

LHC MD79

Characterization of embedded-BPM collimators requested by glvalent

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Merit: Full validation of the embedded collimator BPMs with beam to ensure correct functionality for LHC operation. In addition to the main fast alignment functionality, we will ensure that the BPM signal can be used for other purposes such as orbit interlocking and orbit feedback. This characterization is necessary to push forward the beta* reach.

MD contact person: G. Valentino, S. Redaelli

MD procedure link: Similar techniques have already been tested in the SPS with a BPM-collimator prototype. (Similar techniques have already been tested in the SPS with a BF collimator prototype.)

Category: Normal MD

Beam: Both

Participants: Collimation and BI teams

OP contact person: TBD (maybe someone on OFB?)

Description: Various aspects need to be addressed: BPM nonlinearities vs collimator gap, effect of orbit shift in orthogonal BPM plane, signal stability, etc. As was done in the SPS, measurements can be done by inducing controlled bumps at the new TCTP/TCSP collimators with BPMs. For example, one aim is to ensure that when the separation bumps are collapsed, the beam position measurement at the collimator in the other plane is not affected. The beam size measured using the standard BLM-based technique will be correlated with the interpolation of the BPM measurements from the adjacent horizontal and vertical TCTPs. In addition, the collimator BPMs will be used for the first time for orbit correction.

Time required (Hours): 8

Beam energies:

- Injection
- Flat top

Optics: Injection

Optics change: No

Orbit change: Yes

Collimation change: Yes

RF system change: No

Feedback change: No

What else should be changed: Nothing

Are parallel studies possible?: Yes

More information on parallel studies? Possibly: one beam at a time?

MD requester is ready? Yes

Beam parameters

Bunch intensity (10^{11} ppb): 1.1

Number of bunches: 1

Transverse emittance (μm): 3.75

Bunch length: 1

MD status

Time slot assigned?: No

Assigned duration:

Status: Requested

Coordinator MD readiness:

MP classification: A

MP approval: No

rMPP approval: Yes

Need 2 extra hours for ramp down: No