1st March 2010: what was done so far

Interventions performed during the day:

QPS intervention*:*

QPS : 78 access

QPS : 67 access

Power convertor intervention IR 5 and 8*:*

RPMBA.RR53.RQTL11.L5B1*: FGC changed due a problem of ADC channel.*
RPMBB.UA87.RQTF.A81B1*: Power module changed due to Aux Power Supply fault.*
RPLA.24R6.RCBH23.R6B2*:* Converter changed due to Inverter Fault => *PCC and PNO.d1 to be relaunched*

BI intervention:

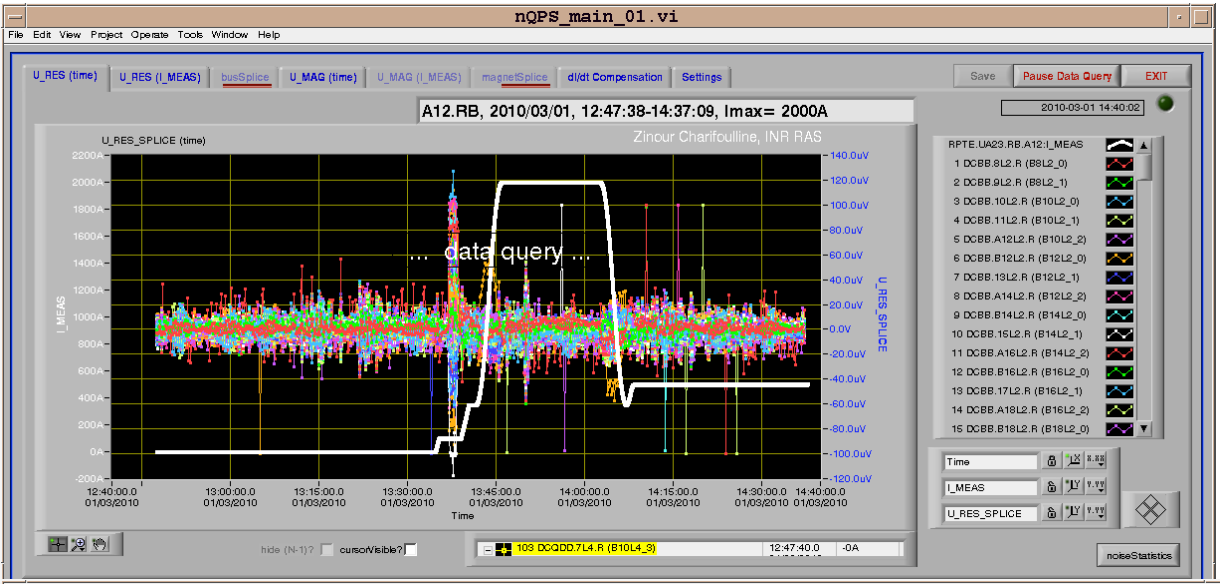
WS in PM45 and BRAN US15

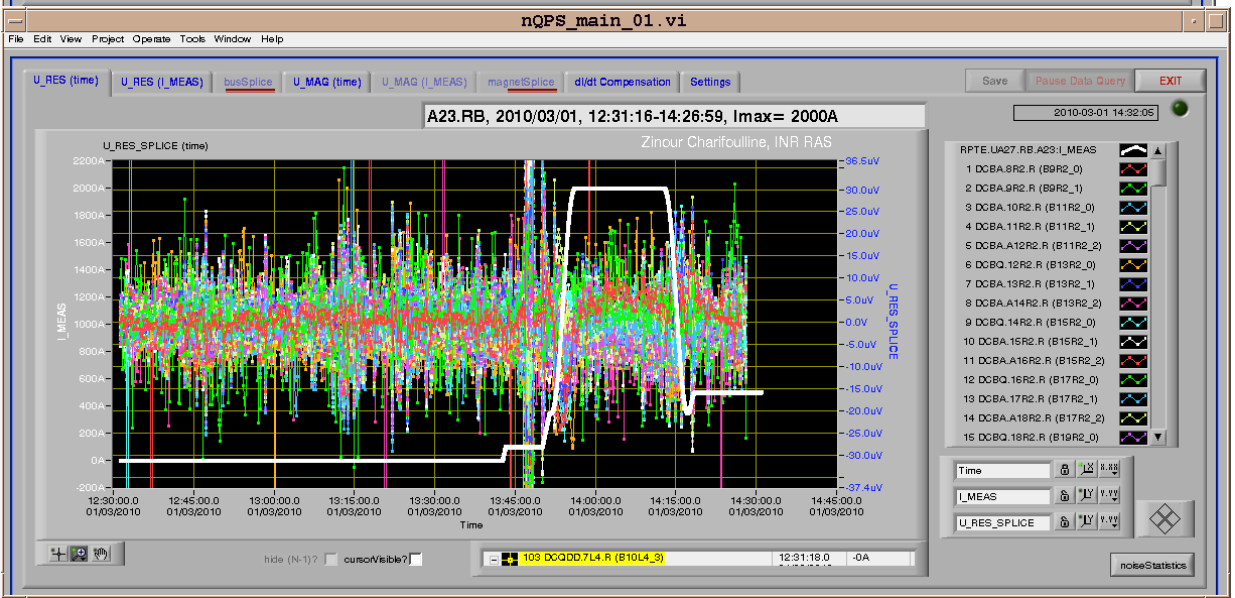
ABT intervention:

Point 6 – PC on MKD B1

13:30 - 1st Pre-cycling S12 and S23

Checking effect of U_RES –residual voltage- reset in sectors 12 and 23– not the culprit of the offset seen.





15:30 Second pre-cycle S12 and S23 started

16:30 Pre-cycle S34 in preparation

RF: Thomas : no more satellite bunch seen before the “main” bunch

Mike: Parameters re-generated with b2 correction? Yes

Programme :

A- List of activities in preparation for beam:

1. Pre-cycle + Alarm checks – 3 hrs…
2. With injection conditions: BIC (injection conditions) - Timing issues to solved (PM+dumped events…)
3. RBAC put to operational (not before tomorrow - earliest)

B- List of activities with beam:

Inject one beam: B2
Orbit – establish “good” orbit
Correct tunes
Measure and correct coupling
Measure and correct chromaticity
Measure dispersion
Take reference for the hump (save spectrum)

Inject second beam (only) : B1
Orbit – establish “good” orbit
Correct tunes
Measure and correct coupling
Measure and correct chromaticity
Measure dispersion
Take reference for the hump (save spectrum)

Beta beat measurements

B- List of activities with beam (continued):

-RF work

- Bucket number problem for beam 2
- Cavity phasing

2 March 2010: Plans

00:00: Recovered from cryo.

00:00 – 03:00 : Pre-cycle and alarms checks

03:00 – 08:00 : Start the B2 beam measurements - from the list

08:00 – 10:00 : BIC, timing…

10:00 – 12:00 : RF work

Onwards: continue systematic beam measurements and corrections and hump investigation – Introduce RBAC.

Overnight Tuesday to Wednesday : beta beat measurements

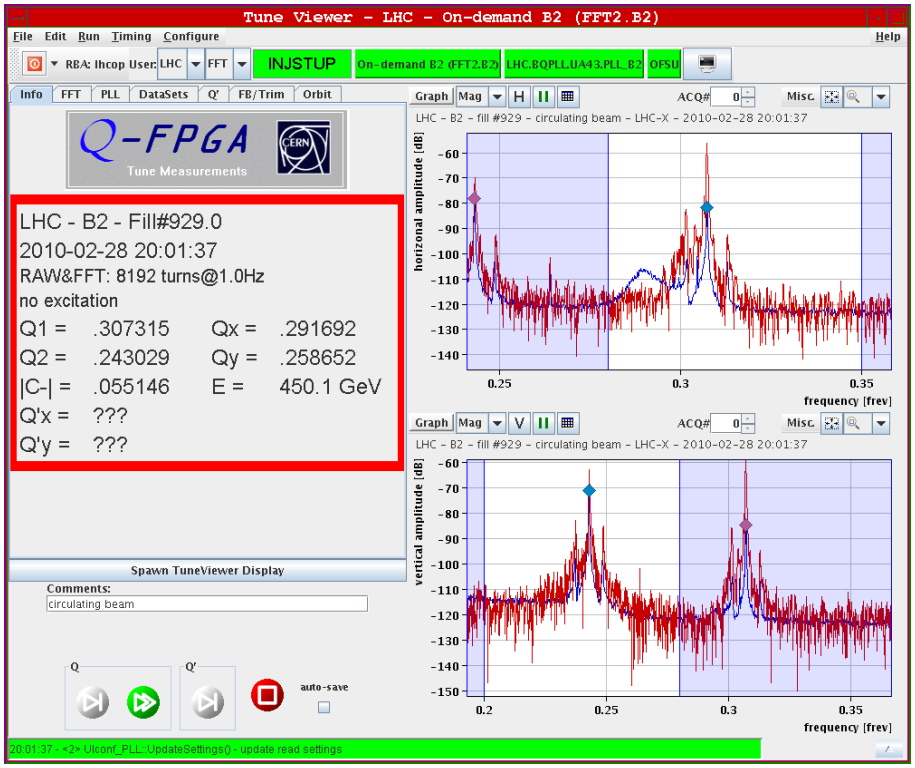
Element Off	beam 1 IN ?	beam 2 IN ?	Hump seen Y/N	Frequency of hump	Time stamp off	Time stamp on
TL magnets -MSI incl.	Y	N				
TL magnets -MSI incl.	N	Y				
AC dipole						
RF Damper						
Spool pieces						
Orbit correctors						

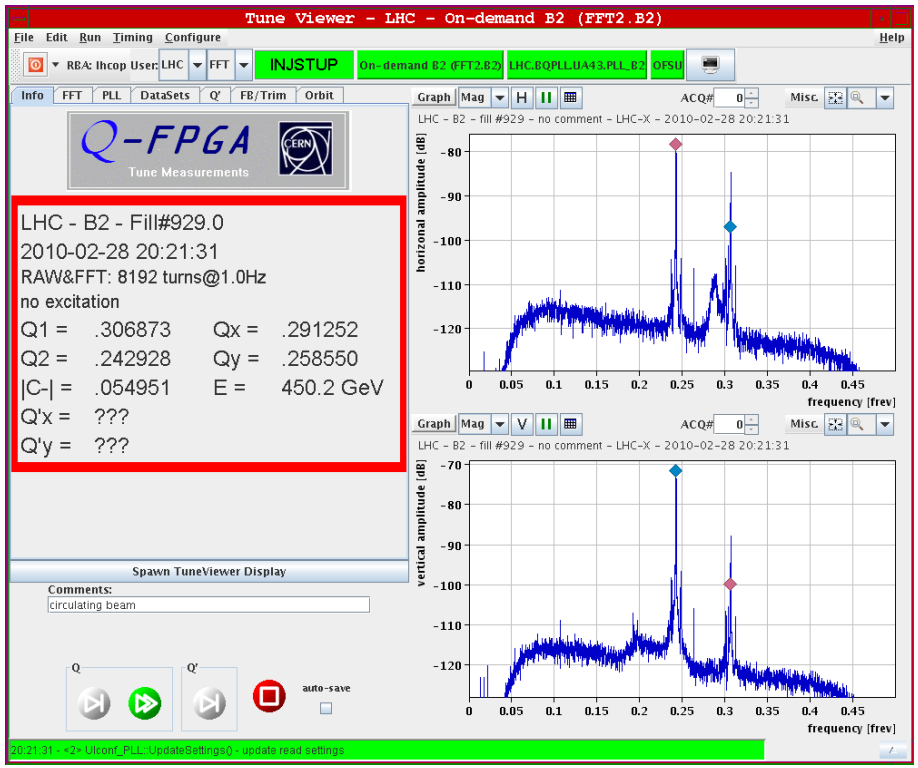
- List of elements ON/OFF for hump checks: PC OFF not only 0 current – one beam at a time.
  - TL magnets incl. MSI
  - AC dipole tbc
  - Damper OFF (not only the low level)
  - Orbit correctors after establishing an orbit with least correctors
  - Spool pieces RCO – RCD – RCS – RSS –
- For later – not tonight!:
  - Shifting the RF frequency (500 Hz) – one beam at a time
  - No reliable tune measurements at this stage with RF off
    - RF off : only way is looking at the BLM at the primary collimator (get value of the emittances, and all longitudinal parameters)
    - Make the measurements at a different RF frequency (switching the modules one by one and making measurements for one beam while all off with the other beam?)
- Analysis of the radial loop data – check frequency
- Vary He flow of the beam screens – block all the valves regulating the flow on the beam screens – saved actual settings first
- Tune scan vs hump presence

Last year HUMP quest

- Broad frequency “hump” driven beam excitation:
- Hump predominantly observed in the vertical plane
- Hump is more a fast frequency shifting oscillation with the mean drifting slowly between 0.25 –0.32frev. Moves a lot, continuously, so makes it very hard to find an ideal tune.
- Hump on beam 1 is correlated with the one on beam 2.
- A “1/f” shape spectrum observed for the hump, which tends to indicate that the source is coming from some electronics. The tune ripple spectrum is flat.
- Looked that this hump became more apparent around 2009-11-28 2009-12-03.
- Observation of the hump moving during the chromaticity measurements. But some time also not moving.

This year HUMP observation





RF ON
MCBX off
Experimental magnets OFF with exception of ATLAS solenoid/toroid
New feature: mainly visible in the H-plane
One beam circulating