

Minutes of the Booster Commissioning Working Group held on 22nd of November 2007

Present: S. Joffe, J-M. Cravero, G. Simonet, C. De Almeida Martins, M. Eshraqi, G. Bellodi, K. Hanke, C. Carli, T. Zickler (partly), B. Mikulec.

Agenda:

1. Introduction (K. Hanke)
2. Transfer Line Design (G. Bellodi)
3. AOB

1. Introduction:

K. Hanke welcomed everybody to the first meeting of the PS Booster Commissioning working group (email: ab-project-l4psbcomm@cernNOSPAMPLEASE.ch). For the moment monthly meetings are proposed.

K. Hanke outlined the aim of this working group:

- Follow up the design of the LINAC4-to-PSB transfer lines, measurement lines, PSB injection line (BI line) and the changes to the PSB injection period.
- Did we think of everything? (power supplies and spares, magnets to be replaced etc.)
- Instrumentation issues: do we have sufficient instrumentation everywhere?
- Discuss possible MD topics for the Booster in the coming years.
- Work out failure scenarios.
- Scheduling issues for the commissioning phase.

2. Status of the Transfer Line Design:

G. Bellodi presented the status of the transfer line design between the LINAC4 exit and the Booster PSBcomm_221107.pdf.

Due to radio-protection (RP) issues concerning building 513, LINAC4 will have to be lowered by 2.5 m. Therefore a vertical slope will be present to join the LINAC4 line with the LINAC2 transfer line (joining point: BHZ20). It has been mentioned that T. Zickler should clarify whether BHZ20 has to be modified as the bending angle will be larger and in a different direction compared to the current situation.

Assigned to	Start date	Description	State	Result
T.Zickler	2007-12-04	Verify suitability of LT.BHZ20 parameters with LINAC4 operation.		Increase water pressure to 10 bars (magnet) and replace power converter. edit

Again due to RP considerations, the quadrupoles at the LINAC2 intersection need to be repositioned as extra shielding has to be added in this region.

The new vertical **LINAC4 to LINAC2 transfer line** design comprises now 2 horizontal and 2 vertical bending magnets (can share 2 power supplies) as well as 17 quadrupoles (using 15 power supplies) and a 0.7 MV debuncher cavity.

Summary of the main **LINAC2 to PSB transfer line** elements: 6 quadrupoles (LT line), 6 quadrupoles (LTB line), 12 quadrupoles (BI line), 3 bending magnets (LT.BHZ20 and LTB.BHZ30/40) as well as distributor and vertical septum for the injection into the PSB rings. Two quadrupoles in the LTB line (LTB.QDW30 and LTB.QFW40) are at or above their current limits. C. Carli proposed to check whether it would simply be possible to increase the space between these quadrupoles to reduce their gradients.

Assigned to	Start date	Description	State	Result
M.Eshraqi	2007-12-04	Check feasibility to move quadrupoles in LTB line to reduce gradients.		It was decided to leave the quadrupoles at their current position and rather buy new power supplies in case this is needed. edit

C. De Almeida added that all power supplies for the LINAC4 project will be made compatible with SPL operation at 2 Hz. PSB injection nevertheless is only specified for a min. cycle length of 900 ms. The power supplies for LTB.BHZ30 and LTB.BHZ40 will have to be changed due to the different required field.

G. Bellodi finished off her presentation stating the various beam parameters. The energy drift has to be kept within max. 2 MeV to avoid the beam to get lost.

It was judged important to prepare a complete list of power supplies including the steerers for reference. K. Hanke will complete a list that has been prepared by A. Lombardi.

Assigned to	Start date	Description	State	Result
K.Hanke	2007-12-04	Prepare complete list of all magnets in transfer and measurement lines between LINAC4 and PSB.		Done. This action has been taken over by A. Lombardi. edit

This list should be checked by the PO group for required upgrades/exchanges.

Assigned to	Start date	Description	State	Result
C.DeAlmeida	2007-12-04	Cross-check parameters of all power supplies (see list above) if suitable for LINAC4 operation.		Done. edit

K. Hanke added that also the design for the LBS and LBE measurement lines will require an update.

LBS line: LBS.BVT10 needs to be replaced as well as its power supply. Slit, dump and SEMgrid need to be replaced as well.

LBE line: The situation for LBE.KVT10 and LBE.KHZ10 is unclear; first of all the responsible for this equipment needs to be identified.

Assigned to	Start date	Description	State	Result
K.Hanke	2007-12-04	Identify responsables for the kickers in the LBE line.		Action has been transferred to the BT group. edit

T. Zickler needs to verify the suitability of the quadrupoles LBE.QFW10 and LBE.QDW20 with LINAC4 operation.

Assigned to	Start date	Description	State	Result
T.Zickler	2007-12-04	Verify the quadrupole parameters in the LBE line in view of LINAC4 operation.		The quadrupole parameters could be fixed after the accepted upgrade proposals for LBE and LBS line (see 2010 minutes). edit

The situation for slit, dump and SEMgrid requires verification as well.

3. AOB:

A study should be prepared by PO to make sure that operation will be feasible for alternate LINAC2/LINAC4 injection into the Booster.

It would be helpful for everybody to have a more detailed planning available. In particular the question was raised whether the 2012/2013 winter shutdown will be used as commissioning phase for the LINAC4 to PSB injection chain.

Tentative date for the next meeting: *Thursday, 20th of December 2007*. Date and place to be confirmed.

-- BettinaMikulec - 23 Nov 2007

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