

Linac2/PSB MD – Emittances and trajectories with varying Linac2 settings

Date: Monday morning 26/03/2012

Place: Linac2 control room and CCC

Participants:

Linac2: G. Bellodi, R. Scrivens, J. Broere, ...

PSB: G. Rumolo, B. Mikulec

Proposed program:

- 1) Start with nominal Linac2 settings (nominal source settings and LI.CRFQ amplitude at 3750 mV).
 - a. Change debuncher cavity settings.
- 2) Change LI.CRFQ amplitude to 3700 mV.
 - a. Change debuncher cavity settings.
- 3) Change LI.CRFQ amplitude to 3650 mV.
 - a. Change debuncher cavity settings.

- 4) Change Linac2 settings to decrease the Linac2 current (achieve ~140 mA at BI.BCT10) – skip this step if equal to 2).
- 5) Change Linac2 settings to increase the Linac2 current to its maximum

We would like to measure with 2 different cycles: LHC25ns cycle (MD1 user) and high-intensity ISOLDE (NORMGPS user).

These 2 cycles should be preceded by a ZERO cycle to avoid stray field effects from the PS magnetic field.

Measurements at each of the 5 steps:

Linac2 crew:

- Measure BCTs along the transfer line
- Measure trajectories along the line (Trajectory resurrection plots)
- Measure emittance in LBE line
- Measure energy in LBS line
- Produce a similar table as on page 2 of EDMS document 1151705 (last Linac2 high current MD;
https://edms.cern.ch/document/1151705/1&p_message=)

PSB crew: Consider rings 1 and 3 (ring 1 mainly for LHC25 due to last year's unexplained worse ring 1 performance)

- Optimise the injection settings for each step (try to achieve same injected angle and position in order not to alter capture efficiency); timing kicker slow and maybe Q-strips
 - Register new settings
- LHC25ns beam: measure hor. and vert. emittances just after injection and before extraction

- NORMGPS beam: check injected intensity

All measurements should be put into the elogbook with separate entries for the steps 1-5.

Each modification in the Linac2 settings should be coordinated with the people in the ccc, who will obviously inform the Linac2 crew once finished with their measurements.

GR+BM, 23/03/2012