

LHC MD70

Off-momentum tail scraping for passive abort gap cleaning requested by dmirarch

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Merit:

Studies on off-momentum beam tails, through scraping with IR3 primary collimators, is proposed. This study aims at understanding the relative loss sharing between IR7 IR3 and addressing the possibility to deploy a passive cleaning of the abort gap.

MD contact person: Daniele Mirarchi

MD procedure link: Similar studies performed already at 4 TeV with 25 ns beams, see <https://cds.cern.ch/record/1751049/files/Daniele%20Mirarchi.pdf?version=1> (Similar studies performed already at 4 TeV with 25 ns beams, see <https://cds.cern.ch/record/1751049/files/Daniele%20Mirarchi.pdf?version=1>)

Category: End of fill MD

Beam: Both

Participants: Collimation team

OP contact person: B. Salvachua

Description:

The main aim is to study the population of the off-momentum beam tail and the effect on their population of the relative setting of IR3 and IR7 collimators. As done at 4 TeV in 2014, the jaw of the IR3 primary collimator at the negative off-momentum side is closed in steps, until off-momentum cuts equivalent to the RF bucket height and below are achieved. Ideally, this procedure should be repeated in different fills after several hours in stable beams, with different total beam intensities at 50 ns and 25 ns. Beam losses at the collimator beam intensity measured by fast and standard BCT and abort gap population are used to infer tail population and off-momentum tail diffusion speed. The latter is achieved with steps of the collimator jaws out of the beam tails.

Time required (Hours): 8

Beam energies:

- Flat top

Optics: Nomi

Optics change: No

Orbit change: No

Collimation change: Yes

RF system change: No

Feedback change: No

What else should be changed: N

Are parallel studies possible?: No

More information on parallel studies? --

MD requester is ready? Yes

Beam parameters

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

Number of bunches: Up to several trains

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