? 04.02.2011 15:02 oracle **Shift summary**

04.02.2011 15:03 ttflinac **SASE tuning parameters**

Misc. parameters

```
Energy / Wavelength: 1002.45 MeV / 6.3 nm
Charge:              0.00 nC
Main solenoid:       -299.7 A
Bucking coil:        +32.0 A
Dipoles BC2/BC3:     +73.1 A / +56.0 A
```

RF parameters

	GUN	ACC1	ACC39	ACC2/3	ACC4/5	ACC6/7
Power/Gradient	+3.650	+164.00	+19.00	+297.50	+250.00	+298.50
Readback	3.89	164.0	19.0	297.8	250.2	298.6
Phase	-10.00	+2.30	-4.20	-5.00	-8.90	-6.00
on-crest		-1.0		-3.0	-5.0	-0.0
Readback	8.0	2.3	-4.2	-5.0	-8.9	-6.6

Undulator steerers and aircoils

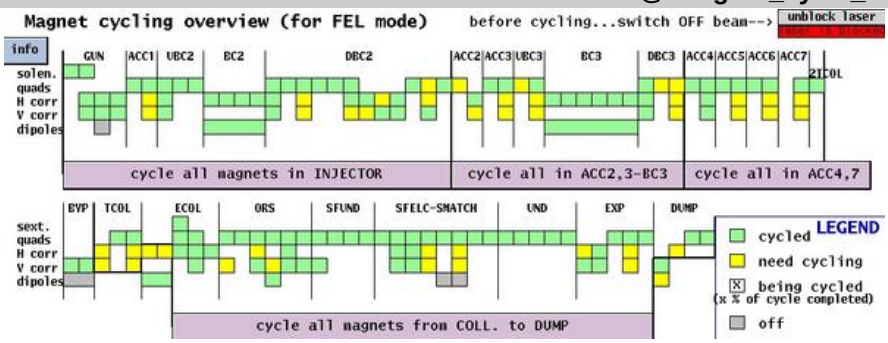
H7SMATCH	H12SMATCH
+0.344	**-1.667**

V7SMATCH	V12SMATCH
+0.157	**-1.667**

Intra-undulator steerers

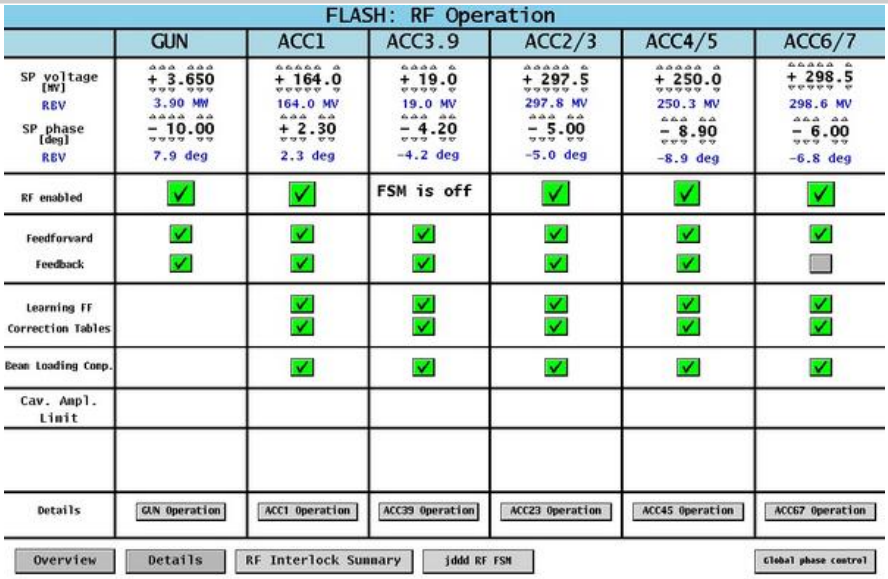
H3UND1	H3UND2	H3UND3	H3UND4	H3UND5	H3UND6
-4.40	**-4.50**	**-4.80**	**-4.70**	**-4.80**	**-1.00**

04.02.2011 15:04 ttflinac **ttflinac@:magnet_cycle_overview_fel**



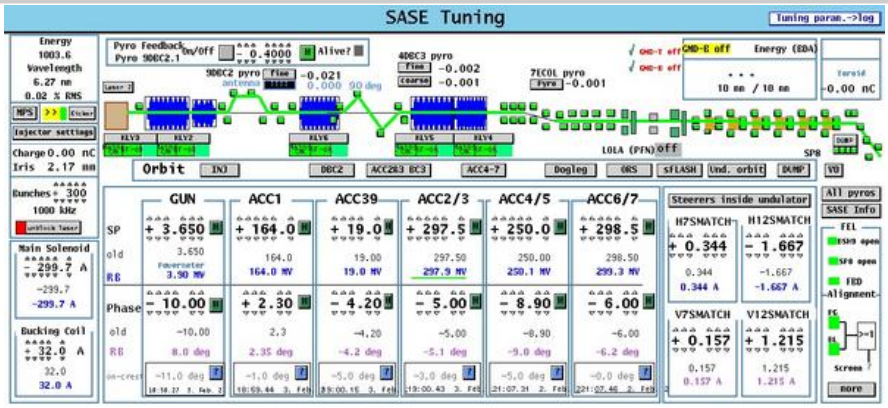
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:04:05-00.JPG

04.02.2011 15:04 ttflinac **ttflinac@:RF_OPERATION**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:04:13-00.JPG

04.02.2011 15:04 ttflinac **ttflinac@:SASE_tuning**

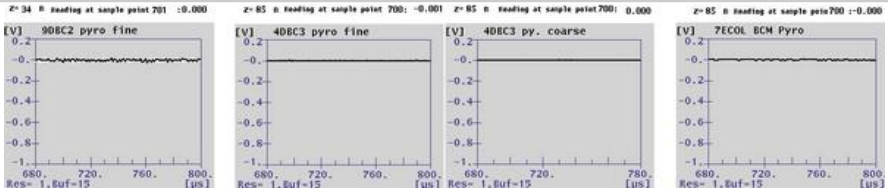


File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:04:41-00.JPG

04.02.2011 15:04 ttflinac **ttflinac@:dose_und**

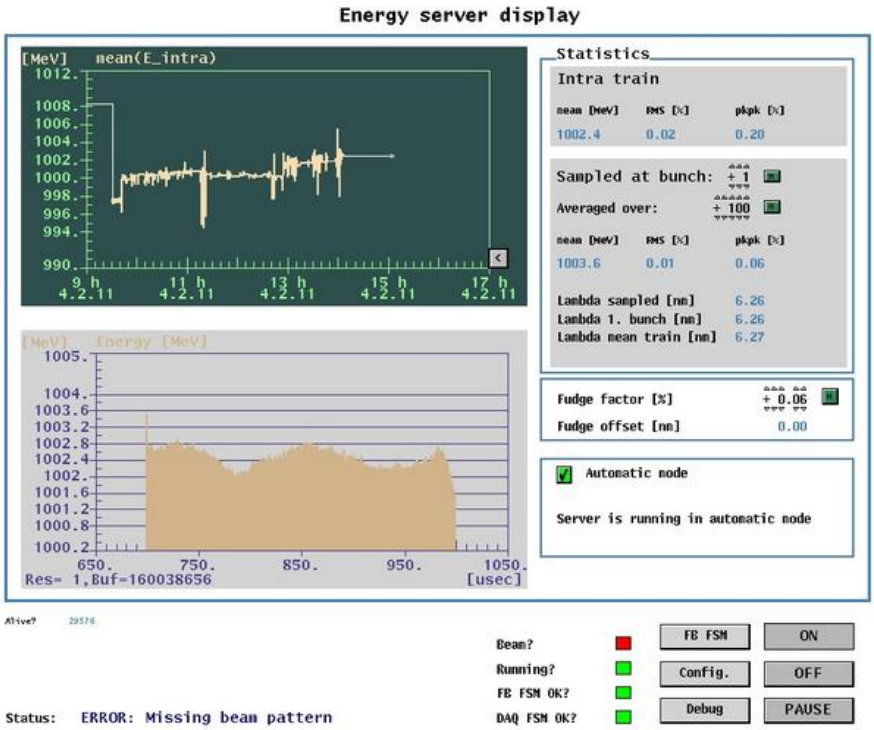
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:04:54-00.JPG

04.02.2011 15:05 ttflinac **ttflinac@:All_BCM**



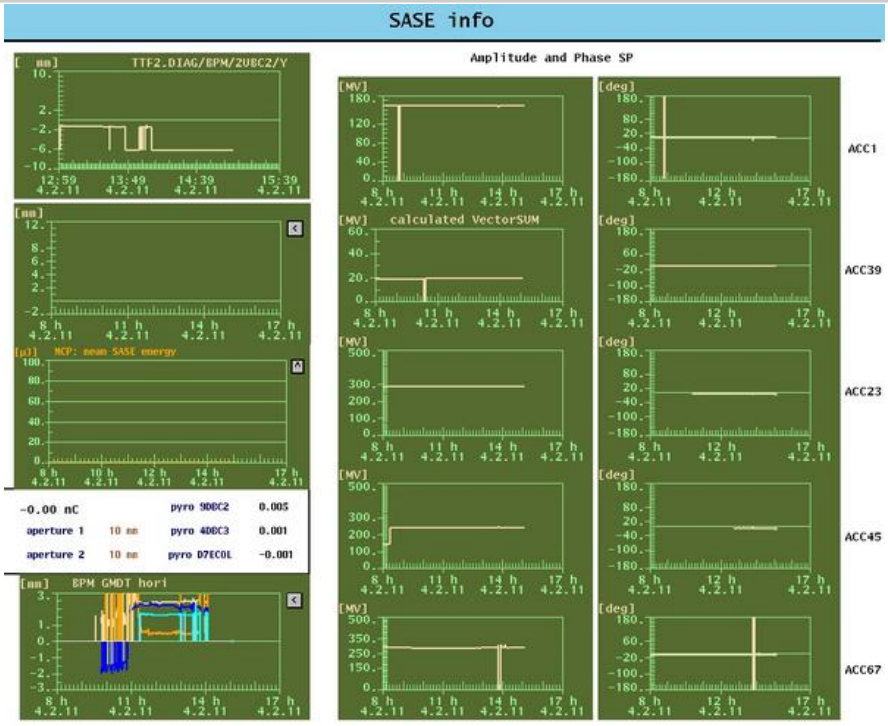
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:05:18-00.JPG

04.02.2011 15:05 ttflinac **ttflinac@:Energyfbm_display**



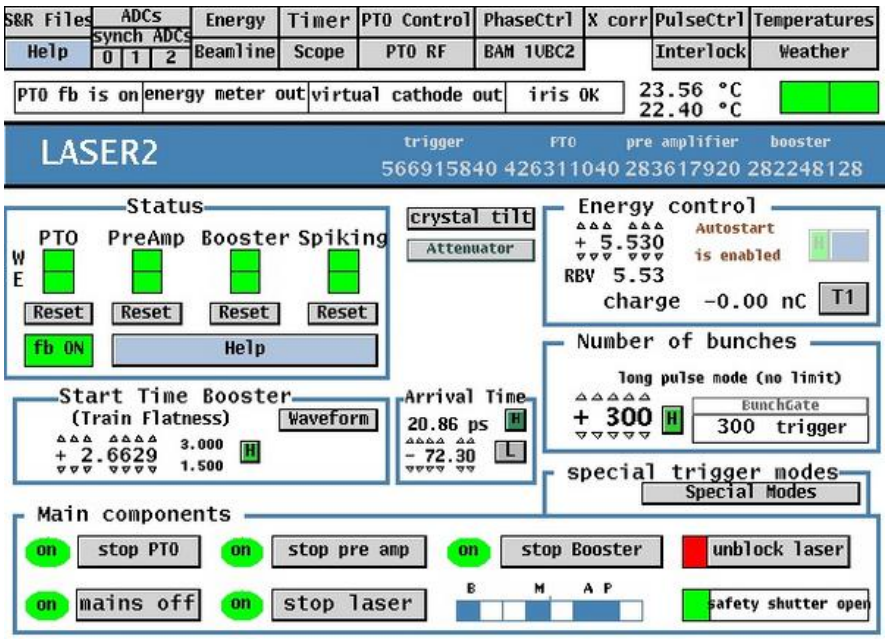
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:05:42-00.JPG

04.02.2011 15:05 ttflinac **ttflinac@:SASE_info**



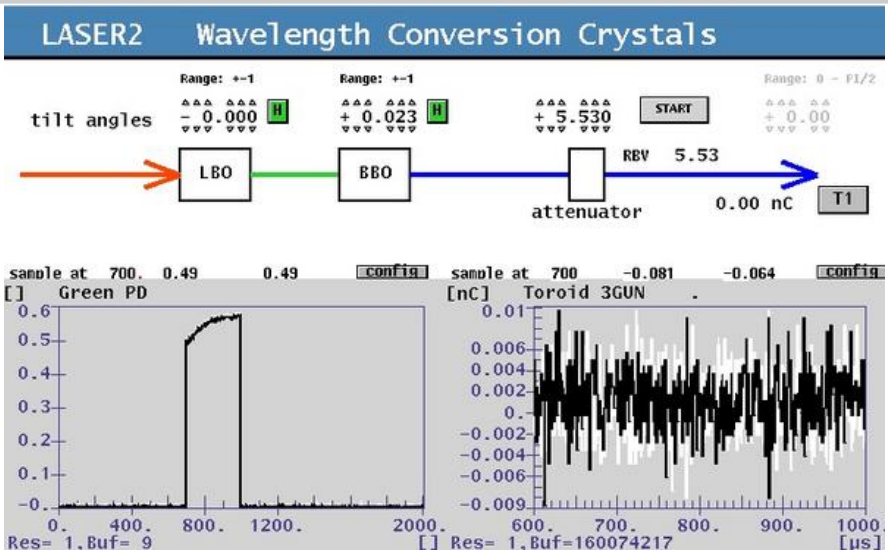
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:05:57-00.JPG

04.02.2011 15:06 ttflinac **ttflinac@:laser2_control**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:06:07-00.JPG

04.02.2011 15:06 ttflinac **ttflinac@:laser_crystal_tuning**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T15:06:16-00.JPG

04.02.2011 15:06 ttflinac **Main linac parameters**

shift documentation

Laser

Number of bunches 300
Bunch frequency ..... 1000 kHz
Macropulse rep'rate .... 10.0 Hz
Pump time_3 ..... 0.0030 ms
Pump current_3 ..... 5.00 V
Pre-amp start time ..... 2.42 ms
Booster start time ..... 2.66 ms
Attenuator SP 5.53
Iris diameter ..... 17184 steps
Iris diameter ..... 2.17 mm

Gun

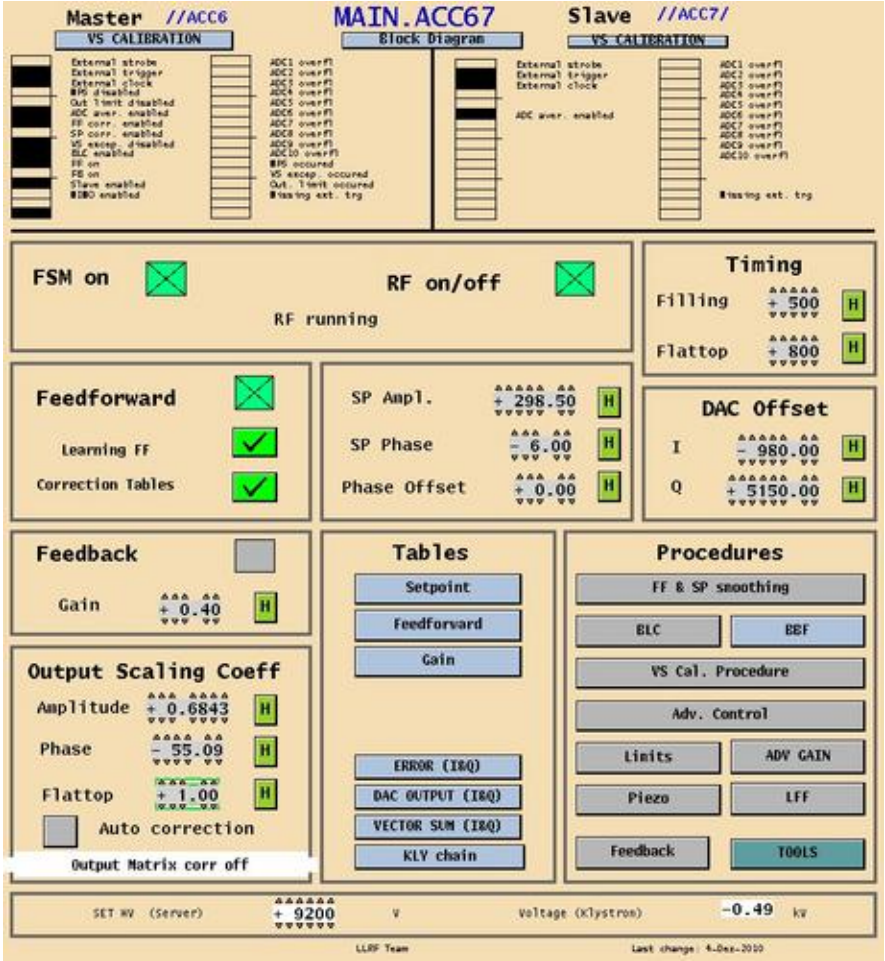
Feedforward/Feedback ... on/on
FSM ..... on
Pfwd SP 3.65
VS ampl. 18.31
Phase SP ..... -10.00 deg
VS phase ..... 7.94 deg
Pfwd (peak) ..... 3.886 MW
Prefl (peak) ..... 2.866 MW
Pfwd sample point 700
Pfwd (at sample point) . 18.319 MW
Prefl sample point 720
Prefl (at sample point) 6.151 MW
Flat top ..... 440 us
Water temperature SP ... 72.65 deg C
Main solenoid (RBV) .... -299.74 A
Bucking coil (RBV) ..... 32.00 A
Gun dipole (RBV) ..... 0.000 A
Charge 3GUN(T1) ..... 0.00 nC
DC kicker delay ..... 6.80 ms

```
                                                DC kicker HV ........... not local
                                                DC kicker HV ........... disabled
                                                DC kicker HV ........... off
                                                DC kicker SP ........... 60.00 V
                                                DC kicker start ........ 124.00 ns
ACC1                                            ACC39
Feedforward/Feedback ... on/on                  Feedforward/Feedback ... on/on
Feedback gain .......... 2.0                    Feedback gain .......... 10.0
Pfwd SP ................ 164.00                 Pfwd SP ................ 19.00
Pfwd RBV ............... 163.97                 Phase SP ............... -4.20 deg
Phase SP ............... 2.30 deg              Pfwd C1.ACC39 .......... <error>
Phase RBV .............. 2.30 deg              Flat top ............... 800 us
Pfwd C1.ACC1 ........... 188.4 kW
Pfwd C5.ACC1 ........... 179.9 kW
Flat top ............... 800 us
Dipole BC2 (RBV) ....... 73.11 A
Pyro 9DBC2.1 ........... 0.0076 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 ............... 297.84                 Pfwd RBV ............... 250.35
Phase SP ............... -5.00 deg              Phase SP ............... -8.90 deg
Phase RBV .............. -5.00 deg              Phase RBV .............. -8.85 deg
Pfwd C5.ACC2 ........... 125.79 kW              Pfwd C1.ACC4 ........... 118.73 kW
Pfwd C1.ACC3 ........... 219.00 kW              Pfwd C2.ACC5 ........... 90.69 kW
Flat top ............... 450 us                 Pfwd C1.ACC6 ........... 0.00 kW
Dipole BC3 (RBV) ....... 56.00 A                Flat top ............... 800 us
Pyro 4DBC3.1 ........... -0.0034 V
Pyro 4DBC3.3 ........... 0.0017 V
Radiator 4DBC3 ......... out
ACC6/7                                          Bypass
Feedforward/Feedback ... on/off                 Dipole D1BYP (RBV) ..... 0.00 A
Feedback gain .......... 50.0                   Energy bypass .......... 1211.4 MeV
Pfwd SP ................ 298.50                 RF vector sum ALL ...... 686.2 MeV
Pfwd RBV ............... 299.53                 Charge 16BYP ........... -0.01 nC
Phase SP ............... -6.00 deg
Phase RBV .............. -5.51 deg
Pfwd C1.ACC6 ........... 158.71 kW
Pfwd C1.ACC7 ........... 182.97 kW
Flat top ............... 800 us
Collimator                                      Undulator
Dipole D1ECOL (RBV) .... 176.89 A               1SFUND1 gap RBV ........ 220.0 mm
Energy dogleg .......... 1002.4 MeV             1SFUND2 gap RBV ........ 220.0 mm
Charge 7ORS ............ 0.00 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) .... 213.10 A               PTO feedback ........... on
Rotator RD13DUMP (RBV) . 9.13 A
Charge 9DUMP ........... 0.00 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 2011-02-04T15_06_13+01
Orbit reference for the root tool saved in /home/ttflinac/measurements/xy_jitter/2011-02-04T150613
```

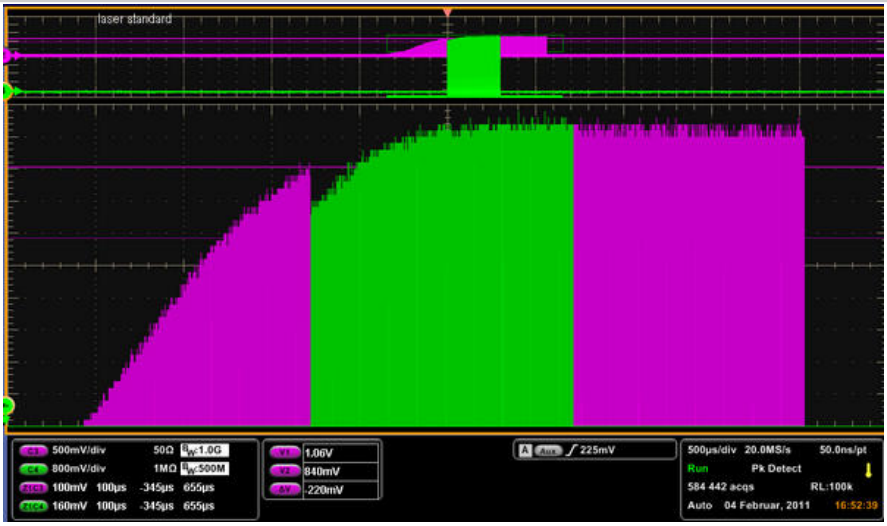
```
also in 'save and restore' files:
Magnets saved to: /home/ttflinac/save_restore/Magnets/autosaved/all_Magnets_20110204T150613.sr
uMovers saved to: /home/ttflinac/save_restore/Micromovers/autosaved/uMovers_20110204T150613.sr
from computer: flashbkr3.desy.de
```

04.02.2011 16:21 ttflinac **ttflinac@:LLRF_Expert_Simcon**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T16:21:03-00.JPG

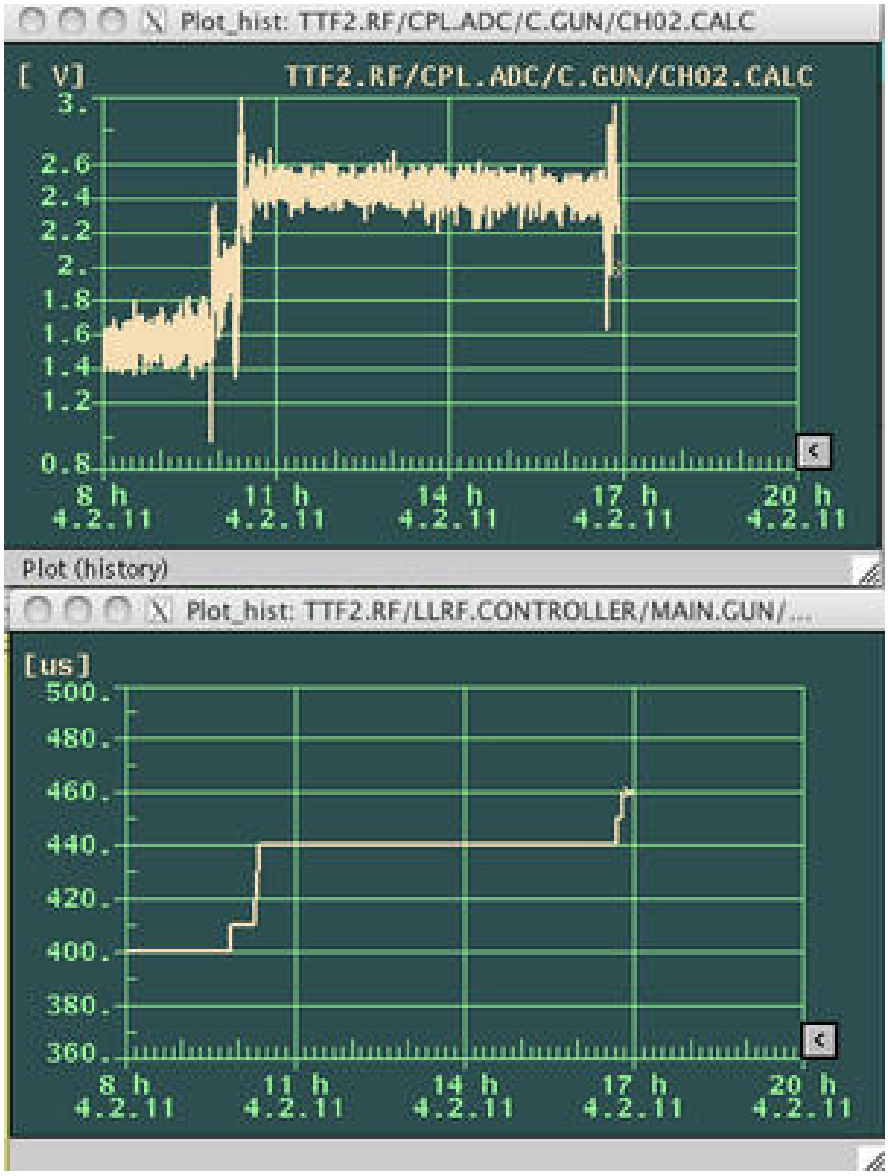
04.02.2011 16:52 S. Schreiber, K. Klose **laser 2**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T16:52:54-00.png

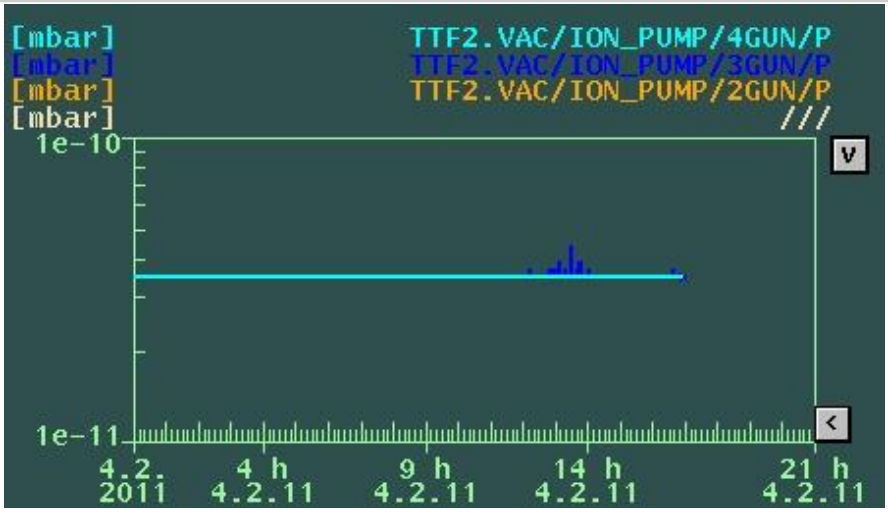
04.02.2011 16:55 S. Schreiber, K. Klose **rf gun**

```
rf pulse length increased to 460 us, temperature to 72.75 dgC
light on the coupler window increased with the pulse length this morning, slow decrease since the
 lengthening this morning,
now the light is even a bit reduced
note: we measure the peak, not the integral
looks good, vacuum stable low
```



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T16:55:34-00.png

04.02.2011 16:58 ttflinac **ttflinac@:Plot_hist**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T16:58:02-00.JPG

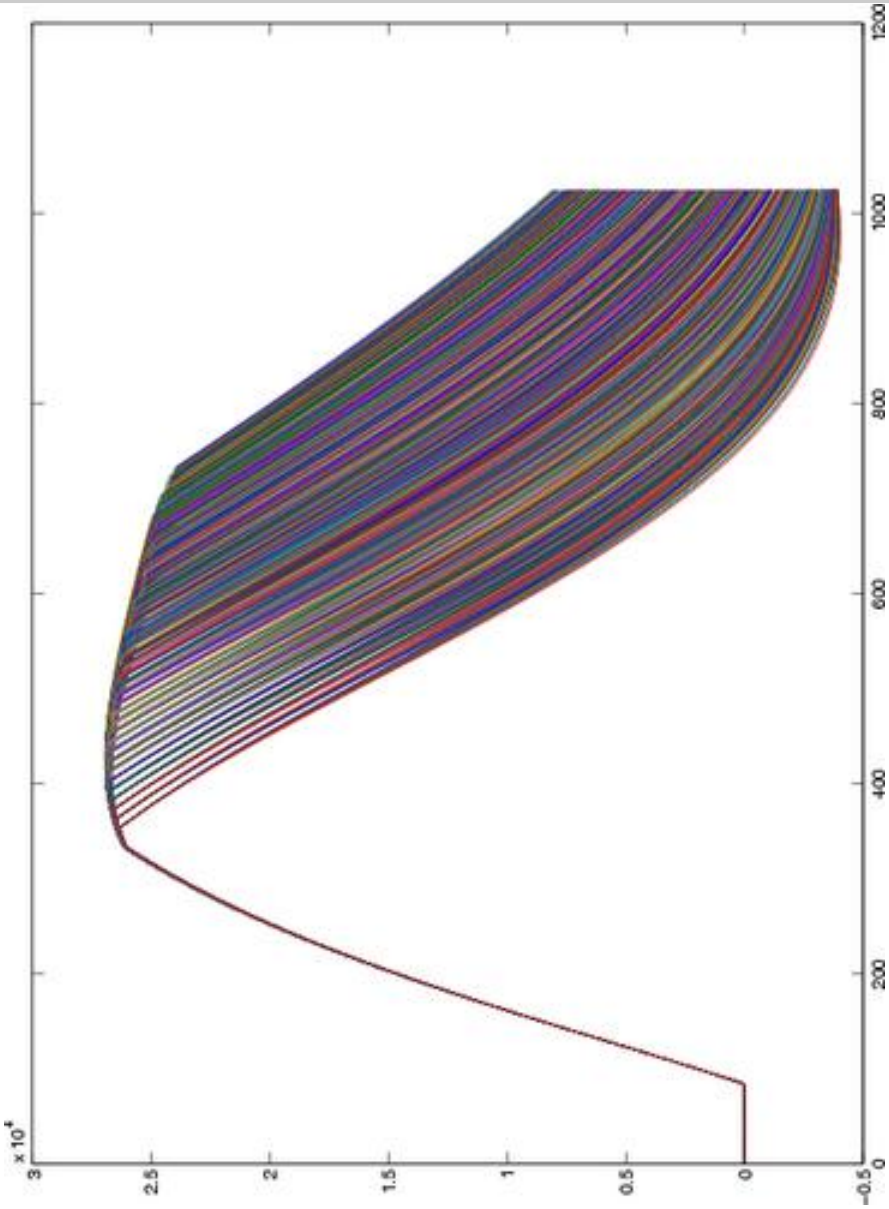
04.02.2011	17:48	Carwardine	**Scanning ACC67 flat-top length to measure detuning on ACC7**

```
Scanned the ACC67 rf flat-top from 800us to 20us in 20us steps with ~3sec interval between steps
Timestamps for DAQ data fetch:
Start: 17:46:26
End: 17:51:23
All piezos on ACC7 were off. ACC6 piezos were not off, so this scan is valid only for ACC7
LLRF feedback and learning feed-forwards are both off
Gradient setpoint = 285
KEYWORDS [9mA detuning scan]
```

04.02.2011	17:48	Carwardine	**Performed another scan of ACC67 flat-top duration**

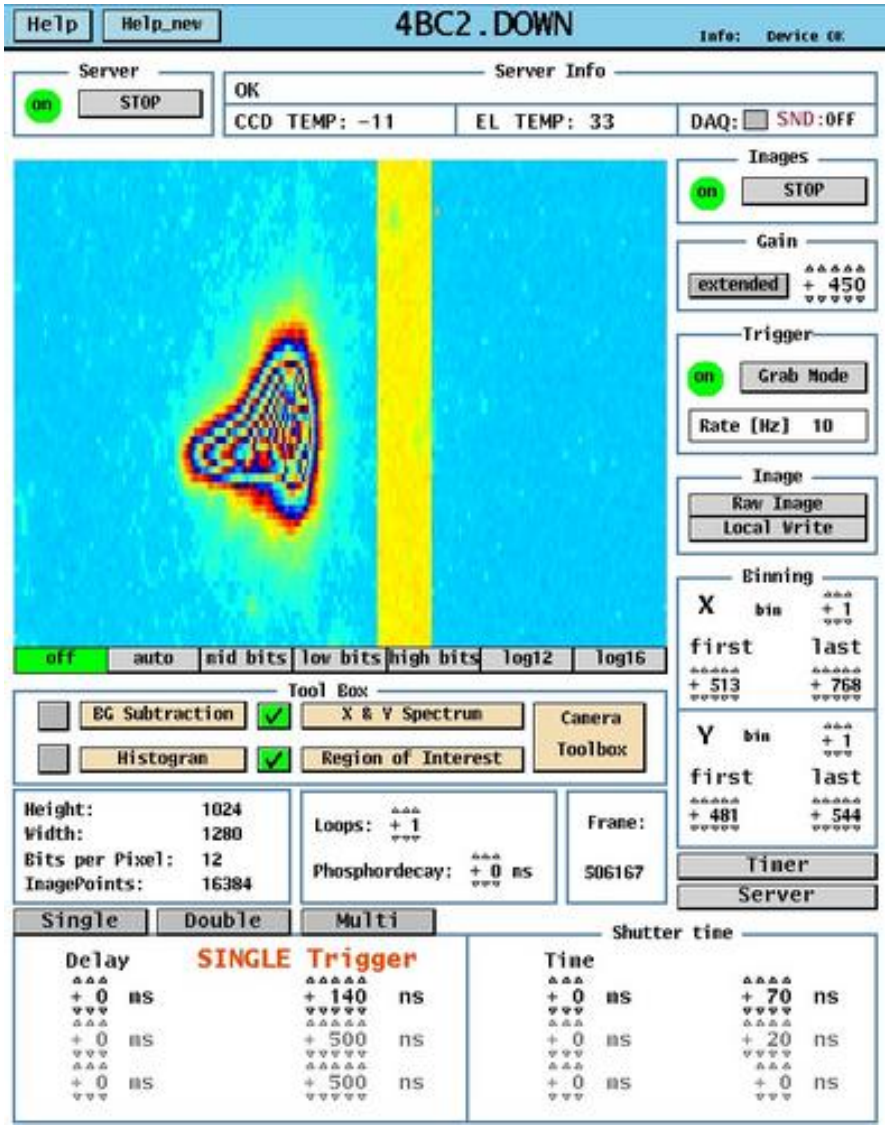
```
Scanned flat-top duration from 800us down to 20us in 20us steps
Timestamp of start of the scan: 17:48:54
Timestamp of end of the scan: 17:52:12
KEYWORD [9mA detuning scan]
```

04.02.2011	18:40	ttflinac	**tp84d5ef1f_7185_4c13_ae4f_e51bdfc5cc89.ps**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T18:40:25-00.ps

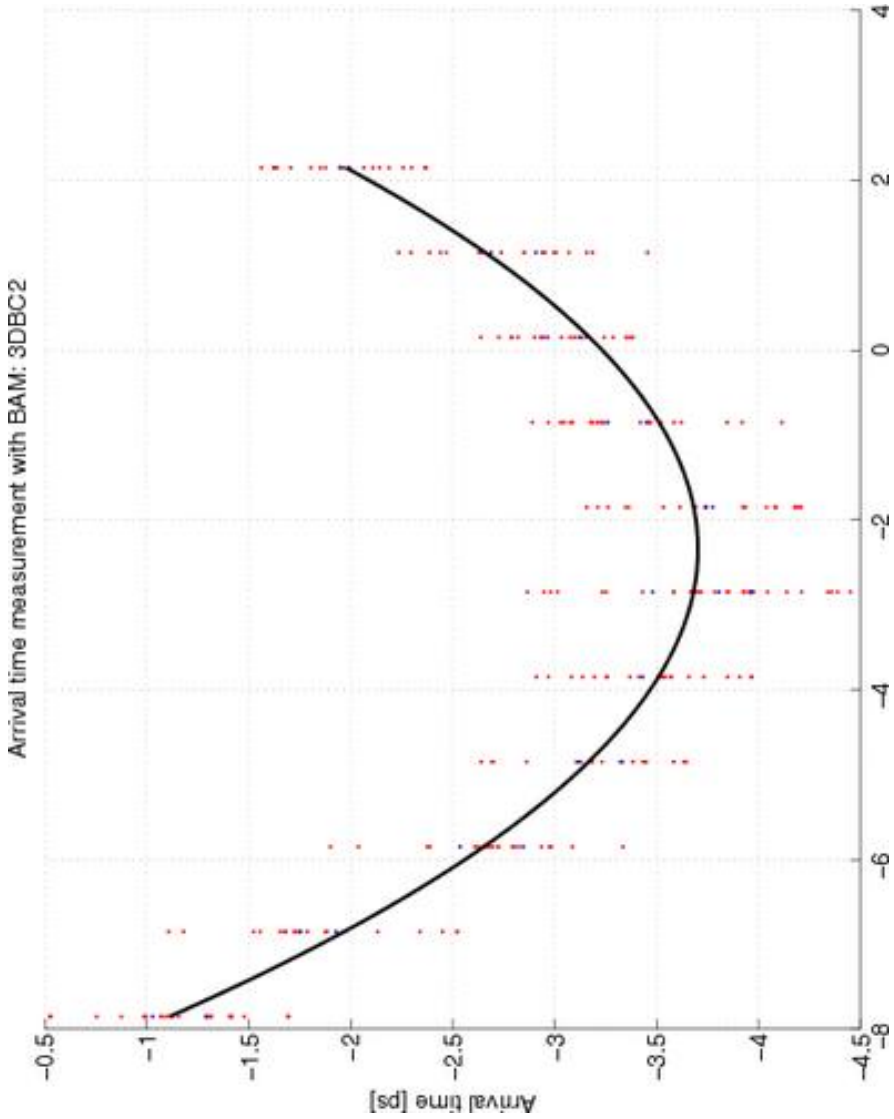
04.02.2011	20:13	CSchmidt	**see entry below**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:13:34-00.JPG

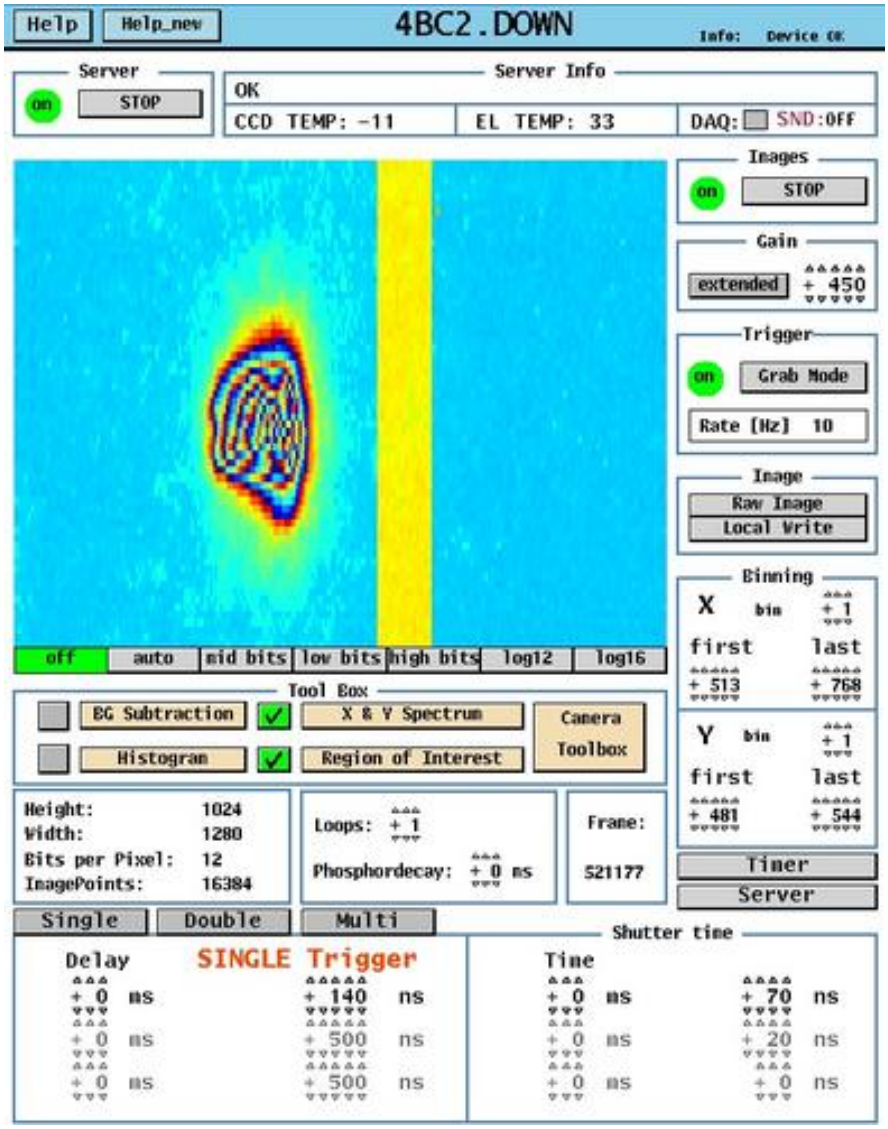
04.02.2011 20:37 CSchmidt **on-crest measurement with BAM**

```
ACC1: 145 MV
ACC39:   0 MV
I am going to set the estimated on-crest phase of -2.34 deg to ACC1 and plot the beam shape with
 cameras in BC2 in the next entries
```



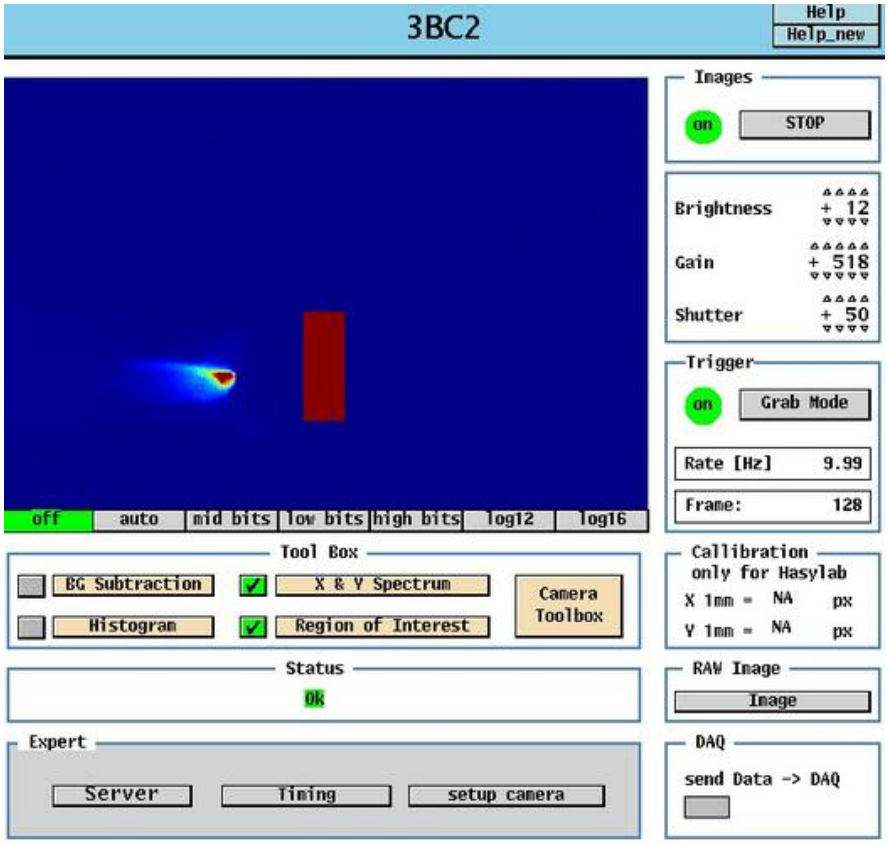
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:37:03-00.ps

04.02.2011	20:38	CSchmidt	**see entry below**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:38:32-00.JPG

04.02.2011	20:39	CSchmidt	**see entry below**

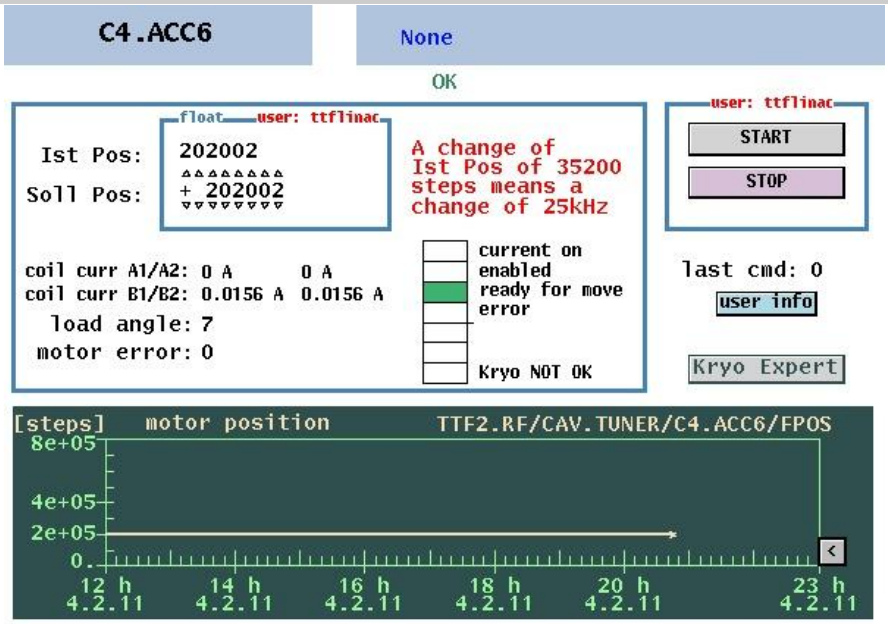


File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:39:51-00.JPG

04.02.2011	20:45	Grecki, Arnold	**Changing cavity tuner ACC6 Cavity 4 tuner motor position**

```
Doing this to check out the DAQ sampling of tuner mot0or positions
KEYWORDS [9mA tuner scan]
```

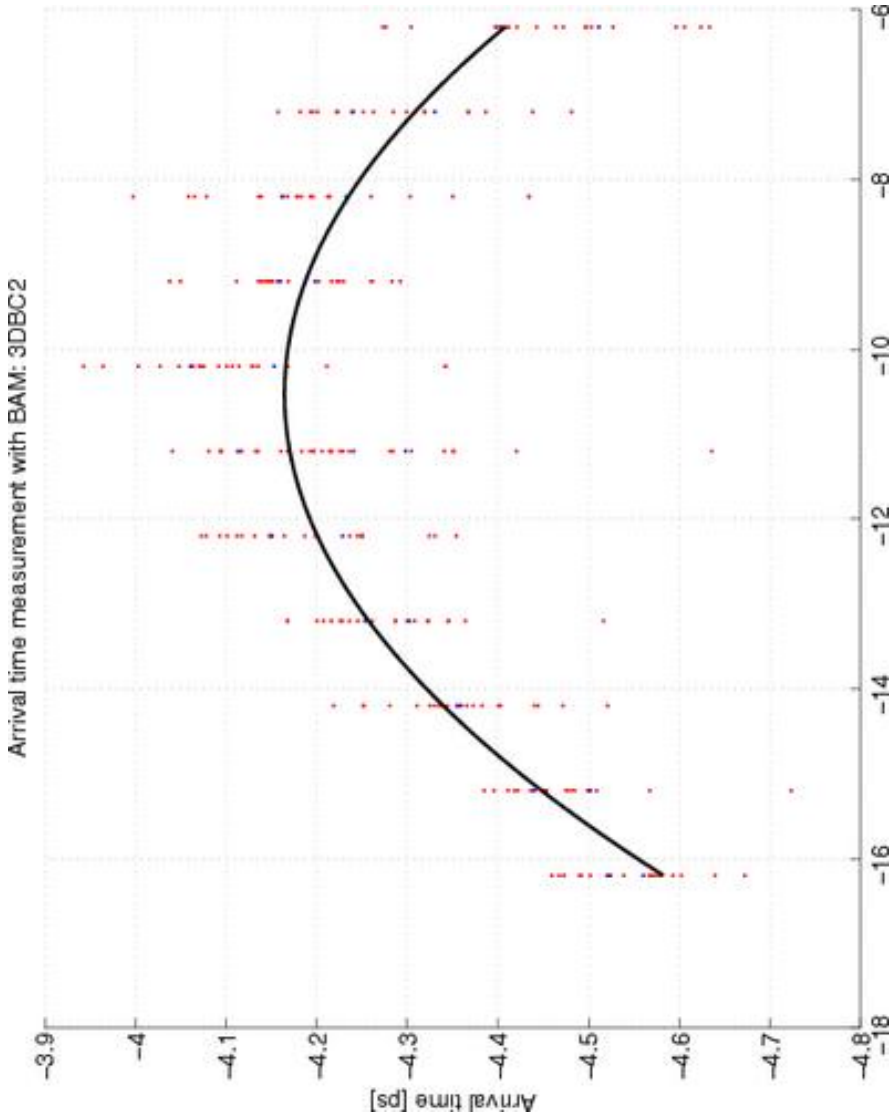
04.02.2011	20:45	ttflinac	**Initial position of the motor tuner of cav.4 ACC6**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:45:42-00.JPG

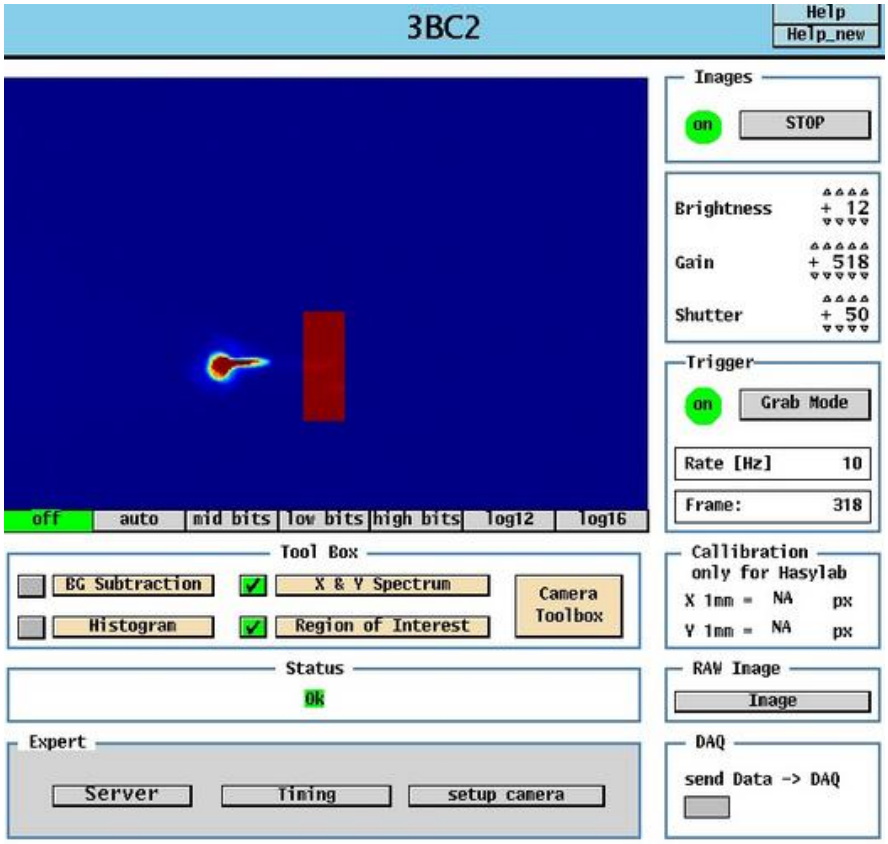
04.02.2011	20:45	CSchmidt	**on-crest measurement with BAM**

```
ACC1: 164 MV
ACC39: 19 MV
I am going to set the estimated on-crest phase of -10.53 deg to ACC39 and plot the beam shape with
 cameras in BC2 in the next entries
```



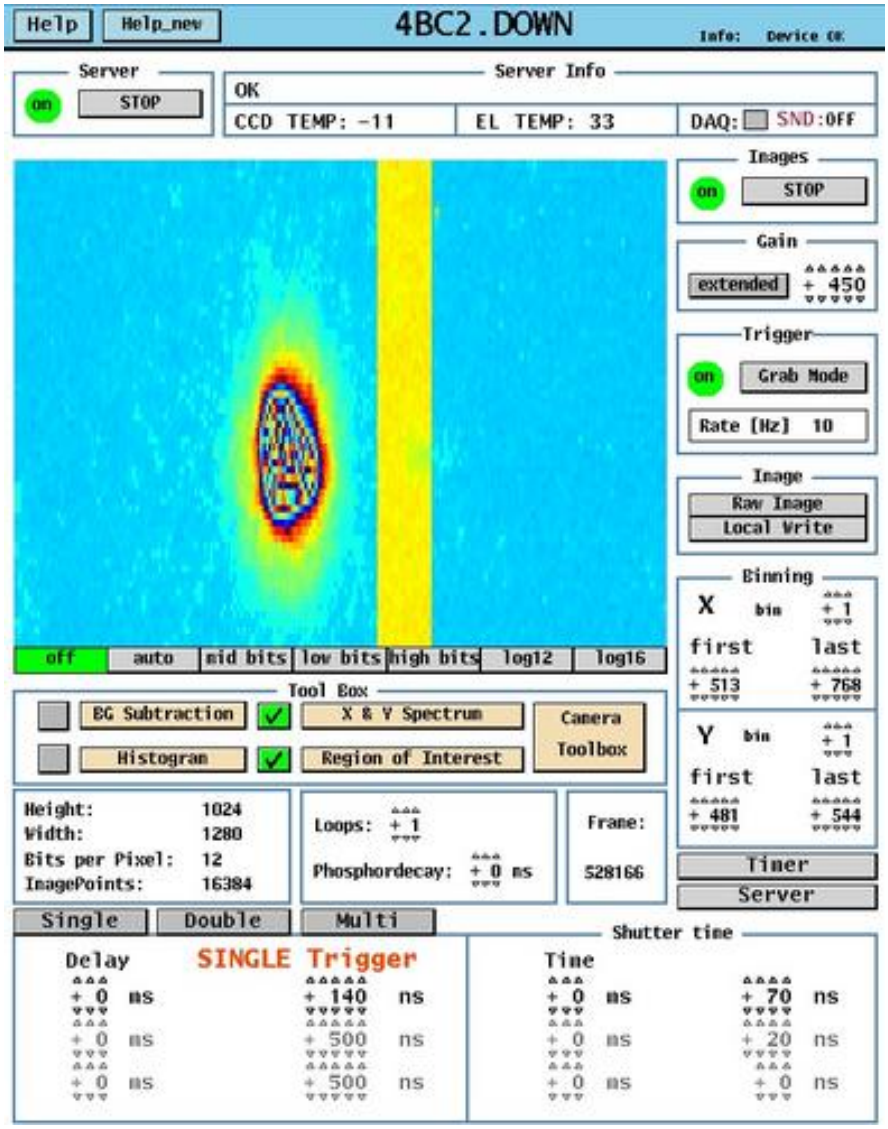
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:45:55-00.ps

04.02.2011	20:49	CSchmidt	**see entry below**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:49:02-00.JPG

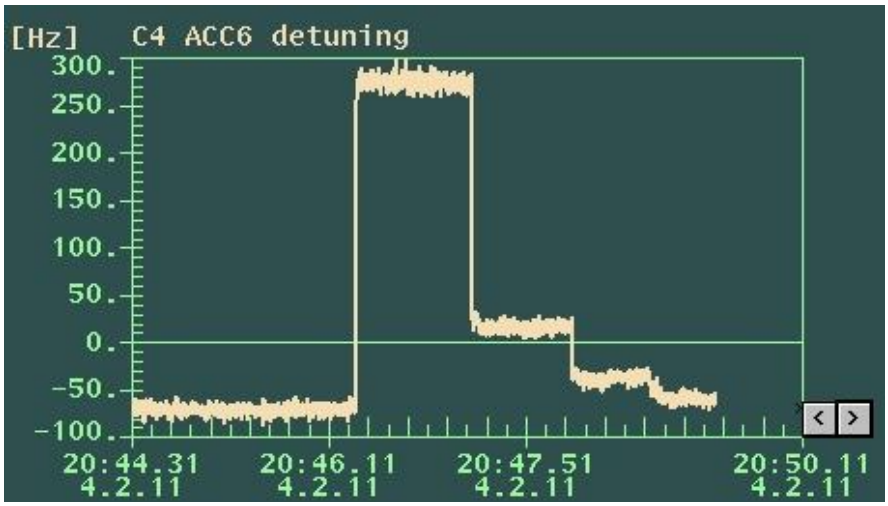
04.02.2011	20:50	CSchmidt	**see entry below**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:50:11-00.JPG

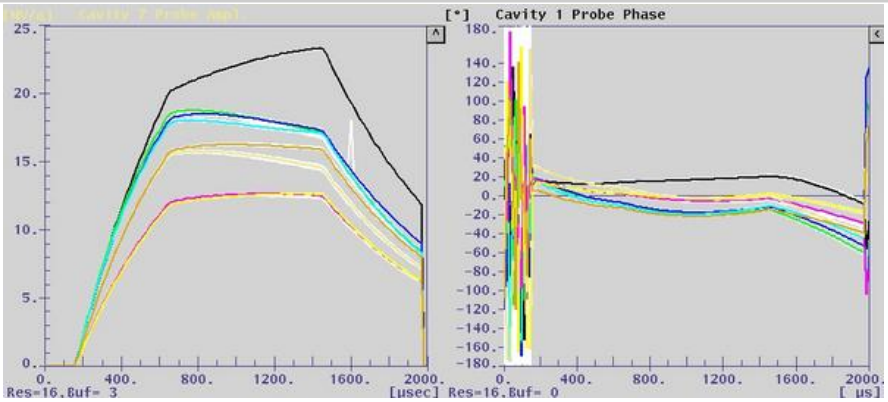
04.02.2011 20:50 ttflinac **Moving the step motor in Cav. 4 ACC6**

300 steps forward (positive direction) and 300 steps backward.Due to hysteresis even more steps backward were needed.



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T20:50:27-00.JPG

04.02.2011	21:16	M.Grecki	**Glitch in monitoring ADC signals**



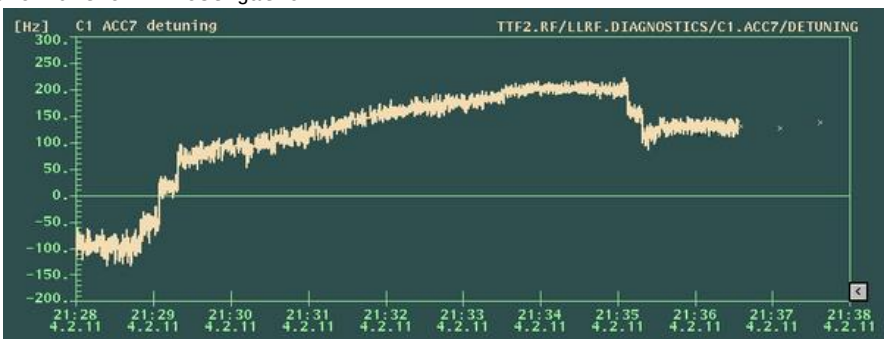
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T21:16:09-00.JPG

04.02.2011	21:38	J. Carwardine, C. Schmidt	**Scan of the ACC7 C1 mechanical tuner (to test script)**

```
Objective of the scan was to have no discontinuity in probe phase at the end of the flat top
Timestamp of start of scan: 21:29
Moved tuner motor position smoothly from -524307 to -524100
Timestamp of end of scan: 21:33
Timestamp: 21:35
The fill to flat-top power ratio was changed from 1.11 to 0.94 - this was adjusted to get as flat
 as possible gradient on Cav 1 ACC7 irrespective of the other cavity gradients or vector
 sum. Note we are still in open loop mode.
KEYWORDS [9mA tuner scan]
```

04.02.2011	21:38	Carwardine	**This is the detuning as computed by the diagnostics server during the cavity tuner scan**

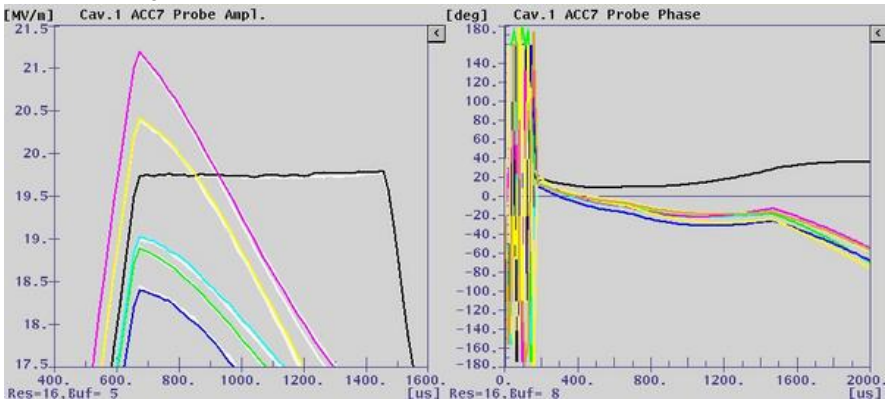
```
At around 21:35 when the forward power ratio was adjusted, the step change in detuning is of the
 same order as the change in detuning from the shifting of the motor. This is surprising
 and warrants some further investigation
```



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T21:38:52-00.JPG

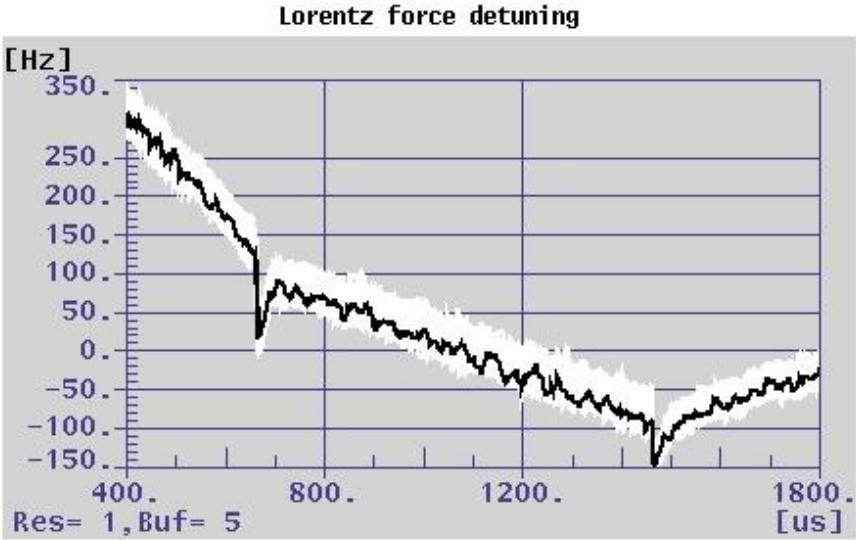
04.02.2011	21:39	Carwardine	**ACC7 cavity gradients after the tuning scan and the adjustment of the forward power ratio**

```
The black trace is C1 ACC7 gradient
```



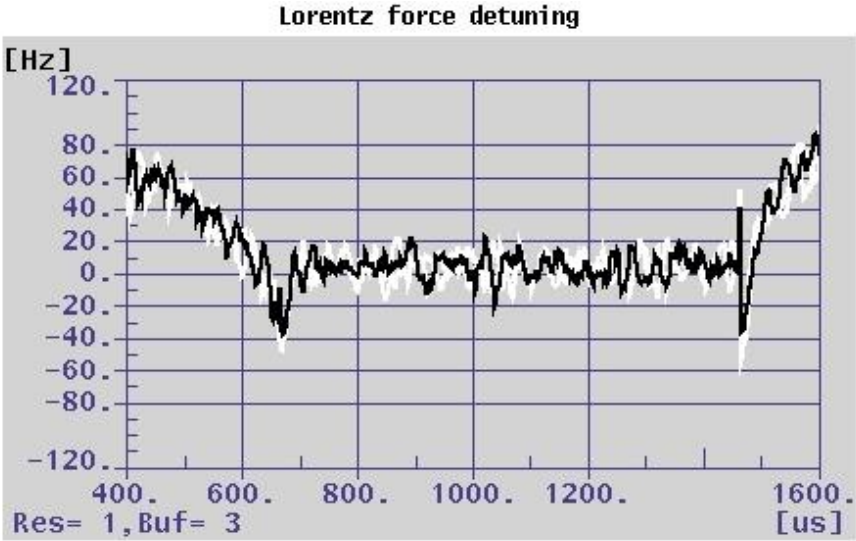
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T21:39:00-00.JPG

04.02.2011	21:47	ttflinac	**LFD curve in cavity tuned to resonance by motor tuners (C1ACC7)**



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T21:47:52-00.JPG

04.02.2011	21:59	M.Grecki	**LFD curve in ACC6 Cav.1 after optimization of piezo pulse paramaters and DC voltage**



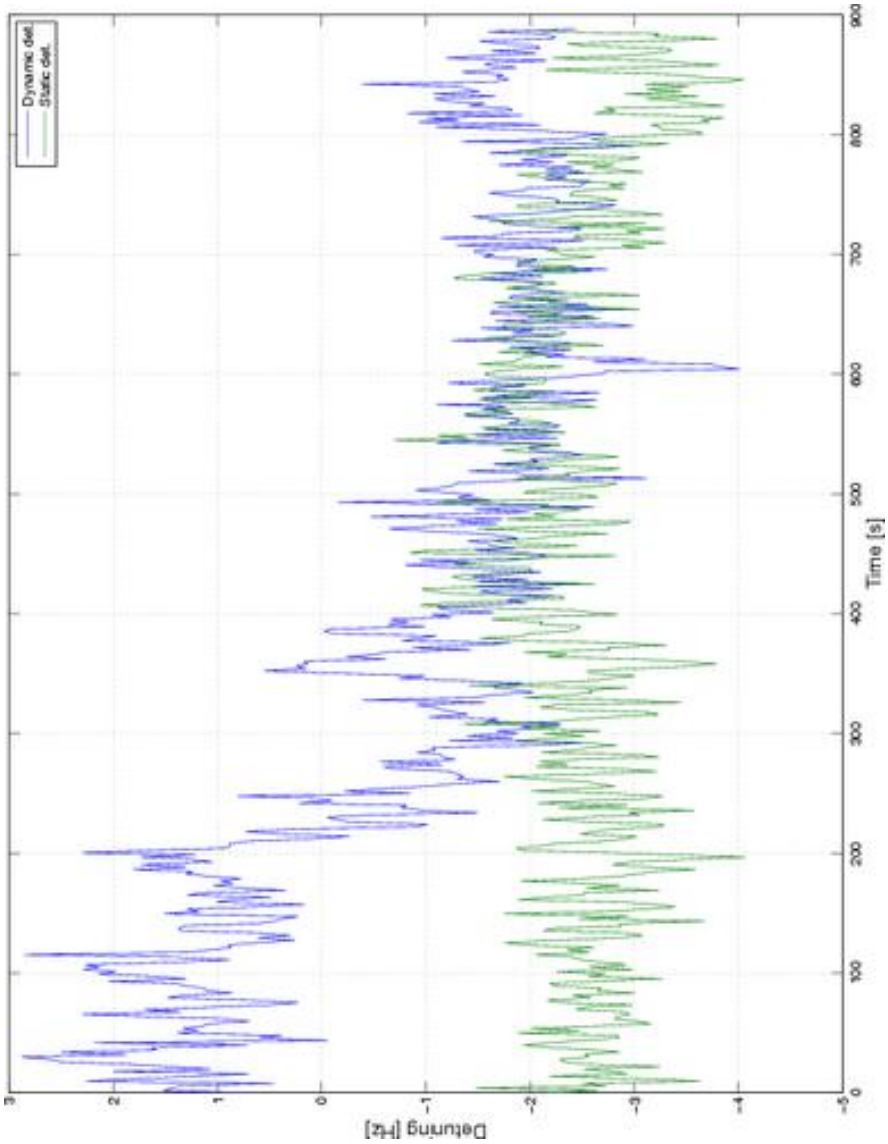
File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T21:59:45-00.JPG

04.02.2011	22:07	Grecki, C. Schmidt, Carwardine	**Experiment to check correlation between changing C1/ACC6 detuning and C1/ACC7 gradient**

```
A step change in the slope of the gradient on ACC7/C1 seemed to correspond to tuning adjustments
 being done on ACC6 Cavity 1. We varied the static detuning on ACC6 Cavity 1 but didn't
 see any change on the ACC7.
```

04.02.2011	22:38	M.Grecki	**Fluctuations of static and dynamic detuning over the time in Cav.1 ACC6**

```
starting from previously calculated optimal conditions.
```



File: http://ttfinfo.desy.de/TTFelog/data/2011/05/04.02_a/2011-02-04T22:38:59-00.ps