

Linac4 Beam Coordination Committee - Meeting 1 held on 2 June 2009

Present: D. Kuchler, T. Zickler, W. Weterings, U. Raich, O. Aberle, R. Scrivens, Y. Kadi, M. Jones, C. De Almeida Martins, D. Nisbet, S. Mathot, G. Vandoni, R. Chamizo, K. Hanke, R. Garoby, S. Maury, M. Vretenar.

1. Structure and goals of the L4 BCC (M. Vretenar)

Whereas it is acknowledged that we should keep to a minimum the number of meetings in a project, we have had clear indications that a regular meeting was needed at this stage of the Linac4 project, when the last critical technical decisions concerning linac and PSB interface are taken. The goal of this meeting is to improve communication within the whole team and in particular with few more "isolated" Workpackages. It should offer a frame for taking, registering and spreading decisions and provide a regular technical feedback from the Workpackages to the project management.

Considering that there is already a very effective bi-weekly meeting on Linac4 Integration and Installation (L4-2I), it has been preferred to leave this meeting untouched and organize another bi-weekly meeting alternating with the L4-2I. The subjects for the new meeting (preliminarily called L4 BCC) will be the discussion of machine design choices spreading across WPs and with an impact on beam performance, but without entering in conflict with the Working Groups already in place (beam performance, commissioning, diagnostics, PSB beam dynamics,...). The existing Working Groups should analyse in a smaller group subjects that when ready should be presented to the larger L4 BCC.

The mandate of the BCC should be as follows:

1. To analyse technical subjects related to linac and PSB hardware having an impact on beam performance or on reliability and involving more than one Workpackage.
2. For subjects that are treated in the different ongoing working groups, to report to a wider audience a summary of the discussions and the conclusions after the subjects have been treated in the working group.
3. To favor the exchange of information between Workpackages inside the project and between the Workpackages and the project management.
4. To identify issues needing further studies in order to improve the performance of the machine.
5. To take decisions (or to finalize decisions that are taken in the working groups) concerning the detailed machine design.
6. To register decisions and further actions in the minutes.

The chairman is S. Maury, and the secretary S. Ramberger. The WP holders are regularly invited, but the meeting is open, and participation from responsables of WUs inside the WPs is particularly encouraged.

The idea is that Linac4 will have 3 series of meetings, 2 bi-weekly alternating, the L4-2I and the L4 BCC, and then general project meetings every 3 months.

2. Status and test programme of the ion source (D. Kuchler)

The source is installed and under vacuum, all source electronics are installed and cabled, the central timing is available, the two RF boxes are available (some minor modifications are needed) and the gas safety and electrical safety checks are passed. In particular, the safety tests took a long time. Next steps are the tests of the different

sub-systems (HV, gas, ignition, RF) for about 5 weeks, which will be followed by a basic source tuning tests and a source inspection, for 2 or 3 weeks. These activities will bring us towards end of July, when it will be hopefully possible to observe a first beam in the Faraday cup. Tuning of the source is foreseen to take long, in particular for optimizing some parameters that require opening of the source. As soon as the beam is of the order of tens of mA, the first solenoid can be installed followed by the emittance meter, to start emittance measurements sometimes in autumn. The spectrometer magnet will be installed only at the end of the year.

Following some questions on the order of beam measurements with diagnostics, R. Scrivens sent after the meeting the links to the following documents:

<https://edms.cern.ch/file/971632/1/Linac4-LEBT-BeamCommissioning.doc>

Draft LEBT commissioning document, which gives some more details about the order for beam measurements (but not on the source commissioning).

<https://edms.cern.ch/file/953231/0.1/L4-B-EP-0001-00-10.pdf>

Details of the diagnostics.

2.1. Discussion

R. Garoby asked about the status of the LEBT chopper. Space has been foreseen in the LEBT, and it will be a standard deflector. The driver is not yet defined, waiting to know the required beam parameters.

U. Raich insists for keeping the emittance device for testing in his lab until it is needed for the source tests.

Action (added on 16 June): For clarity, the BCC requests to supply a schedule on the source commissioning and production of beam, and to present it at one of the forthcoming BCC meetings until September (**D. Küchler**).

3. AOB

M. Vretenar announces that it has been decided to use PMQs for focusing inside the CCDTL modules (for a total of 14 PMQs, the remaining 7 quadrupoles will remain electromagnets). An ECR is in preparation, to evaluate the impact on the project. C. De Almeida Martins asks how many power supplies will be suppressed: from 13 we will go down to 7 power supplies (information from A. Lombardi, received after the meeting).

M. Vretenar informs that work has started on the definition of the DTL intertanks, with a first meeting where the Linac2 and SNS designs have been analysed.

W. Weterings proposes as subject for one of the next meetings a presentation on first test results of the distributor pulse generator.

C. De Almeida Martins introduced David Nisbet, who is going to replace him as responsible for the Power Converters Workpackage.

Y. Kadi informs that the design of the beam stoppers for the LEBT is progressing well.

K. Hanke mentioned as possible subject for a future meeting the LBE-LBS lines, where there is good progress in the design. A meeting for the inventory of all Linac4 interlocks is being organized.

Maurizio Vretenar

Next meeting: Tuesday 16 June, 16:00, room 354 1-001