LIBD checkout

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Injection status

- Checklist here and procedure here
- Many tests already completely validated
- To be completed today, before first beams
  - Beam permit (7) and MSI (8) to be completed today as it required full BIS and no access
  - LBDS input to the injection BIC (15)
  - TEDs interlock to be completed today (17.1)
- To be completed after first beams
  - AGK to be setup later, much changes needed for now (MKD waveform and MKI waveform measurement) (9.3)
  - MKI waveform measurements **with beam** (9.8)
  - BLMs, including blindable BLMs **with beam** (13)
  - FMCM tests **with beam** (14.3)
  - Systematic check of the extraction permits for LSS4 and LSS6 (17.2)
  - Global protection tests with beam (18)
- Failed test
  - MCS settings can be modified directly on the (some) FESA class from LHC island, issue is widespread over many systems but identified by N. Magnin and ticket opened at https://issues.cern.ch/browse/RBAC-1033

LBDS

- Checklist <u>here</u> and procedure <u>here</u>
- Many tests already completed
- Tests to be completed today, before first beam
  - Check of acknowledgment after IPOC error (6.2#2)
  - Check arming sequence with full beam permit (6.4#2)
  - XPOC checks (6.6)
  - LBDS BETS SIS check on horizontal correctors (6.8#4)
  - Check connection to LASS (6.13)
- Tests to be completed later, after first beam
  - Test of AGK in inject & dump to be validated later, after final AGK settings are set (6.5#2)
  - Check for BTVD and BTVSE interlocking with intensity (6.12#4)
- Failure or issues
  - Repeated issue with BLM data collection on PM, still remain
  - Question of timing propagation remains since October (see <u>ticket</u>), relaxed constraint approved by MPP but delay **not understood**

SPS extraction issue

- 13/04/2022 at 9:36 beam was kicked out of the SPS on the edge of the SPS MKE
- Consequences
  - Beam not correctly extracted, spread over the injection region
  - Low bunch charge so no damage
- Issue tracked down to a reloading of earlier settings in LSA, including a phasing setting that controls the bunch position relative to the extraction kicker
- Measures implemented : Setting added to the SIS
- a robust solution has to be identified and implemented to avoid dangerous beam losses at extraction due to loss of synchronisation (MP + OP +RF)
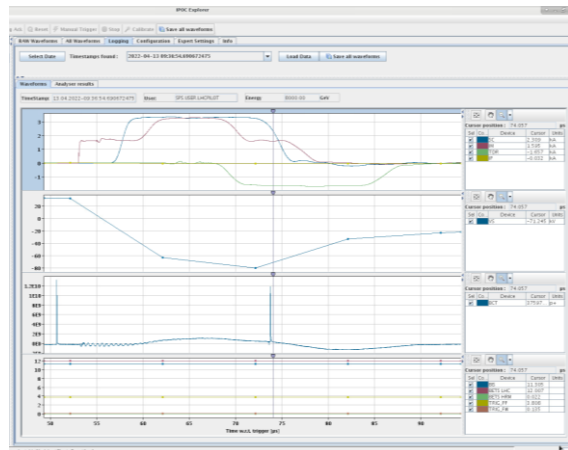
Bad extraction
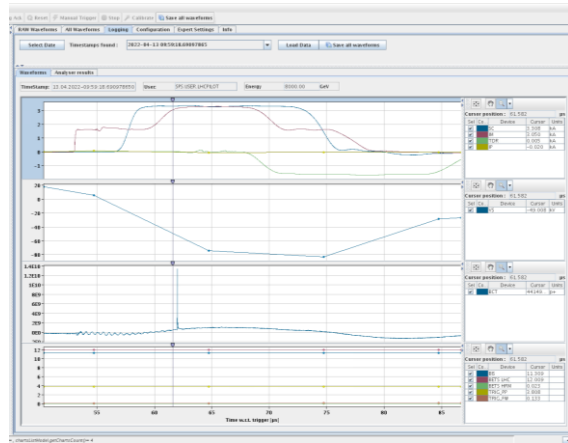
Good extraction

Thank you

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