Injection MD

ABT, ABP, RF

May 29, 2012

Topics

Two separate topics have been combined:

- TL stability and injection efficiency (Verena, Lene et al.).
- Q20 beam transfer studies (Glenn, Wolfgang et al.).

TL and injection stability

TL and injection stability (4h)

- Test of the TCDI automatic setting up application after modification: require pilot beam in inject & dump. (2h)
- Influence of supercycle on injection losses: 12 bunches, 36 bunches, remove CNGS cycle in front of LHC1. (2h)

Q20 beam transfer studies

Q20 beam transfer studies (4h)

- Injection into LHC of beams using Q20 optics in SPS and TLs.
- The rematching of the SPS extraction and the optics for the transfer lines TI2 and TI8 will be tested with beam.
  - TL optics measurements, emittance preservation in LHC, longitudinal transfer.

Outstanding issues

Outstanding issues:

- Q20 setup in SPS.
- Extraction of Q20 beams to upstream and downstream TL TEDs (before LHC MD!).

Required beam and setup

Required beam and setup:

- Beam energy: 450 GeV.
- Bunch intensity: Probe and single bunch.
- Beam 1 & 2.
- Optics: Injection (Q20 optics in SPS and new matched optics in TI2 and TI8).
- Orbit change: Will require new reference trajectories and steering in TI2 and TI8.
- Collimator change: TCDI's may need to be adjusted around the new reference trajectories or opened to 5 sigma.

Recovery

Recovery:

- All TCDI's back to nominal settings.
- All new steering reverted to pre-MD.
- Revert to Q26 optics.
- Check interlocks.
- Test injections with pilots and 12b.