

LHC RF Meeting

22nd July 2005

Present: Andy Butterworth, Edmond Ciapala, Trevor Linnecar, Eric Montesinos, Volker Rödel, Joachim Tückmantel, Daniel Valuch, Frode Weierud.

1. ACS Couplers (Eric)

🔧 Couplers 122 and 123 have now had two weeks conditioning in SA2. Couplers MC124 and 125 have been assembled and baked. One however had developed a leak, the helicoflex seal on the top part of the coupler has been changed and we are waiting on VA group support for leak test then bake-out.

2. ACS Modules and SM18 (Ed)

🔧 **Operation:** Due to the vacation period we are in “shut down” until the end of week 30, after which conditioning/polarization tests on module 2 will be done, then LLRF tests on tuner and feedback modules.

🔧 **Module assembly:** There will be a delay of two weeks in the completion of the modified security domes, due to delays in getting the welding done. This may affect the planning for test of the tuning compensations in Module 5. It may be possible to make up time by fitting the new domes more quickly and by doing the tuning tests rapidly.

🔧 **HOM Measurements:** Reference data on HOMs inside the cavities, (frequencies, strengths) will be indispensable for operation with high intensity beam, together with measurements of the damping produced by the HOM couplers. In our 4-cavity modules the situation is complicated by the transfer of HOMs via the cut-off tubes. However a basic set of measurements should be done on one module, with a view to establishing a ‘standard’ measurement procedure to be done systematically on the others. We do not expect the HOM frequencies to be very different from the expected values, certainly still within the cut-off frequency chosen for the electronics filters on the HOMCs.

(Pending Action: Joachim, Elena, Ed, Pierre)

3. B867 and ADT (Eric) (Corrected 1st Aug 2005)

🔧 **Amplifier:** The cabling of the control and interlocks connectors on the amplifier has been modified and will be checked next week. Some further simplifications to the controls and interlocks wiring are proposed and will be verified on the second amplifier. The water cooling of the tetrodes will remain in series.

🔧 **B867 test of amplifier:** A first measurement could be done before the correction of the controls cabling. This showed that to bring the amplifier into spec. modifications will be needed (e.g. input matching, voltage divider calibration, removal of resonances). The work will be done by Daniel and Reinier. The modified controls and interlocks cabling will be checked out and RF tests will continue next week.

4. APW (Eric/Trevor)

🔧 **Copper coating:** RF and ABP specialists have confirmed that the lack of a copper coating will have a negligible effect on overall impedance and beam stability. The first prototype will be completed in a few weeks and will be used to measure heating of the ferrites with varying applied RF power. The results will provide the required estimate of heating as a function of beam intensity.

5. LLRF (Daniel)

🔧 **Couplers and splitters:** 600 items are in outside production. Mechanical parts have been completed and assembly and fitting of the PC boards and connectors is in progress.

🔧 **Faraday Cage RF signal crates:** The prototype has been made and series production will be started.

✚ **Arc Detectors:** Prototypes have been used successfully in H112 and SM18 for some time now and series production can start. Each unit has two inputs; around 80 units are required. Again production will be outsourced.

✚ **DCCT electronics:** The electronics consists of 3 boards; signal treatment, remote calibration unit and amplifier. Design of two of the boards is finalized and full production will be started soon.

✚ **RF Phase loop:** The development of this module is now under way.

6. UX45 Installation (Ed following visit with Olivier)

✚ **Progress of CE work:** The past two weeks have seen considerable progress and many of the problems have already been rectified:

- **Bunker roof:** The roof has been sealed properly and beams have been put on top, in order to put a stronger platform in place to take the weight of cable trays and equipment.
- **Platform:** The construction has been reinforced by the supplier, with additional fixing points to the cavern walls. The supporting structure on the second floor is now satisfactory for the ventilation units; this and their positioning have been agreed with TS-CV. The existing floor grill will not be changed.
- **Faraday cage passerelle:** This has been reinforced and additional fixing points put on the cavern wall.
- **Additional passerelle:** There will be an additional passage between the bunker roofs at the PZ45 end of the cavern

✚ **Cable trays:** A large number of the cable trays are already in place, vertical trays near the Faraday cages still have to be made and fitted. Cable pulling will be a considerable job and we can expect the final installation to be quite impressive.

✚ **Water Installation:** The major part of the system in the klystron area is now in place and is connected to the main system. (Both demineralized and chilled water systems)

✚ **Faraday cages:** Positioning of patch panels is now settled.

7. SR4

✚ **Floor reinforcing:** Work should have started on reinforcing for ADT supplies, to be checked.
(*Post meeting: reinforcing bars have been put in place on the floor, to be inspected by Eric*)

8. AoB

✚ **Radiation and Access Issues in RUX45:** Definition of doors and shielding for the access system and special protection for the synchrotron radiation telescope and other BDI equipment around IR4 will be taken up when all the specialists are back from vacation, in the second part of August. A first aim will be to produce a layout of the area. Concerning radiation levels it may be possible to make an initial estimation based on original studies but taking the radiation levels actually measured during conditioning in SM18.

✚ **Warm Recovery Line and Integration:** Following a meeting in RUX45 Olivier, Pierre, and the cryo and integration experts have decided on the connections to the WRL in RUX45. Access will be difficult once the QRL is in place and the pipe should be installed and connections made before planned QRL installation in October. The ECR for the WRL is with L. Serio for checking and will be circulated early next week.

(Action: Ed)

Next Meeting: Friday 5th August at 08:45 in the JBA Room 864-2-B14.

E. Ciapala, 27th July 2005.
Corrections ADT 1st 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)