# LHC RF Meeting
10th June 2005

**Present:** Luca Arnaudon, Philippe Baudrenghien, Olivier Brunner, Edmond Ciapala, Wolfgang Höfle, Trevor Linnecar, Pierre Maesen, Volker Rödel, Joachim Tückmantel, Daniel Valuch, Urs Wehrle, Frode Weierud.

## 1. Corrections to Write-up of meeting 3rd June 2005

- **Section 7. – B867 test stand:** Power tests with the load can be done to 120 kW, not 160 kW.

## 2. UX45 Installation (Olivier)

**CE Progress:** The walls of all four bunker walls have been completed. Certain roof blocks will not be delivered until July. Offers have been requested for the bunker flooring. The waveguide holes are now being made in the tunnel walls. Holes will also have to be made for passage of cables from the trenches through the shielding wall; these will be about 5 cm from the floor. There will be a change of CE contractor for UX45. Since the work is well advanced we do not expect major problems. Faraday cage passerelles are being completed; the floor grill sections still have to be ordered.

**Rack areas:** The copper sheeting is being put on the floor. Installation of the ADT racks will start next week, to be followed by the ACS racks. The wooden false floor will be installed at the end. (Its height will be a few cm below the racks).

**Cable trays:** The integration of the cable trays is nearly finished. One remaining difficulty, the routing of 3/8 inch flexwell cables along RUX45 for the dampers, will be taken up with the integration team. The organization of installation of the cable trays and cables will be taken up with TS-EL. Some general services cables may have to be pulled before the cable trays are fully installed. (to be seen)

**(Actions: Olivier)**

**Cables:** Cables from SR4 to UX45 and the RBs will be pulled first. The **flexwell cables** will be pulled by an ST-EL sub-contractor. Our ST-EL link man is S. Pelletier. Correct and careful installation of these cables is vital as they are easily irreparably damaged. We will have to ensure that the cablers are competent and have the correct instructions; also follow up the actual installation as closely as possible, with designated responsibles on our side. We will have responsibles for HV cables, flexwell cables and control cables. One remaining but indispensable job is the adding of cable tray information into the DIC. This will be done by Luca and Olivier, but the final list must be verified by everyone concerned. **(Action: Luca Olivier + equipment responsibles)**

**Faraday cages:** We are now discussing final details and installation with the supplier. Some issues:

***Dimensions:*** The points made last week are being followed up. The measurements of the space available between bunkers and transport area in UX45 have been done but the positions of the supports of newly installed platform should be measured, as well as the space for the patch panels on the roof with respect to the passerelles. **(Action: Olivier with TS-CE D. Ryan)**

***Patch Panels:*** The location of the patch panels must be such that individual cables can be removed without disturbing the others. The double bending of the 9 7/8 inch flexwell cables out of the cable tray and down to the patch panels may be difficult. A bending template could be used; alternatively the bends could be separated by arranging the layout to have some straight before going down to the patch panels.

***Floor flatness.*** The Faraday cage manufacturer specifies a floor flatness of 1 mm over 3 m, presumably to avoid damage from distortion of the structure. The cover plates over the trenches might also be a problem. First steps will be to show the supplier the UX45 area and to find a suitable way of checking flatness (to check with TS-CE) **(Actions: Philippe, Olivier resp.)**

***Electricity:*** 230 V ac will be taken to the cages. It is already shown correctly on the UX45 electricity distribution layout diagram.

**Integration:** There will be a meeting this afternoon. The original info for the warm recovery line was based on an old incorrect layout drawing of the modules. This has been corrected and will be given to the integration team in this afternoon's meeting. **(Action: Pierre)**

APW and ADT positions are now correct in the database, in our layout LHCLJ4GA0007 and in the integration model.

- **Drawings:** Installation will be based on the 3-D Euclid models of the integration team. Nevertheless our drawings LHCLJ4GA0001, 2, 7 and 8 are up to date and should be kept up to date.
- **Installation Deadlines:** The general LHC planning shows installation of both ADT and ACS modules from mid-May to mid-June 2006. This conflicts with our UX45 planning which has the ACS modules from end April and the ADT well before. Planning for the SC modules is therefore **critical**.

## 3. SR4

- **ADT supply floor support:** A design has been made and given to a contractor.
- **Control Room:** We have not had any estimates from TS, they should be contacted again. We should obtain costs separately for the building and any ventilation system. **(Action: Volker)**
- **Ventilation system:** The entire SR4 ventilation system is understood to be needing renovation. Again this needs to be followed up with TS-CV.

## 4. ACS Couplers and Modules (Pierre & Pierre for Eric)

- **Couplers:** Assembly of couplers MC122 and 123 will start next week. Couplers MC120 and 121 have finished conditioning in SA2 and will be dismounted from the test cavity.
- **Conditioning:** Cavities/couplers A and B of module 2 have been completed. Cavity C has started, again with the coupler fully out, to confirm the improved efficiency of this method.
- **Spring compensation:** A prototype set of four springs has been made in A5. These can now be tested on Module 5.

## 5. ADT (Wolfgang)

- **Anode supply:** The supply has now been powered in B867, to 30 kW. It can be tested to 120 kW in B867. For the lifting support, the transport service may be able to provide an acceptable solution.
- **Dubna Amplifier:** The amplifier and set of electrodes have cleared customs and will arrive next week.
- **Kicker tanks:** The vacuum problem in two out of the four tanks recently received and tested in Dubna is due to machining of the flanges, not to quality of the steel or welding. All four will be returned by Dubna to the factory for repair.

## 6. APW (Urs)

- **The prototype tank and line** has been successfully measured, before fitting the ferrites.
- **Cabling:** The cables from the APWs to the Faraday cages are missing in the cabling lists.

**(Action: Luca/Urs)**

## 7. Equipment layouts in racks (Luca)

- Detailed drawings of equipment crates as they will be mounted in the racks, showing front panel layouts and rear panels with connectors, have been completed for a number of systems. This includes the ACS racks in UX45, where they have been essential in compiling the cabling lists and in identifying and avoiding potential problems, e.g. with large numbers of HOM cables arriving at the splitters and detectors and for the LF diagnostics systems. The ACS layout was presented. There are 4 groups of 5 racks for the 4-line and module controls, two on each side of the 'U' shape. Two HOM and racks are situated between the two groups on one side and the two LF diagnostic racks between the others on the opposite side. The RF signal multiplexers and controls are in the centre racks. The ADT racks are presently being done, with some final re-arrangement being done from B867 experience (Eric). These should be completed by August. The APW racks in UX45 cryo side and in SR4 have also been done by Urs. (see LHC RF meeting 13th May). **The other systems in SR4 (ADT and LLRF) remain to be completed.**

**Next Meeting:** Friday 17th June at 08:45 in the JBA Room 864-2-B14.

E. Ciapala, 15th June 2005.