

LHC MD68

Collimation quench tests for ions at 6.5 Z TeV requested by phermes

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Merit: This study aims at evaluating the quench limits in dispersion suppressor and arc magnets due to Pb ion collimation losses around the betatron cleaning insertion, at assessing maximum intensity reach for RunII, RunIII and HL. These tests also have the immediate outcome of allowing more optimized settings for the operational BLM thresholds. Specifically for ions, important upgrade choices like the production of 11T dipoles depend on the results of such tests.

MD contact person: P. Hermes, B.Salvachua, S. Redaelli

MD procedure link: See procedure followed in the ion quench tests in 2011: https://espace.cern.ch/be-dep/Lists/IPAC13_new/Attachments/184/THPEA045.pdf and <http://epaper.kek.jp/HB2012/papers/mop245.pdf>. The corresponding MP note is also available. (See procedure followed in the ion quench tests in 2011: https://espace.cern.ch/be-dep/Lists/IPAC13_new/Attachments/184/THPEA045.pdf and <http://epaper.kek.jp/HB2012/papers/mop245.pdf>. The corresponding MP note is also available.)

Category: Normal MD

Beam: Either

Participants: Collimation team with BE/BI (BLM), ADT, magnet and MP teams.

OP contact person: B. Salvachua

Description: Collimation quench tests for ions are performed by inducing very large beam losses on the primary collimators of IR7 with collimation settings as in standard high-intensity fills for physics. The procedure for ion beams follows what has been already achieved for protons, as in <https://cds.cern.ch/record/1708365/files/CERN-ACC-NOTE-2014-0036.pdf>. Note that in 2011, the ion quench test was performed by exciting the beams with the tune resonance method while we now propose to use the controlled ADT excitations instead.

Time required (Hours): 16

Beam energies:

- Flat top

Optics:

Optics change: No

Orbit change: No

Collimation change: No

RF system change: No

Feedback change: No

What else should be changed: Special ADT configurations to generate high losses.

Are parallel studies possible?: No

More information on parallel studies?

MD requester is ready? Yes

Beam parameters

Bunch intensity ($10^{\{11\}}$ ppb): Nominal

Number of bunches: Up to ~100 bunches

Transverse emittance (μm): Nominal

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