

# Minutes of the 29<sup>th</sup> FOM meeting held on 21.10.2014

Agenda:

- 1) Follow-up of the last meeting
- 2) Status of the Machines
- 3) Schedule Updates
- 4) AOB

## 1 Follow-up of the last meeting

The minutes of the 28<sup>th</sup> FOM meeting were approved.

### *Pending actions:*

There were two pending actions.

B. Mikulec informed that the problem of the stability of the magnet current in LEIR was discussed at the IEF. C. Mugnier explained that since the beginning of this run TE-EPC piquet and the specialists are being called by the LEIR Operators for two kinds of problems:

- The beam is unstable and sometimes lost and the operators think that the cause is a delivered current that does not match the reference sent.
- From time to time the communication with some converters gets lost.

The main difficulty is that the failures are not reproducible. This makes the debugging difficult. Given that the same control stack is used elsewhere, and the unusual signals levels and shapes on the timing signals, TE-EPC suspect that the cause of the problems are electromagnetic interferences which pollute the control signals of all equipment located in the building 250. After numerous measurement campaigns by TE/EPC piquet and specialists, three different actions were identified:

1. Timing. The poor quality of the timing pulses can explain the loss of the remote acquisition/control. This situation can be improved by adding a 50 Ohms termination on the timing cable. On the 20<sup>th</sup> of October the 50 Ohms termination was added on all the converters impacted (except EE.QDN20 and ER.QFT24 where the signals are too noisy to be corrected by this mean, BE-CO will be contacted to find a solution).
2. GFA. The reference signal arriving to the G64 decoder card was noisy. BE-CO has pulled new cables between the GFAS and the converter over the ground (which is less noisy than the underground environment), and they have also installed a new card to receive the reference directly in the control crate of the power converter. This action has also improved the situation. M. Gourber-Pace commented that this intervention has already been implemented some time ago.
3. OASIS. The current measurement signals from the converter to OASIS are distorted to a level such that the operators have difficulties to tune the beam. TE-EPC performed several measurements and concluded that the perturbations (about 10 kHz) are not real. These perturbations seem to be an artifact of the measurement chain. A possible hypothesis is that the OASIS signals are perturbed by the electromagnetic interferences and/or Oasis acquisition's frequency being too close to the DCCT modulator frequency. In order to clarify the source of the problem, it was proposed to add another DCCT inside

two power converters that will help to compare the different signals. This intervention will take place during the 29<sup>th</sup> October.

The issue concerning the rising time of the PSB recombination kickers is currently follow-up by TE-ABT.

## 2 Status of the Machines

### Linac2 (G. Bellodi)

On Wednesday a scheduled RF tube replacement on a LEBT buncher took place (1 h of downtime).

On Thursday morning, another unscheduled RF tube replacement took place (Tank3). This was complicated by the observation of clear signs of overheating in the piece to be replaced and the presence of many sparking marks in its housing. It was thus decided to replace the whole amplifier body (3 h of downtime).

The recovery from the power outage (19h03 on Thursday evening) was a lengthy one. A water interlock on Tank3 required an access to the tunnel to adjust the flow-meter valve. By 02h00 the source was restarted and the machine would have been ready to send the beam down the Linac2, but the RF could not be restarted due to an access veto in the PSB switchyard (missing condition on BT.BHZ10, which was only re-established around 09h00 on Friday). TI informed then to put the machine in stand-by until the nominal power network configuration would be re-established.

Upon restarting the beam at around 14h00 on Friday, it was soon noticed that the temperature of the RF structures had lowered overnight to 17 °C (from the nominal 23.5 °C). After some investigations and a tunnel access it was found that the Tank3 water purge valve had been left inadvertently open during the access the night before, causing the drop in temperature. A low temperature interlock had been triggered on the water station, but was not acted upon by CV. Temperatures in the tunnel recovered nominal values only around 20h00 on Friday and Linac2 was finally able to transmit the beam.

The support from many specialists, and from the RF group in particular (V. Cobham and J. Broere) was critical during the restart.

P. Sollander commented that the low temperature alarm in Linac2 appeared on the TI panels as a general fault. J. Lehtinen added that, as already reported at the FOM, there is a consolidation plan under study. G. Bellodi commented that a faster communication of the temperature problem to the machine supervisor would have limited the additional 6 h downtime due to the Linac2 warm up. An action is opened for TI to define a procedure to inform the Linac2 supervisor.

### PSB (A. Findlay)

At the start of the week the LHCPROBE beam setting-up started, but there were problems with the longitudinal blow-up, which is an essential ingredient for this longitudinally shaved beam. By Thursday evening a bug in the generation of harmonic number 16 was identified (the one used for LHCPROBE), but by shifting to harmonic 17 the beam setup could continue. All the fine-tuning of this beam remains to be completed next week.

On Thursday evening the General Power Cut stopped the PSB operation. The equipment was back online around 14h15 on Friday. At 20h00 the Linac2 restarted to deliver beam. After some debugging the beam could be accelerated, but its quality was poor. It looked as if the TFB was the culprit, so the LLRF Piquet was called in around 23h00. He did all that he could with the limited documentation he had, but by 02h30 called the specialist to help. It was diagnosed that the head amplifiers for the PUs were not powered. Powering them solved the problem and high intensity beams were back by 03h45. The LLRF piquet remained for another hour to solve a problem with the R4 radial loop.

On Saturday morning the BLMs needed to be fixed, but as the expert was on holiday, C. Zamantas sought the information he needed to solve the problem and had them back by 14h30. During the afternoon the tomoscope was fixed and the capture for the high intensity users was improved. The ejection trajectory measurements for the LHC25 beam were not working, but specialists were difficult to contact. The first person available could not find the solution. L. Soby passed by in the evening and fixed them by replacing a NIM PSU. During the night shift the Linac2 settings and capture for GPS and TOF were optimized (respectively 3100e10 and 800e10 ppp).

On Sunday the LLRF Piquet was called for a synchronization problem for the first batch of LHC25, but he found the extraction reference frequency was wrongly programmed and quickly corrected it. There was 1.5 h of downtime of PS beams due to BTP.QN050, which required the EPC Piquet to change an ADC.

V. Kain asked if the LHCPROBE was now available. A. Findlay answered that it still required additional work in the PSB. S. Hancock asked if the fringe field compensation was finalized. A. Findlay answered that it is still to be completed.

#### ISOLDE (M. L. Lozano Benito on behalf of E. Fadakis)

**GPS:** On Tuesday there was an issue with a Faraday cup (YCA0.BFC068). The experts were contacted. The set-up to IDS continued without it. In the afternoon the set-up was finished and the proton scan and the yield checks were done. After a few hours the YCA0.BFC0680 was working again. No intervention was done by the specialist.

On Wednesday IS577 started taking  $^{33}\text{Ar}$  with limited intensity due to target limit to 750E10 ppp. The beam tuning had to be checked because the profile and intensity were not as good as the day before. In the evening the maximum intensity per pulse was requested (3E13 ppp) with  $^{35}\text{Ar}$ .

On Thursday, there were perturbations in the morning due to the Linac2 intervention. For most of the day things were running smoothly until the power cut. Around 21h00 E. Fadakis checked the machine hardware situation. At 2h30 the power came back. P. Fernier and M. L. Lozano Benito came to help with restoring the machine operational conditions. The cooling water for the targets was not working. There was a small leak in the water station room behind the ISOLDE control room. The equipment specialist came promptly and resolved the issues. At 23h30 it was found that the controls for the vacuum were giving fake readings due to a problem in one of their servers. The vacuum experts were contacted and found a 24 V power supply broken, which was replaced at 1h20, but unfortunately the problem in the PVSS server was still present.

On Friday all sensitive systems were kept off in fear of any more power cuts. A serious compressed air leak was found on YGPS.BFC5580 and the equipment group was contacted. At 16h40 the vacuum control was restored. The pumping restarted from 3E-2 mbar. Several FECs were down and a couple (cfc-197-bisobeam and cfc-170rplc) could not be restarted and the specialists contacted. Afterwards the target and the line heating were restarted. This target required an Ar flux and the PLC that controls the Ar regulating valve was not working. The equipment group was contacted and after 1 h the problem

was fixed by re-deploying the program to the PLC. After the patrol of the HV room the beam was given to the users.

During the weekend the users continued taking beam with only minor perturbations.

**HRS:** On Tuesday the target started its pumping down, but the shutter did not open. The responsible was contacted and the issue resolved, and finally HRS10 could be pumped down.

On Wednesday the target was cooled down in preparation for the target change (scheduled the day after).

On Thursday the target was replaced. The new target (#515) was slowly heated to nominal values, but it was decided not to set up HRS since the users preferred to continue data taking with the GPS target.

On Friday a serious compressed air leak was found on YHRS.BFC6900 and the equipment group was contacted.

### [ISOLDE Users \(\)](#)

M. Kowalska sent an email before the meeting:

“Since Tuesday GPS is used for studies on a very low-production argon-31. The experiment is running smoothly in spite of the CERN power cut. Special thanks go to our engineers who spend long hours at ISOLDE on Thursday and Friday to fix all problems after the power cut and succeeded in delivering beam on Friday night.”

### [PS \(G. Métral\)](#)

The General Power cut was the main problem of the week.

The patrol was lost in the PS Switchyard zone. The re-arming of the security chain was very lengthy and complex (the conditions for switching on the BT.BHZ10 and the vetos produced by the security chain have to be revised). The TI authorization for restarting the main electrical circuits of the machine was given on Friday at 14h30 (19 h 30 min downtime). The TOF, EAST and SFTPRO beams were back in production 34 h after the power cut event. The AD beam was back only 42 h after the power cut event (13h00 on Saturday) because the AD beam control setting is longer and more delicate than for the other beams due to its specific beam control (HSWP).

On Sunday morning there were problems with the radiation monitors. The RP piquet needed to exclude the PAXP303 (2 h of downtime). In parallel, the kicker piquet made an intervention on the KFA71 (~100 mis-firings in the last 24 h) and the G64 firmware of the control card of QKE73 was updated as it was done last week on QKE25. The LHC type beams were back on Sunday afternoon after the intervention of the Piquet LLRF (synchronization problem).

G. Métral reported that the PSB LLRF settings are very difficult to control and tune by the OP team. The system is not well documented and this clearly impacts on the longitudinal quality and reproducibility of the beams. The SFTPRO longitudinal characteristics vary significantly ring-by-ring and shot-by-shot. A. Findlay commented that at the moment all available resources were on the problem. He added that it was important that the users express their concerns and report on the encountered problems to allow the management to allocate the required resources. B. Mikulec added that this was clearly a concern and that she would contact the RF group hierarchy to explain the encountered issues.

Following the request of the IRRAD users, the EAST2 PLS slot will be mapped on the cycles serving IRRAD. The reason of that is related to a BE-BI software that is hard-coding the EAST2 PLS. L. Soby asked about the kind of the instrument. G. Métral answered that the device was a beam grid.

During the week a consistent extraction setting was propagated on the different LHC cycles. In doing so, it was discovered that the H84 phase loop at extraction was introducing a jitter of 35 deg at the SPS injection. A solution for this issue will be implemented during the 29<sup>th</sup> TS.

The nToF users asked not to program two consecutive nToF cycles in the SC since their acquisition rate is still limited at the moment.

Concerning the situation with the MTE kickers, S. Gilardoni sent an email before the meeting:

“L. Sermeus, L. Ducimetiere, M. Meddahi and myself discussed the status of the KFA21 and KFA13 kickers, necessary for the MTE extractions but also for the extraction of TOF (parasitic and dedicated) and AD with the dummy septum in the nominal position. There are in total 3 PFN for the two kickers - two operational ones plus a spare.

Concerning the status of the MTE kicker repair, L. Sermeus and L. Ducimetiere confirmed:

- Out of the three PFN, the so-called ‘#3’ is repaired and tested, ‘#2’ is ready (after silver coating of the found damaged circular contacts). ‘#1’, acting as spare, is for the same reasons in surface treatment and should be available in ~ 2 weeks; #3 will have to undergo as well silver lining of the circular contacts (weakness only discovered on #2 during further checks of the contacts requiring deeper dismantling).
- As of today (20 October), **ABT agrees to hand over the two operational PFNs to operation (#3 and #2);**
- When #1, spare PFN, will be ready for operation, it will be swapped with #3, which will undergo silver coating of the circular contacts; at the same time the PFN length will be re-measured with beam;
- All 3 PFNs will be complete repaired and available in about 1-month time. In the meantime, MTE beam setting up activities can continue with the 2 operational PFNs.

Consequently, this is the proposed strategy for the MTE setting up and commissioning of the dummy septum:

- Concerning the MTE setting up, the PS is going to restart either today or tomorrow with the idea of extracting a bunched beam kicked in the islands. The capture studies are not going to be resumed immediately, since this relies heavily on the use of the BWS. Anyhow it is needed to set up the fast bump and study the islands stability in TT2. This will take around one week.
- Concerning the other operational beams and resuming operation with the dummy septum, if OP requests to have the 3 PFNs available (2 operational and 1 spare), the situation is more critical, as the 3 PFN will only be available 1 month. It is considered risky by ABT to leave the PFN not fully repaired as a spare until the Xmas break, because the interruption of the work can entail even more delays. It would then be of primary importance to see if the OP decision - of the operation with the dummy septum possible only with the 3 PFNs available - could be revisited or not, otherwise there is a high risk that the dummy septum would not be put in operation this year.

The program could be as follows:

- It would be preferable not to use the partially repaired PFN (#3) on all the operational users to limit the erosion issue found on the fully repaired PFN (#2).
- During the repair of the spare PFN (#1), the setting up of the MTE extraction can continue and the settings of the extractions with the dummy septum can be prepared on cloned users, leaving the dummy septum in the parking position. The repairing of the spare can take place while the PFNs #2 and #3 are used.
- In two weeks it will be possible to swap #3 with #1 and resume the operation with the dummy septum in the nominal position.
- The slow extracted beam and its fast bump can be optimised depending on the length of the PFN to be remeasured with the beam.”

### East Area ()

There was no report.

### East Area Users ()

There was no report.

### nToF ()

There was no report.

### CTF3 (D. Gamba)

The first half of the week was devoted to Dogleg operations. Normal operation restarted on Thursday. Stable beam quickly reached the end of the CTF3 Linac. Friday was spent trying to recover from the power cut. The main issues were related to timing and power supplies.

There are controls issues with subscription of devices from different crates. The problem is still under investigation, but temporary solutions are in place. The new “passerelle” is still under test. There were issues with the recently updated controls software that were solved by recompiling some of the codes used during operation.

Some safety chain modification took place in order to decouple CTF2 from the Dogleg operations. At the moment CTF2 is in free access.

### AD (C. Oliveira)

The operation was hampered by the cavity C02 that showed regularly the level 2 fault. This is due to the new High Voltage power supply that is often in fault. The cavity specialist is investigating on the issue and requested the help of a power supply specialist.

After the Thursday blackout, AD was able to deliver beam to the users only Sunday from 13h00. The first beam from the PS arrived only at 14h00 on Saturday. The main issues to recover beam were:

- 1) Injection kicker problem on Saturday. The kicker specialist had to intervene.
- 2) The stochastic cooling pickups were responsible for an aperture bottleneck. These motorized pickups need compressed air to remain on their nominal position, but the central air-compressed unit was lost with the power cut.

- 3) The front-end controlling the GEMs in the extraction line was down and could not be rebooted locally. The GEM is needed for the steering of the line. There were difficulties during the week-end to find the specialist and the spare part to solve the issue.

On Sunday night all vacuum pumps closed and the vacuum piquet had to intervene.

There are still instabilities in the extraction line strongly perturbing ASACUSA data taking.

### AD Users (T. Eriksson)

ASACUSA lost 50% of the time allocated and ATRAP had problem too. T. Eriksson reported that the AD experiments complained about the low priority that was given to the restart of the AD cycle by the PS operations after the power outage. G. Métral commented that the AD cycle is the only one to use the HSWP beam control and that this was the reason of the longer setting-up time needed.

### SPS (V. Kain)

The week was started with stable running for fixed target physics. Towards the end of the week significant downtime was accumulated with the Linac2 RF tube problem (all Thursday morning) and the general power cut (Thursday night).

Since Tuesday the LHC pilot cycle (currently with LHCINDIV beam) is in the SPS super cycle for heat runs of the transfer line power converters and extraction test preparation. The extraction pre-pulses are arriving correctly at the extraction kickers with the correct dynamic destination. Interlock testing and setting up of the BETS have started for the transfer lines. Monday or Tuesday next week extraction tests towards the TT40/TT60 TEDs will take place.

On Wednesday the SPS coast was tested for the first time after LS1 and it was successful. Beam was stored in the machine at the first coast attempt. A few controls issues with BI acquisitions need to be followed up and certain SIS interlocks need to be updated to work during coast mode.

Thursday during daytime, the cycle for Ar<sup>18+</sup> was tested in the SPS. Injecting the beam into the SPS was not straightforward since the beam was lost in the injection channel. Injection was only achieved on Sunday afternoon during a period where protons were not available from the PSB and the ion cycle was played again in the SPS.

On Thursday evening at 19h03 the SPS was hit by the general power cut. Most ring circuits tripped together with RF and kickers. The UA9 equipment also lost their reference positions. The SPS could however recover quickly and without major difficulty. The SPS injectors had many more issues and beam was back only at 03h00 in the night from Friday to Saturday, still unstable for some time. Since then the SPS is running stably again.

During the MD on Wednesday the faulty collimator in the H6 North Area was inspected. It will have to be exchanged and the intervention schedule is not yet fixed: possibilities are either the scrubbing run or the Christmas TS. The exact scheduling will depend on the user requests.

MST Tank 1 in point 2 is heating more than in the previous years. This is probably due to the different absorber geometry of the TPST exchanged during LS1. The temperature probes also seem to be heating with the 25 ns time constant (the effect is similar for the different tanks and not only localized in Tank 1). M. Hourican informed that the temperature of MST Tank 1 is gradually going down.

### North Area ():

There was no report.

### North Area Users ():

There was no report.

## IONS

### Linac3 (G. Bellodi)

Linac3 had a stable operation in the first part of the week.

Recovery from the power outage was almost straightforward (mostly resetting of power racks and supplies), and beam was re-established by 03h00 on Friday morning. Tank1 however developed an unstable behavior during the weekend with frequent trips (every 4-5 hours), needing each time a local reset to re-establish beam (no remote reset functionality is currently available on the Tank 1 and the RFQ of the Linac3 RF). On Monday morning the problem was related to a faulty current measurement box (Bluebox) and the chassis replaced.

Also on Monday, tests continued on the spare source HT extraction power supply, but the operational performance could not yet be reached.

D. Manglunki asked if there is a plan to have a remote reset for the RF. G. Bellodi answered that it has been requested but it will not be installed before the LS2.

### LEIR (D. Manglunki)

The LEIR injected intensity had been improved over the previous 2 weeks. Most of the week was devoted to improving the extraction settings, in-between the many breakdowns that hampered the operation (Linac3 RF, LEIR Low Level RF front-end, various power supplies, extraction kickers and global power cut).

On Tuesday the Low-Level RF front-end computer (cfv-363-all1) started again to behave erratically (remote reboots were ineffective). It had to be locally turned off/on for a cold reset. The same day ER.QFT24 had to be restarted by the TE/EPC piquet.

The CPU (RIO3) was changed on the LLRF front-end on Wednesday and it is behaving as expected since then. The crate mains 240 V is in the meantime being monitored by TI for a few weeks.

On Thursday morning TE-ABT piquet had to intervene on one of the extraction kickers (KFH32), and after the access the TE-VSC had to be called to open two valves, which did not open remotely. The AMDNOM beam, normally reserved for MD was used to deliver beam to the PS and SPS, as it had been optimized already over the previous weeks. Optimization of the extraction settings (bump and kickers) was continued on that beam.

At 19h03 the general power cut tripped the LEIR machine. J. Axensalva restarted it over night, and most functions were up and running by 01h30.



On Friday the rest of the machine was restarted by piquets and specialists (electrostatic and magnetic septa, transverse dampers, electron cooler), but many simultaneous breakdowns and power supplies trips (ETL.BVN10, EE.BHN1020, ITE.BHN20, EE.QFN10) needed the constant presence and interventions of the TE-EPC piquet. Eventually beam was injected, accelerated and extracted at 18h30. At that point the MD beam AMDNOM was copied to the operational beam ANOMINAL. The lifetime gradually improved as the residual pressure dropped, since several pumps had been off during the power cut.

Optimization of the machine was continued on Saturday afternoon. At 16h30 the machine had recuperated the situation from before the power cut, with  $2.5e9$  ions/cycle extracted on the operational cycle ANOMINAL.

On Sunday morning the main magnet power supply (ER.BHN) tripped and had to be locally reset. The electron cooler had also tripped, but could be reset remotely.

On Monday (20<sup>th</sup> October) during the weekly Linac3 MD, J. Schipper (TE-ABT) and his team entered LEIR again for an intervention on the kickers. S. Meunier entered to fix one vacuum pump. Beam was back at 16h30 as foreseen and it took 30 min to optimize the injection and retrieve the  $2.5e9$  ions extracted again.

Then ETL.BVN10 tripped twice and needed the TE-EPC piquet to restart. Once back on, the current was wrong compared to the reference, needed to be set to 13 A to get the required 8 A. This is due to the special power supply consisting in 3 converters in parallel. One is broken and there is no spare left.

This morning (21 October), the machine restarted after an intervention on the injection septum SMH11 (lack of pressure for demineralized water). The EPC piquet was called to restart the power supply of extraction septum SMH40. The beam is ready and will be taken by the PS and SPS on Thursday.

### **PS (G. Métral)**

On Thursday there were 2 h of downtime due to kicker problems.

### **TI (P. Sollander)**

It was nothing to mention apart from the major electrical cut that will be presented by H. De Maynard in this meeting.

## **3 Schedule Updates**

The Injector Schedule (v1.7) is available at

[https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/Injector\\_Schedule\\_2014.pdf](https://espace.cern.ch/be-dep/BEDepartmentalDocuments/BE/Injector_Schedule_2014.pdf)

There are no news to report concerning the schedule.

## **4 AOB**

J. A. Ferreira Somoza showed some slides concerning the vacuum situation just after the Meyrin electrical cut. The full presentation can be found at:

[https://espace.cern.ch/be-dep/FOM/Presentations\\_2014/Forms/AllItems.aspx](https://espace.cern.ch/be-dep/FOM/Presentations_2014/Forms/AllItems.aspx)

From the analysis of pressure of the different PS sections after the electric cut it seems that the blackout stopped a source of outgassing in the SS54 and SS68 (the sections where the broken wire scanners are positioned). At the moment this observation has no clear explanation. B. Mikulec invited BE-BI and TE-VSC to discuss off-line to clarify the observations and to report the outcome to the FOM.

H. De Maynard presented the detailed description of the sequence of events during the Meyrin electrical cut. The presentation can be found at:

[https://espace.cern.ch/be-dep/FOM/Presentations 2014/Forms/AllItems.aspx](https://espace.cern.ch/be-dep/FOM/Presentations%202014/Forms/AllItems.aspx)

The problem was caused by a switch fault (EMD114\*9). The blackout lasted 1h30 and 2h42 respectively in the "Réseau secours" and "Réseau normal" in the Meyrin site. Building 513 was powered for 23 min with the UPS system.

G. Métral commented that the power interruption was enough to lose the patrol for the Switchyard. F. Tarita explained that during the Long Run 2 the two networks (Secours and Normal) would be completely separated to prevent this kind of problem. B. Mikulec asked why the system could not detect the faulty switch. H. De Maynard answered that it is used to bridge the Secours and Normal networks in case one of the two gets isolated and that it was usually in open circuit. C. Gaignant inquired about the source of the fault. H. De Maynard answered that it is not clear and that the post-mortem of the problem is very difficult (the switch was destroyed by the fire). On the CERN site all switches similar to the destroyed one were replaced. P. Sollander asked why it took several hours to have a stable condition to restart the injector complex. H. De Maynard answered that after the fire the two networks had to be reconfigured for the nominal load.

B. Mikulec informed that the next Wednesday and Thursday a maintenance intervention was scheduled for the access point YEA01.PSB=361 (IMPACT 56015). D. Manglunki asked about the implication of the intervention. The specialist answered that in case an access would be required during the maintenance, the access could only be granted with a delay ranging from 15 min to 1 h.

J. A. Ferreira Somoza informed that a vacuum access is requested in SPS BA2.

J. Vollaire informed that on the 29<sup>th</sup> October all beams should be stopped at 04h00. The flush cycle for the PS should be done prior to the RP survey. RP will start the surveys at 07h00 and the access for interventions will start at 08h00. The IMPACT link should be "activated" at 06h00 and ends at the official time of the end of the Technical Stop. B. Mikulec added that the machines should be closed at 13h00 and all beams should be delivered to the users from 16h00 or earlier if possible. B. Mikulec reminded that all activities scheduled for the TS have to fit in the allocated time slot. Concerning the replacement of the wire scanner in the PS, B. Mikulec informed that the discussions on the possibility to postpone it to the Christmas stop were still ongoing.

The next FOM meeting will be held on the 29<sup>th</sup> October. The agenda will be communicated in due time.

Minutes edited by G. Sterbini.