MD 3349: Collisions at 1m

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on behalf of the OP SW Team

Recap from last MD (2427*)

- **Successfully demonstrated Beta* levelling between 40 cm and 30 cm**
- **→ Used in Operation since beginning of 2018 run between 30 cm and 25 cm.**

Remarks:
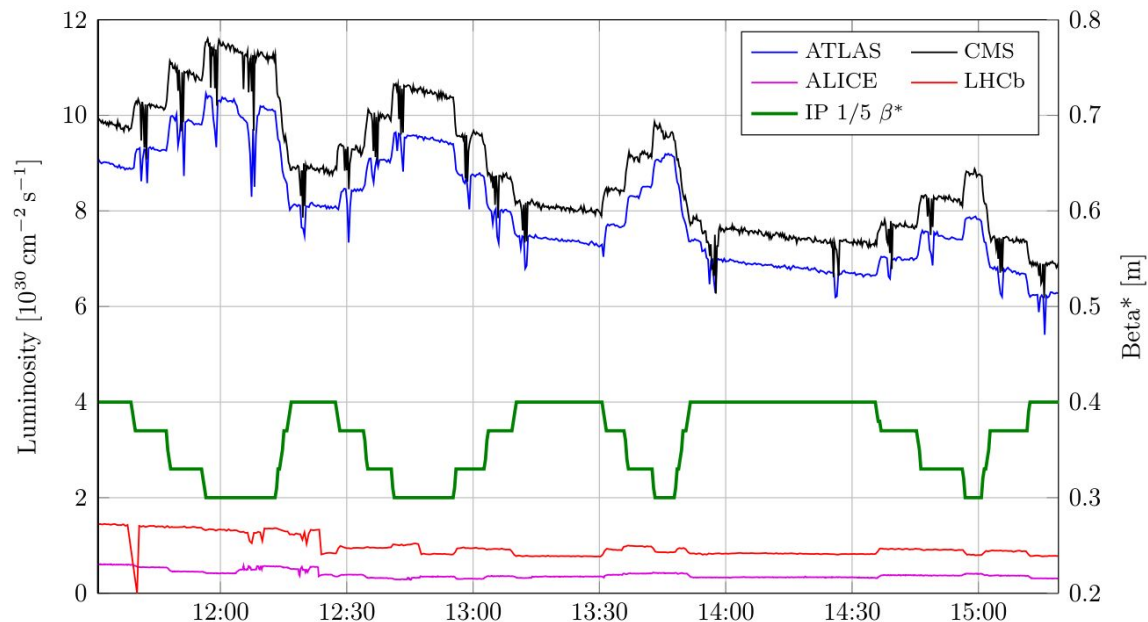- Collimator gaps & centers kept constant (in operation)

Figure 2: Luminosity from the LHC experiments during the first fill (6424).

) M. Hostettler, A. Calia et al, ß levelling using the LHC Lumi Server (MD 2427), CERN,CERN-ACC-NOTE-2018-0001

1m to 40cm also demonstrated in same MD

- Not enough time for details → This MD
- Collimator Centers were moved with the orbit
- Collimator gaps were moved according to settings.
- Collimator Limits were set to fixed values as given by CollWG (which was finally agreed to be 'parking')
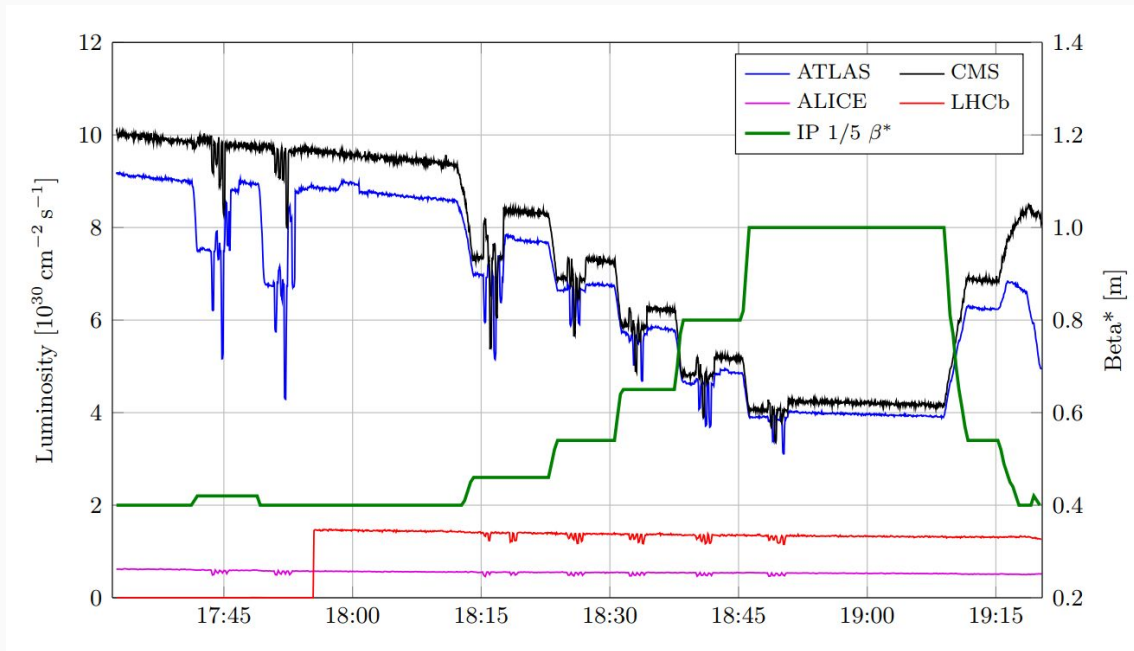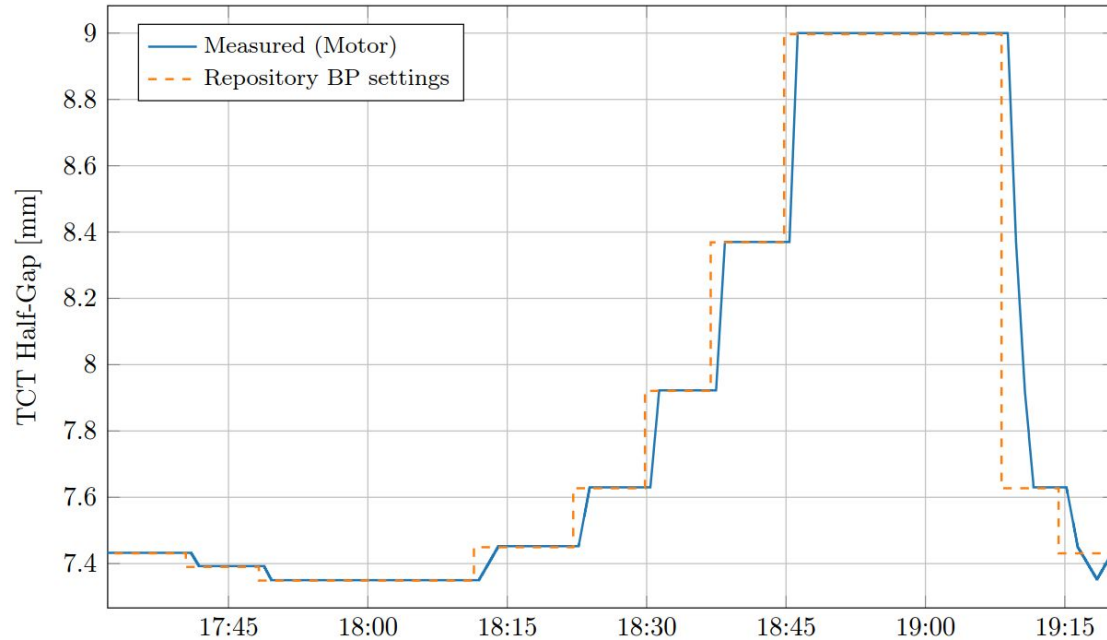
TCT half gap movement during MD 2427

Figure 10: The half-gap of TCTPH.4L1.B1 during the de-squeeze to 1 m in fill 6425. The respective settings in the repository BP are shown for comparison. Other TCTs show a similar behaviour.

This MD

- Squeezing back/forth from/to 1m.
- Practically same setup/procedure as last MD (+flattening/unflattening).
- During squeeze, a copy of OP BP will be used; only diff: collapsed Sep.
- Procedure (1st fill):
  - Collide at 30cm (until then everything standard operation)
  - Squeeze backwards to 1m.
  - Potentially Uncollide/Collide at 1m to prepare for second fill.
- Second fill:
  - Collide directly at 1m and then move to 30cm.
- Parameters/Masks:
  - 2-3b (indivs) per beam to see collisions
  - Collimator movement masked (for precaution, not expect any interlock there)
  - Coll limits set to a fixed value to accommodate all changes (xing, sep, squeeze) (--> parking?)