



# Thursday 18/3/2010

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- Tests for RB in sector 56 to 6 kA and to 2 kA for all other sectors completed by 12:00 → Green light for 6 kA operation
  - Tests for 2 A/s ramp rate of the main quadrupoles completed by 13:00. Two thresholds had to be increased to 600  $\mu\text{V}$
  - PIC in Sector 12 back to nominal → Tested
  - SW limits for ramp rate to 2 A/s for RB
  - 15:00 Access required for Beam Dump kicker (faulty power supply)
  - 15:30 Recovered but DB problem not allowing rearming the beam dump
  - 16:30 Finally ready for ramp without beam
  - 17:38 Trip of Sector 78 during dry ramp to 6 kA. Not understood
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# Thursday-Friday 18-19/3/2010

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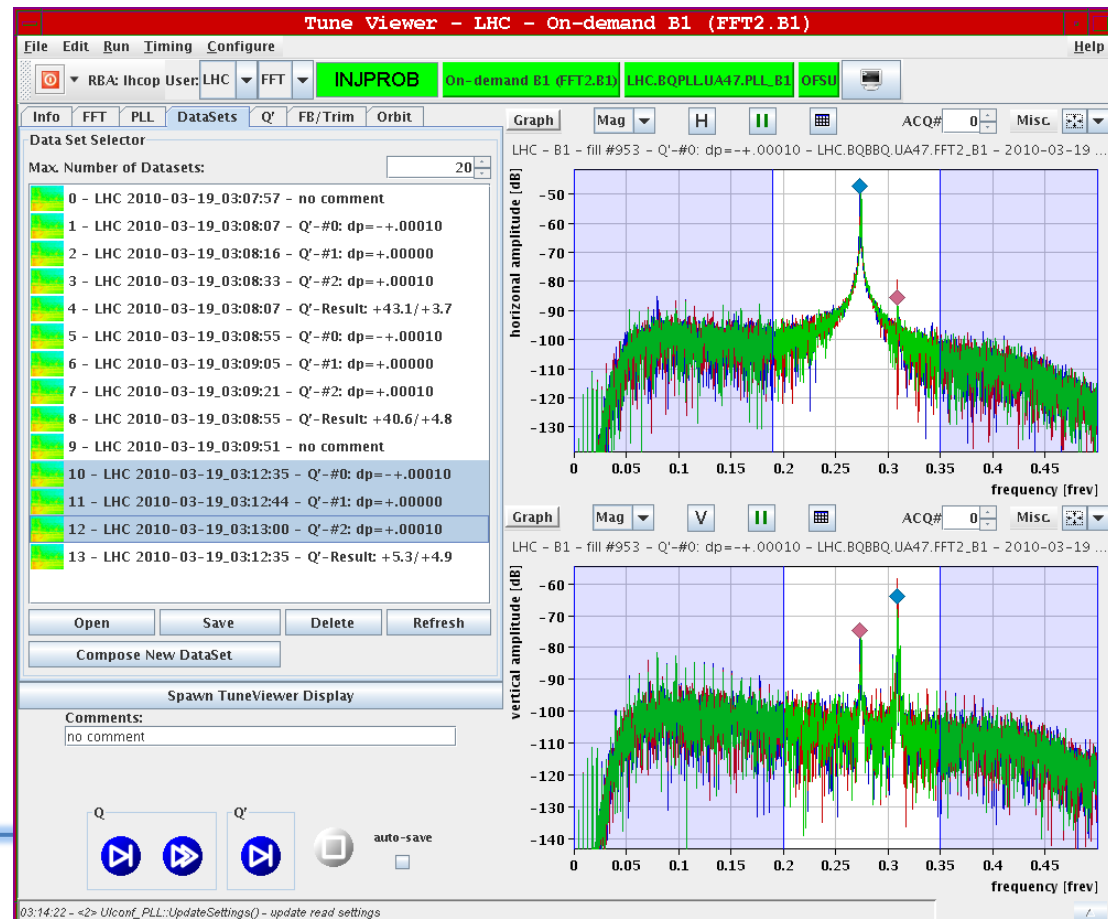
- Dump during the ramp due to BLM (problem with optical for BLM in point 1 → fixed).
  - 20:45 Try a second ramp without beam
  - 22:04 Ramp to 3.5 TeV without beam completed
  - 00:20 Ready at injection
  - Injection at 01:45
  - Found huge chromaticity (negative) and important orbit distortion → regenerated SF and SD functions (stuff up) → much better!
  - Performed checks:
    - B1 :
      - Q' Trim : H = -25.0 & V = 0.0 - Now at H= 5, V= 5
      - Q trim : H only by +0.02 . Tunes at 0.28 and 0.31
      - Orbit corrected against “golden”
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# Thursday-Friday 18-19/3/2010

- Performed checks:

- B2 :

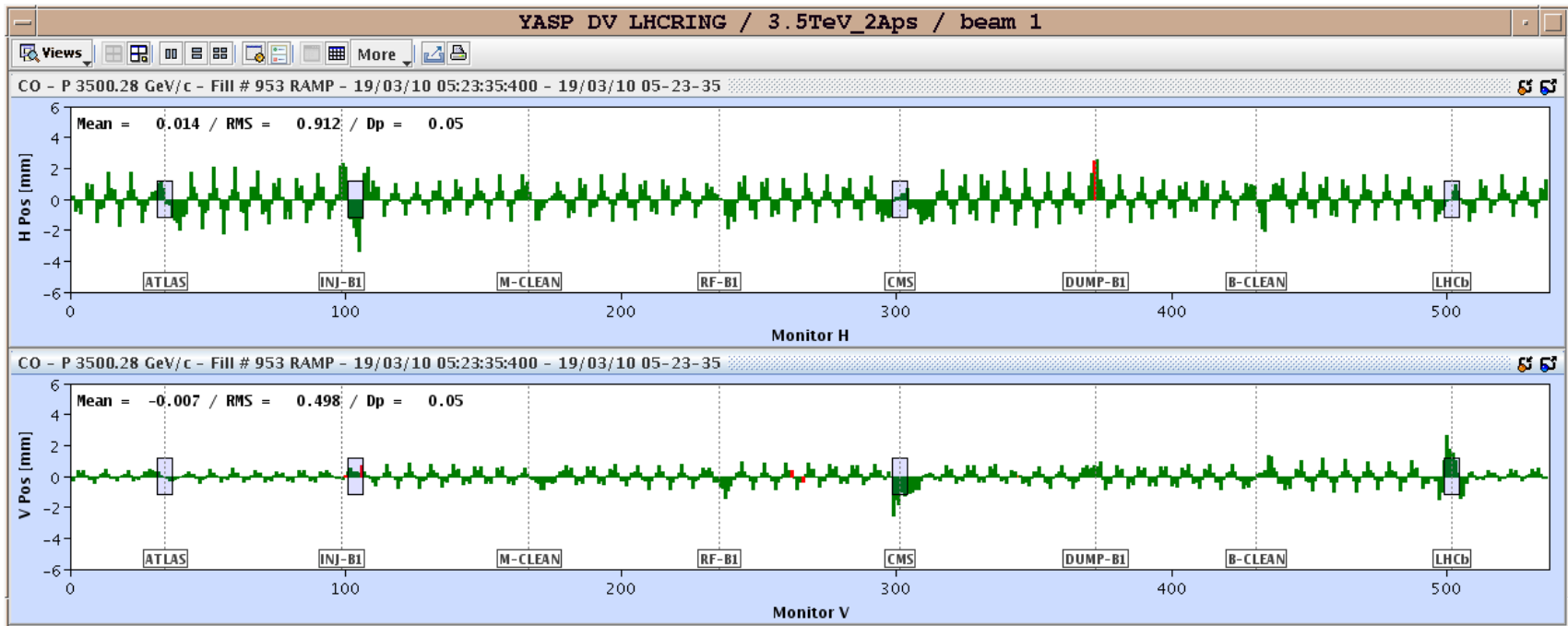
- Q' trim : H by -20.0 - V by +8 - Now at H= 10, V= 9
    - Small tune trims to get back to nominal
    - Orbit corrected



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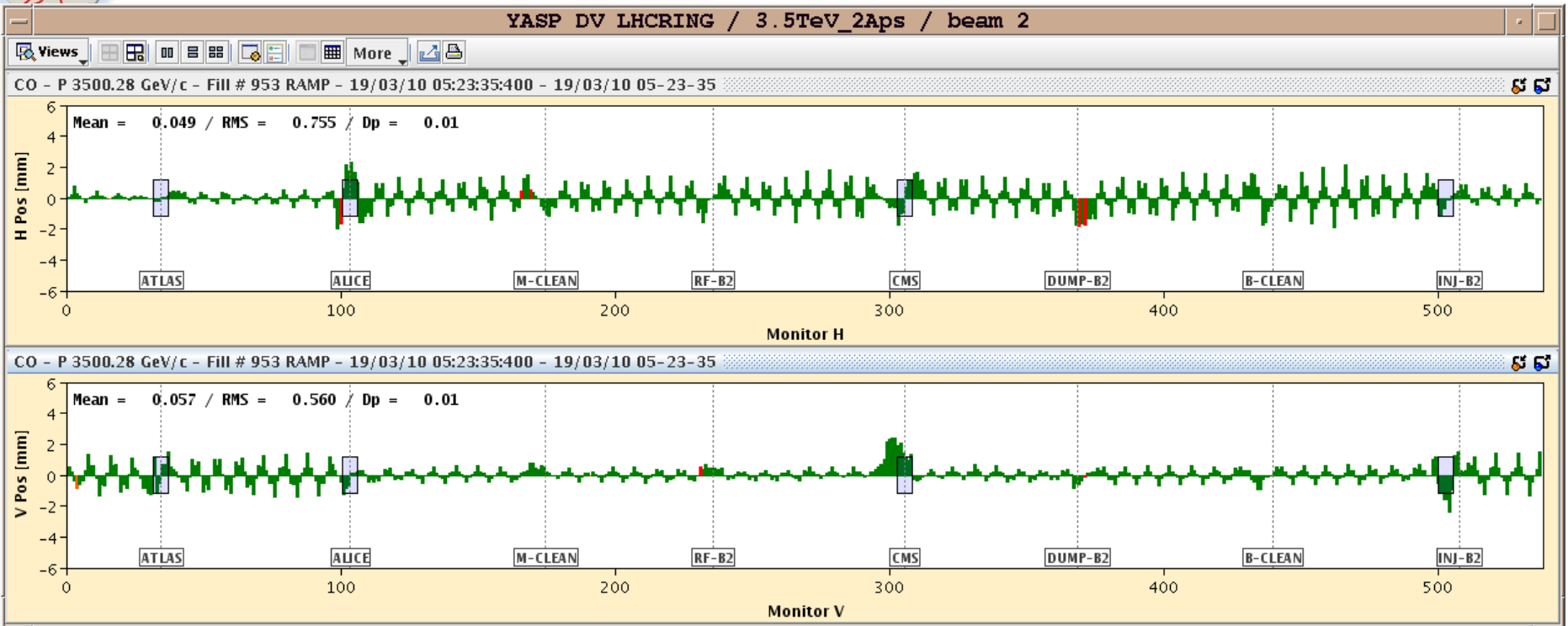
04:00 : Ramp started with bucket 1 and 1001 with tune feedback on, LHCPROBE,  $\sim 5e9$

- At 05:23 : 3.5 TeV ! 100 hrs lifetime
- At 5:25 : RQTF.A81B2, RQTF.A45B2, RQTF.A34B2, RQTF.A23B2 tripped - PM indicates that QPS triggered



Beam 1, uncorrected, at 3.5 TeV

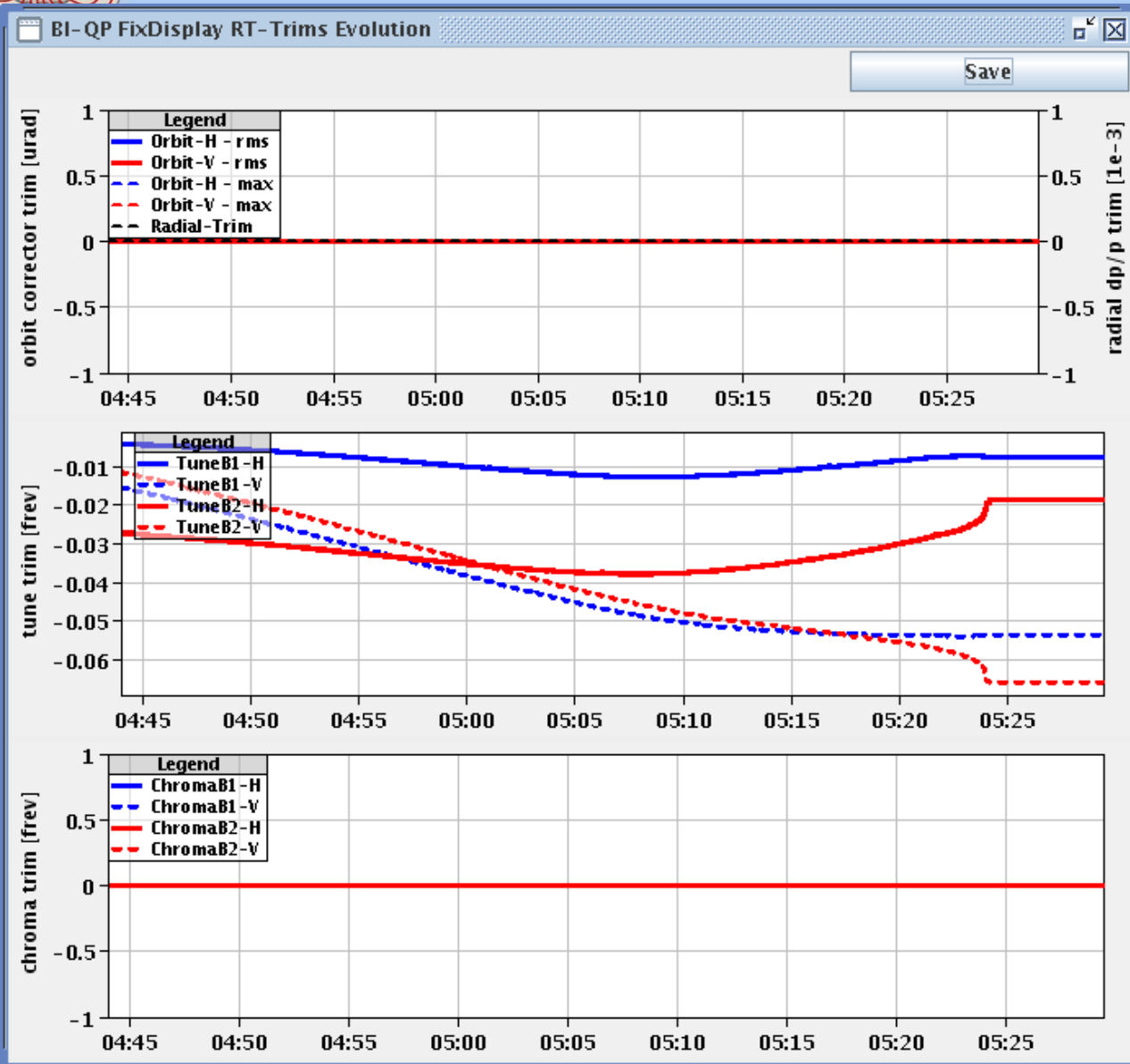
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Beam 2, uncorrected, at 3.5 TeV

Had time to send 50% of an orbit correction on B1 and B2, before RQTFs tripped.

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Tune feedback on

Final Q-FB trims  
before beam loss:

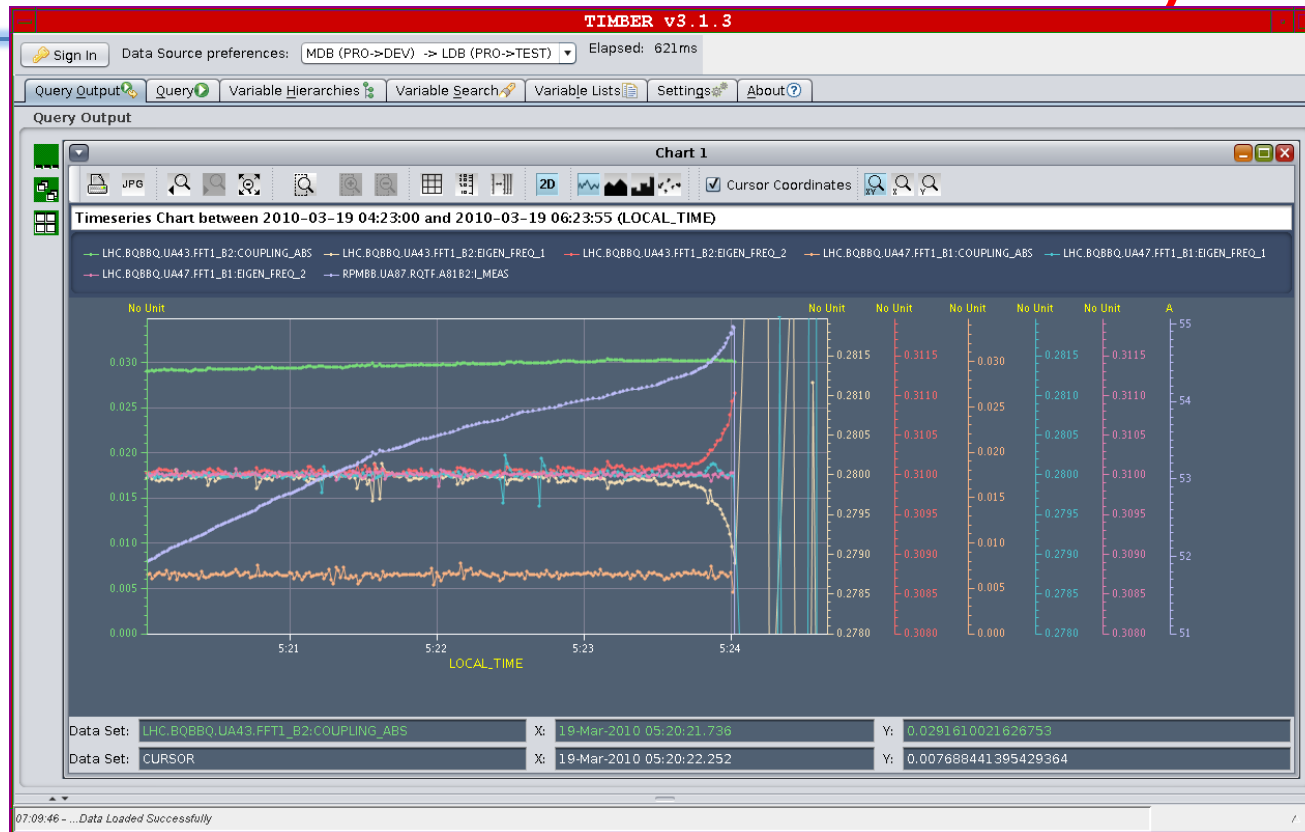
B1: dQH = -0.008

B1: dQV = -0.054

B2: dQH = -0.019

B2: dQV = -0.066

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## Tune Feedback unable to keep Beam 2

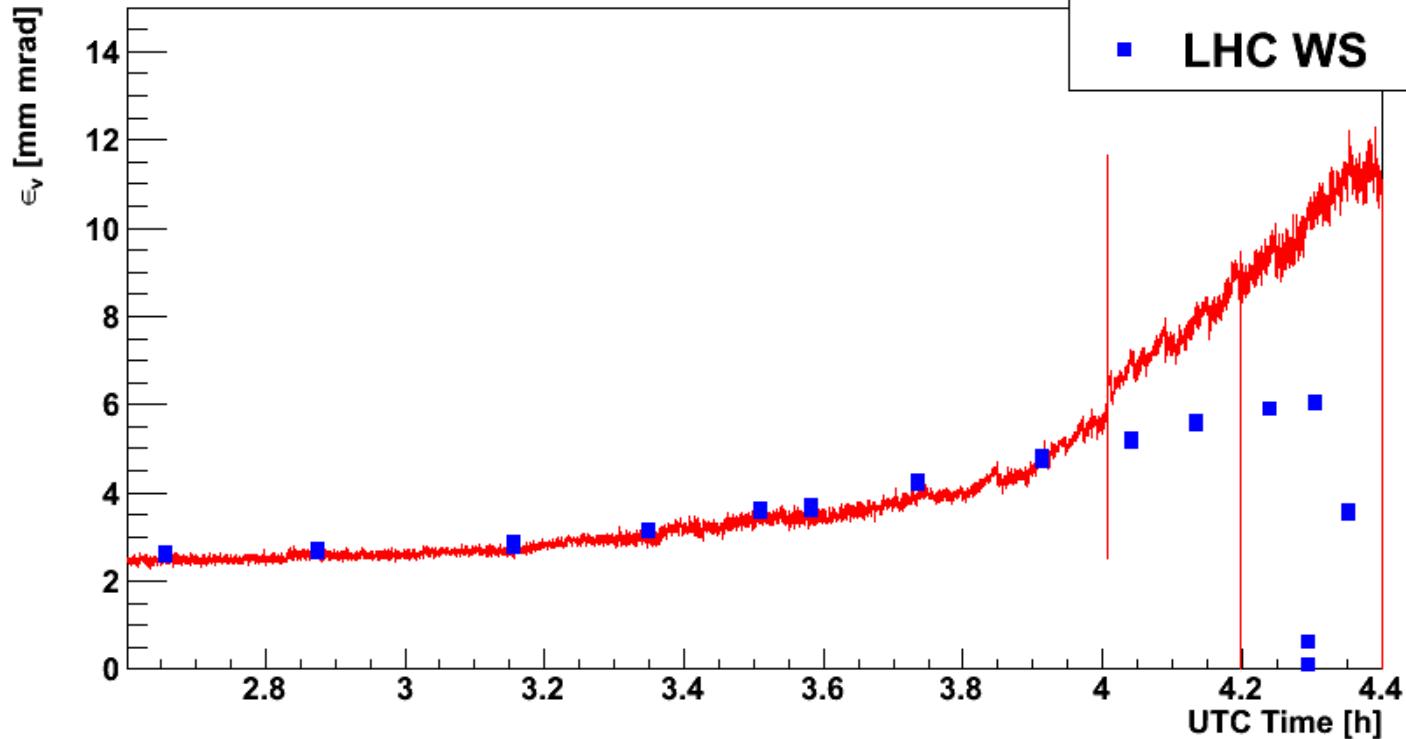
Tunes at nominal settings after the end of the ramp. Trims requested to RQT circuits therefore increase & probably led to trip of QPS.

Probable explanation:

Coupling in Beam 2 reaches tune split, so pushes tunes apart. Tune feedback tries to compensate but is unable to do so & requests stronger & stronger trims from the RQTs

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BEAM 1 VER



## B1 emittance evolution during the first ramp to 3.5TeV

BSRT vs WS Vertical excellent up to ~ 2.5 TeV, then BSRT calibration with D3 light to be studied

WS profiles with small sigmas to be looked in detail

BSRT vs WS HOR with already seen systematic difference, to be understood



Friday 19/3/2010

VLC media player

File View Settings Audio Video Navigation Help

LBDS <BEAM DUMPED>

ARMING

KICKER	BETS	IPOC
LASS	RETRIG	TSU

INJECTION

REMOTE	ACOND.	TIMING	IPOC
STANDBY	0 min	...	IQC

BTVD

LHCBEAM1-19/03/2010 05:41:29.549

LBDS <BEAM DUMPED>

ARMING

KICKER	BETS	IPOC
LASS	RETRIG	TSU

INJECTION

REMOTE	ACOND.	TIMING	IPOC
STANDBY	0 min	...	IQC

BTVD

LHCBEAM2-19/03/2010 05:41:30.116

0:00:00 / 0:00:00 | x1.00 | "LHC Beam Dump System"

Beams dumped properly



Friday 19/3/2010

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- Plans of the day:

- Morning:

- Investigate / cure RQTF trips
- Operation at 450 GeV (aperture studies- damper commissioning TBC)

- Afternoon: Next 3.5 TeV ramp trial

- Night: Optics measurements

- Over the week end: 3.5 TeV operation

- MPS and LBDS tests

- Protection devices and collimators setting-up

- Optics measurements

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