

End Week 7 (February 20th 2011) – Status of Accelerators

SPS (Elias Métral)

As foreseen and mentioned during the summary of last week, 2 interventions took place on Monday morning:

(1) to displace voluntarily the identified quadrupoles to minimize the orbit at 400 GeV/c on the SFTPRO beam. 7 quads (3 H + 4 V) had to be moved: QF20010 (-1.54 mm), QF21810 (-0.59 mm), QF33010 (0.65 mm), QD23110 (-0.4 mm), QD42710 (-0.46 mm), QD51510 (-0.73 mm) and QD6130 (-0.84 mm). The horizontal rms value was reduced from ~ 3.7 mm (before the intervention) to ~ 2.6 mm, while the vertical one was reduced from ~ 3.1 mm to ~ 1.7 mm.

(2) to examine why a huge bump of ~ -22 mm (i.e. inside the machine) was needed near position 218. It was finally found that it was due to the BBSH.21778 which was IN (it is a thin movable strip of ~ 1 mm to scan across the beam and obtain the transverse profiles)! Note that it seems that all the BBS (13 in total) are inverted but we are not 100% sure and one might want to check all of them before the setting-up of the North Area extraction.

Reminder on the 8 magnets changed during the shutdown: 3 MBA (in positions 10570, 10650 and 12770), 3 QDs (13510, 51510 and 62510), 1 QF (20010) and 1 QFA (21810), i.e. an enlarged quad close to the position of the observed obstacle, which was first suspected.

During the week, the LHCPROBE beam was prepared and sent to T12 and T18 for TL studies and it was injected into the LHC on Saturday evening. The setting-up of the LHCINDIV cycle with 4 injections of 1 bunch each was started with transverse scraping and longitudinal blow-up, to be ready for middle of next week.

BOOSTER (Klaus Hanke)

The Booster is setting up beams. So far no major problems, and everything ahead of planning.

Beams available so far are LHCPOROB, LHCINDIV, LHC 75ns beam (single batch) and LHC 150ns beam (single batch). Work has started on LHC 50ns single batch. For the non LHC beams available are SFTPRO and CNGS up to specs, and MD1 for MTE studies in the PS. Work has started on TOF.

During the week a few interventions were necessary on the wire scanners and the SEM grids in the measurement line.

On Friday both the tomoscope and the BSM stopped working. It seems to be a problem with the scope which died, after many on/off's it came back but is fragile (vital instrument).

Friday night all beams stopped as LT.DHZ40 responded with wrong polarity, and a number of other elements went down. Eventually it was tracked down to a timing error, and disabling the stray field compensation cured the problem. Under investigation.

On Saturday the BSM stopped working again. This is vital for setting up of all beams. Also on Saturday the Linac watchdog stopped beams due to a quadrupole failure in Linac2, the piquet Power was called in and fixed the problem.

PS (Gabriel Metral)

Pas de problème majeur cette semaine.

Faisceau SFTPRO déjà délivré au SPS. Une intensité de $1e13$ a été accéléré sur ce user pour phaser les cavite 200Mhz.

Les faisceau LHCPROBE et LHCINDIV sont delivre au SPS.

Les faisceaux LHC75 et LHC150 sont en setting up au PS.

Mardi, les USERS MTG des machines PSB et PS ont été renommés pour faciliter la programmation des faisceaux LHC dans le SC.

Cette année, on utilisera massivement le rechargement d'1 image machine depuis la database INCA pour passer d'un mode operation LHC a un autre.

Un energy matching a été fait entre les machines PSB et PS (8615G au PSB et 1012.6G au PS)

Petit souci de qualite de vide en section 68 (dégazage important au passage faisceau dans un pot installe pour un Fast wire.)

Probleme de bruit sur le signal Bdot (mesure bruitée ?) a suivre..

LHC

Week spent finishing hardware commissioning and machine checkout. Beam was taken Saturday evening. Rapid progress with first ramp to 3.5 TeV and squeeze to 1.5 m late Monday evening.

<http://lhc-commissioning.web.cern.ch/lhc-commissioning/>