

LHC RF Meeting

26th May 2006

Participants: Luca Arnaudon, Thomas Bohl, Olivier Brunner, Edmond Ciapala,
Pierre Maesen, Frode Weierud.

(E-mailed input from Eric on ACS couplers, APW and ADT added in this write-up)

1. Couplers (Info from Eric)

✚ **SA2 conditioning:** Couplers MC123 and 128 have been leak tested after conditioning and are still under vacuum.

✚ **Polarization coupler vacuum seals:** The latest seals delivered (see meeting 12th May) have been checked by S. Sgobba (TS/MME). They are still not correctly made. From the analysis, dust may have been present on machining surfaces during fabrication. A further meeting will be held with the company ASAP.

2. ACS Modules and SM18 (Pierre/Eric)

✚ **Module 5:** After recovery from the power cuts early in week 19, running has been very stable. During the power cut helium was lost into the bunker and the ODH alarm triggered. A minor Cryo operation error had resulted in more than normal release into the bunker, but all safety systems (valves etc.) had operated correctly. The beam vacuum rose above 10E-6. The ion pumps could be restarted easily. (For the pumps to be installed in LHC tunnel intervention would be needed for this vacuum level). Cavities B and C have been brought up relatively easily to full field and power. Re-conditioning after the warm-up of cavity C (not baked out after mounting on the module) was straight forward. All cavities will again be brought to full power and field. Conditioning of all cavities should therefore be completed well on schedule. Due to the power cut, a warm-up & cool down test has been partially done. Measurements: Q, frequency and HOMs, will be done at the end. A long term (1 day per cavity) full power coupler heating test is also planned.

✚ **Cryo connections:** Results of tests were done with AT-ACR, on fitting of flexible cryo connectors into the module have been [documented](#) and put in EDMS (The tests proved successful, no special difficulties were found)

✚ **Tuner bellows:** The new bellows have been fitted to the eight recently made additional sets of supports. Welding (from the workshop) is of good quality. Vacuum testing is ongoing. We will now order the remaining bellows.

3. ACS Power (Olivier)

✚ **HV equipment:** All equipment for HV will be ready by July.

✚ **Klystron characteristics:** Tuning of the klystrons to have identical characteristics, i.e. drop-off or no drop-off of output power at high input power, will be difficult. Therefore some type of saturation/limiting/protection will be necessary for the feedback loops when running at high power.

4. ADT (From Eric)

✚ **Kicker bakeout:** Bake-out of all kickers has now been completed. (A minor problem of grounding the tank with the supports will be resolved next week.

✚ **Testing in B867:** This should start again soon, once PS and SPS start-up commitments decrease.

5. APW (Thomas/Eric)

✚ **PU No. 2:** Bake out is expected to start next week..

✚ **Series production:** One PU is ready for RF tests, one is being assembled now and three more will be assembled in the next two weeks. Bake out will follow after RF tests.

6. UX45 installation progress (Olivier)

✚ **Roof blocks:** The two large blocks have been put on top of RUX45. For the moment they are in the middle of the IR, until the best means of putting them in their final positions is found. (- the crane cannot reach far enough).

✚ **Bunkers & HV cables:** HV cables from the US area to the HV bunkers need to be in place before the final cementing of the bunker walls.

✚ **Cabling:** Pulling of 3/8 inch cables is ongoing: it is nearly complete for RB46 and RB43 will be done mid-June. The UX45 trenches will be cabled immediately after.

✚ **Connectors:** 500 connectors have been ordered urgently from another supplier. We may have to allow fitting of the original connectors to 3/8 cables where future intervention is unlikely. Selective fitting of different connectors for different cables would need very close follow up. To be agreed.

(Action: Wolfgang, Daniel, Philippe, Jean-Claude with TS-EL)

✚ **Waveguides:** The first attempt at passing the completing the waveguide installation into the tunnel for one klystron/cavity line has revealed alignment difficulties. For the cavities of the two outer modules the vertical position is wrong by 6-7 mm. The support systems are being modified to allow the necessary adjustment. The corrected alignment is just within limits with respect to the shielding and tunnel wall holes.

✚ **CV work:** The ADT distribution in RUX45 is being put in place. Klystron water circuit by-passes and mechanical supports are ready to be put in place in UX45. Extension pieces for the pressure limiting valves will be put in place in mid-June.

✚ **QRLX extensions:** These are planned to be installed in June-July. The roof blocks (see above) need to be in place first. Once fixed in place the rest of the work (mainly welding to the QRL) should have little interference with other activities in the area.

✚ **(Earthing:** to be followed up).

✚ **Floor drilling:** This will be planned at the LLS W/G meeting on 13th June and should be done soon after. SU group will first mark the equipment positions on the floor.

7. AoB

Bunch length measurements: (and mountain range display). We are discussing OP support for software development, for SPS and LHC. A system for SPS beam quality may need to be done with embedded real time software (e.g. in an FPGA) and may be outside the scope.

Next Meeting: Friday 2nd June May at 08:45 in the JBA room. (No TCC that day)

E. Ciapala, 29th May 2006.