

# PSB FOM Report

C. Bracco

for the PSB operations and  
beam commissioning team

# Availability

**Availability**

93.3%

**Blocking Faults**

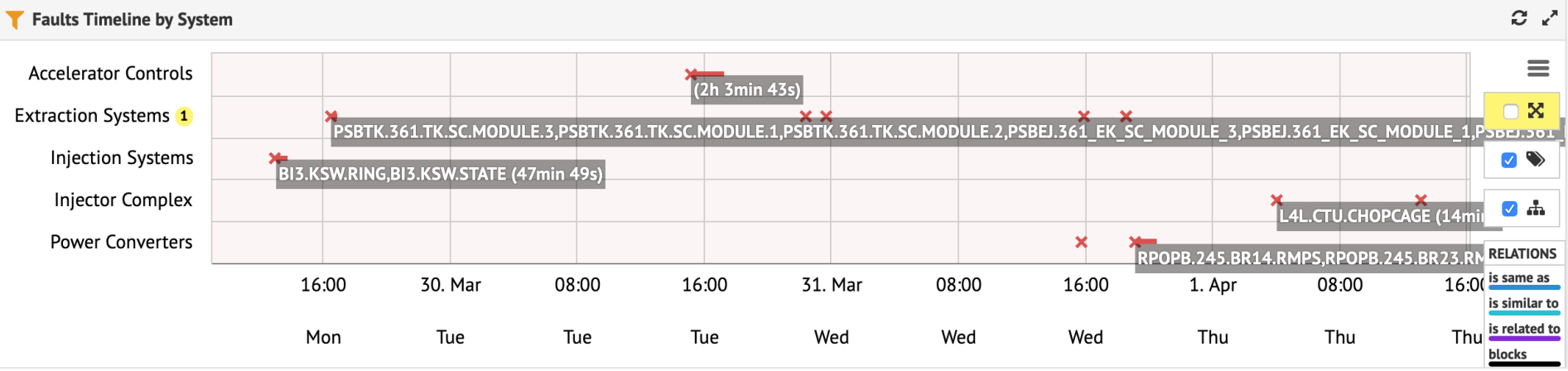
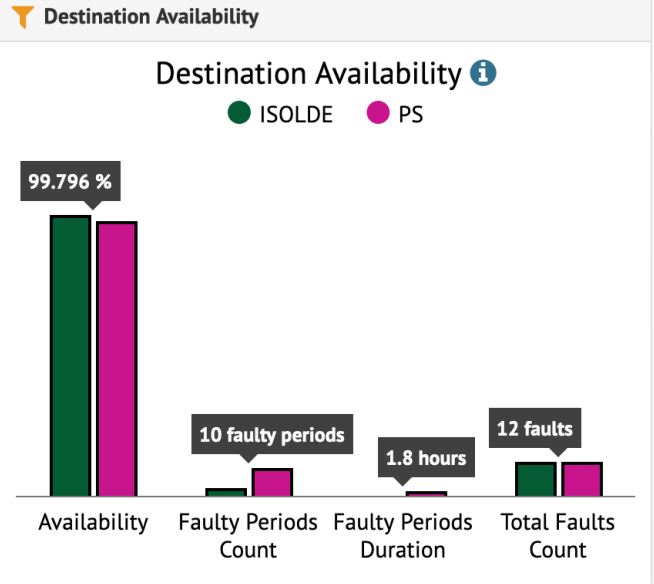
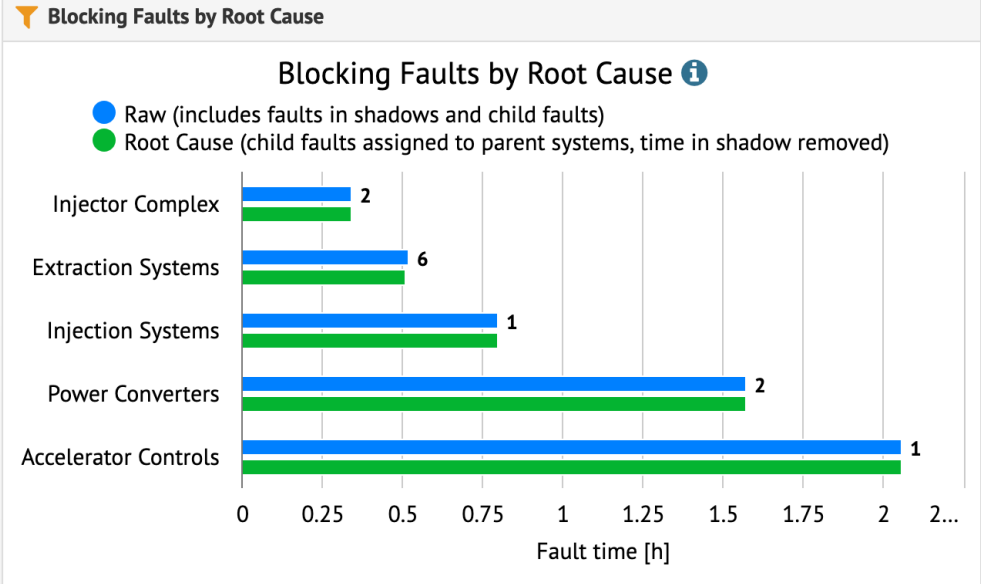
12

**Total Faults**

12

**Fault Duration (overlap excluded)**

5.3h



# Activities Last Week

Access on Tuesday 30/03 (9:00 → 14:30) :

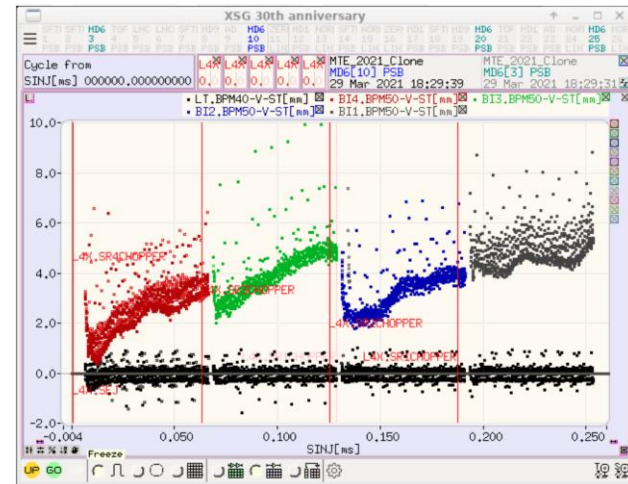
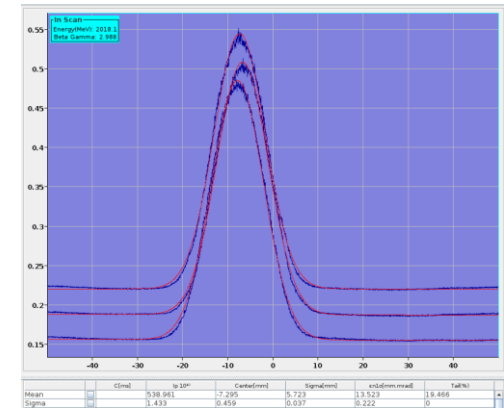
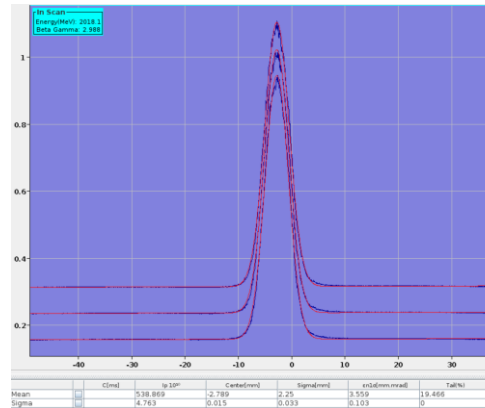
- Bdl current controller retuned
- Exchanged control unit in LIU V wire scanner in Ring 3
- New release of FGC62 and FGC63
- MTG update
- FE replacement for KSW Ring3
- Correction of voltage drift in Linac4 CCDTL1 antenna
- BU3 cavity loop updated and tested
- POPS-B moved to other generators
- Investigation on BSW faults when in standby (not pulsing for a long time), problem understood and different solutions being investigated
- Update of Finemet Control and Booster 2 Linac4 RF interlock pannel
- Replacement of RF amplifiers (5L1 and 13L1)
- BR2.BHZ162 repaired (small broken cable on the thermal protection). During next TS the remaining switches will be checekd on this magnet and the Bhz151.
- Added 6 dB of attenuation to horizontal TF pickup signals to avoid saturation

# Activities Last Week

- Continued BE4.KFA14 waveform measurement using bunch rotated LHCINDIV
- Optics measurements with tune kicker performed and data being analysed
- LHC25 ns:
  - Works on resonance and beta-beating correction at different working points and intensities are being continued
  - Studies on possible reduction of momentum spread of injected beam and effect on transverse emittance are being performed

# MTE Beam

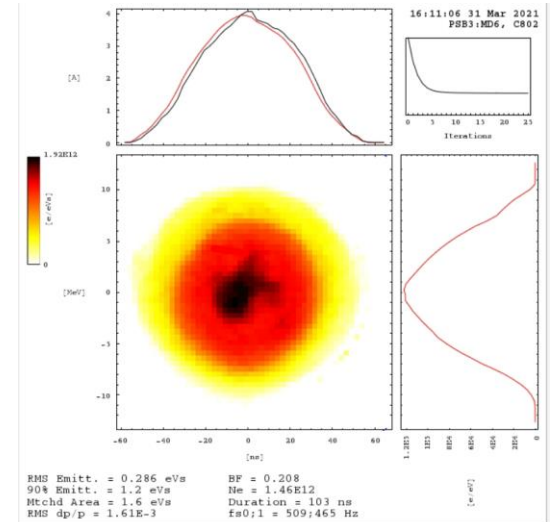
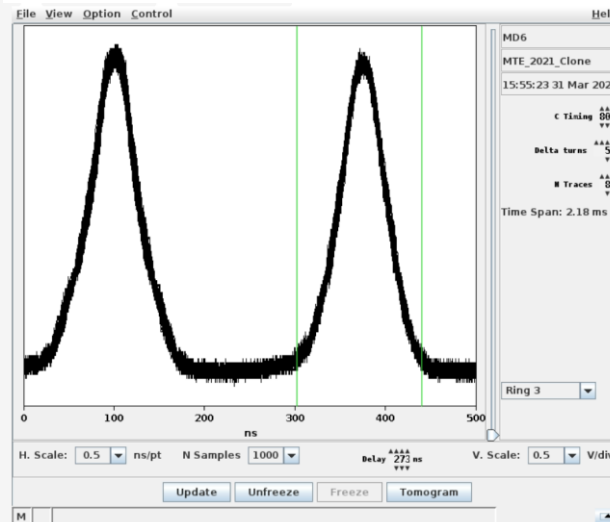
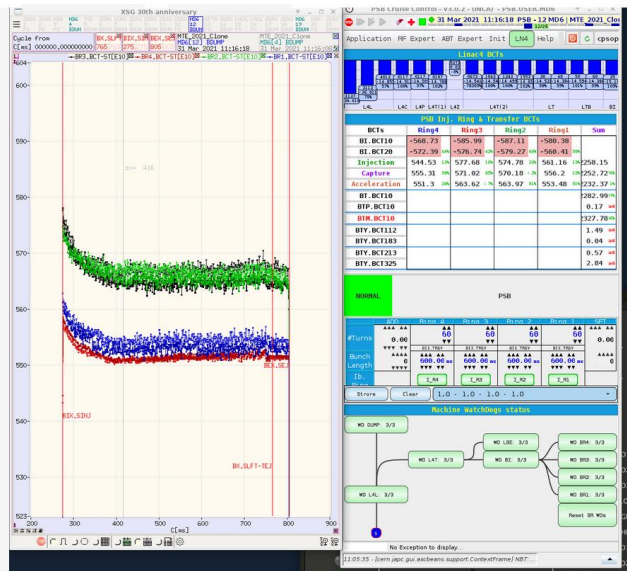
- Injection Working Point:  $Q_x = 4.11$  ,  $Q_y = 4.34$
- “Optimum” configuration:
  - Vertical offset of 2 mm
  - Transverse painting
  - Achieved  $\varepsilon_H = 12\text{-}14 \mu\text{m}$  ,  $\varepsilon_V = 3.6 \mu\text{m}$  , no tails
- Cannot go lower in V, but we can increase it by varying the horizontal painting
- Vertical position variations along the pulse (DIS waveform et al.) → change DIS delay to steer with beam in the middle of the waveform → no significant change (emittance growing during cycle by 0.2-0.3  $\mu\text{m}$ )



# MTE Beam

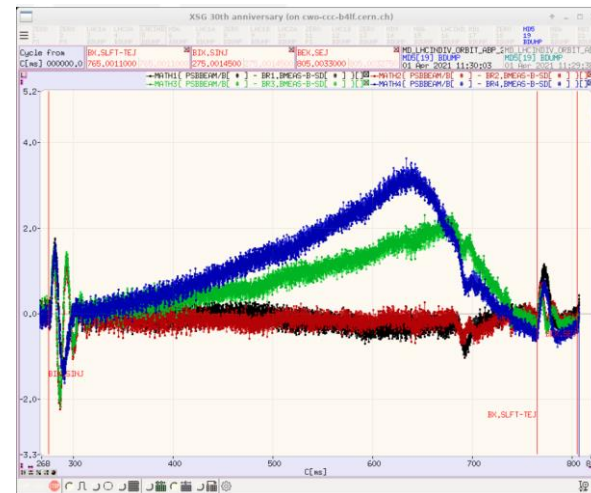
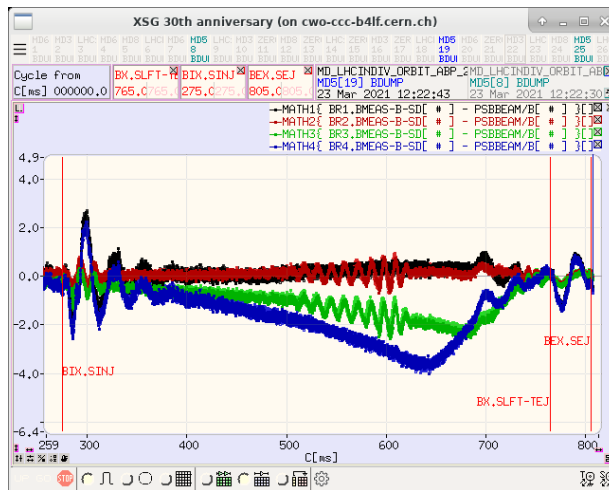
RF:

- Minimised losses in all rings, when injecting up to 60 turns. Bunch splitting optimised only on R3 producing even bunches and an emittance close to 1.6eVs.
- **No settings found for the synchro loop (shot-to-shot variations)** to be rechecked when other experts are back



# POPSB

- Clear improvement in oscillations after Bdl regulation in the middle of cycle but worsening at injection for BR23 (back to as before optimisation of Friday 19<sup>th</sup> March, Bdl or output filter of MPSB wrt MPSC? ). Smaller error at injection for BR14



- Further studies performed on Bdl regulation (analysis ongoing)
- Need iterative process Bdl  $\leftrightarrow$  POPSB regulation to find optimum solution

# Next Steps

- POPS-B: continue working on improved regulation together with Bdl tuning
- LIU WS: work to systematically get reliable profiles

## Continue beam setup:

- Complete RF setup of MTE beam for 60 turns injections (synchro and bunch splitting for all rings)
- Copy from MTE clone to operational MTE cycle
- Continue LHC25 optimisation studies (resonance and beta-beating compensation, effect of reduce momentum spread of injected beam)
- Start working towards ISOLDE and AD