



Summary of the 13th FOM Meeting

Held on Tuesday 20th June 2017

Agenda (<https://indico.cern.ch/event/647102/>)

- 1. Follow-up of the last FOM*
- 2. Status of the machines*
- 3. Schedule update*
- 4. AOB*

1. Follow-up of the last FOM

B. Mikulec chaired the meeting.

The list of presence can be found in [Annex 0](#).

The [minutes of the 12th FOM](#) were approved.

2. Status of the machines.

Linac2 & Linac3

JB. Lallement reported the status of the linacs ([Annex 1](#)).

Linac2 had a very good week with just a 10 minute downtime on Wednesday afternoon due to a glitch.

Linac3 had a good week as well. The source tripped for 10 minutes on Monday because of an interlock on the solenoids cooling water temperature as the chilled water production stopped. The linac went also down for 15 minutes because of the glitch on Wed. afternoon.

LEIR

S. Pasinelli reported on the LEIR status ([Annex 2](#)).

It was a pretty good and quiet week. The Linac3 team took the beam for an MD all Tuesday. On Wednesday the LLRF HW was cleaned up and set up. The LLRF team has removed old crate, switch etc... and set up the servo loop and the beam. Some validation tests were done on new ITE pick-ups on Thursday. The ER.QFN2040 power supply tripped on Sunday. The BCT10 polarity issue was corrected.

During the week EARLY was available for PS and NOMINAL was accelerated, but not extracted.



V. Forte presented the status of the PS Booster ([Annex 3](#)).

The PSB had a 97.5% availability over the week and smooth operation apart main faults on Wednesday, due to few electrical glitches, and an MPS blackout on Thursday due to an issue on the interface keyboard of a converter. Some problems for tune measurements on R1 and R2 (followed up by BE/BI and Alan), probably due to an unexpected drift in time of the kicked signal on the tune BPM. A workaround has been found to perform measurements, but investigations are still on-going. A BPM (BTP.BPM20) in the BTP line has noise issues. The PSB-PS energy matching has been successfully performed, to be confirmed by the RF specialist.

Operational beams are within specifications and other beams have been prepared for LHC MDs, like high intensity LHC50 and high intensity doublets, which are urgent for setup in PS and SPS.

Since Thursday the Linac4 ABP team is in the CCC-PSB island to re-start the Linac4 and train the PSB OP team.

ISOLDE

E. Matli reported the status of ISOLDE ([Annex 4](#)).

GPS: The switch from Mg to In took place on Tuesday. The run stopped on Wednesday morning at 9:30. The target was changed on Friday morning (#601 removed, #603 installed). There were problems controlling shutter and clamps (both were recalibrated). This was due to last week's problem with the PLC when an old configuration was restored, but no calibration was done in order not to perturb operation. Preliminary set up at 50 kV to YGP.BFC4900 started.

HRS: The target was installed and set up on Monday. CRIS took beam from Tuesday. There were issues with the RFQ stability probably due to overheating of the amplifier. In the evening large oscillations in beam intensity caused by a problem with YHRS.QP330-NEG (AQN oscillating between CCV and zero). First Line intervened and everything returned to normal after removing and reinstalling the power supply. On Wednesday a new proton scan and yield checks were performed in the morning. Beam back to CRIS in the evening. Recurring problems with the separator magnet. On Thursday the PSB MPS problem interrupted the beam for ~2h. The slits got stuck and required intervention of the expert to reset the position. On Friday there were other checks of the status of the separator after a week of unstable beam conditions. The cable of YHRS.QP180 was found not properly connected and the separator retuned. The beam was back to CRIS in the late afternoon and for the all week-end.

ISOLDE Users

K. Johnston could not be present at the meeting. He sent the following report.

Last week at ISOLDE the CRIS experiment (laser spectroscopy) were taking potassium isotopes with the intention of measuring the hyperfine parameters of 51K and 53K. Initial yields were not promising and once some technical issues were solved on Friday, this seemed to be confirmed. The production of even relatively "easy" K isotopes was low and 51K and 53K were out of reach. The experiment was able to perform some systematic studies of non-exotic K, but the physics program was impossible due to the low yields: no new data were obtained. The experiment may be re-scheduled – if possible – later in the year.



PS

D. Cotte reported the status of the PS ([Annex 5](#)).

It was a good week for the PS with more than 95% availability.

There were issues with some power convertors (mainly doublet and SMH16) and trips due to power glitches. The SMH57 tripped due to too high cooling water temperature (affecting EAST beams). TOF, EAST, AD, MTE and LHC beams were delivered.

The standard LHC25ns emittance sent to HIRADMAT was a bit too large (around 3 mm.mrad). Investigations are on-going. On Wednesday there were several cavity trips due to glitches. On Thursday, during the booster MPS fault, an access was given for the repair on the C76 cavity relay gap. Following the access, an expert was needed for the POPS restart. On Friday, a Booster-PS energy matching was performed with LHCINDIV-type beams.

The setting-up of LHC25ns_8b4e and LHC25ns_Doublets advanced well over the week-end. The ToF delivered integrated intensity is well on schedule.

After discussion, **J. Nielsen** and **M. Hourican** concluded that the SMH57 cooling issue should be followed up by EN/CV.

East Area

B. Rae said that except from the cooling issue on the SMH57 that affected the EAST beam production, it was a pretty good week.

East Area Users

There was no report.

nToF Users

M. Bacaq said there was nothing special to report.

AD - ELENA

L. Joergensen reported the status of the AD.

The AD had another very good week. The only real issue was some strange setting for the magnets just before the AD Target. After the PS went down on Thursday, the AD was only ejecting half of what it does normally. Everything was thoroughly checked both on the AD and the PS side. Nothing special was found. In the early evening the beam was optimized right before the target and the full beam at the AD was very quickly recovered. On Friday, at noon, the beam suddenly halved again. The beam went back after the original settings were restored. The root cause of this issue is not identified yet and investigations are on-going.



Concerning ELENA, **T. Eriksson** said they were still debugging the transfer line.

AD Users

T. Eriksson said that everything went fine. The BASE experiment is starting this week and they experienced some issues with the controls and the working sets.

M. Gourber-Pace said the controls issue was only affecting the FGCs control. It looks like the issue is coming from the RBAC permission. Investigations are on-going and a BE/CO staff is presently working on it.

SPS

V. Kain reported the status of the SPS ([Annex 6](#)).

The SPS had an availability of 90% in week 24 with roughly 5.5 h downtime caused by the SPS injectors, followed by a bit more than 4 h of downtime for extraction systems with the ZS sparks and the LSS4 MKE extraction kicker no trigger issue.

This was also the last week for the first AWAKE run this year. One of the highlights this week was the successful bunch rotation MD, which delivered bunch lengths of ~ 200 ps (1 sigma) for the AWAKE experiment. The frequent MKE extraction kicker no trigger issues are understood, albeit not solved yet. The extraction is intermittently inhibited while the PFNs are already charged due to power converter interlocks (this was solved) and also FMCM interlocks on the TT41 RBI. The latter one will have to be followed up this week.

Fixed target physics continued with $\sim 3e+13$ extracted. The normalised losses on the ZS are increasing again and ZS is frequently sparking. The cathode on ZS2 was found misaligned and the losses should be reduced a lot after its realignment planned for this week.

The LHC is now taking 3 batches of BCMS beam with 225 ns batch spacing. The bunch intensity was increased to $1.2e+11$ towards the end of the week. The emittances are typically 1.6 to 1.7 μm .

HiRadMat28 for the LIU transfer line collimators and the new TDI in the LHC was carried out this week. Up to 288 bunches of 25 ns standard beam were extracted on to different graphite and C-C materials. The experiment is essentially finished. One of the measurement systems did however not work as expected for one of the materials. HiRadMat was run with two 800 MHz cavities, but was frequently longitudinally unstable. The transverse emittances were also too large (~ 3 μm compared to ~ 2.6 μm reached before) from the PS. The spot size measurement in the line with a dedicated screen at the target location needs further studies.

North Area

B. Rae said it was a good week. The CO2 leak mentioned last week was due to a “disconnected” beam instrumentation. A report on the incident will be written this week by the expert.

North Area Users



There was no report.

V. Kain said that because of the ZS realignment the North Area beam intensity will be lower in the coming days.

AWAKE

E. Gschwendtner said that the Rubidium re-filling of the plasma cell went smoothly and the experiment was restarted on Thursday. In parallel the proton trajectory was optimized to AWAKE during these days and additional measurements of the beam waist at the plasma cell and setup the bunch-rotation of the proton beam in the SPS were performed. On Saturday the communication to the plasma cell was lost. An access to the service gallery to switch to the spare power supply was needed, as the original one blew a fuse due to a failure to ground. The experiment stopped on Monday morning at 5:00 until when the experiment continued with further proton beam self-modulation-instability measurements, scanning with different plasma densities, laser and proton timings, and proton beam intensities. For the next 2 months installation of the electron source/beam line system continues, with the main efforts on cabling. Another AWAKE SMI physics run is foreseen in August in weeks 33/34/35.

LHC

R. Steerenberg could not be present at the meeting. He sent the following report.

The LHC is very well advanced in the intensity ramp-up with 1800 bunches and the next step should be ~2300 bunches. Sunday night and yesterday morning the LHC was stopped due to several water leaks in the main power converter of arc 1-2. This was repaired yesterday and stable beam could be established again yesterday evening. The peak luminosity is around 1.1×10^{34} for (only) 1800 bunches.

TI

J. Nielsen reported on last weeks main perturbations.

It was a rather busy week with quite a few electrical perturbations, two on Wednesday and one early Thursday morning.

On Saturday at 11:32 the cooling towers stopped in the North Area and were restarted quickly by TI with CV on the phone. Agreed with CV to leave in manual mode until Monday.

On Sunday at 21:38: There were some problems with the GPN network, which was down CERN-wide for 1,5 hours. The problem was due to an overload on the DNS server.

3. Schedule update.

B. Mikulec presented the proposed new injector schedule version 1.2b ([Annex 7](#)).



The Technical Stops in week 27 and 38 were advanced by one day. The start of the COLDEX run was moved according to an estimate of the RP cooldown request (20 hours). The AWAKE run dates will be added in the final version.

R. Froeschl said that the exact cooldown times (probably 24h) and the December COLDEX run would be confirmed before the end of the week.

M. Gourber-Pace reminded that there is no guaranty for operational controls during the TS.

R. Alemany added that the Linac3 ion source will be changed during the September TS and will entail a 5-day ion beam stop.

The new schedule version will be presented at the IEFC.

The machine coordinators were asked to present the list of the upcoming TS activities at the next FOM.

H. Bartosik reminded that dedicated MDs are taking place tomorrow in the SPS (coast) and in the PS (PFW; perturbations to be expected for the users).

4. AOB

H. Bartosik presented the beam requests for the upcoming MDs in the LHC and injectors ([Annex 8](#)). The only specific beam that has to be prepared for the LHC that is not operational yet is a high intensity/brightness INDIV beam.

The Linac4 tunnel access door maintenance ([Annex 9](#)) was approved pending confirmation from **J-B. Lallement** due to current access in Linac4.

Next Meeting: Tuesday 27th June 2016.

Minutes reported by [JB. Lallement](#) on 22nd June.