

Minutes of the 16th EABI-WG meeting held on 24 November 2021

Minutes and slides available at <https://indico.cern.ch/event/1100429/>

Present: Yacine Kadi (BE-EA), Federico Roncarolo (SY-BI), Stephane Burger (SY-BI), Ewald Effinger (SY-BI), James Storey (SY-BI), Jocelyn Tan (SY-BI), Inaki Ortega (SY-BI), James Storey (SY-BI), Emma Buchanan (SY-BI), Matthew Fraser (SY-ABT), Francesco Maria Velotti (SY-ABT), Verena Kain (BE-OP), Markus Brugger (BE-EA), Thibaut Lefevre (SY-BI)

Agenda:

1. Review of beam parameters and functional requirements (F. M. Velotti, V. Kain)
2. Discussion

This special EABI-WG meeting was focused on the North Area primary lines, which were considered an urgent matter after the several complications that appeared in the start-up in 2021. For that reason, it was a reduced meeting with participation from only the groups involved in the operation (BE-OP, SY-ABT) and beam instrumentation (SY-BI) of the primary lines.

F.M. Velotti presented a review of specifications for the beam instrumentation in TT21/22/23/24/25. The slides made emphasis on the need for new beam instrumentation in these lines.

The beam parameters were briefly presented in a table, although future projects are not considered in that list. *M. Fraser explained that the shown parameters should also be valid for future projects.* This should be confirmed by BE-OP and SY-ABT in another meeting of the working group.

The presentation carried on with a list of wished instruments, which extends the original BI NA-CONS document (EDMS 2206350) with new requests:

- Additional BSGs (SEM grids) and BTVs for beam size measurement.
V. Kain and F.M. Velotti mentioned the need for a new monitor with large aperture and rough resolution for setting up the beam. Could a BTV work?
- Investigate if Beam Current Transformers (BCT) could work thanks to remanent harmonics in the spill to measure the beam intensity.

J. Tan mentioned that a quick calculation of the current is around 3uA, which is insufficient for BPMs or BCTs to work. A Cryogenic Current Comparator could work and has a resolution of 20nA. However, the price for a single unit is in the order of half a million CHF.

- Emphasis in the need and urgency of a spill quality measurement. This item is critical for some experiments like NA62 and NA64.

Diamond BLMs will provide spill information but needs to be combined with some kind of intensity measurement.

- New Beam Loss Monitors (BLMs) in TT23/24/25: 1 per quadrupole.

An important takeaway message from the discussion is that if devices and installations are needed for Run 3, this does not leave much time for R&D of new detectors. The original BI NA-CONS proposal has to be extended with the addition of new monitors. However, this proposal has no contingency for additional costs and was already stretched. Therefore funding will need to be requested from the management.

A clear set of specifications for BI must be given as soon as possible. After getting them, SY-BI will start an internal review to determine what is reasonable and achievable.

Minutes written by E. Buchanan and I. Ortega