

MSWG Meeting #5, 18-May-2018

Present: S. Albright, F. Antoniou, F. Asvesta, M. Barnes, H. Bartosik, K. Cornelis, H. Damerau, G.P. Di Giovanni, M. Fraser, K. Hanke, S. Hirlander, V. Kain, A. Lasheen, K. Li, A. Huschauer, B. Popovic, F. Tecker, F. Velotti

The minutes of the last meeting were approved.

Agenda:

[Link to the Indico Event:](#)

- Approval of minutes – Karel Cornelis
- Status of operational Beams – Machine supervisors
- Main presentations:
 - Removal of Continuous Transfer Hardware from PS Ring – Alexander Huschauer

Status of operational Beams

[PSB – Fanouria Antoniou](#)

Very good availability above 98%. Reliability runs of the B-train and phase noise are underway. Q-strip tests in preparation for connecting the LIU converter planned for operation after TS1 were carried out with only minor discrepancies observed and to be followed up. A hotspot in Section 5 (at the entrance of BHZ502) for all beams was identified and was corrected vertical steering in the ring (BR2.DVT13L4).

A detailed list of the on-going MD's was presented.

[PS – Frank Tecker](#)

Very good availability at 95%. MTE intensity increased up to $1.6E13$ ppp (tested up to $1.8E13$ ppp). PAXP502 alarm levels limiting intensity to EAST but OP is doing their best to manage the rate and SC composition to give the maximum possible intensity. A detailed list of the on-going MD's was presented with a highlight showing the impact of degaussing the MTE octupoles on loss maps in the tune diagram: octupolar lines improve along with sextupolar (feed-down) lines.

K. Cornelis asked if any progress had been made with tests in PS to make 75 ns ion beam. **H. Damerau** reported that tests are on-going: initial troubles encountered with acceleration in PS but good conditions have now been attained in transfer from LEIR to carry on the tests after the meeting.

[SPS – Verena Kain](#)

Last fill for the LHC BCMS up to 3x 48 bunches: bunch intensity 1.15×10^{11} , 1.4 μm emittance. HiRadMat taking 288 bunches – new emittance measurement tool with about 2.5 μs emittance, 1.15×10^{11} ppb.

Last night a bad injection on beam 2 quenched a magnet in Q7R8: horizontal instability after scraping and hence it was transferred. The problem couldn't be reproduced but the chromaticity was increased by 0.1 units. Other issues were reported in transfer caused by FGC of orbit correctors rebooting and not reloading the correct settings. Absolute measurement accuracy on interlock BPCE's not good enough to catch the small errors orbit.

For SFTPRO: switched back to last year's regulation of QF (removing additional notch filter). ZS4 feed-through incident resolved by disconnecting it from HV and pumping on the isolation fluid circuit (secondary vacuum). The extraction could be set-up with higher losses on downstream magnetic septa: heating of septa to be followed carefully.

K. Cornelis pointed out a difference in emittance every 12 bunches on the emittance measurements, corresponding to the different rings of the booster.

[LEIR – Simon Hirlander](#)

Availability at close to 80%, with kickers causing some issues. Excellent progress reported for tests of White Rabbit distribution of B-train. LLRF work has now allowed the beam to be synchronised and extracted properly. Source of intensity limitation found and linked to inherited pole face winding sextupole from LEAR (winded to the main dipoles). The circuit always had ZERO settings, but the induced voltage from the main dipole caused the 550 Hz spurious frequency and the tune modulation.

Recent results from on-going studies were reported.

K. Cornelis commented that when automatic optimisation (autopilot) was introduced in the SPS it turned out to be very good practice to save everything before launching the program!

Main presentations:

[Removal of Continuous Transfer Hardware from PS Ring – Alexander Huschauer](#)

After MTE confirmed as long-term replacement of CT by IEFC in Decemeber it was decided to remove CT hardware in LS2 with changes to be implemented documented in EDMS #1959218. The feasibility of the changes is being investigated by TE-ABT for septum and kickers and TE-MSD for dipole magnets and quadrupoles, to be written up in ECR's and summarised as:

- Removal of most of the CT hardware
- Relocation of some CT equipment
- Improvement of the MTE hardware

Depending on activation of HW being removed it is requested to do test-bench impedance measurements to understand the impedance contribution of the old hardware. It is requested to:

- Pedestal functionality of **PE.BFA09** should remain to tune MTE bump closure: proposed to remove staircase magnetic (otherwise just disconnect power generator).

- Remove **PE.BFA21**: Removal of the complete kicker tank (both staircase and pedestal functionalities) and replacement vacuum chamber with equivalent or larger aperture than the kicker.
- Remove **PE.SEH31**: Replacement vacuum chamber will be of same enlarged type as in the adjacent magnet units.
- Remove **PE.BSW31.27** and **PE.BSW31.35**: No modification to vacuum chamber.
- Relocation of PE.QKE25 and PE.QKE73: Create low-beta insertion for high-intensity beams at 2 GeV.
- Improvement of **F16.DFA242**: Reuse staircase power converter of PE.BFA09 to provide turn-by-turn kick capabilities: tests needed to confirm polarity.

Discussion:

K. Cornelis asked if the space gained can be used for Landau cavities? **H. Damerau** stated that these particular locations are not favourable but other items could always be moved around to profit from the removal of CT hardware.