



Minutes of the LIU-PS Meeting 147 on 23rd January 2018



Agenda (<https://indico.cern.ch/event/696102/>)

1. *Approval of minutes and follow-up of the previous meeting (K. Hanke)*
2. *Communications (K. Hanke)*
3. *Follow-up of open actions (K. Hanke)*
4. *Plans for the vertical BGI*
 - 4.1 *Status of the detector design (J. Storey)*
 - 4.2 *Status of the magnet design (D. Bodart)*
5. *Outcome of the LIU/BI review, status of WS prototype and turn-by-turn SEM grids (A. Guerrero)*
6. *AOB*
 - 6.1 *Status of the amplifiers of the TFB (M. Paoluzzi)*
 - 6.3 *DICs and DECs for the PS (P. Lelong)*
 - 6.4 *PLAN: LIU activities and resources (J. Coupard)*
 - 6.5 *EVM reporting (S. Prodon)*

Present: F. Bertin, D. Bodart, J.B. Bonnamy, J. Borburgh, D. Carloni, H. Damerau, L. De Mallac, S. Deleval, M. Delrieux, J. Ferreira, A. Floriduz, V. Forte, M. Fraser, M. Giovannozzi, A. Guerrero, K. Hanke, A. Huschauer, A. Lasheen, P. Lelong, M. Paoluzzi, F. Pedrosa, B. Popovic, S. Prodon, E. Senes, J. Storey

1. Approval of minutes and follow-up of the previous meeting (K. Hanke)

The minutes of the previously held meeting were approved.

2. Communications (K. Hanke)

K. Hanke reported about the different meetings and activities that have taken place since the last LIU-PS meeting.

Four project team meetings have taken place:

- 7th December 2017 (<https://indico.cern.ch/event/671737/>)
 - first meeting dedicated to rehearsals for Chamonix: general LIU talk and source and Linac4
- 11th December 2017 (<https://indico.cern.ch/event/671741/>)
 - second meeting dedicated to rehearsals for Chamonix: Ion PS injectors and PSB
- 10th January 2018 (<https://indico.cern.ch/event/689279/>)
 - Outcome of the SPS injection losses review held on 30th November 2017 (<https://indico.cern.ch/event/672967/overview>)



Minutes of the LIU-PS Meeting 147 on 23rd January 2018



- Additional Landau RF cavity in the PS to reach LIU target intensity endorsed by the LIU project. An estimated timeline for its implementation and budget requirements will be presented at Chamonix.
- 18th January 2018 (<https://indico.cern.ch/event/671817/>)
 - third meeting dedicated to rehearsals for Chamonix: PS, SPS, Linac4 and Ion PS injectors

Dedicated meetings between LIU and the equipment groups:

- with BE/CO on 29th November 2017 (<https://indico.cern.ch/event/647231/>)
- with TE/ABT on 16th January 2018 (<https://indico.cern.ch/event/669875/>)

One LIU-PS Beam Dynamics Working Group meeting has taken place:

- 7th December 2017 (<https://indico.cern.ch/event/685455/>)

3. Follow-up of open actions (K. Hanke)

The list of actions can be found in [Annex 0](#).

1. Inventory of EN-EL cabling for LS2: **the deadline of 31st December 2017 has passed and the action is being actively followed up with the aim of closing it mid-February (see also AOBs).**
2. ECR for the vertical BGI magnet: **the action remains open with deadline 31st March 2018.**

4. Plans for the vertical BGI

4.1 Status of the detector design (J. Storey)

J. Storey presented the plans for the vertical BGI ([Annex 1](#)). He started by asking the question whether the same measurement range as for the horizontal BGI will be required. **A. Huschauer** remarked that the decision should be based on the beam size at the location of the device and that the same approach of defining the detector size as for the horizontal device should be applied.

For several items either the exact or a very similar design to the horizontal BGI can be used. The main difference comes from the different aperture constraints and the resulting higher separation of the electrodes to create the electric drift field. Furthermore, this drift field will be perpendicular to the fringe field of the main bends. The increased aperture requirements clearly also impact the magnet design.

The device is foreseen to be installed in SS84. According to the presented timeline the vertical BGI will be ready for installation early 2020.

A. Huschauer asked whether the design work for the vertical BGI will impact the availability of people to continue the commissioning of the horizontal device. **J. Storey** replied that both activities will continue in parallel.

J. Storey further explained that the read-out speed of the horizontal device should be improved by the beginning of the summer and around the same time a first version of the software to control the device should be provided by BI. A dedicated application to measure the beam size evolution will have to be developed by OP.

4.2 Status of the magnet design (D. Bodart)

D. Bodart presented the requirements for vertical BGI magnet ([Annex 2](#)). He mentioned that the installation readiness date is foreseen for February 2020, but the objective is to finish the design by April, have detailed drawings available in summer and start call for tender and procurement immediately afterwards.

The required field homogeneity of 10^{-3} is considered to be challenging for the required aperture. However, considering the horizontal magnet, a homogeneity actually five times better could be achieved.

D. Bodart concluded by explaining the roadmap for the magnet design. Most important will be to obtain a design providing 0.2 T and subsequently the pole shape will be optimized. In a last step, the magnet will be shielded from the fringe fields of the main magnets.

5. Outcome of the LIU/BI review, status of WS prototype and turn-by-turn SEM grids (A. Guerrero)

A. Guerrero presented a summary of the LIU/BI beam size review ([Annex 3](#)). She presented a reminder of the initial problems faced with operation of the BGI magnet and the implemented change of the powering scheme. Furthermore, she discussed the measurement results presented at the end of 2017. A budget of 250 kCHF was allocated to the vertical BGI.

She explained that a discussion with **S. Jensen** will soon be scheduled to agree on the software requirements.

The new wire scanner prototype has already been installed in the PS on Friday, and delivery of all scanners is foreseen for the end of this year. A solution to fix the problem with slipping glass disks is currently being investigated.

Experience with the prototype scanner in the PSB has shown a reduced error compared to the operational scanners. In order to avoid the recurrent problem of saturation, a new photo-multiplier (PM) setup to allow measurements without tuning the PM settings will be available. She also mentioned that the calibration to calibration reproducibility has been significantly improved down to a few tens of micro-meters compared to millimeters today.



The prototype wire scanner is expected to be in an operational state (including software) after the last Technical Stop of 2018.

Finally, **A. Guerrero** explained that the new turn-by-turn electronics for the ring SEM grids will be installed during the last Technical Stop. **A. Huschauer** remarked that this is most probably too late to profit from the measurements still this year and stressed that their availability in the beginning of summer is important. **A. Guerrero** replied that the amplifiers are expected to arrive after the Technical Stop in June and a few hours machine stop are required to perform the installation.

6. AOB

6.1 Status of the amplifiers of the TFB (M. Paoluzzi)

M. Paoluzzi reported that all amplifiers have been produced and are ready for installation in the racks. Furthermore, some splitters and combiners are required and an English company will produce these elements. They are expected to be available in 6 months. The parts will then be delivered to **A. Blas** for installation in the racks. The procurement of missing power supplies is also being taken care of by **A. Blas**.

6.3 DICs and DECes for the PS (P. Lelong)

P. Lelong presented the status of the DICs and DECes ([Annex 4](#)). **K. Hanke** explained that the required budgets have to be distributed to the different cabling activities, which has to be concluded before the Cost and Schedule review in March. Therefore, it is indispensable to have the final DICs and DECes available by mid-February at the latest.

Cabling requirements for low-level RF activities will be clarified with **H. Damerou**. **K. Hanke** stressed that all open requests need to be discussed in person with the concerned people and until the next LIU-PS meeting on 13 February all requests have to be finalized.

S. Pittet remarked that EPC activities will be updated within the next days.

F. Pedrosa stressed that the planning for DICs and DECes for the 2 GeV injection system is critical.

6.4 PLAN: LIU activities and resources (J. Coupard)

A list of unknown and rejected resources provided by **J. Coupard** has been discussed ([Annex 5](#)). The item on the 80 MHz fast tuners has been clarified and the remaining items will be followed up within ABT and have to be discussed with STI.

6.5 EVM reporting (S. Prodon)

S. Prodon presented the LIU-PS EVM status ([Annex 6](#)). With respect to the 2016 CSR baseline, the LIU-PS project faces a schedule variance of 9.5 months. At the end of January the data will be extracted for



Minutes of the LIU-PS Meeting 147 on 23rd January 2018



the CSR in March and **S. Prodon** stressed again that it is very important for all WP holders to perform their reporting. This concerns especially the main contributors to the schedule variance, namely RF, ABT and EPC.

Minutes by [A. Huschauer](#) on 27th January 2018