

# Minutes of the COMPASS TB meeting 3<sup>rd</sup> November 2020\*

S. Levorato

January 5, 2021

## Attendace via Vidyio only

Jens Barth, Norihiro Doshita, Jan Michel Friedrich, Bernhard Ketzer, Igor Konorov, Daniele Panzieri, Stephane Plachkov, Marcin Ziembicki.

Oleg Denisov, Stefano Levorato, Fulvio Tessarotto.

Vincent Andrieux, Vladimir Anosov, Franco Bradamante, Alain Magnon, Gerhard Mallot.

Maxim Alekseev, Carlos Azevedo, Michela Chiosso, Shuddha Dasgupta, Christophe Menezes Pires, Triloki, Benjamin Moritz Veit.

The material presented during the meeting is available at <https://indico.cern.ch/event/863787/>

**The meeting starts at 9:00 am**

## Agenda

- 1 Approval of the minutes the TB of 01 September 2020
- 2 News and communications
- 3 Dates for the 2021 TBs
- 4 Cold Silicon PLC system
- 5 FEE status and summary
- 6 PT target update
- 7 RICH-1 update
- 8 DAQ update
- 9 Dry-Run update
- 10 AoB

---

\*The material presented during the meeting is available at <https://indico.cern.ch/event/863787/>

## 1 Approval of the minutes the TB of 01 September 2020 *S. Levorato*

The minutes of the TB of 01 September 2020 are approved.

## 2 News and Communications *S. Levorato*

- a The rail renovation is fully completed, the two holes in the downstream wall of HN2 for the rail insertion have been closed and sealed, the scaffolding structure has been removed. The access ladder to the catwalk does not satisfy the safety regulation. An intervention to solve the problem is foreseen between January 25 and February 5, a partial or total stop of the crane may be needed during this period.
- b The work for the renovation of the M2 beam line and the services integration is under Dipanwita Banerjee responsibility and J. Bernhard supervision. To cope with the requests of the future installations a new gas panel for helium, hydrogen, nitrogen and argon distribution is going to be installed. A new power distribution point and a new panel for optical fibre will be deployed too. The panel specifications are defined by COMPASS++/AMBER, MuonE and Na64 $\mu$  requests.  
To speed up the interventions in the M2 beam line and to allow for a fast changeover between the different setups in 2021/2022 a rail system is going to be installed along the beam line itself. Furthermore to allow a higher hadron beam intensity for the Drell-Yan data taking the shielding wall on Saleve side of the area, at the moment 80 cm wide, should be doubled or in case of space constrains a iron shielding should be deployed. The access path via the PPE211 door have to include a chicane.
- c The gas 908 barrack renovation progressed well, it is now missing only the forced air extraction system. The installation of the hydrogen, ethane, methane racks is planned. A new nitrogen panel for the non flammable gas is being installed too.
- d The room 888 R-413, at the moment used for the Arcal and argon (for RICH-1) and helium (for CEDARS) 12 bottle sets, and to store the target material; will be reorganized in view of the installation of the IKAR TPC hydrogen circulation system. Nearly 1/2 of the room will be classified as ATEX. The unused old equipment still installed in the barrack will be disposed.
- e The material removal above the M2 beam line will soon start. At the moment only two replies to the request of identifying the equipment have been received.
- f The TC announces that the Clean room space needs to be reorganized. The Clean room will be occupied for the finalization of the reinstallation

work of the DC4, the H1 reshuffling, the IKAR TPC intervention and the possible installation of the cooling system of the Silicon Tracker. This new set up requires the removal of the stretching machine. The proposal to have the stretching machine dismantled by Cyril Cot is not accepted due to its need for the MWPC repair (Daniele Panzieri, Maxim Alekseev, Stephane Platchkov) and the difficulty of realigning it after the disassembly operation (Alain Magnon). Vladimir Anosov remarks it has been fully repaired and maintained. Fulvio Tessarotto proposes to store it vertically. The decision to rotate it and store it vertically along the Saleve side of the 891 building is taken. Final green light has to come from Saclay who has the responsibility of the stretching machine.

- g Fulvio Tessarotto and Stefano Levorato attended a meeting with Eveline D'ho where the need to implement the survey of the equipment in the 888 hall has been stressed. It is proposed to install a Traka box that will store the keys of the mechanical workshop machines, the 10T crane radio-command and of the barrack where other COMPASS equipment is stored. Gerhard Mallot suggests not to use the Traka BOX for the 40T crane since this crane is not used by COMPASS. Bernhard Ketzer asks who will manage the permissions for the keys access; the TC explains the Traka box has 60 slots and each of the 6 rows of 10 slots can be managed by different administrators, one or more of the rows will be under COMPASS responsibility. The total cost of the installation is 8 kCHF out of which 3 are granted by EP-DI. Gerhard Mallot confirms the remaining 5 can be covered by COMPASS. The TB recommends its installation.
- h The Missing module for the MW2 has been ordered to CAEN and the faulty A7030 modules repaired.  
The STRAW 3 HV solution is under discussion with Prague and Illinois/Urbana group.  
The 8 non working LV power supply from WIENER has been sent for repair, a new rack has been installed on the COMPASS gallery. The orders for the duplex fibre patch cords placed.
- i The TC communicates the de-mineralized water is available from the beginning of November till the 11/12.

### **3 Dates for the 2021 Technical Boards** *S. Levorato*

The proposed dates for the 2021 Technical Boards are 19 January 2021, 23 March 2021, 18 May 2021, 20 July 2021, 28 September 2021, 30 November 2021. The dates may change according to the final definition of the dates of the COMPASS CM.

## 4 Cold Silicon PLC system *S. Levorato*

The TC illustrates the possibility to have the silicon tracker cooling system moved to the clean room. The detector preparation has in fact stopped. After the installation in place (HN2) of the PLC cabinet and of the dewar system by TUM the cabling of the PLC could not be performed by Saclay team during because of the COVID restrictions. Furthermore Saclay states the detector is under TUM responsibility and CEA has a lot of prioritized work to terminate. Alain Magnon reports Jean-Ive Rousse, who has performed the installations in the previous years is not available now, he may be available after the beginning of 2021. Stephane Platchkov suggests to start the work as soon as possible. Oleg Denisov proposes to have an alternative planning in case Saclay is not available. Jan Friedrich comments that the missing cables labelling and mapping is due to an unprofessional intervention is at least in part TUM responsibility. Furthermore he comments that the reverse engineering for cabling may only come from Saclay as well as the partially provided electrical schemes. TUM suggests to perform these operation with the help of Saclay although no time estimate can be provided now.

The TC reports he has contacted EP-DT: a full reverse engineering using only the code can be performed; a preliminary estimate provided by M. Pezzetti (EP-DT) is in the order of 50 kCHF.

Bernhard Ketzer remarks that since no manpower can come from TUM and Saclay one should proceed with the CERN solution and look for the budget for the intervention. Vladimir suggests that the participation, even from remote, of TUM and Saclay in the reinstallation has to be considered since it resulted already effective for the H1 removal operation.

The TC requests TUM to agree to the movement of the cooling system PLC cabinet and dewar to the clean room to have a precise evaluation of the cost of the operation. Jan Friedrich comments it looks reasonable but the price appears too high too.

Vladimir Anosov states that delaying will be wrong and the decision has to be taken now. Gerhard Mallot remarks COMPASS could envisage to run without silicons and use only the fibre trackers.

### Technical Board proposal

Jan Friedrich agrees to move the system to the clean area. He proposes in any case to discuss also with Christian Dreisbach. The TB agrees to proceed with the displacement that will be scheduled soon thanks also of the presence of Vladimir Anosov at CERN.

## 5 FEE status and summary *M. Alekseev*

Maxim Alekseev illustrates the full table with FEE Expert on site, FEE operational status, FEE intervention, major upgrades and running goal for the

Dry-Run.

Live communication with a DAQ expert should be organized to allow the potential shifters and on-call experts to check the FEE readiness. Communication between the persons on shift and the remote experts as well as between the shift and the experts on-site will take advantage of a chat based app; while between the on-call and the on-site expert the phone/VOIP-phone call app will be used.

Maxim Alekseev reports that it will be possible to run most of the detectors even if in restricted conditions, but the majority of the experts will be off-site and the major upgrades for 2021 will not be tested.

- The TC reports that a test of the VOIP-phone communication has been successfully performed. Stefano Levorato reports about the possibility to have a google street view like system for COMPASS as proposed by Johannes Bernhard.

## 6 PT target update *N. Doshita*

Norihiro Doshita reports the schedule of the magnet test preparation as well as the problem encountered in the preparation.

- Leak check of  $^3\text{He}$  line of DR and the preparation of Evacuation pump are completed after the fixing the pump control system
- $^3\text{He}$  gas panel valves were found to be blocked and could not be opened; they have been cleaned by Tino Vacca (CryoLab) who suggested to exchange the inner part of the valves. The  $^3\text{He}$  line has therefore been disconnected and no circulation in  $^3\text{He}$  line will be possible. This will result in a slower cooling of the mixing chamber.
- On Oct. 8 the Magnet pre-cooling with  $\text{LN}_2$  has started and some problems appeared: the isolation vacuum has deteriorated 4 times so far. The ice at burst disk and  $\text{LN}_2$  port on the  $\text{LN}_2$  neck was suspected to cause the vacuum loss. After the last vacuum deterioration the diffusion pump was intentionally stopped, the heating system of the PT neck modified and the flow control and DR operation adjusted. The problem has been identified in the o-ring sealing on the neck flange of the PT LN inlet and outlet. It will be replaced before next year data-taking.
- On Oct. 26 the helium cooling operation started, on Oct. 29 the helium filling followed. The magnet commissioning started on November 3.

Norihiro Doshita reports the status of the EIO tubes for the microwave generation for the PT.

- The VKE2401P2 E0761D6 which uses the PSU Varian VPW2838 and the VKE2401P4 E1100B8 which uses the PSU CPI VPW2827 Model 11151 are at the moment the only two EIO tubes available.

- The VKE2401P2 E0762C6 is aged and the VKE2401P4 E1101C3 is broken.

The 2 Watt Gunn diode purchased by COMPASS has been received on Oct. 2020 while the 2 broken EIOs will be sent to CPI. The Virginia group of Dustin Keller will lend the needed power supply. Yamagata plans to buy new EIO tube (about 200 kCHF) as well as a new Gunn diode (about 90 kCHF).

Gerhard Reicherz will be on site to test the Gunn Diode in the 30 mT field.

The list of missing components for 2021 is attached to the presentation.

## 7 RICH-1 update *S. Dasgupta*

Shuddha Dasgupta presents the status of the interventions for the RICH-1 preparation in view of the dry-run.

- The HV and LV cabling has been reshuffled and cleaned up. A new nitrogen distribution system for the MPGD based photon detectors has been installed for both the top and bottom RICH-1. The cooling water distribution system at FEE level has been redesigned and installed. New pressure and temperature sensors have been installed for the MWPC detectors. The upper detector is nearly ready for the dry run and the preparation activity is rapidly progressing also for the bottom one. The 4× 48 fibres patch cords are going to be deployed soon.

## 8 DAQ update *I. Konorov*

Igor Konorov describes the DAQ status for the Dry-Run.

- The remote controlled Power Distribution Units (PDU) for DAQ servers have been installed on 3 DAQ racks, they integrate voltage and current monitoring and they are fully integrated into the DCS
- The 888 network has been upgraded with the Ethernet switch Juniper QFX5120-48Y. The switch is configured to make all networks in 888 accessible from any computer in COMPASS network, including direct connection to PCCOREs, HLT Servers at 25Gbps.
- The DAQ GUI problem with MUX11 has been fixed and the network problem to pccofe28 (BMS) solved
- All VME crates are on and running
- A Zoom Meeting room with ID: 920 8762 0029 has been prepared and will be available during the whole dry run.
- The DAQ on call list is presented

- For 2022 run 3 more racks need to be equipped with PDU, furthermore an ATCA shelf for detectors MUXs and few more HLT servers have to be installed in the DAQ room. Power and cooling upgrades have to be included in the future planning

The TC communicates that the power distribution upgrade planning has already started and it should be completed before 2022. Igor Konorov presents the DAQ funding with details on the 2019-2020 spending and the expected orders for the DAQ hardware to be purchased before the 2021 end.

## 9 Dry-Run update *C. Azevedo*

Carlos Azevedo reports about the dry-run preparation. No specific request has been received by detector experts. The Shift schedule has been modified to allow shifters to comply with curfew regulation. In particular

- No weekends, 2 shifts per day (4 hours each): I 09:00 - 13:00 , II 13:00 - 17:00
- Just a shift/day/institute to avoid problems in case of communication failure

Carlos illustrates the shift list so far prepared and remarks the missing of shifters to cover the full period of Dry-Run without overloading people on site. He proposes to send again an email to GLs to ask people to fill the doodle availability. Shift participation is opened also to Bachelor students and instructions will be provided. The chat based platform to communicate to the shift crew will be Mattermost. Calls to experts on site or for emergency will be performed via the IP-phone app or standard phone.

## 10 AoB

- No other arguments are proposed.

The meeting ends at 12:35 am.