

LHC MD89

Continuous loss maps during energy ramp and squeeze requested by equarant

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Merit: This study aims at determining if collimator settings ensure adequate protection in dynamics conditions where no standard loss maps can be done. After re-establish loss map technique for dynamic machine phases, continuous loss maps will be carried out at intermediate energy steps from injection up to 6.5 TeV (which were previously achieved only up to 4 TeV) and also during the beam squeeze for the first time.

MD contact person: E. Quaranta, D. Mirarchi

MD procedure link: We plan to extend the methods applied in 2014 for loss maps during ramp, reported in <http://accelconf.web.cern.ch/AccelConf/IPAC2013/papers/moodb202.pdf>, to be applied for the first time during squeeze. (We plan to extend the methods applied in 2014 for loss maps during ramp, reported in <http://accelconf.web.cern.ch/AccelConf/IPAC2013/papers/moodb202.pdf>, to be applied for the first time during squeeze.)

Category: Normal MD

Beam: Both

Participants: Collimation team (support from the ADT team)

OP contact person: B. Salvachua

Description: Beam loss maps will be performed using the ADT system, which allow to blow-up single bunches. After injecting several pilot bunches, maybe with one nominal for orbit measurements, the standard operational cycle is played. Two fills are needed for continuous loss maps during ramp and squeeze. Single pilot bunches are blown away at constant intervals of 500 GeV, or at intermediate times between matched optics in the squeeze, respectively. The main outcome of such test is the validation of the collimator hierarchy as well as to ensure the protection of the triplets in the experimental insertions for intermediate optics configurations where errors are the largest.

Time required (Hours): 8

Beam energies:

- Injection
- Flat top
- Ramp

Optics:

Optics change: No

Orbit change: No

Collimation change: No

RF system change: No

Feedback change: No

What else should be changed: Nothing

Are parallel studies possible?: No

More information on parallel studies? Fills could be re-used after out tests: we do not plan to lose the entire beams that could therefore be re-used after ramp and squeeze.

MD requester is ready? Yes

Beam parameters

Bunch intensity (10^{11} ppb): 1.2 and 0.5

Number of bunches: 1/2 plus several pilots

Transverse emittance (μm): 3.5

Bunch length: Nominal

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