TT40 High Intensity Collimator Test


- Preparations
- Input for MD program
Installation – Preparation – MD Dates

- Final installation of equipment: week 42 (October 18\textsuperscript{th}, PS ion MD)
  - low intensity CNGS beam on TED ($5 \times 10^{12}$) from week before.
- Kicker and logging testing: week 43 (October 25\textsuperscript{th}, PS ion MD)
- Final access: week 45 (November 8\textsuperscript{th}, PS ion MD)
  - after CNGS high intensity run
- MD: week 45 (November 9\textsuperscript{th}), 12 h, starting at 8:00am
Installation date (18th of October)

- Shielding for vibrometer laser sensor head into ECA4
  - 16 blocks
  - Has 300mm x 400mm window for laser. Sufficient for laser removal in case of emergency (tested this week)?
  - Laser sensor head at 23m or 18m from collimator (tested this week)?

- Collimator issues: retro-reflector tape survival test?
  - Bake-out not required (according to Ilias)
  - Cooling pipes pressure tested to 60 bar (is this sufficient?)

- Planning to be finalised:
  - Including collimator installation/survey/vacuum, accelerometers... and also
    - BLMs installation (remote testing should not be required)
    - vibrometer installation, alignment
    - installation of RP dosimeters and online radiation dosimeters

- MKE BETS for LHC settings

- Collimator jaw has to be out (it has auto-retraction springs) and motors locked off after installation and testing.
Issues

• Retro-reflector tape: temperature resistant?
  • should be OK in vacuum
  • decision: we take the risk, that tape comes off
    » possible consequences: if happening before alignment, alignment more difficult

• BLMs:
  • 4 or 2 BLMs?
Rough MD plan
TED cooled

- TED needs to be locked in place (already for LSS4/LSS6 test)

- **We need to foresee at least 8 h for beam & interlock set-up and tests**
  - re-set up with pilot intensity (~ several 100 shots)
    - steering, interlocking checks, quality checks, rough collimator alignment…
  - intermediate intensity (~ 20 shots)
    - check coherency with pilot references and settings
    - fine collimator alignment – reference trajectory
  - 1 batch (~ 3 shots) … 1 shot at max impact parameter on collimator
  - 2 batches (~ 3 shots) … 1 shot at max impact parameter on collimator
  - 3 batches (~ 3 shots) … 1 shot at max impact parameter on collimator
  - 4 batches (~ 3 shots)
    - collimator test (~ 20 shots)

**LIMIT: ~ 50 high intensity shots:**
\[ \sim 2 \cdot 10^{15} \text{ protons for the whole MD} \]

\[ 8.3e+14p \]