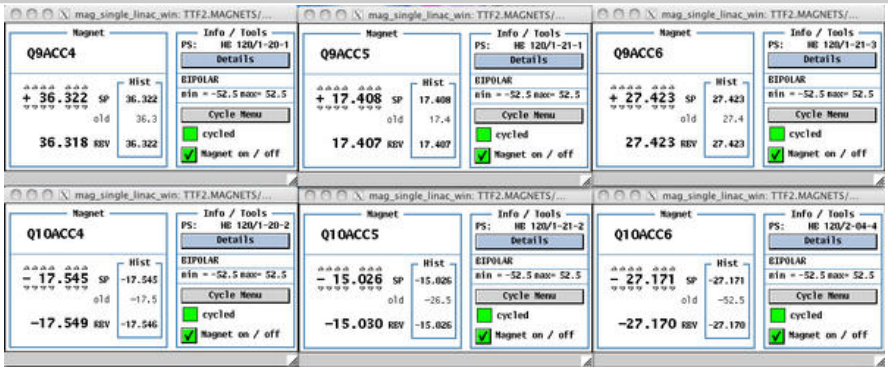
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:00:10-00.JPG

08.02.2011 18:00 ttflinac **ttflinac@ttfbkr6:9mA_probe**



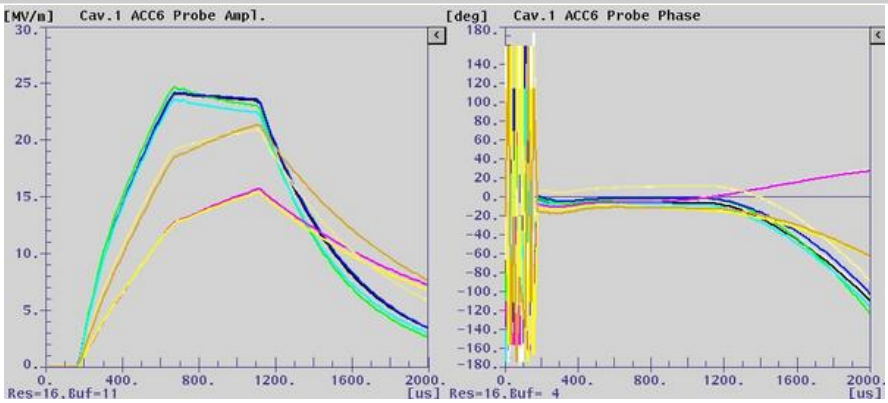
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:00:17-00.JPG

08.02.2011 18:11 Grecki, vogtm **after 2 h of tuning the cavities we give up and step back to ACC67 +80MeV**



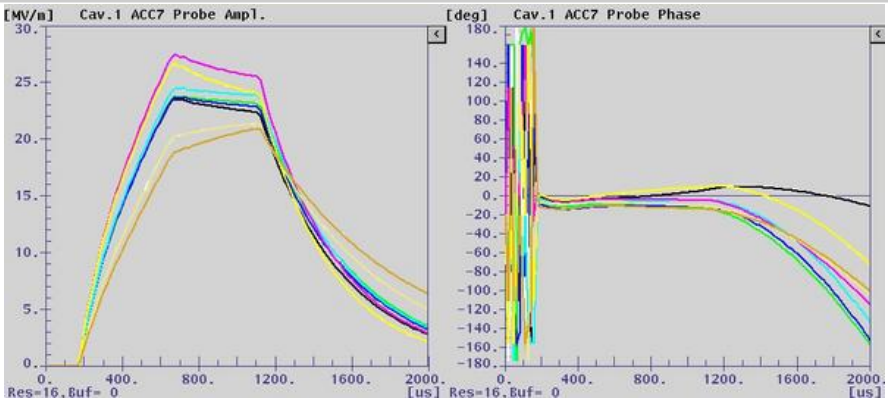
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:11:50-01.png

08.02.2011 18:15 ttflinac **ACC6 after tuning**



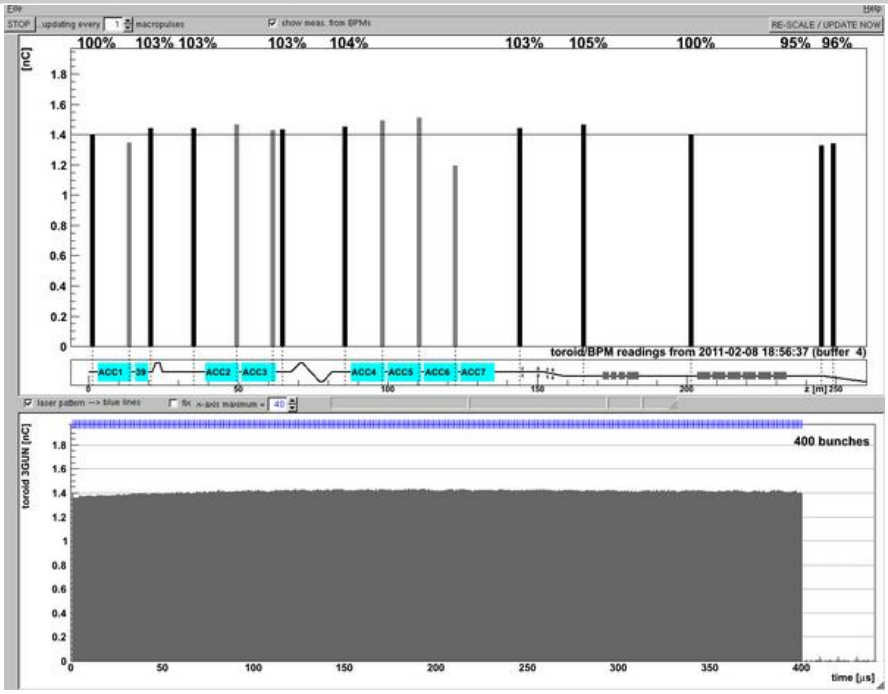
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:15:31-00.JPG

08.02.2011 18:15 ttflinac **ACC7 after tuning**



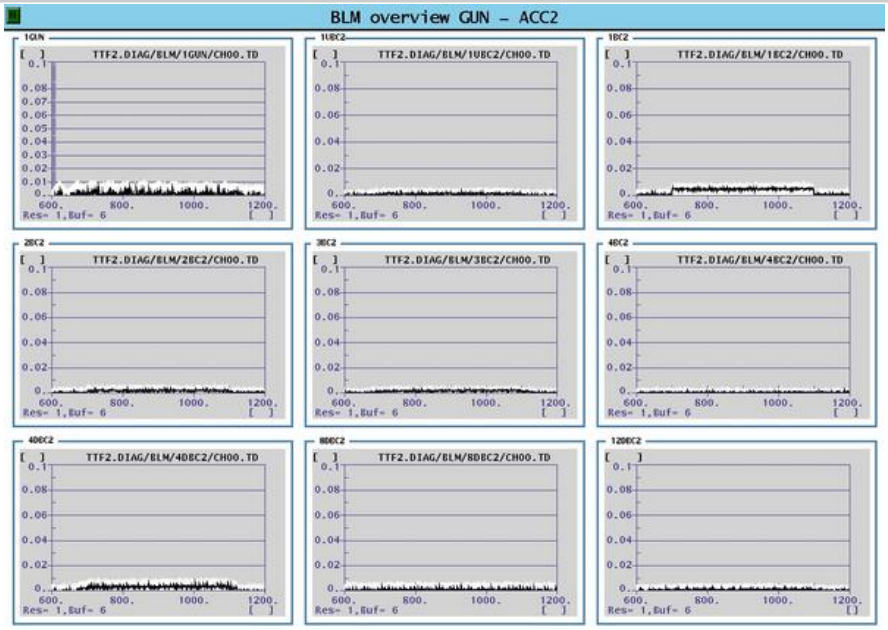
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:15:40-00.JPG

08.02.2011 18:56 ttflinac **toroid charge readings**



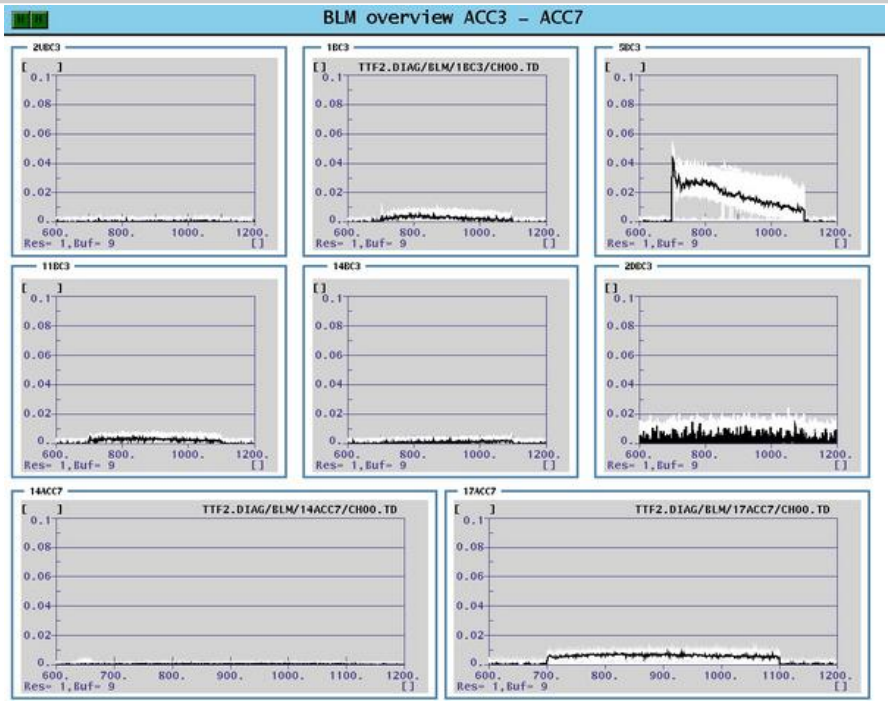
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:56:55-00.ps

08.02.2011 18:57 ttflinac **ttflinac@:blm_overview_from_GUN_to_ACC2**



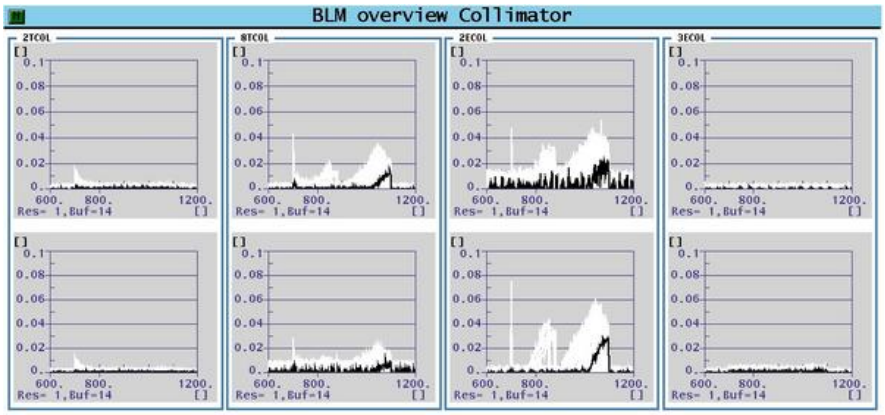
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:57:20-00.JPG

08.02.2011 18:57 ttflinac **ttflinac@:BLM_ACC3_ACC7**



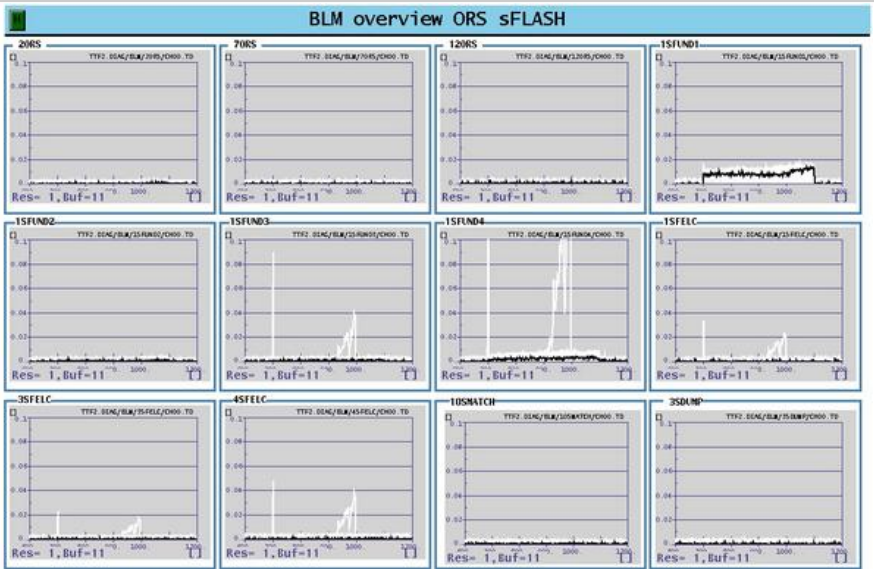
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:57:30-00.JPG

08.02.2011 18:57 ttflinac **ttflinac@:blm_overview_COL**



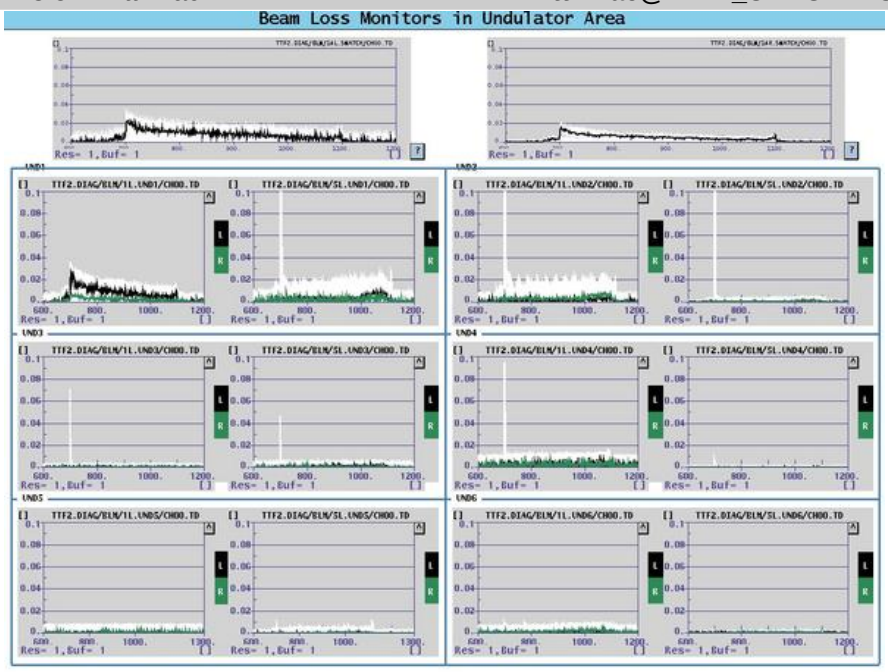
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:57:39-00.JPG

08.02.2011 18:57 ttflinac **ttflinac@:blm_overview_ORS**



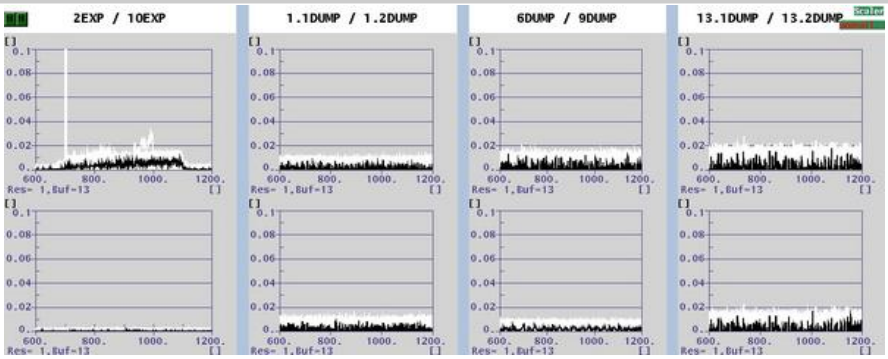
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:57:47-00.JPG

08.02.2011 18:57 ttflinac **ttflinac@:BLM_UNDULATORS**



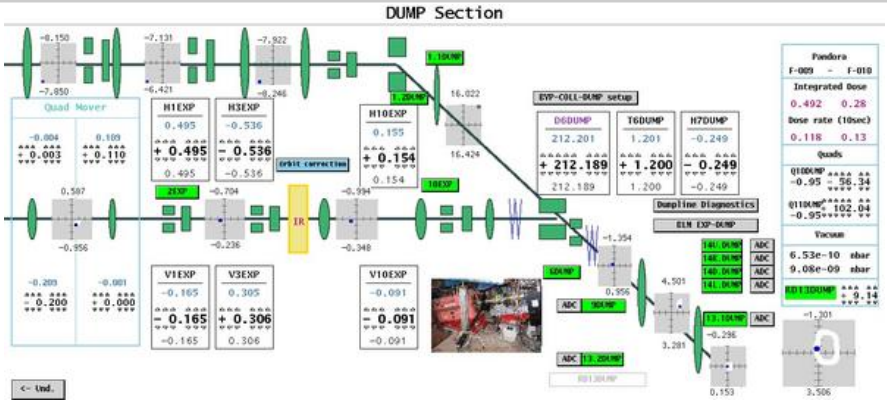
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:57:56-00.JPG

08.02.2011 18:58 ttflinac **ttflinac@:blm_overview_Exp_DUMP**



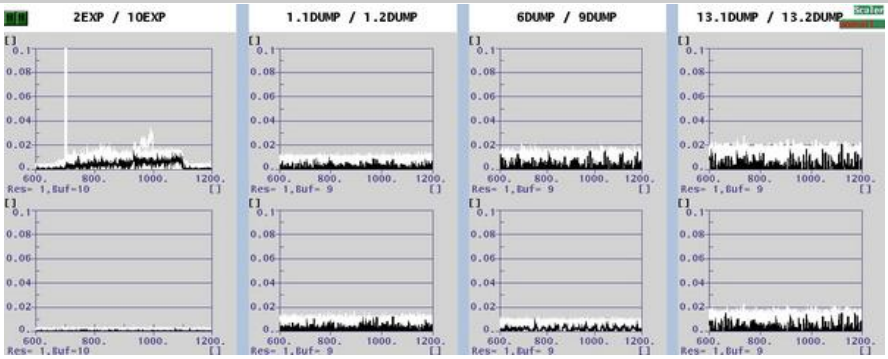
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:58:05-00.JPG

08.02.2011 18:58 ttflinac **ttflinac@:orbit_corr_dump**



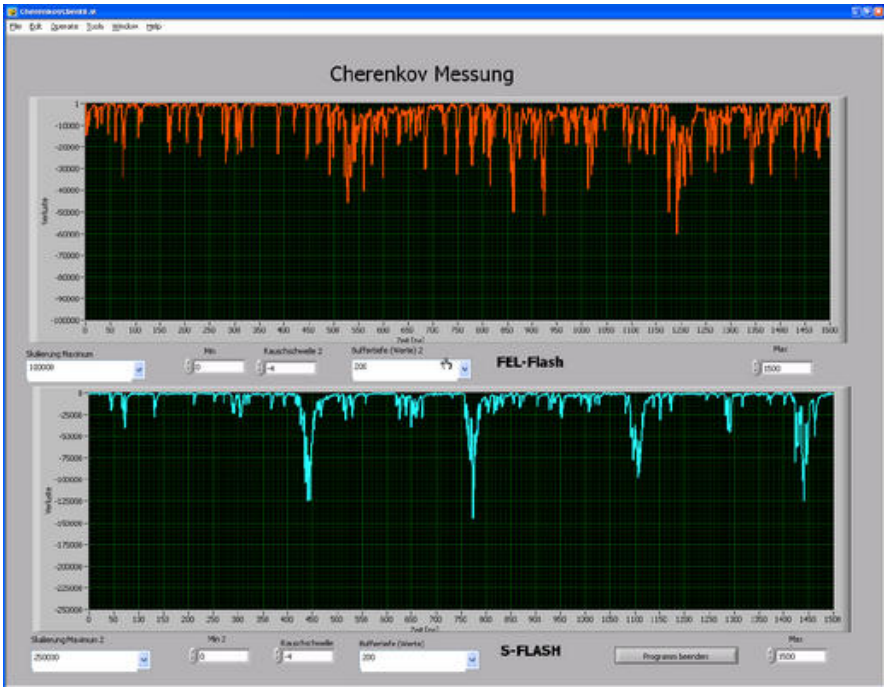
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:58:27-00.JPG

08.02.2011 18:58 ttflinac **ttflinac@:blm_overview_Exp_DUMP**



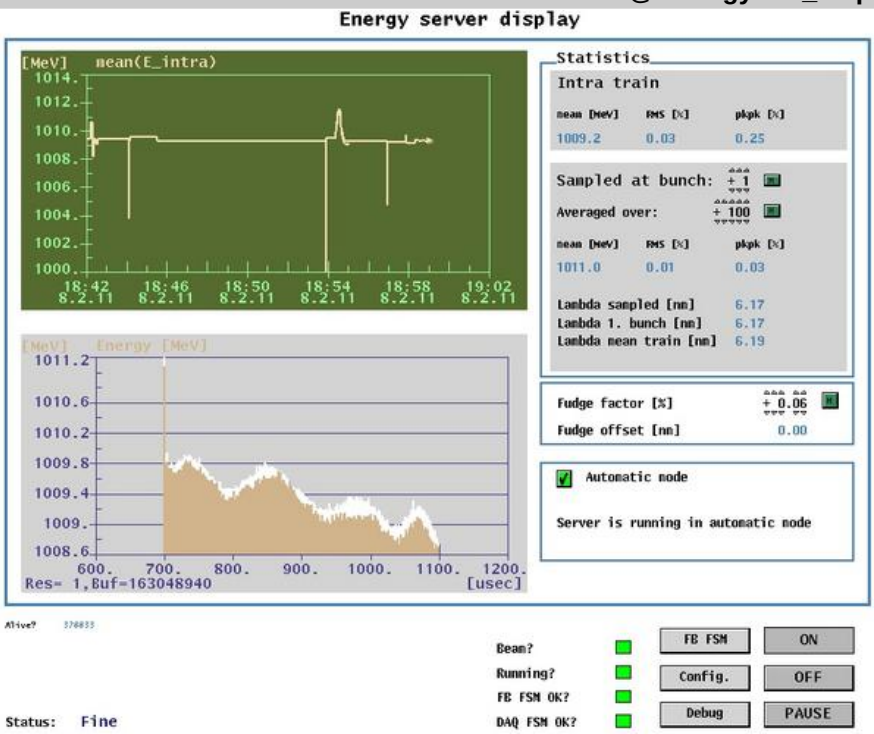
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:58:35-00.JPG

08.02.2011 18:58 ttflinac



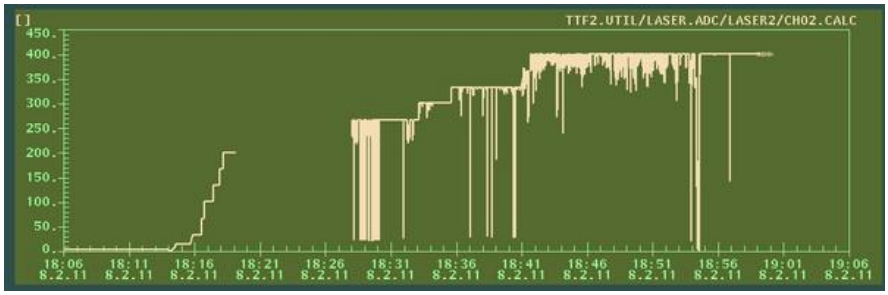
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:58:39-01.png

08.02.2011 18:59 ttflinac **ttflinac@:Energyfbm_display**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T18:59:25-00.JPG

08.02.2011 19:00 ttflinac **ttflinac@:Plot_hist**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:00:33-00.JPG

08.02.2011 19:00 ttflinac

Main linac parameters

1200 bunches 1.4nC 360MeV in ACC67

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 5.77
Iris diameter ..... 17248 steps
Iris diameter ..... 2.05 mm

Gun

Feedforward/Feedback ... on/on
FSM ..... on
Pfwd SP 3.64
VS ampl. 18.33
Phase SP ..... -6.30 deg
VS phase ..... 9.03 deg
Pfwd (peak) ..... 3.860 MW
Prefl (peak) ..... 2.823 MW
Pfwd sample point 700
Pfwd (at sample point) . 18.348 MW
Prefl sample point 720
Prefl (at sample point) 5.785 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) ..... 1.39 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 ..... 181.2 kW
Pfwd C5.ACC1 ..... 174.4 kW
Flat top ..... 800 us
Dipole BC2 (RBV) ..... 73.11 A
Pyro 9DBC2.1 ..... -0.1782 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 295.86
Phase SP ..... 2.00 deg
Phase RBV ..... 2.38 deg
Pfwd C5.ACC2 ..... 131.82 kW
Pfwd C1.ACC3 ..... 228.15 kW
Flat top ..... 450 us
Dipole BC3 (RBV) ..... 56.00 A
Pyro 4DBC3.1 ..... -0.0223 V
Pyro 4DBC3.3 ..... 0.0018 V
Radiator 4DBC3 ..... out

ACC4/5

Feedforward/Feedback ... on/on
Feedback gain 40.0
Pfwd SP 181.00
Pfwd RBV 181.09
Phase SP ..... -8.60 deg
Phase RBV ..... -8.26 deg
Pfwd C1.ACC4 ..... 101.74 kW
Pfwd C2.ACC5 ..... 67.53 kW
Pfwd C1.ACC6 ..... 0.00 kW
Flat top ..... 800 us

ACC6/7

Feedforward/Feedback ... on/on
Feedback gain 50.0
Pfwd SP 359.50
Pfwd RBV 351.40
Phase SP ..... -5.00 deg
Phase RBV ..... -3.21 deg
Pfwd C1.ACC6 ..... 209.02 kW
Pfwd C1.ACC7 ..... 222.70 kW
Flat top ..... 450 us

Bypass

Dipole D1BYP (RBV) ..... 0.00 A
Energy bypass ..... 1211.4 MeV
RF vector sum ALL ..... 617.1 MeV
Charge 16BYP ..... -0.00 nC

Collimator

Dipole D1ECOL (RBV) .... 176.89 A

Undulator

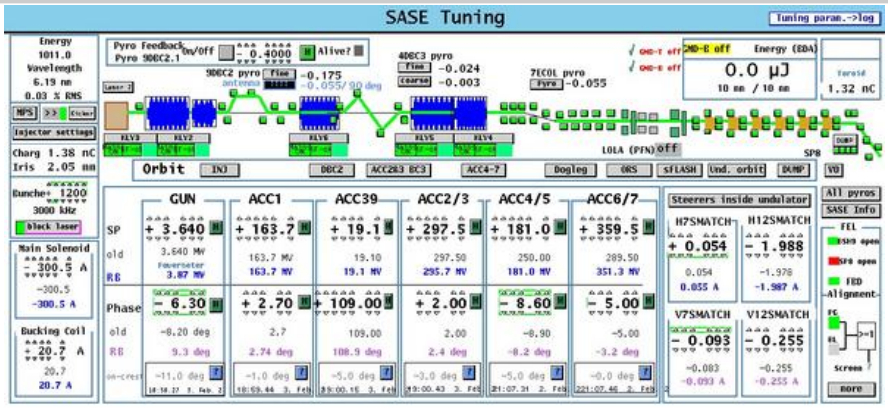
1SFUND1 gap RBV ..... 220.0 mm

```
Energy dogleg .......... 1009.3 MeV
Charge 7ORS ............ 1.45 nC

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 ........... 1.33 nC
Photon beamline
Aperture 1 ............. 10 mm
Offset h/v ............. 0/-1 mm
Aperture 2 ............. 10 mm
Offset h/v ............. 1/0 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 2011-02-08T19_00_15+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-08T190015
```

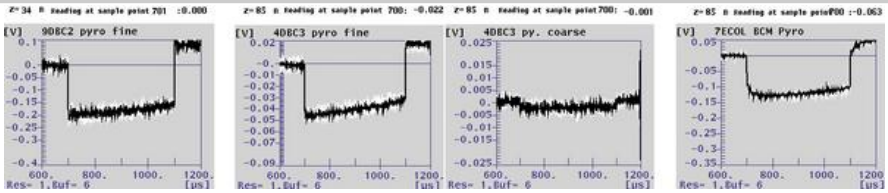
```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110208T190015.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110208T190015.sr
from computer: flashbkr3.desy.de
```

08.02.2011 19:01 ttflinac **ttflinac@:SASE_tuning**



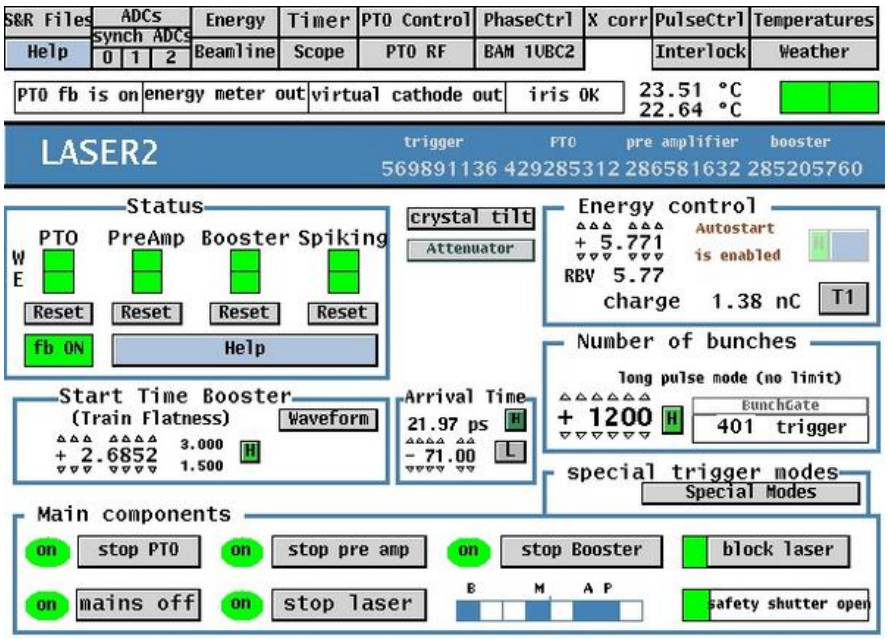
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:01:41-00.JPG

08.02.2011 19:02 ttflinac **ttflinac@:All_BCM**



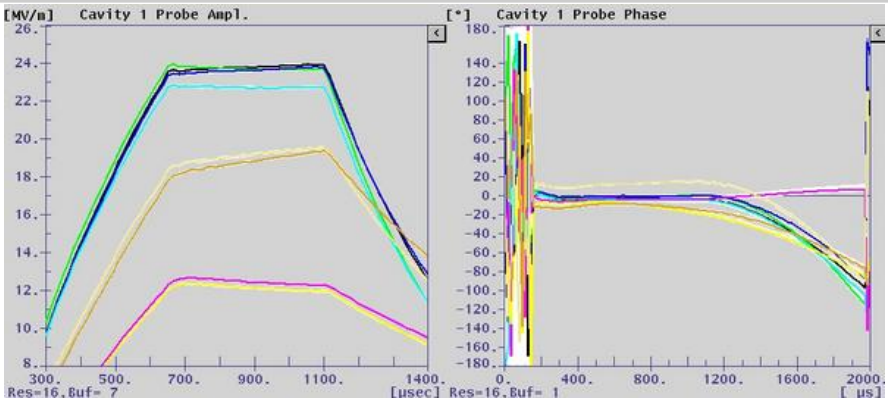
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:02:49-00.JPG

08.02.2011 19:04 ttflinac **ttflinac@:laser2_control**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:04:44-00.JPG

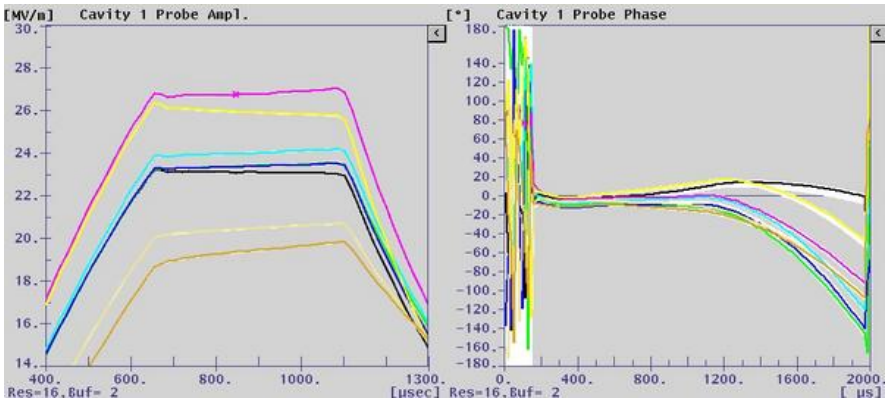
08.02.2011 19:09 doocsadm **doocsadm@flashbkr5:ACC_win2**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:09:23-00.JPG

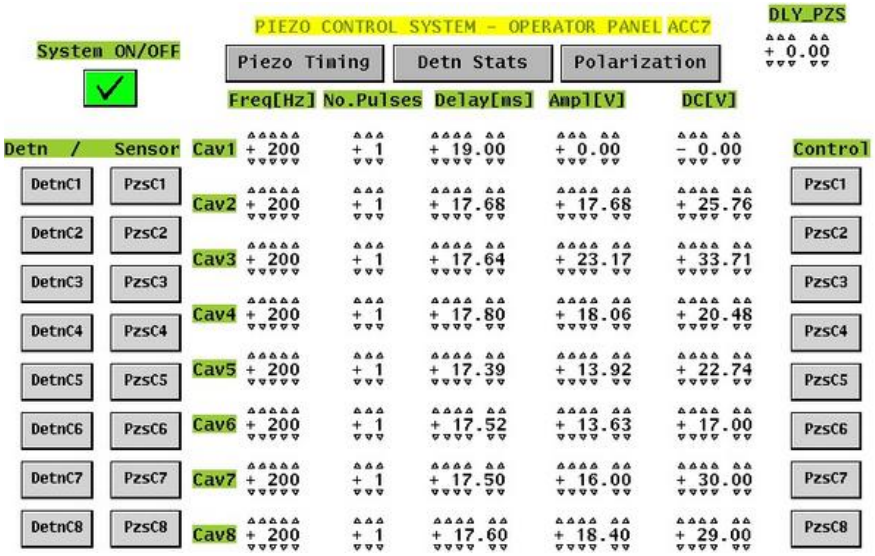
08.02.2011 19:09 doocsadm **doocsadm@flashbkr5:ACC_win2**

```
initial conditions:
359.5 MV
1200 bunches @ 1.4 nC
```



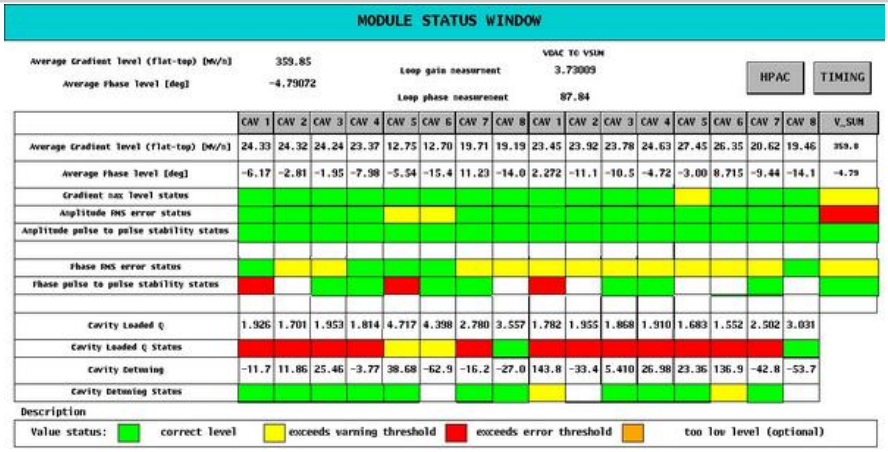
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:09:30-00.JPG

08.02.2011 19:11 ttflinac **correct module indicator added for ACC1...ACC7**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:11:26-00.JPG

08.02.2011 19:13 doocsadm **doocsadm@flashbkr5:MODULE_STATUS_67**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:13:51-00.JPG

08.02.2011 19:14 doocsadm

current loaded Qs. (unchanged from yesterday night (=operations at 4.5 mA and 300 MeV)

08.02.2011 19:15 doocsadm

There are discrepancies between the loaded Q reported in the LLRF status DOOCS window and from the MATLAB program:

08.02.2011 19:24 doocsadm

initial Ql for ACC6

Cavity#	Loaded Q	Detuning
1	1.77e+06	-331.78
2	1.60e+06	-410.31
3	1.91e+06	-306.29
4	1.73e+06	-359.59
5	4.64e+06	40.21
6	4.65e+06	-222.74
7	2.84e+06	-385.06
8	3.48e+06	-218.68

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:24:09-00.png

08.02.2011 19:25 doocsadm

initial Ql for ACC7

Cavity#	Loaded Q	Detuning
1	1.76e+06	-53.29
2	1.87e+06	-467.54
3	1.84e+06	-442.44
4	1.88e+06	-415.62
5	1.69e+06	-329.19
6	1.50e+06	-225.81
7	2.40e+06	-335.23
8	3.05e+06	-313.65

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:25:29-00.png

08.02.2011 19:27 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 1009.21 MeV / 6.2 nm
Charge:              1.39 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	+181.00	+359.50
Readback	3.87	163.7	19.1	295.8	181.1	351.4
Phase	-6.30	+2.70	+109.00	+2.00	-8.60	-5.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	9.1	2.7	108.8	2.4	-8.2	-3.2

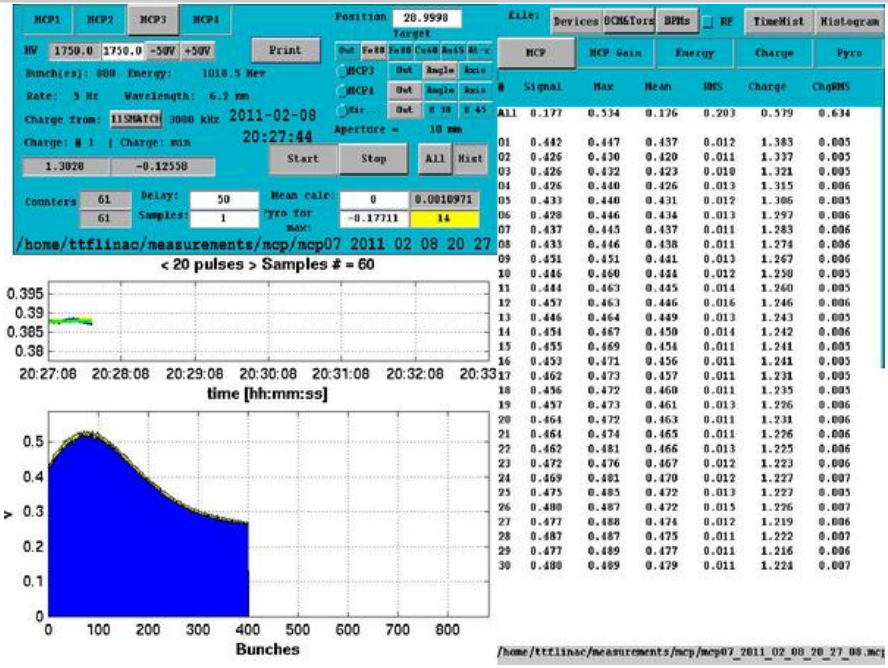
Undulator steerers and aircoils

H7SMATCH	H12SMATCH
+0.054	**-1.988**
V7SMATCH	V12SMATCH
-0.093	**-1.988**

Intra-undulator steerers

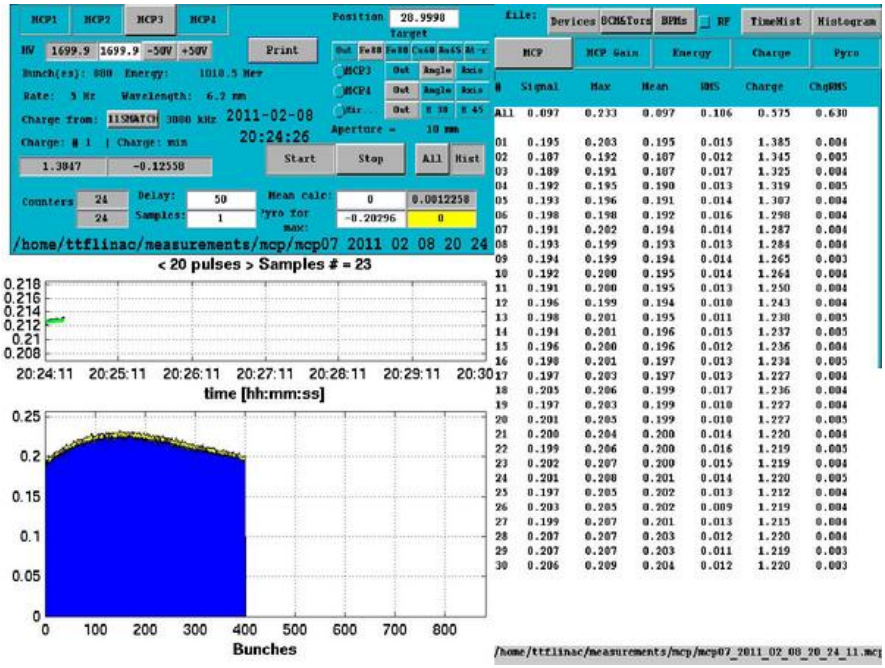
H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.90	**-5.00**	**-4.90**	**-4.70**	**-4.90**	**-5.00**

08.02.2011 19:33 Yurkov **Test of MCP with long bunch train**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:28:32-00.JPG

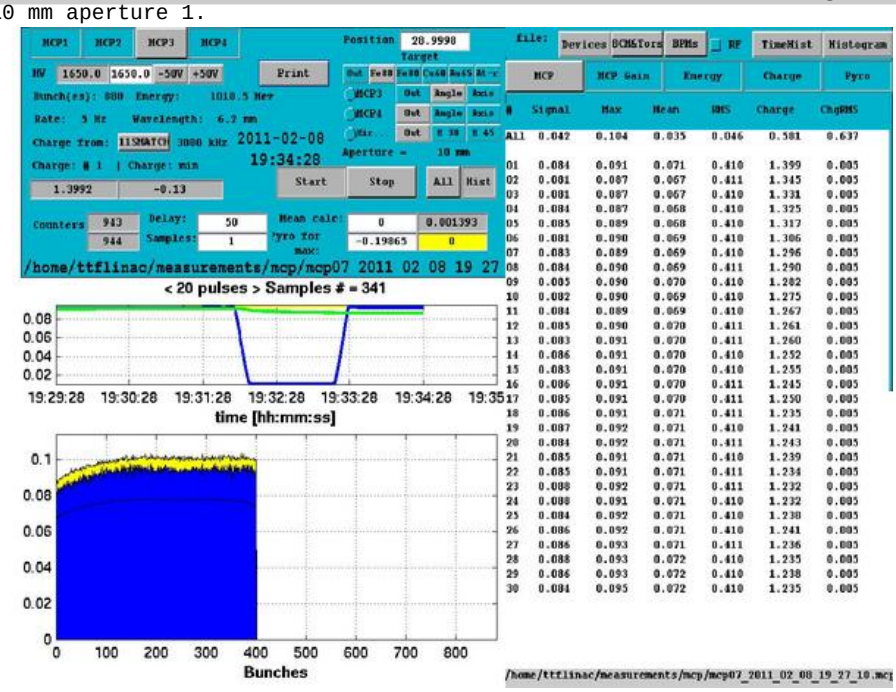
08.02.2011 19:34 ttflinac **from: flashuser2**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:25:18-00.JPG

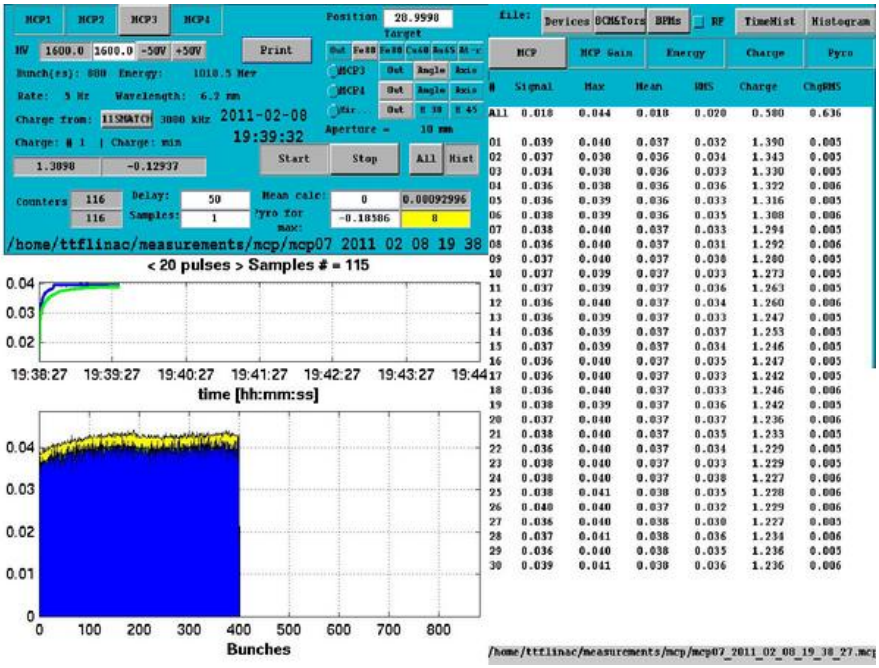
08.02.2011 19:35 Yurkov **Test of MCP with long bunch triain.**

10 mm - 5mm - 10 mm aperture 1.



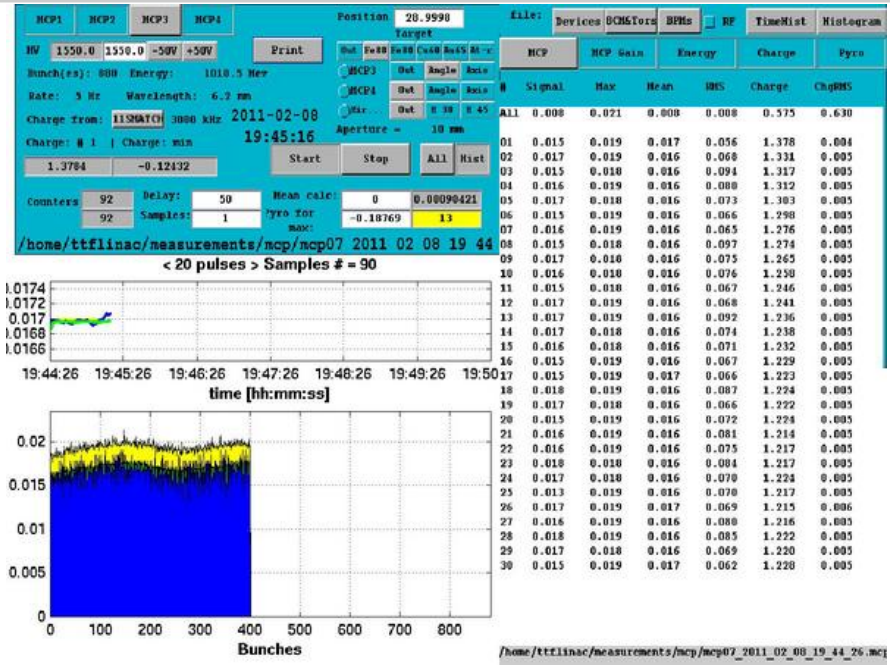
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:35:13-00.JPG

08.02.2011 19:40 Yurkov **Test of MCP with long bunch train**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:40:14-00.JPG

08.02.2011 19:45 Yurkov **Test of MCP with long bunch train**

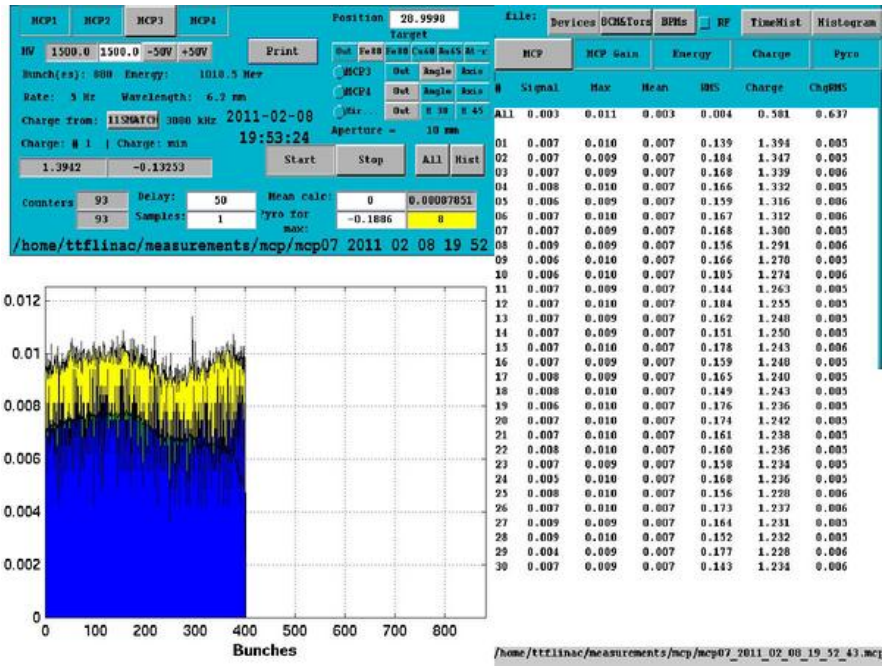


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:45:44-00.JPG

08.02.2011 19:53 Yurkov **Test of MCP with long pulses**

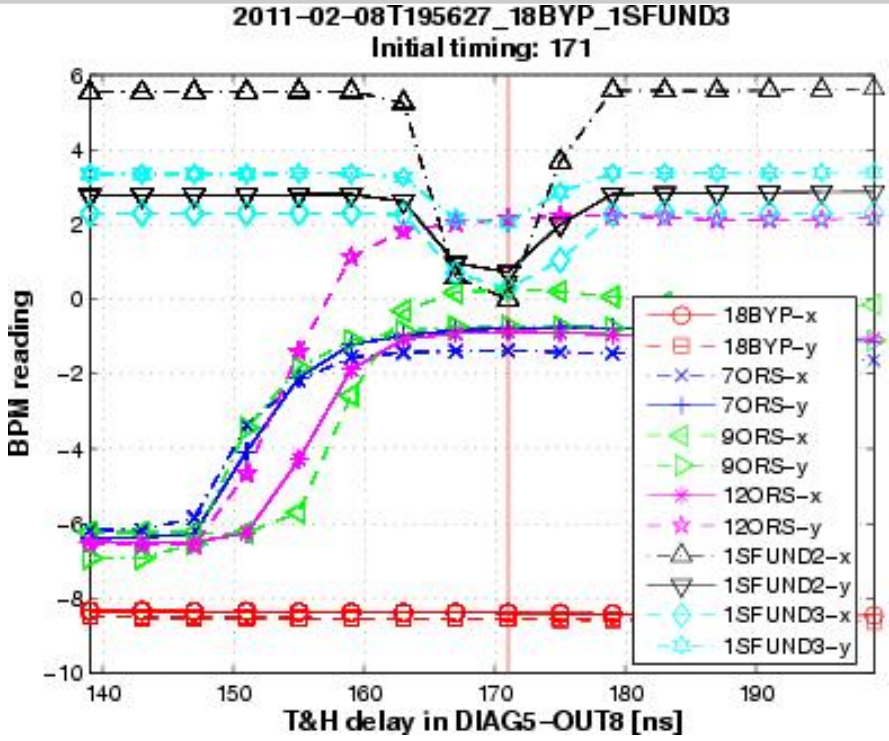
```
10 mm aperture, U = 1500 V -1750 V.
Brief conclusion: MCP can be used for long pulses @ 3MHz rep rate when output signal is kept about
 or below 100 mV. Load effect of a long bunch train on MCP is clearly seen when output
 signal exceeds 100 mV.
===
Short remark on background conditions:
U_out < 1 mV for all voltages U = 1500-1750 V when MCP detector is screened with PTsI detector
 in detector unit 1. This means that (at least) background from dump area is rather small.
Ratio of signals with 5 mm and 3 mm aperture is equal to 2 => a reasonable one taking into account
 geometrical factor of MCP positioning. It looks like with these tuning of the accelerator
 background on MCP from both dump and straight section is really small. Note that for
 beam parameters corresponding to sase tuning there is always strong background originating
 from the straight section.
====
```

Brief remark on pulse train: MCP signal is proportional to the number of photons passing through an aperture centered on axis. Variation of signal from MCP along the train indicates on variation of parameters of bunches along the train (mostly probably of the orbit).



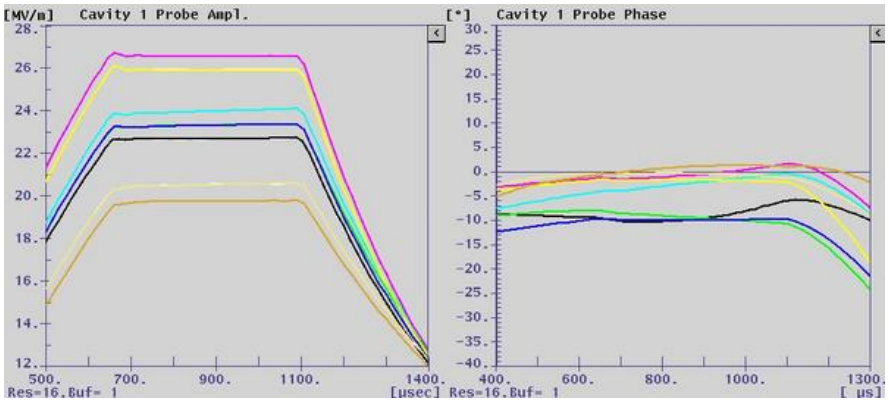
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:53:52-00.JPG

08.02.2011 19:56 ttflinac **Trigger delay scan for BPMs 18BYP - 1SFUND3**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:56:46-00.ps

08.02.2011 19:58 doocsadm **doocsadm@flashbkr5:ACC_win2**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:58:34-00.JPG

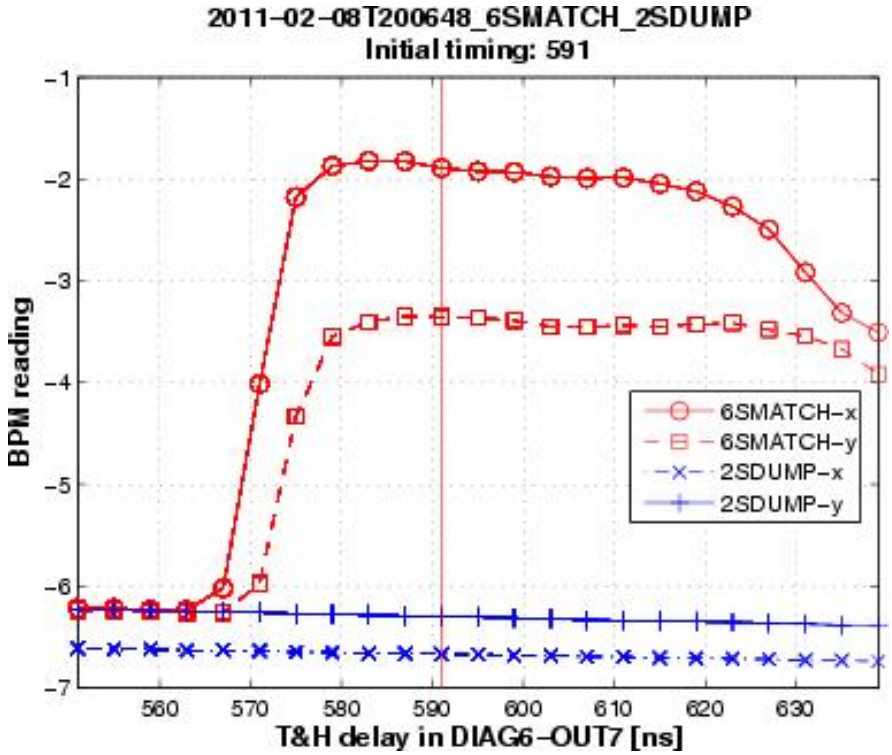
08.02.2011 19:58

```
We adjusted the Qls to the simulated Qlsfor ACC7
Simulated Qls are:
1. 1.9
2. 1.9
3. 1.92
4. 1.92
5. 1.67
6. 1.67
7. 2.22
8. 2.22
```

Cavity#	Loaded Q	Detuning
1	1.87e+06	-161.40
2	1.87e+06	-476.79
3	1.84e+06	-452.75
4	1.88e+06	-412.20
5	1.60e+06	-347.70
6	1.66e+06	-569.74
7	2.27e+06	-294.68
8	2.45e+06	-257.71

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T19:58:54-00.png

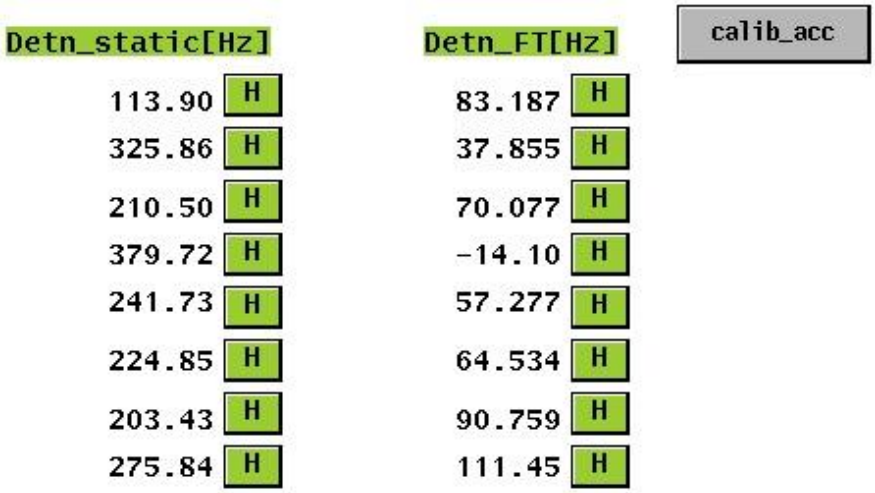
08.02.2011 20:07 ttflinac **Trigger delay scan for BPMs 6SMATCH - 2SDUMP**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:07:08-00.ps

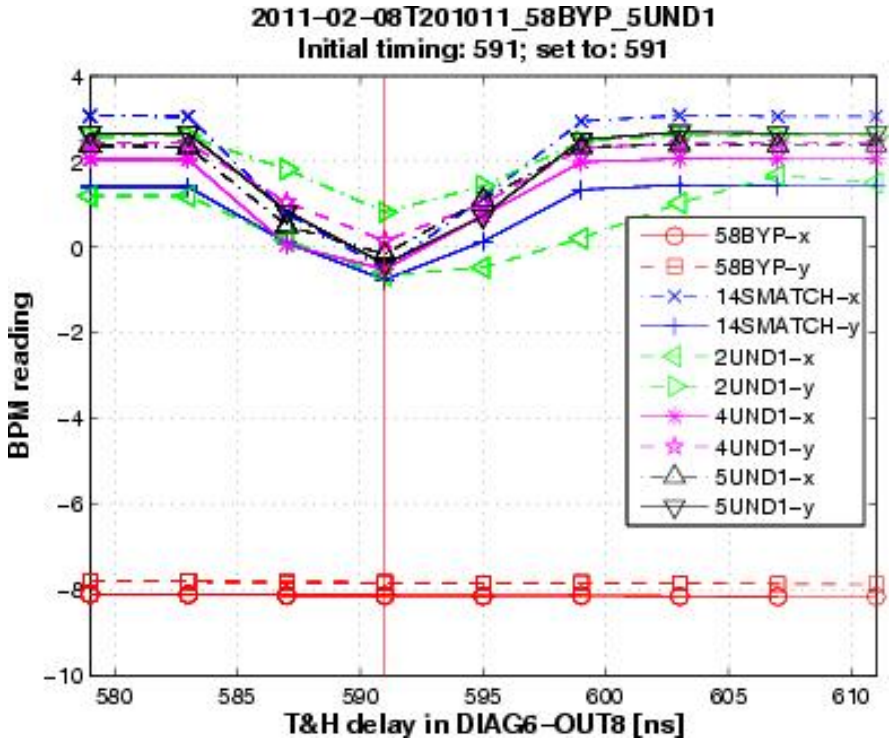
08.02.2011	20:07	ttflinac	**cavity detuning statistics property names corrected for modules ACC1...ACC7**

```
the matlab script needs to be run for all modules - one by one (calib_acc button), since there is
 no chance to parametrize the matlab script call from doocs cmd procedure
```



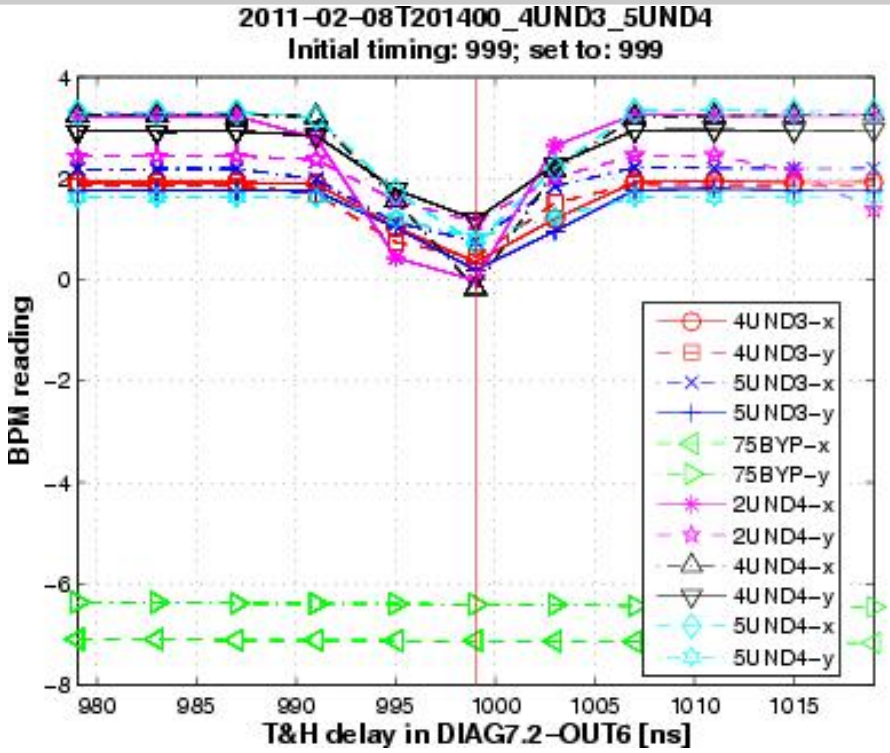
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:07:56-00.JPG

08.02.2011	20:10	ttflinac	**Trigger delay scan for BPMs 58BYP - 5UND1**



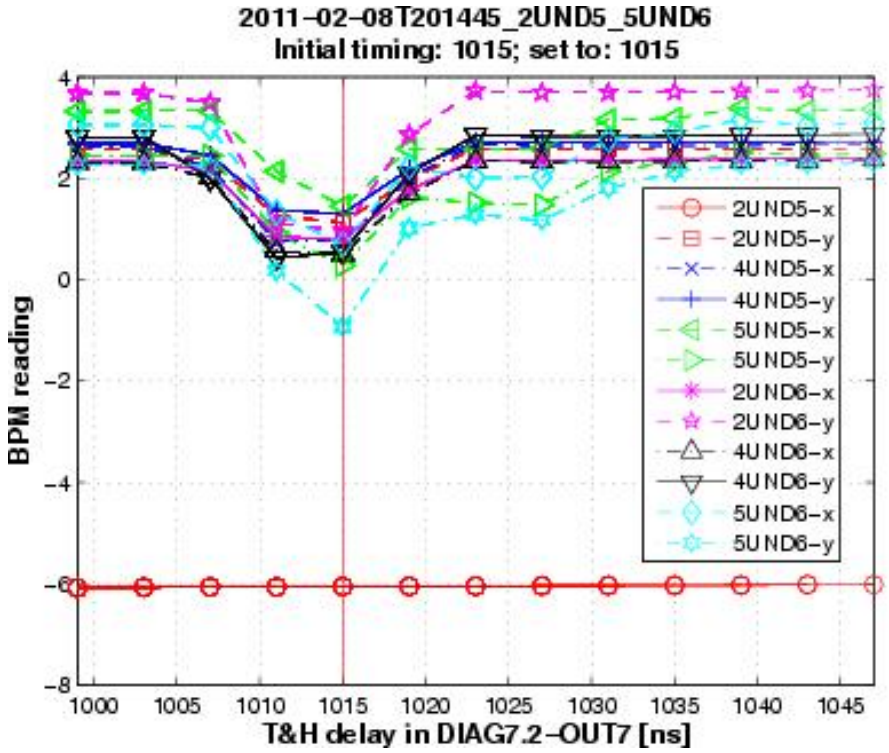
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:10:30-00.ps

08.02.2011	20:14	ttflinac	**Trigger delay scan for BPMs 4UND3 - 5UND4**



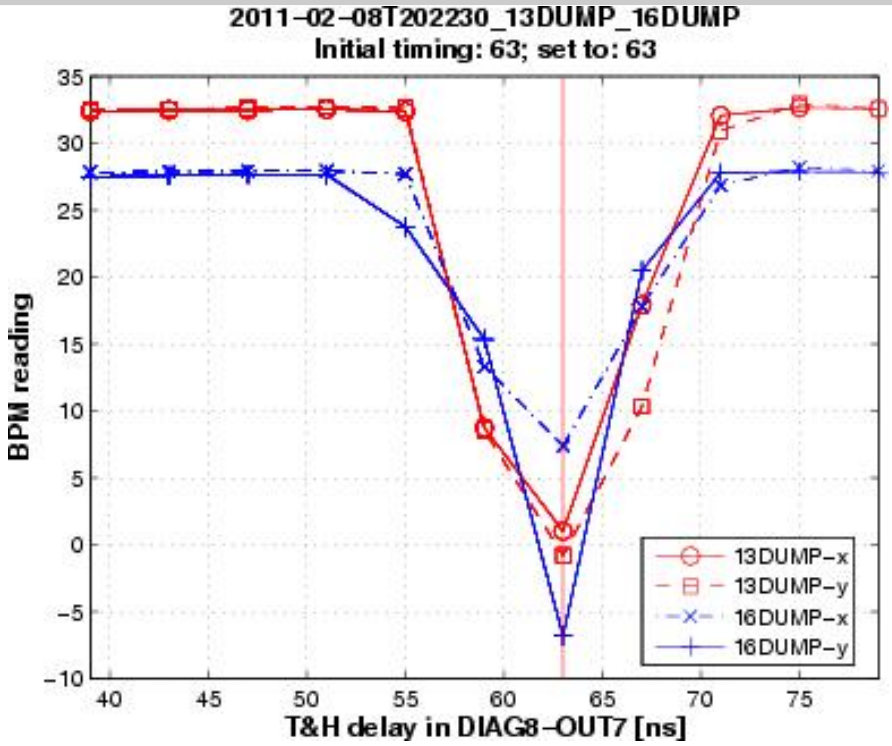
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:14:24-00.ps

08.02.2011	20:15	ttflinac	**Trigger delay scan for BPMs 2UND5 - 5UND6**



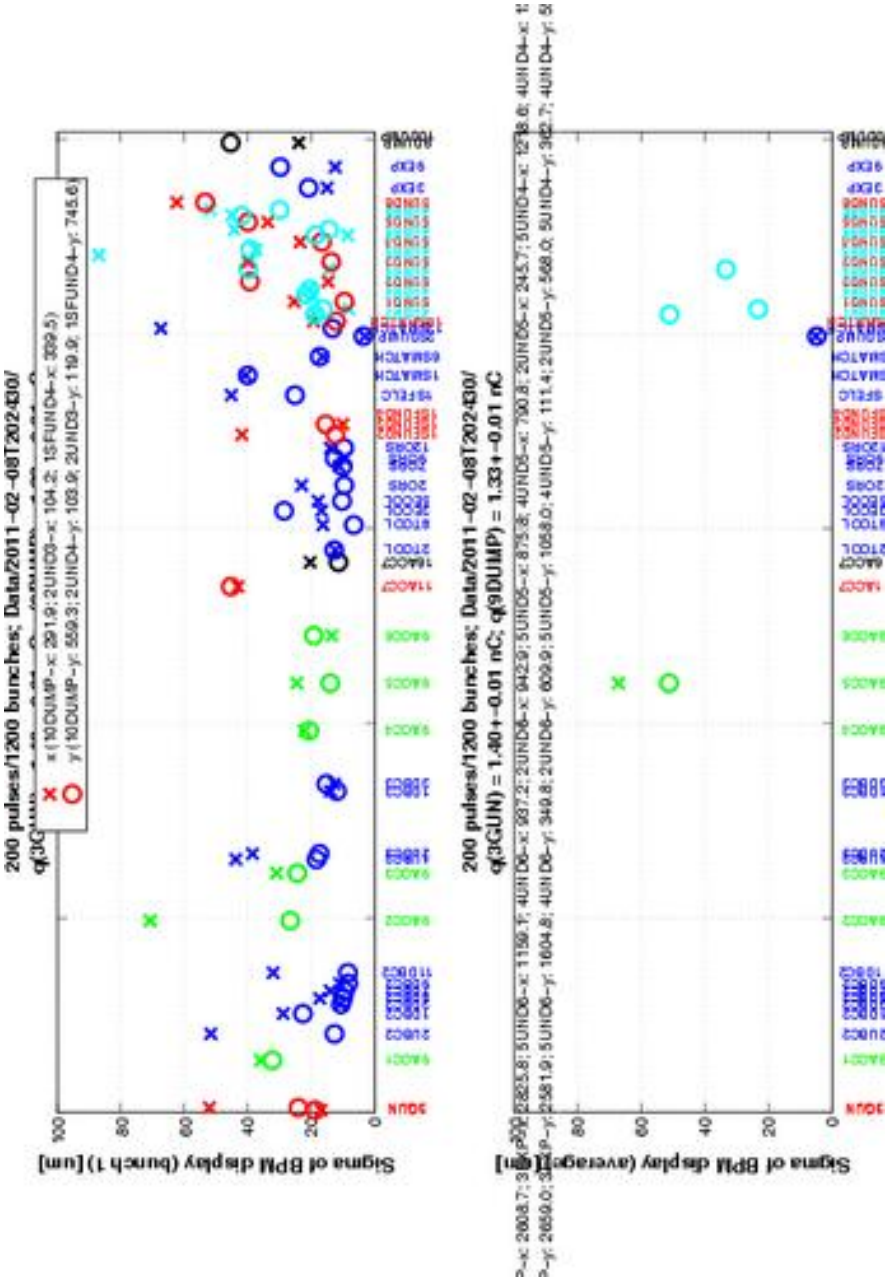
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:15:05-00.ps

08.02.2011	20:23	ttflinac	**Trigger delay scan for BPMs 13DUMP - 16DUMP**



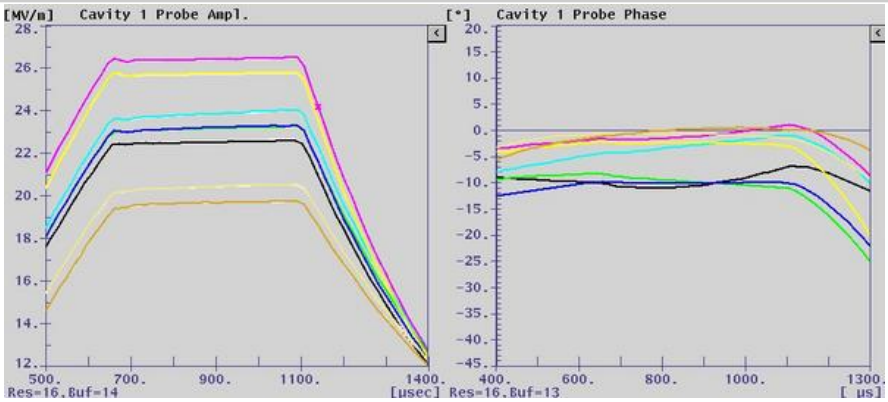
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:23:02-00.ps

08.02.2011	20:26	ttflinac	**tp527f7be6_aa3c_44d7_baa5_1b6b49e984c7.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:26:49-00.ps

08.02.2011 20:34 doocsadm **doocsadm@flashbkr5:ACC_win2**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:34:02-00.JPG

08.02.2011 20:34

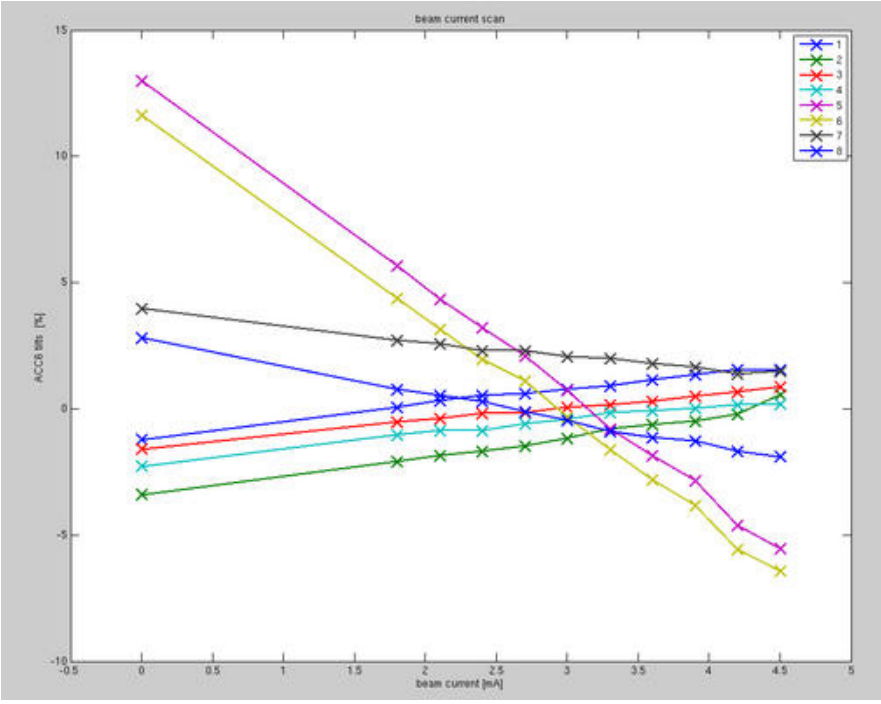
We adjusted the Qls according to simulated values for ACC6:
Predicted values are:
1. 1.78
2. 1.74
3. 1.85
4. 1.88
5. 3.25
6. 3.12
7. 2.37
8. 2.40
recorded values are shown below
With Lorentz force detuning compensation, and with an analytical solution to cavity tilts, the predicted
values and the optimal values are very close.

Cavity#	Loaded Q	Detuning
1	1.79e+06	-339.66
2	1.77e+06	-477.29
3	1.84e+06	-343.78
4	1.91e+06	-414.32
5	3.28e+06	24.37
6	3.10e+06	-147.93
7	2.37e+06	-438.32
8	2.28e+06	-206.96

File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T20:34:21-00.png

08.02.2011 21:09

We performed a beam scan from 20:50 to 21:02 pm.
ACC6

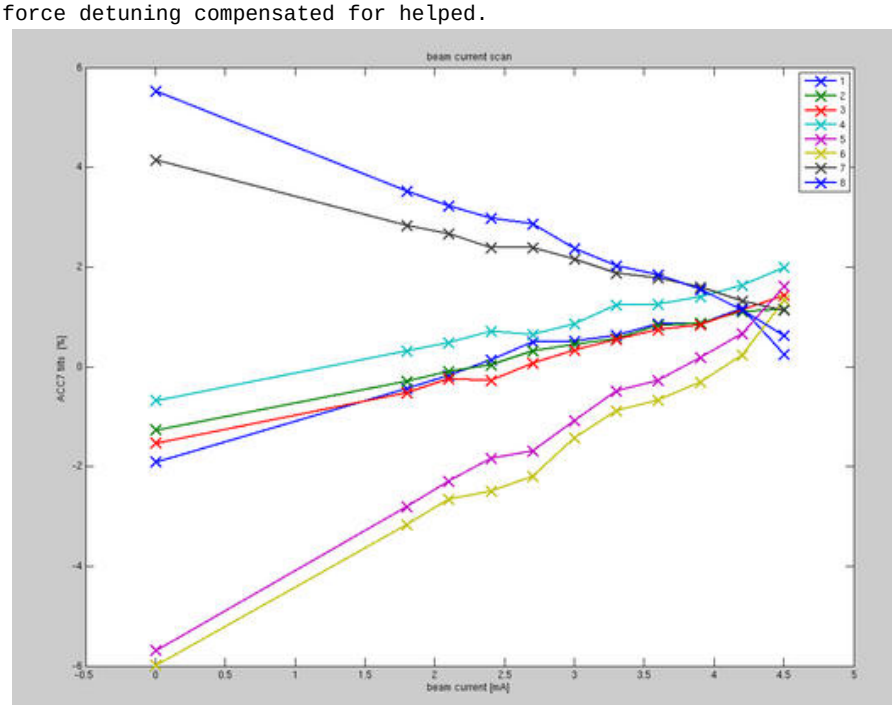


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T21:09:19-00.png

08.02.2011 21:10

ACC7
We adjusted the Ql's for 1.2nC@3MHz = 4.2 mA.
This matches the crossing point on the plot of ACC7.
The predicted data from the calculation are more accurate than the ones guessed with the simualtor.

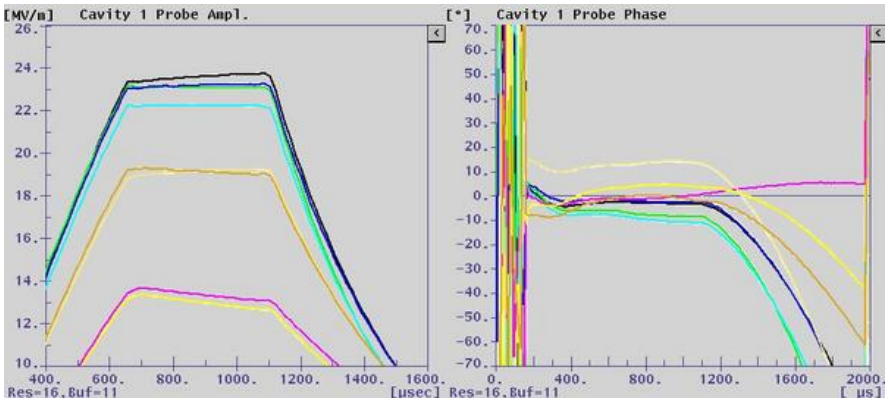
Having Lorentz force detuning compensated for helped.



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T21:10:14-00.png

08.02.2011 21:21 ttflinac **ttflinac@:ACC_win2**

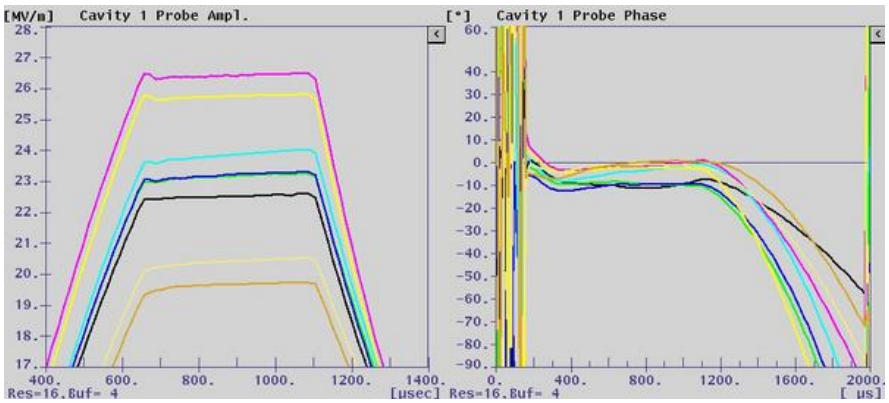
ACC6



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T21:21:39-00.JPG

08.02.2011 21:22 ttflinac **ttflinac@:ACC_win2**

ACC7

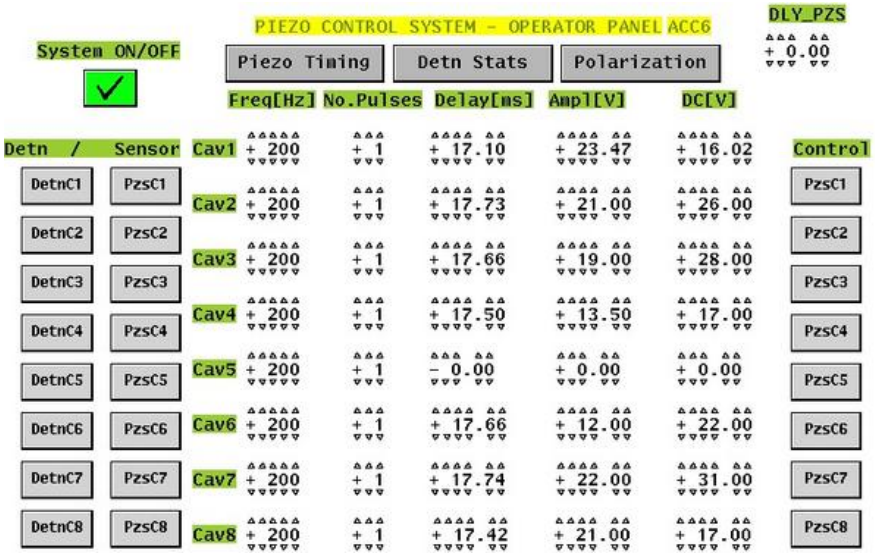


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T21:22:04-00.JPG

08.02.2011 21:22 ttflinac

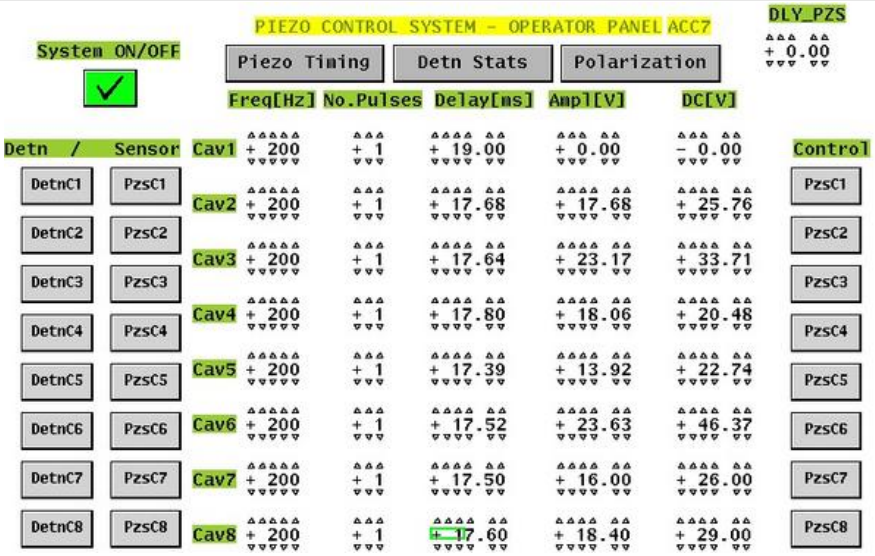
```
Mariusz will adjust the cavity tuning. We recorded the gradients (+ tilts) before. We'll compare
 after.
The initial tilts before piezo recalibration are given below:
ACC6-cav1= 1.48 %
ACC6-cav2= -0.13 %
ACC6-cav3= 0.67 %
ACC6-cav4= 0.15 %
ACC6-cav5= -4.41 %
ACC6-cav6= -5.27 %
ACC6-cav7= 1.42 %
ACC6-cav8= -1.52 %

ACC7-cav1= 1.02 %
ACC7-cav2= 1.04 %
ACC7-cav3= 1.19 %
ACC7-cav4= 1.58 %
ACC7-cav5= 0.70 %
ACC7-cav6= 0.46 %
ACC7-cav7= 1.32 %
ACC7-cav8= 1.09 %
```

08.02.2011 21:27 ttflinac **ttflinac@ttfbkr6:piezo_ctl_acc**



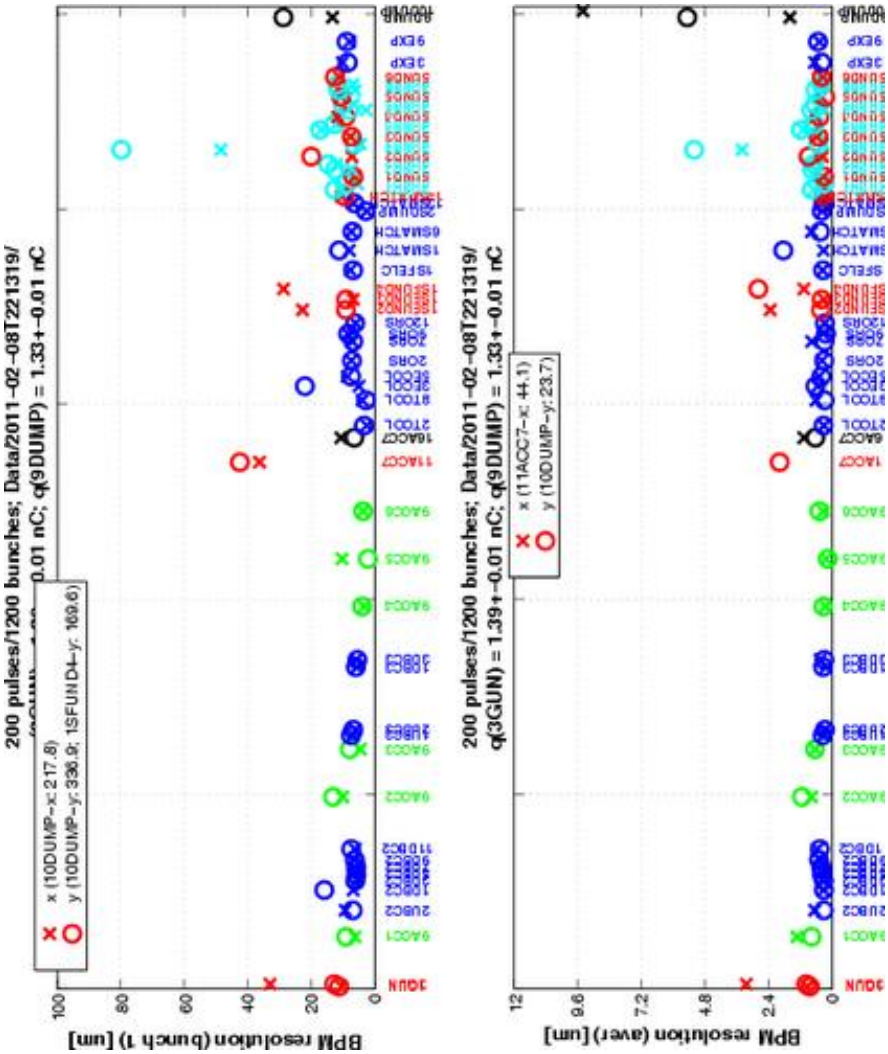
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T21:27:44-00.JPG

08.02.2011 21:27 ttflinac **ttflinac@ttfbkr6:piezo_ctl_acc**



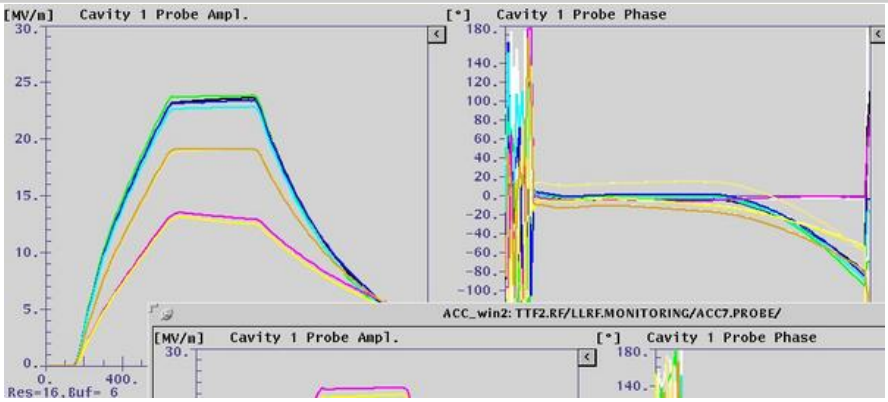
File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T21:27:51-00.JPG

08.02.2011 22:15 ttflinac **tpeb913f42_1d4c_4783_af94_8a97da7d3861.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T22:15:36-00.ps

08.02.2011	22:54	M.Grecki	**Probe signal in ACC6 after LFD compensation**

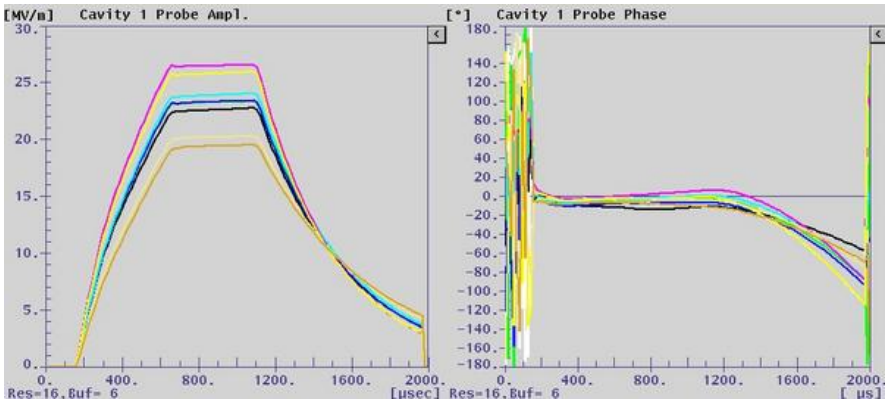


File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T22:54:04-00.JPG

08.02.2011	22:54	M.Grecki	**Probe signal in ACC7 after LFD compensation**

```
Tilts after LFD re-adjustments
ACC6-cav1= 1.68 %
ACC6-cav2= 0.47 %
ACC6-cav3= 1.10 %
ACC6-cav4= 0.76 %
ACC6-cav5= -4.48 %
```

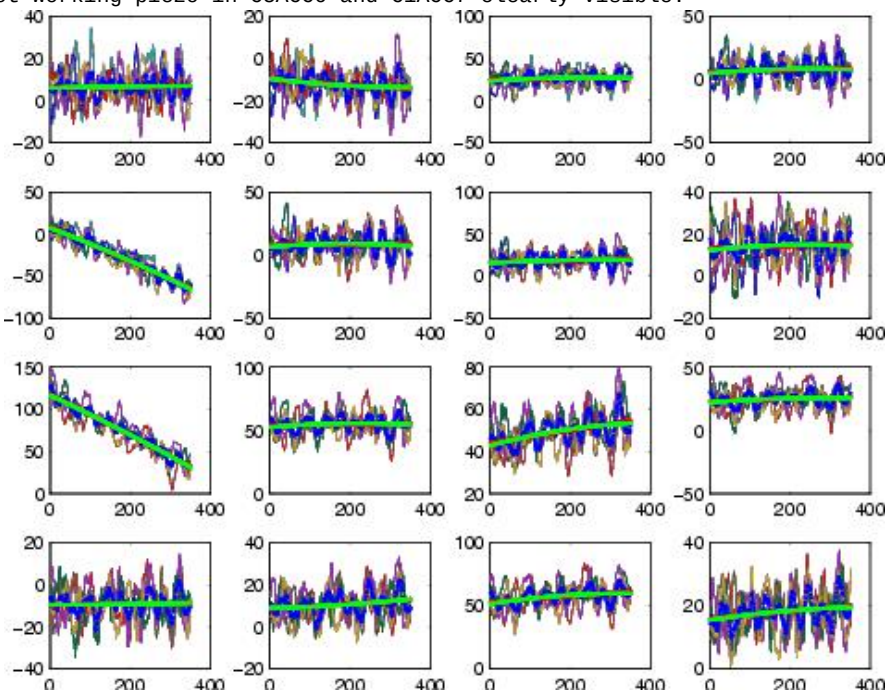
```
ACC6-cav6= -4.89 %
ACC6-cav7= 0.96 %
ACC6-cav8= -0.13 %

ACC7-cav1= 1.47 %
ACC7-cav2= 1.12 %
ACC7-cav3= 0.97 %
ACC7-cav4= 1.26 %
ACC7-cav5= 0.74 %
ACC7-cav6= 1.24 %
ACC7-cav7= 0.94 %
ACC7-cav8= 1.03 %
```



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T22:54:12-00.JPG

08.02.2011 22:55 M.Grecki **Detuning in cavities of ACC6 and ACC7**

with piezo compensation. The parameters of piezo compensation set up by automatic procedure (matlab script). The not working piezo in C5ACC6 and C1ACC7 clearly visible.



File: http://ttfinfo.desy.de/TTFelog/data/2011/06/08.02_a/2011-02-08T22:55:44-00.ps