During the day until 17:00

- QPS problem located on the nQPS crate B12.R7 where 2 cards were exchanged. Problem with one of the two cards changed yesterday- solved by changing again the card.
- Other QPS problem located in RSF2.A78B2 switch B – solved.
- Problems in QPS controlling switches – linked to RBAC, understood and solved.
- Patrol box in PM85 dropped – Patrol done – Patrol box dropped again – Temporary fix: one access pad blocked – Patrol done.
- Ventilation door is locked closed in PM65 – Fixed.
- PO to fix the problem in RCO.A81B1 : the converter was still condemned
- BCT in beam dump line fixed

02/03/2010

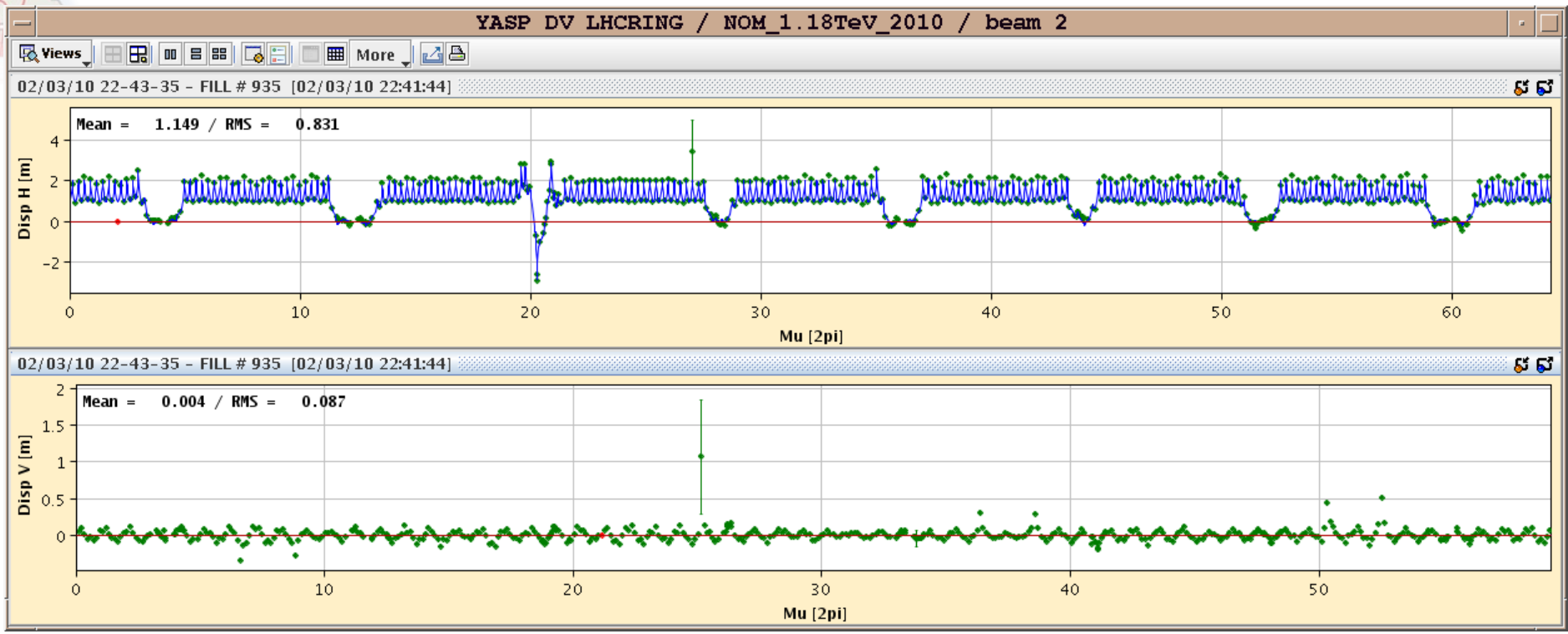
- Regeneration of the function for Q4.LR3, Q5.LR3 and Q4.LR7, Q5.LR7 in order to bring their current to injection energy (~35 A) instead of leaving them at 20 A until injection request is sent. Precycle done. All fine –Finished at 35 A.

02/03/2010

- 18:00 – 20:00 :
  - Pre-cycle for sectors 45 - 56- 67 - 78 – 81
  - BIC, dumped beam event problem investigation : solved – cabling problem- dumped events coming out correctly
- 20:00 – 22:00 : Re-establish beam in the LHC
  - RF checks – RF loop checks
  - 21:00 Both beams sent onto TEDs at end of transfer lines
  - 21:15 Circulating beam 2 in LHC. Orbit perfect
- 22:00 – 01:00: Systematic beam 2 measurements and corrections
  - Check orbit still good – O.K.
  - Tunes corrected to nominal 0.28 and 0.31 – were inverted
  - Measure and correct coupling – done: C- from 0.04 to 0.005
  - Measure and correct chromaticity (save spectra for each frequency offset)
    - Trimmed by Qh' by -18 and Qv' by -6
    - Final chromaticity values: Qh' ~ 1.5 – Qv' ~ 2.0

02/03/2010

– Measure dispersion b2

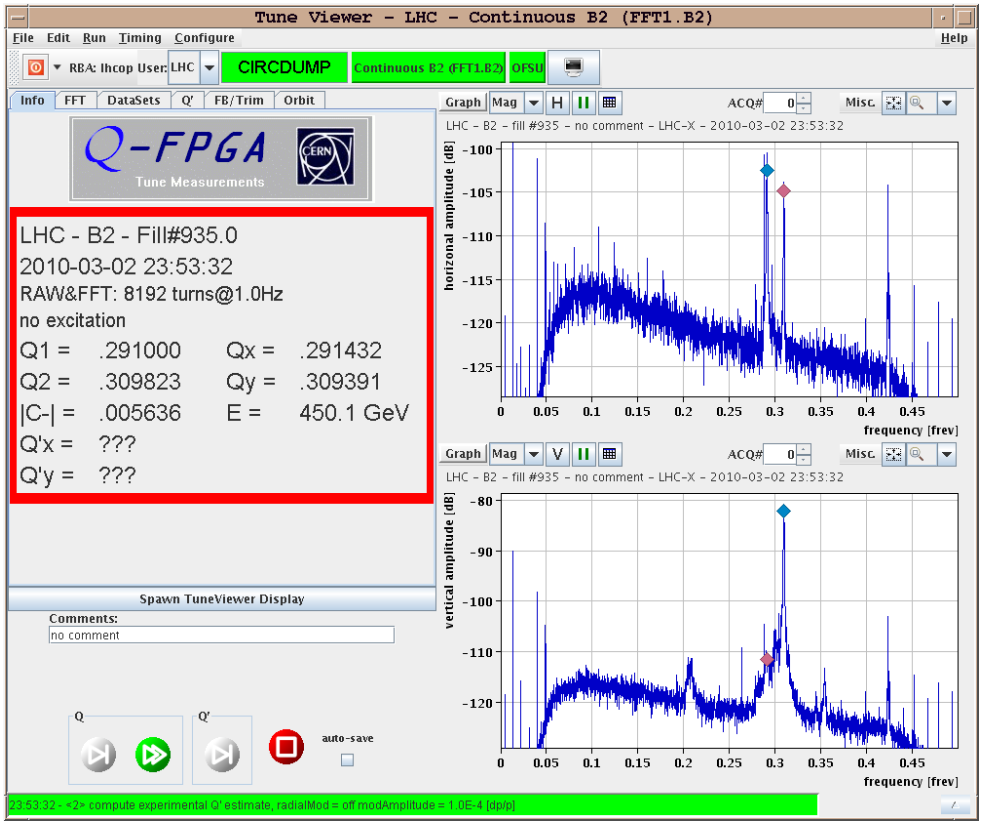


02/03/2010

- Take reference for the b2 hump

  One hump in V at 0.21 and another 0.305 (below the vertical tune)
  no hump visible in H

To be redone (there were 2 beams)

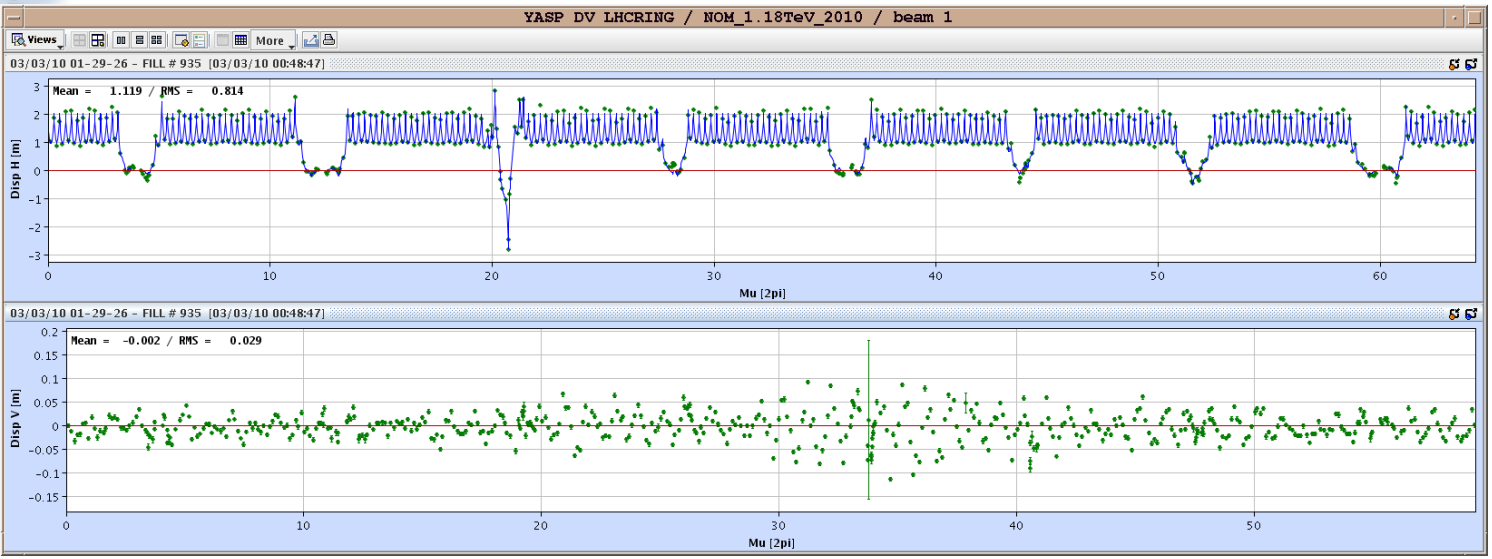


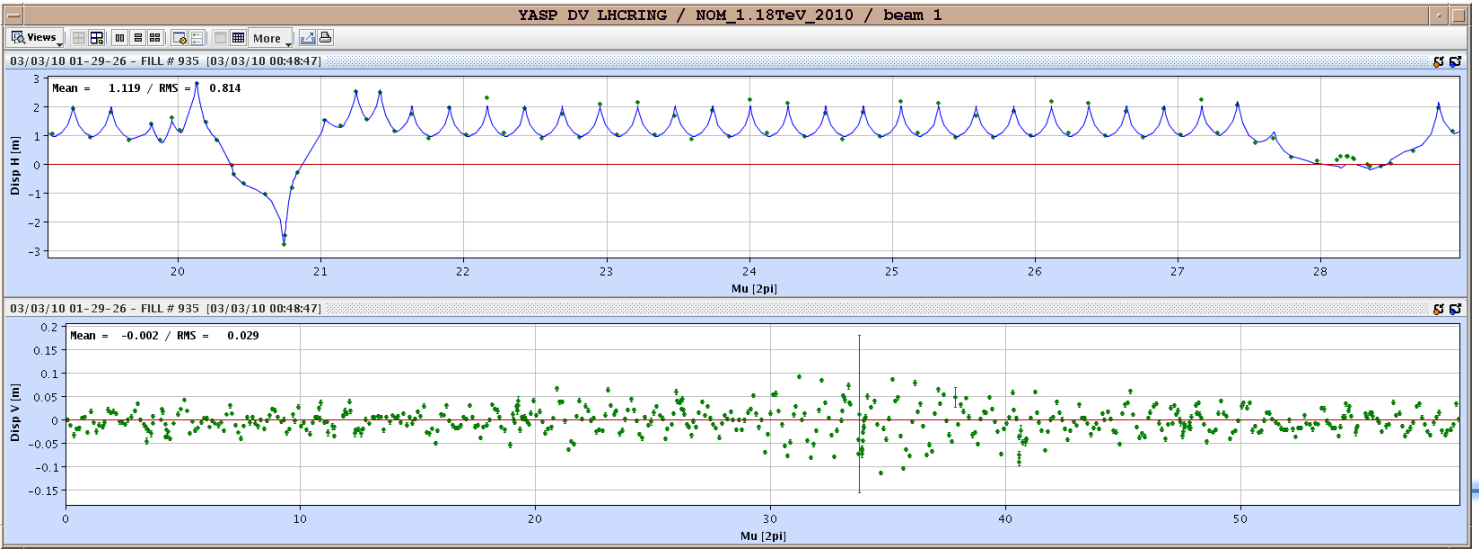
02/03/2010

- 01:00 – 02:00: Systematic beam 1 measurements and corrections
  - Check orbit still good – O.K.
  - Tunes very close to nominal ~0.28 and ~0.31
  - Coupling small
  - Measure and correct chromaticity (save spectra for each frequency offset)
    - Trimmed by Qh' by -25 and Qv' by -5
    - Final chromaticity values: Qh' ~ 3 – Qv' ~ 4

02/03/2010

– Measure dispersion b1

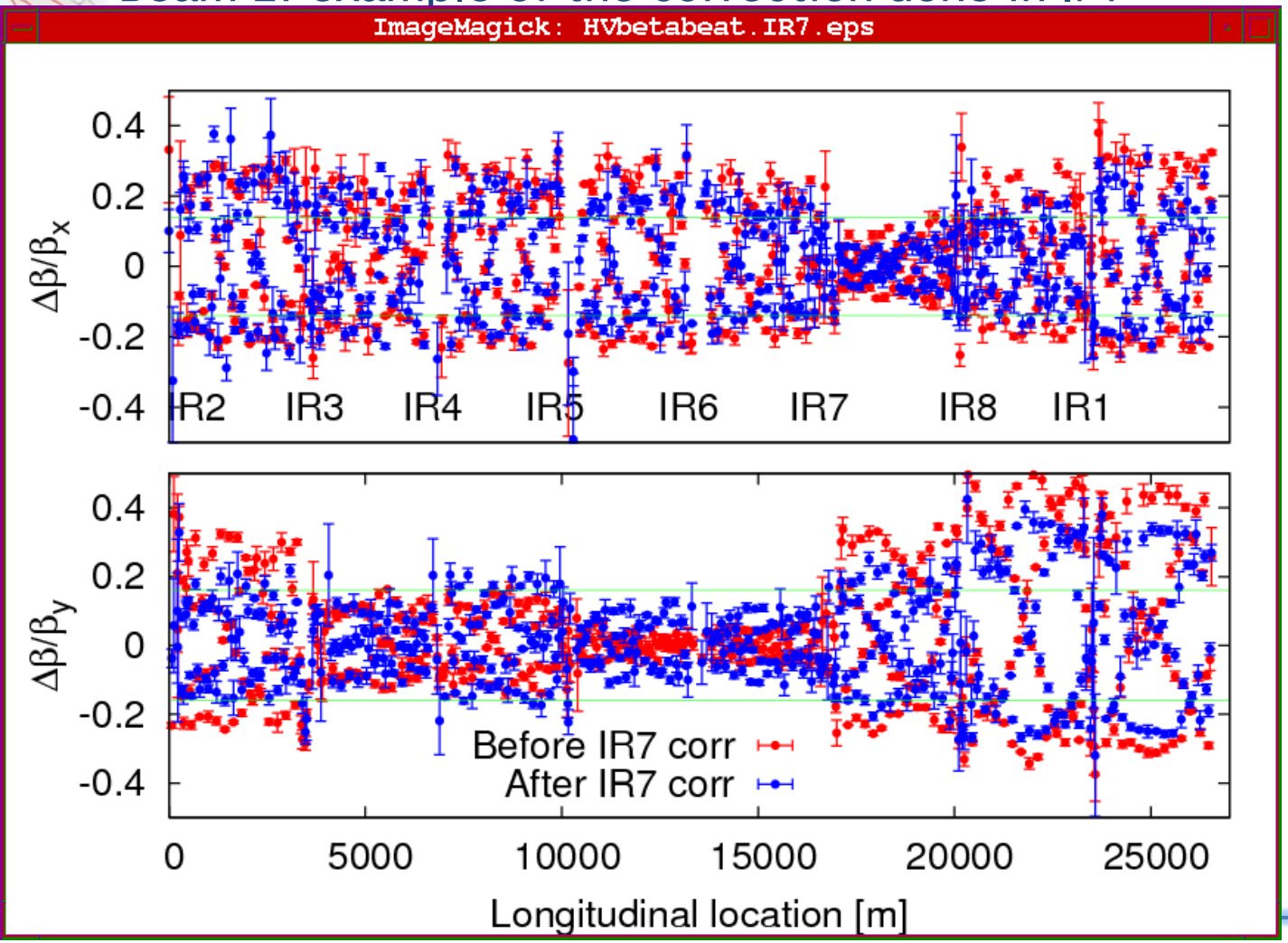




02/03/2010

Over night : Beta beat measurements

Beam 1: example of the correction done in IP7



correctors used:
kq4.lr7=kq4.lr7 + 0.000023;
kqt4.l7=kqt4.l7 - 0.000116;
kqt4.r7=kqt4.r7 - 0.000116;

kq5.lr7=kq5.lr7 - 0.000016;
kqt5.l7=kqt5.l7 + 0.000082;
kqt5.r7=kqt5.r7 + 0.000082;

MQWAs change by ~1%
MQWBs by factor +-4

The vertical beta-beating goes down from 50% to 40%, horizontal remains similar but locally some improvement is observed.

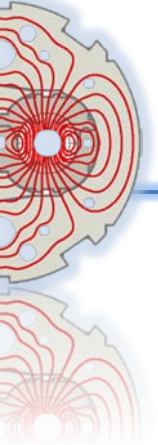
Off line analysis will be done, Further correction prepared.

Plan - 03/03/2010

- Until 9:00 : beta beating
- 09:00 - 10:00 : Orbit study with 2 beams
- 10:00 – 12:00 : Dump and Pre cycle –BLM intervention IR6 – RBAC activation
- 12:00 - 15:00 : Re-establish beams and checks of parameters
- 15:00 - 21:00 : Systematic hump investigation
- 21:00 – 02:00 : Injection studies
- 02:00 – 03: 00 : ALICE : beam on the TED
- 03:00 – 09:00 : Aperture checks - tbc

Thursday 04/03/2010 Tentative :

- 07:00 – 15:00 : HWC tests
- 15:00 – 23:00 : Hump investigation continued
- Overnight : beta beating measurements and correction



Hump measurements

- List of elements ON/OFF for hump checks: PC OFF not only 0 current – one beam at a time.
  - TL magnets incl. MSI
  - Damper OFF (power-wise) – O.K.
  - Orbit correctors after establishing an orbit with minimum number of correctors
  - Spool pieces RCO – RCD – RCS – RSS
  - AC dipole
  - Spectrum of BLM data at the primary collimator with RF ON and RF OFF (get value of the emittances, and all longitudinal parameters)

- Measurements with experts:
  - Spectral analysis of the radial pick-up and damper pick-up data
  - Vary He flow of the beam screens – block all the valves regulating the flow on the beam screens – saved actual settings first
  - Make the measurements with different sets of RF modules ON while keeping the RF voltage constants

Hump measurements

- Inject both beams: B1&B2
  - Take reference for the hump (save spectrum)
  - Measure correlation e.g. After disconnection of Beam1/Beam2 frequencies, change B1 frequency and observe effect on hump on both beams

- With single beam:
  - Measure lifetime as a function of tune w.r.t. hump position (tune scan)