LHC RF Meeting 12th August 2005

Present: Thomas Bohl, Philippe Baudrenghien, Olivier Brunner, Andy Butterworth, Edmond Ciapala, Pierre Maesen, Elena Shaposhnikova, Joachim Tückmantel, Frode Weierud.

1. ACS Couplers (Ed from Eric)

Couplers 122 and 123: Conditioning is continuing in SA2.

4 Couplers MC124 and 125: Leaks were detected on three successive tests around the helicoflex seal on the top part of the coupler, including one after a change of the seal. This lead to suspicion that helium detected may be entering via a leak in the pumping system itself. This has now been confirmed and another system will be used to repeat the leak tests.

2. ACS Modules and SM18 (Pierre)

Operation: Module 2 was cooled down at the end of last week. All four cavities could be taken to maximum field without problems; some additional conditioning was done to cavity A before the start of the LLRF tests (see below).

4 Module 5 spring compensation. The modified spring assemblies have been fitted to cavities B and C and tensioned to give the frequency corrections needed.

HOM Power Measurements: Measurement of coupling of power from one cavity to the next needs power on the drive cavity and terminated transitions on the others. This should be possible but is obviously most efficiently done at the start or end of running. Since there is power the bunker needs to be closed but the test is of short duration. HOM measurements are more lengthy but do not need power; transitions are fitted on all cavities, the bunker is open and klystron tests could go on at the same time. Two or three days will be taken for these tests before module 2 is taken out.

Cryo Domes: Parts for the first 8 modified domes (for two modules) have been welded, leak tested and fitted with superinsulation. The next step is to weld the assemblies together and do further leak tests.

LLRF Tests: (**Philippe**) First tests were done on the feedback modules. Open loop response was measured and found to be as expected. The coupler was at roughly mid-position (Qext 60000). The loop was closed with 30 dB of gain; again the response was as expected. The transient response was smooth; saturation of the klystron at higher pulse levels leads to slower response but little tendency for instability or spikes and no problems for klystron or cavity. Tuner tests will be done in parallel, starting today.

(Post meeting: The module 2 incident has interrupted these tests)

3. ACS HV and Power (Olivier)

Klystrons: We now have 18 klystrons tested and mounted in their chassis. One last klystron is expected back soon after repair of its vacuum pump.

Load/Circulator Chassis: Five are completed. Tests and calibrations will be done in H112.

HV Equipment: 10 modulators are completed; parts for the remaining ones are ready. The design of HV connector boxes, to extend the HV cables from the converters to the bunkers, will be looked at by SC.

4. APW (Thomas/Elena)

Tests: The next pick-up is being prepared; this one can be put under vacuum for measurements and heating tests.

5. UX45 Installation (Olivier)

4 Status: The UX45 area as it was one week ago, just after the clean-up following the CE and infrastructure installation, is shown in two pictures: <u>PX45 end</u> and <u>platform end</u>. The progress over the last two months has been impressive. Bunkers, racks, platform and practically all the cable trays are in place. The platform modifications were successfully completed and the extra supporting frames on top of the bunkers fitted, ready for fitting of floor grills. The remaining cable trays will be finished in 10 days. Rails will be put around waveguide holes in the platform next week. The earth bars will be installed in the middle trenches. The layout of the klystron area will be drawn up in detail and the positions of the patch panels for the klystron drive cables fixed.

Cables: The temperature compensated cables were delivered last week and have been stored at P4 with the other flexwell cables. The correct means of fixing the flexwell cables to the trays has to be decided; we will check the methods proposed by the supplier. J. C. Perrier is responsible for coax cabling. Any modification to the cabling lists must be communicated to Luca.

6. AoB

4 Radiation and Access Issues in RUX45: A meeting was held last week (G. Roy, Olivier, Ed.) Decisions have to be made on access to the top part of UX45 and on the use of the RAMSES (Radiation monitoring) system. Olivier has contacted SC-RP on updating the expected dose rates around the cavities.

Equipment Readiness Report: Olivier has been asked to prepare a report on the RF system for the August 26th TCC. He has asked all equipment responsibles to provide a ~3 page initial contribution. Three deadlines will be considered: sector test, start of hardware commissioning and first beam.

Controls infrastructure: An equipment readiness report by AB-CO on controls infrastructure presented at the June 24th TCC. A schedule was presented, based on equipment group planning but it did not include RF. This needs to be followed up with AB-CO. (Action: Luca, Ed, Andy)

Next Meeting: Friday 19th August at 08:45 in the JBA Room 864-2-B14.

E. Ciapala, 17th August 2005.

Outstanding Actions (Reminders)

1. UX45 Earthing: We have not yet managed to contact J. Pedersen on the layout for connection of the earthing lines to the main earthing systems (Action Ed, Olivier with ST-EL)