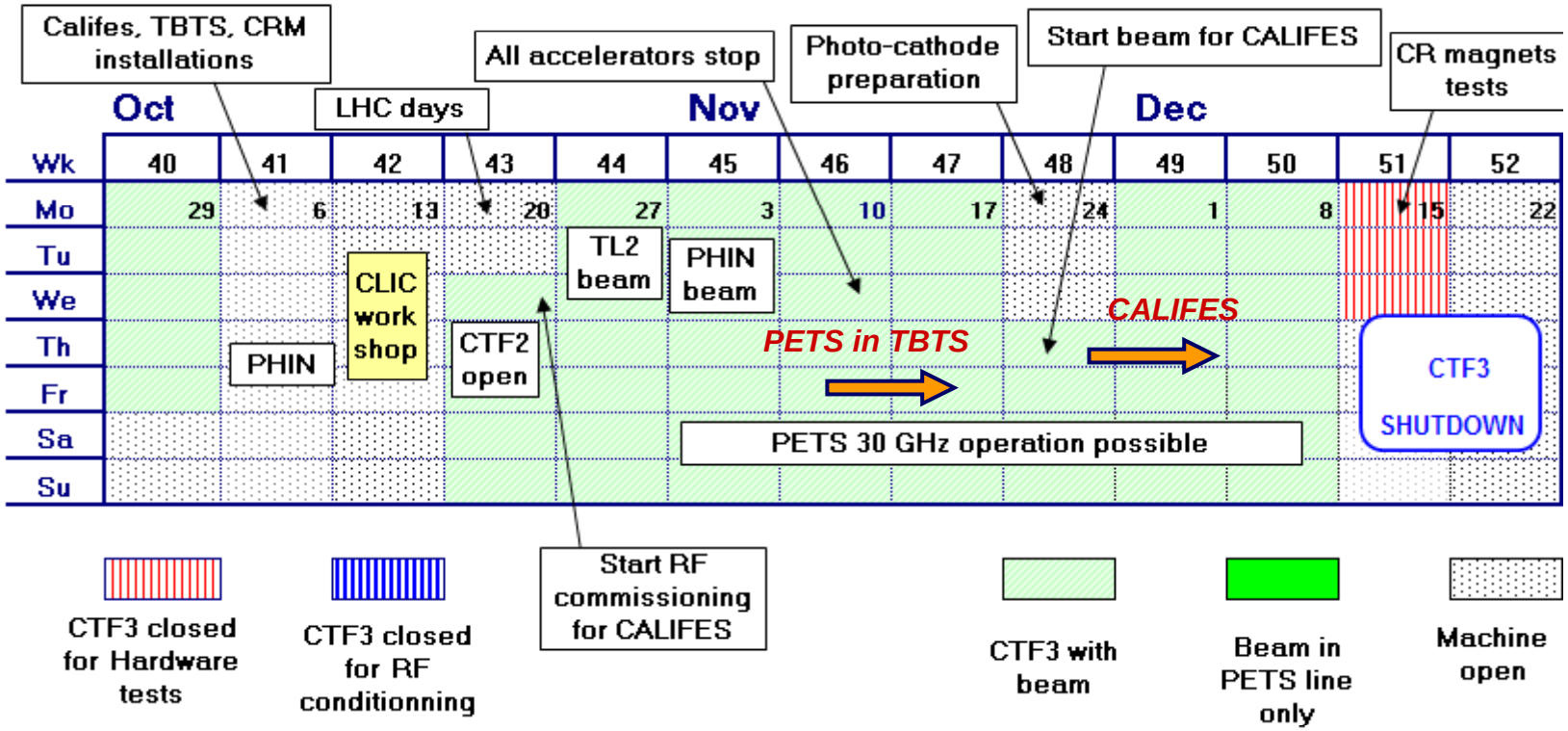
# Schedule


Califes, TBTS, CRM installations
All accelerators stop
Photo-cathode preparation
Start beam for CALIFES
CR magnets tests
Oct
Nov
Dec
LHC days
Wk 40 41 42 43 44 45 46 47 48 49 50 51 52
Mo 29 6 13 20 27 3 10 17 24 1 8 15 22
Tu
We
Th
Fr
Sa
Su
PHIN
CLIC work shop
CTF2 open
TL2 beam
PHIN beam
PETS in TBTS
CALIFES
CTF3 SHUTDOWN
PETS 30 GHz operation possible
Start RF commissioning for CALIFES
CTF3 closed for Hardware tests
CTF3 closed for RF conditionning
CTF3 with beam
Beam in PETS line only
Machine open

## Goals & milestones 2008 run

- 1st run (April - June)
  - Injector & Linac: establish stable & documented working point, automatic beam steering & steering algorithm studies, diagnostics consolidation, stability studies, EUROTeV BPMs
  - Delay Loop: complete beam optics measurements (dispersion, orbit, kick measurements, matching), re-establish combination
  - TL1 & combiner ring: complete optics studies (dispersion, closed orbit correction, matching, tunes, kick measurements, quad displacement evaluation, matching), tune and $\beta$ function dependence of vertical instability, factor four combination with DL bypass ($\geq$ 10 A)
  - DL, TL1 & CR: factor 8 combination ($\geq$ 15 A)
- 2nd run (July - September)
  - Complete DL + CR, new RF deflectors (20 A ?)
  - TL2 commissioning
  - First CALIFES commissioning
  - TBTS commissioning (no PETS)
- 3rd run (September - December)
  - Complete above program
  - Coherent Diffraction Radiation tests
  - TBTS, PETS running in

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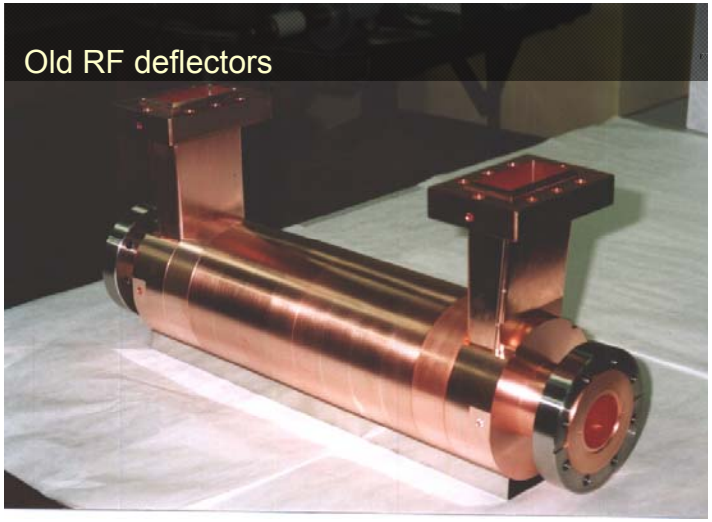
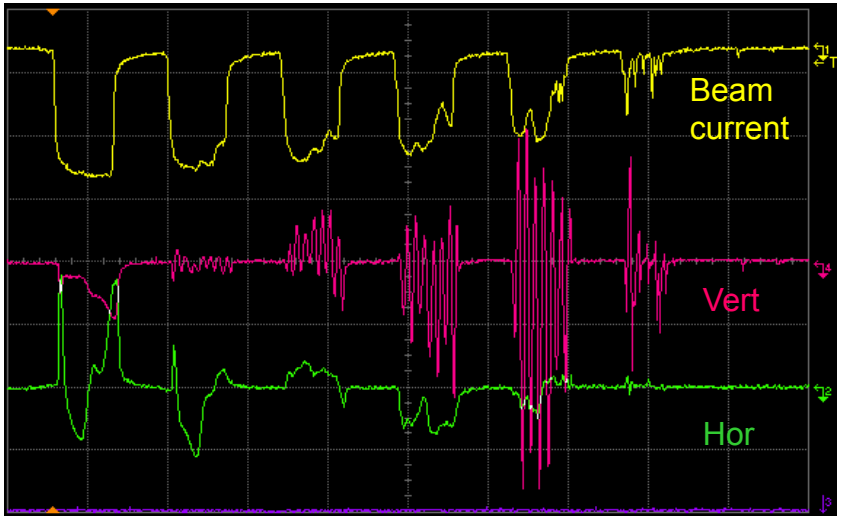
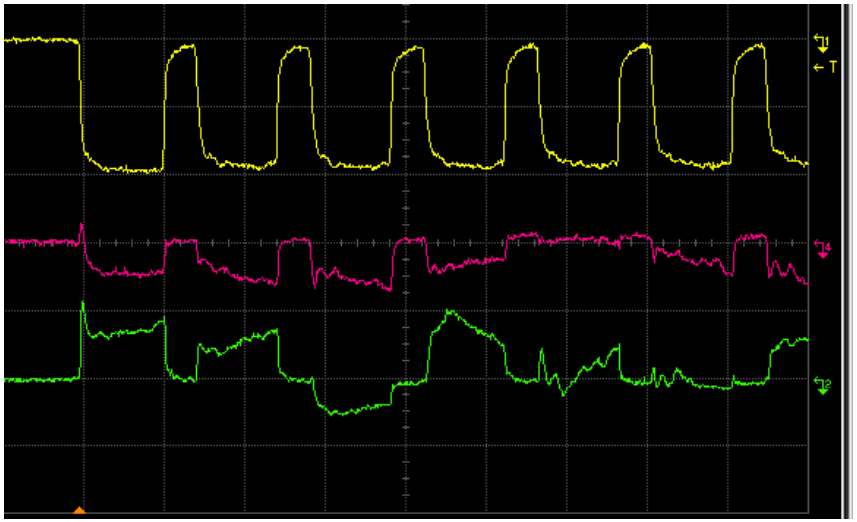
## Fast vertical beam instability in CTF3 solved by new deflectors

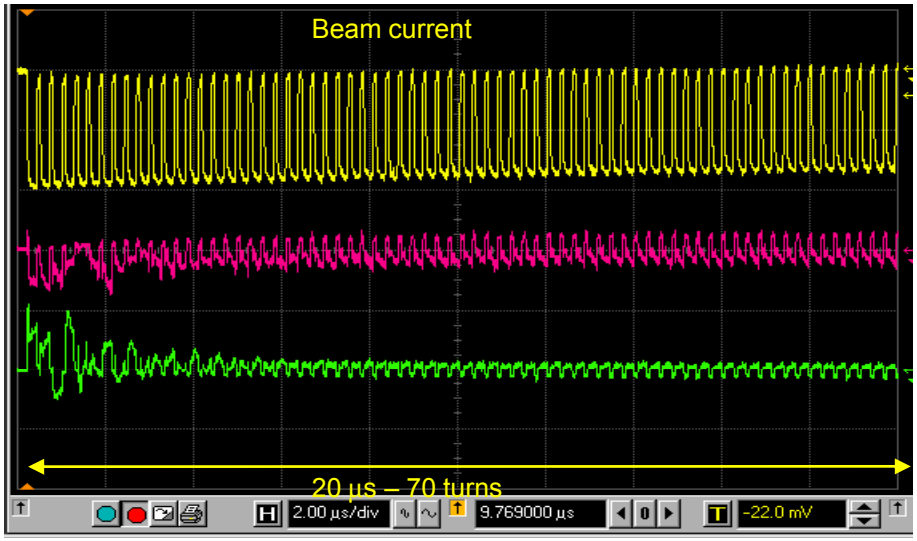
with strong damping of the vertical deflecting mode and larger hor./vert. detuning





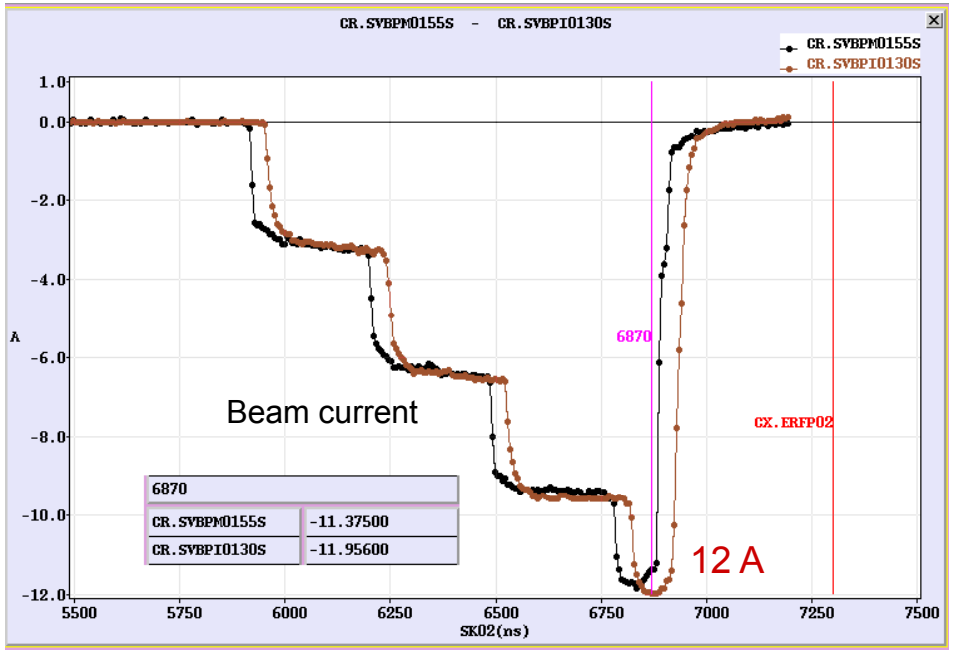





Without the losses from the fast vertical beam instability (plus improved optics control and tuning tools) it is now possible to circulate the 3 A beam with very small losses for hundreds of turns.

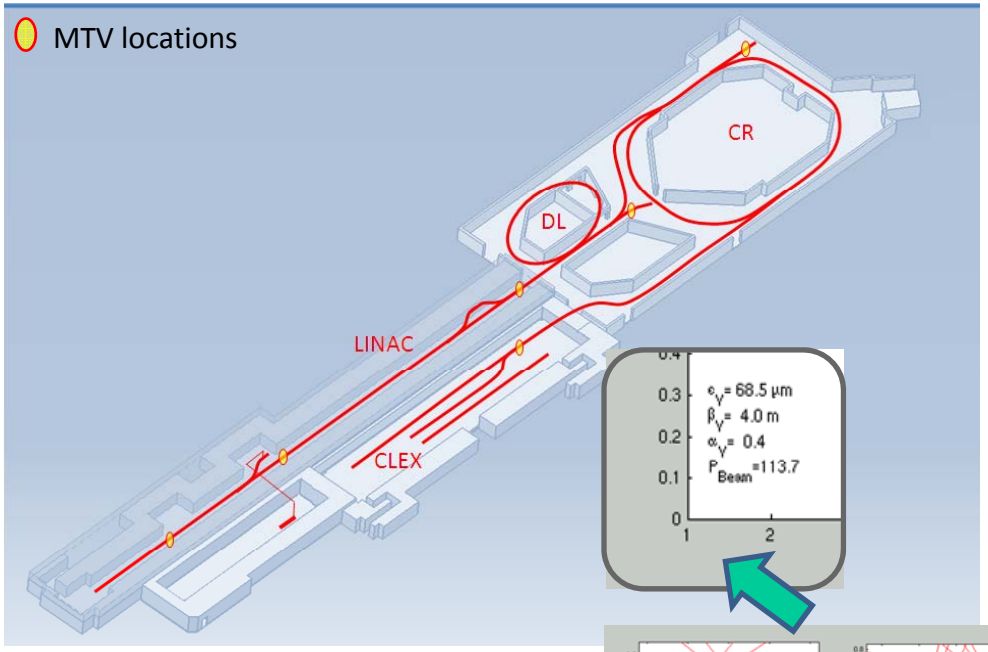
Bunch re-combination of a 3 A beam with factor four current increase had been demonstrated – 12 A reached.

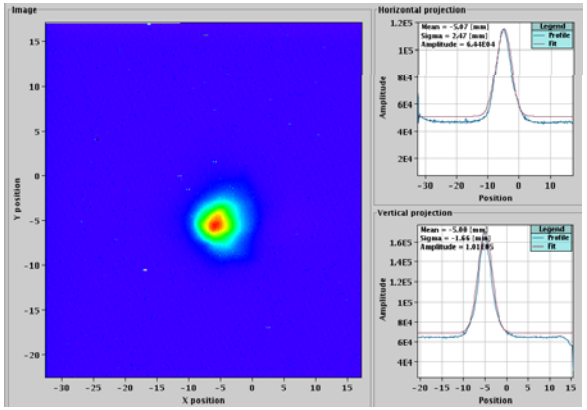
(DL still by-passed, and limited by RF pulse length)

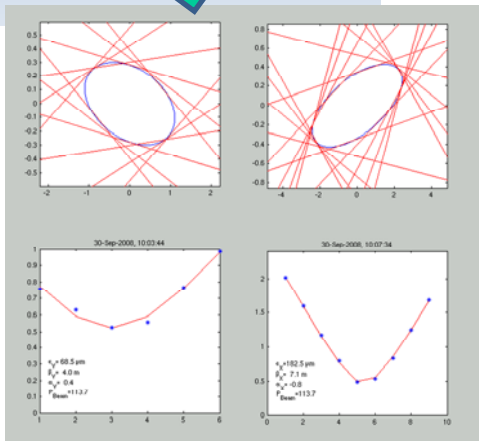


## Beam profile, emittance, Twiss parameters, matching

routinely used

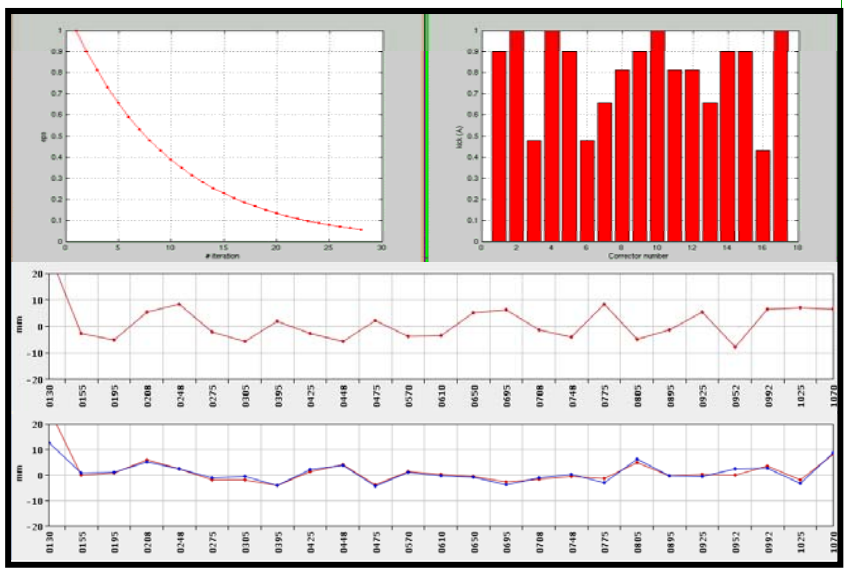


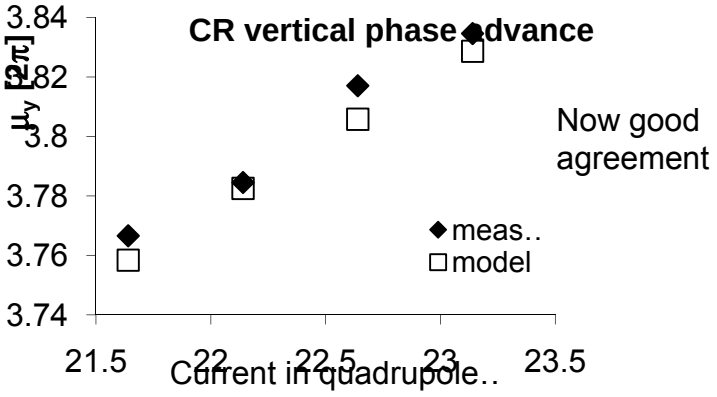
## Ring closed orbit correction

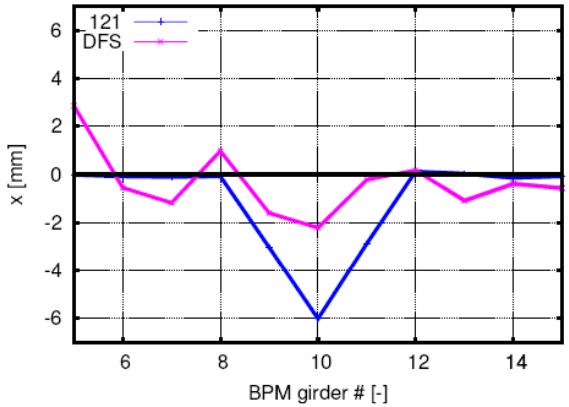
Now operational



## Tune measurements

## FFT of BPM signals at injection



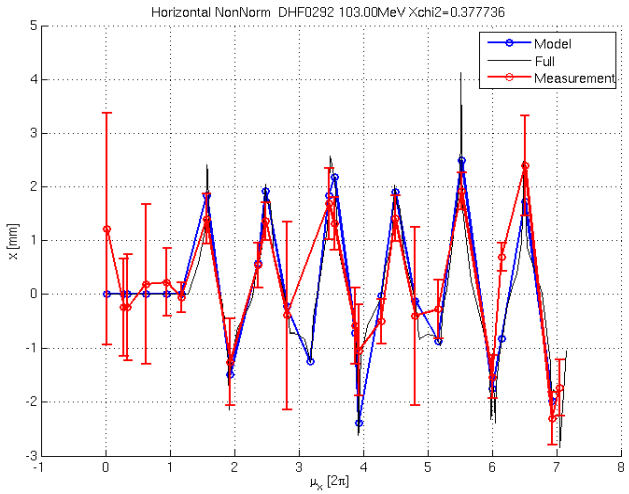



## Dispersion free steering

First tests in CTF3 linac promising
Will extend to rest of machine
Important benchmark for CLIC correction algorithms

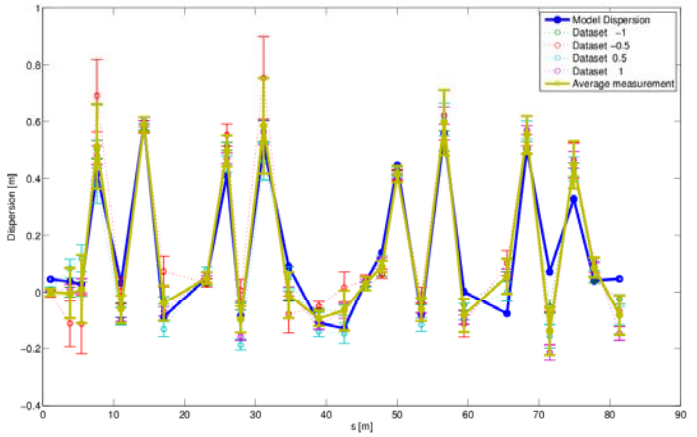
## Kick measurements

Had been fundamental to debug hardware & model
Still some small differences

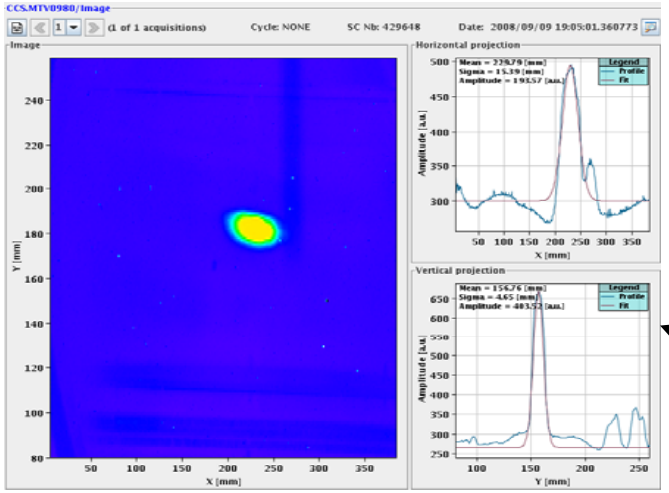


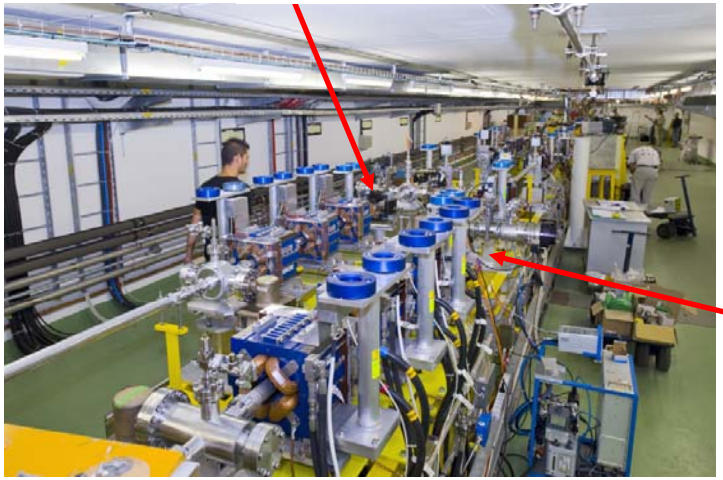

## Dispersion measurements By magnet scaling

Overall agreement with small residual
Other methods to be developed

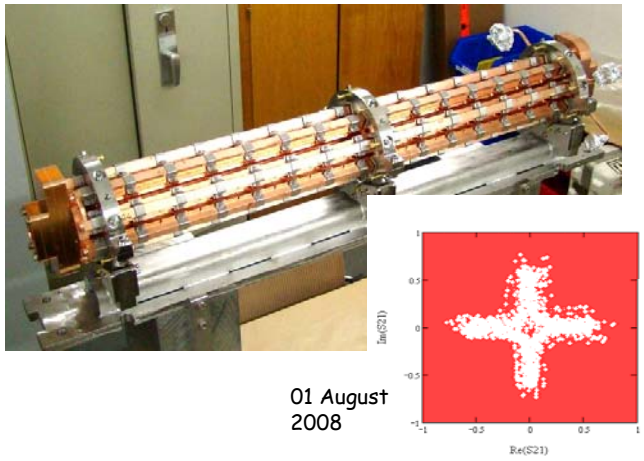


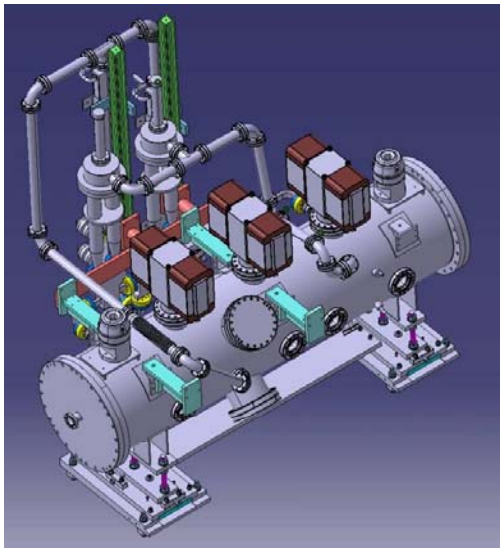
## Beam reached the end of the CLEX drive beam line – including PETS

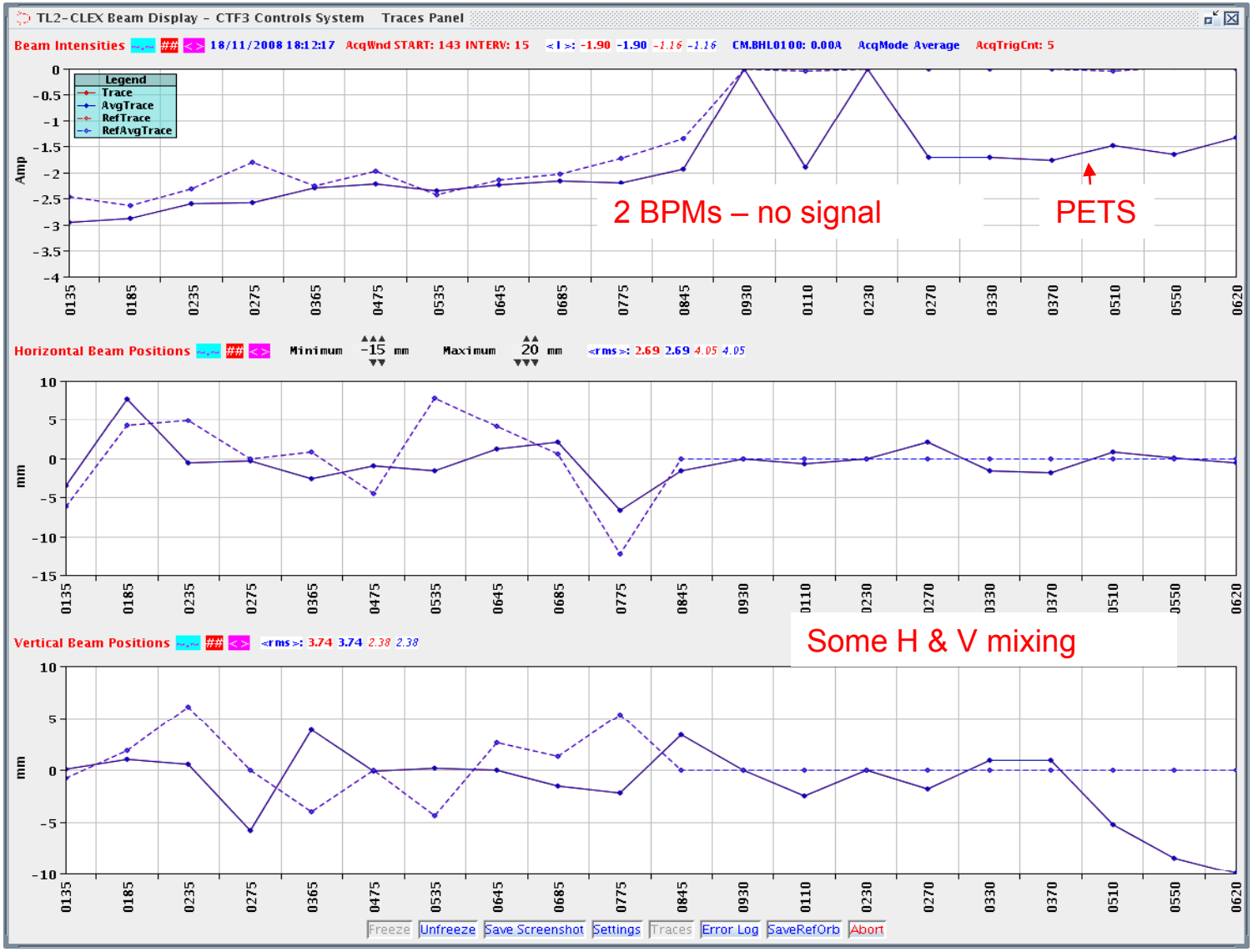


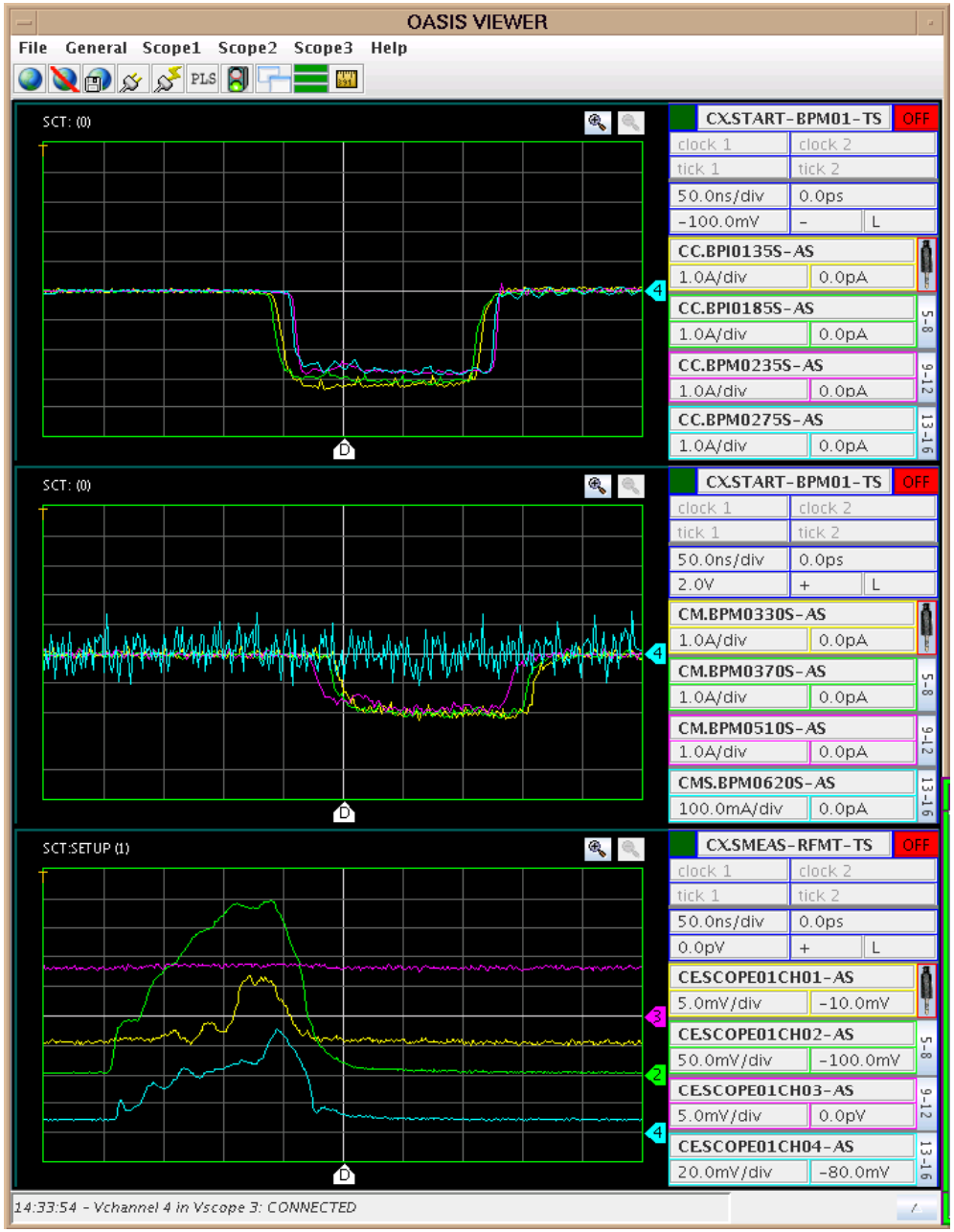



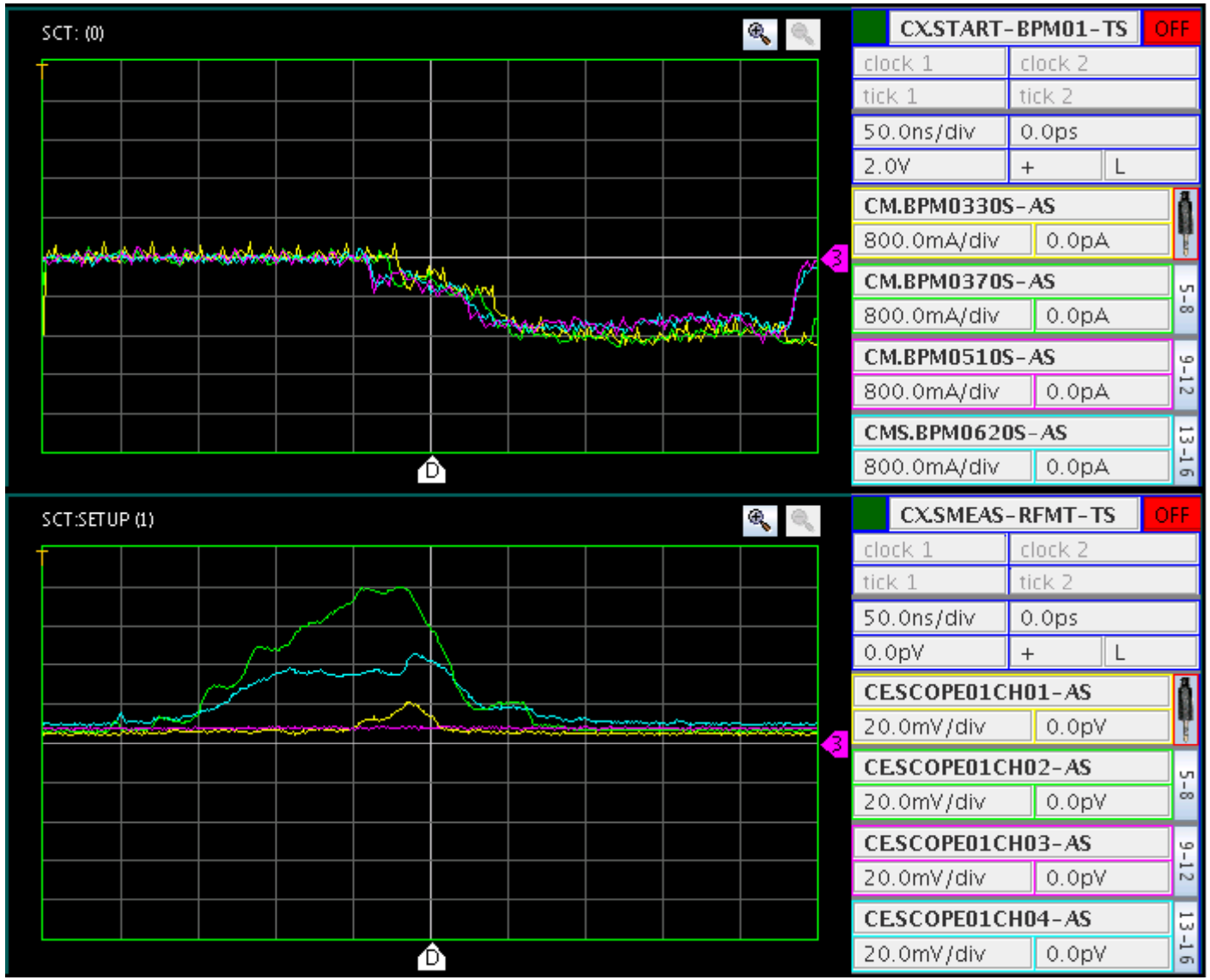

Potential to reach nominal power soon (inside PETS) by recirculation




TL2-CLEX Beam Display - CTF3 Controls System Traces Panel
Beam Intensities
18/11/2008 18:12:17 AcqWnd START: 143 INTERV: 15
CM.BHL0100: 0.00A AcqMode Average AcqTrigCnt: 5
Legend
Trace
AvgTrace
RefTrace
RefAvgTrace
Amp
2 BPMs – no signal
PETS
Horizontal Beam Positions
Minimum -15 mm
Maximum 20 mm
mm
Vertical Beam Positions
Some H & V mixing
Freeze
Unfreeze
Save Screenshot
Settings
Traces
Error Log
SaveRefOrb
Abort


OASIS VIEWER
File General Scope1 Scope2 Scope3 Help
PLS
SCT: (0)
CX.START-BPM01-TS
OFF
clock 1
clock 2
tick 1
tick 2
50.0ns/div
0.0ps
-100.0mV
-
L
CC.BPI0135S-AS
1.0A/div
0.0pA
CC.BPI0185S-AS
1.0A/div
0.0pA
CC.BPM0235S-AS
1.0A/div
0.0pA
CC.BPM0275S-AS
1.0A/div
0.0pA
1-4
5-8
9-12
13-16
SCT: (0)
CX.START-BPM01-TS
OFF
clock 1
clock 2
tick 1
tick 2
50.0ns/div
0.0ps
2.0V
+
L
CM.BPM0330S-AS
1.0A/div
0.0pA
CM.BPM0370S-AS
1.0A/div
0.0pA
CM.BPM0510S-AS
1.0A/div
0.0pA
CMS.BPM0620S-AS
100.0mA/div
0.0pA
SCT:SETUP (1)
CX.SMEAS-RFMT-TS
OFF
clock 1
clock 2
tick 1
tick 2
50.0ns/div
0.0ps
0.0pV
+
L
CESCOPE01CH01-AS
5.0mV/div
-10.0mV
CESCOPE01CH02-AS
50.0mV/div
-100.0mV
CESCOPE01CH03-AS
5.0mV/div
0.0pV
CESCOPE01CH04-AS
20.0mV/div
-80.0mV
14:33:54 - Vchannel 4 in Vscope 3: CONNECTED


SCT: (0)
CX.START-BPM01-TS
OFF
clock 1
clock 2
tick 1
tick 2
50.0ns/div
0.0ps
2.0V
+
L
CM.BPM0330S-AS
800.0mA/div
0.0pA
CM.BPM0370S-AS
800.0mA/div
0.0pA
CM.BPM0510S-AS
800.0mA/div
0.0pA
CMS.BPM0620S-AS
800.0mA/div
0.0pA
5-8
9-12
13-16
SCT:SETUP (1)
CX.SMEAS-RFMT-TS
OFF
clock 1
clock 2
tick 1
tick 2
50.0ns/div
0.0ps
0.0pV
+
L
CE.SCOPE01CH01-AS
20.0mV/div
0.0pV
CE.SCOPE01CH02-AS
20.0mV/div
0.0pV
CE.SCOPE01CH03-AS
20.0mV/div
0.0pV
CE.SCOPE01CH04-AS
20.0mV/div
0.0pV
5-8
9-12
13-16

# Outlook – restart operation in 2009

**CTF3 - Shutdown 2008-2009** 20.11.08

| ID | Task Name E. | Duration |
|---|---|---|
| 1 | **CTF3 Shutdown** | 1 day |
| 2 | | |
| 3 | **Summary** | 84 days? |
| 4 | | |
| 5 | **LINAC** | 1 day? |
| 6 | Accessible | 31 days? |
| 7 | Beam | 1 day? |
| 8 | | |
| 9 | **Rings** | 1 day? |
| 10 | Accessible | 45 days? |
| 11 | Beam | 1 day? |
| 12 | | |
| 13 | **CLEX** | 1 day? |
| 14 | Accessible | 75 days? |
| 15 | Beam | 1 day? |
| 16 | | |
| 17 | **CTF2** | 1 day? |
| 18 | Accessible | 31 days? |
| 19 | Beam 30 GHz | 1 day? |
| 20 | Beam PHIN | 1 day? |
| 21 | | |