

Accelerator Complex Status

End week 10 (Monday 12 March 2018)

The accelerator complex is restarting progressively and all activities are on or slightly ahead of schedule. First beams are in the LINAC2, PS Booster and the PS.

TI (Ronan Ledru)

On Wednesday there was a short power cut in BA5 due to the controls of a 18 kV switch restarting. On Thursday a trip of the Linac4 RF occurred due to a wrong manipulation on the cooling circuit during maintenance. On Saturday the trip of the electrical supply in building 259 caused the rack's ventilation to stop and burn out, which triggered a fire alarm.

Details: <https://wikis.cern.ch/display/TIOP/2018/03/09/TI+Summary+week+10>

LINAC2 (Richard Scrivens):

On Tuesday one of the RF team noticed an overheating connection in a filament heating circuit (the connector was glowing hot). It was decided to immediately stop the beam and start the repair which took about 4.5 hours. Thanks to the RF team for reacting so quickly.

Other than that there were some adjustments to the air conditioning of the equipment gallery, and a few short equipment trips.

We also continue to follow up several operational points on the LT.BHZ20 controls.

PSB (Bettina Mikulec):

Intervention on BI1.KSW to restore 50 us pulse decay (Monday), setting up Transverse Feedback and correcting a few HW and SW issues, synchronization issues of R1 solved on Thursday (swapping the DSP B motherboard and DDC from R1 with R0 for further debugging), ~5h lost on Tuesday after Linac2 repair of filament connector of Franck James amplifier + adjacent damages, R2 distributor repair (relay change) Wednesday morning, in the afternoon Linac2 watchdog cutting the beam due to wrong acquisitions of LT.BHZ20 (à temporary rollback of CO changes made for ELENA FGC3 devices; EPC to follow up) and finally on Saturday morning PIPO had to exchange an auxiliary power supply for BT4.SMV10. A short access is needed for a couple of non-available extraction pickup signals.

Nevertheless, beam setting-up is progressing very well. The following beams are already available: LHCPROBE, LHCINDIV, ISOGPS (up to ~700E10 p/ring, TOF with 880E10 p, MTE_Low_Int (up to ~200E10 p/ring). Final checks needed for EAST1/2, AD, LHC25 and BCMS25, but in principle these beams are also looking good. The MTE higher intensity version is being prepared. Longitudinally all these beams are within specification. Orbit correction was finished on Thursday and propagated to all cycles; achieved rms orbits are between 1-2 mm all along the cycle.

First beam could be sent to the PS already Thursday at 17:30 ahead of schedule.

PS (Matthew Fraser):

So far it has been a relatively smooth start-up for the PS this year. HW checkout tests carried on throughout the week with many piquet interventions needed to get equipment up and running. EPC worked on POPS and PFWs most days. The beam permits for the PSR and TT2 were signed and first beam received early from the PSB on Thursday evening, allowing an early start for beam commissioning. Amongst many other tests, the closed orbit was measured at 14 GeV/c and the realignment of MU73 was verified as successful: bringing the beam 3 mm closer to the dummy septum in SS15, and the polarity of the low energy quadrupoles and correctors were also verified with beam. Over the weekend first versions of LHCINDIV and two MTE variants of 50E10 (core only) and 200E10 (5 turns) were sent to D3. The configuration of the power converter driving the Figure-of-Eight loop appeared corrupted, which made setting up MTE a challenge: the function driven was not that played nor acquired. Thanks to an EPC intervention on Saturday the problem could be resolved. Further work is required this week to set-up the higher frequency RF systems and resolve various outstanding issues with other equipment. The situation looks good for sending first beams to the SPS by the end of the week.

SPS (Rende Steerenberg)

The SPS hardware tests are progressing very well and the DSO tests have started this morning. First beam injection scheduled for Friday.

LHC (Rende Steerenberg):

The cryo conditions for all sectors are ok and the powering permits for all the sectors were signed on Friday. Phase 2 powering tests has started and since then much progress was made already.