LHC RF Meeting 18th August 2006

Participants: Luca Arnaudon, Philippe Baudrenghien, Thomas Bohl, Olivier Brunner, Andy Butterworth, Edmond Ciapala, Wolfgang Höfle, Trevor Linnecar, Pierre Maesen, John Molendijk, Eric Montesinos, Joachim Tückmantel, Daniel Valuch.

1. UX45/RUX45 installation (Olivier et al)

4 Module transportation to P4 (Pierre): Module 5 (Oceania) was transported to the top of the PX46 tunnel, building SX4. Transport was without incident, a shock detector mounted for transport showed no indications and the cavity vacuum recovered quickly to <10-9 mbar when the ion pump was re-connected. It had been planned to transport Module 3 (Asia), however the SU team have found that they need to measure all modules in SM18 before installation. Asia will therefore be measured today and transported to Point 4 on Monday, where it will be taken all the way down into its position in RUX45.

RUX45 equipment installation and alignment: We plan to have all ACS modules in the tunnel in two to three weeks time and all ADT and APW by early September, when the alignment is to be done.

Floor drilling: SU marked the beam lines, all equipment positions in RUX45 and IP4 centre last Wednesday. However the positions marked did not correspond to our layout, derived from the layout database and VA group layout files. All holes have been drilled according to our layout. Errors of around 40 mm were found with respect to the SU markings, with an error of 800mm for one ADT. The SU data was confirmed to be in error, due to bad transformation of DCUM values (The cumulated positions from IP1 used in the layouts) in the MAD database and the x,y,z coordinates relative to a central reference point (in the PS) used by SU. The exact reason is not understood but our drilled positions are all now confirmed correct. The 800 mm ADT error was corrected in the MAD layout database.

Crash Barriers: The material is in RUX45; the section for the ACS modules will be put in place soon. We may need to put in some extra protection for HOM couplers on the ACS modules which reach just into the transport area.

Present Status:

Olivier showed some pictures of UX45, RUX45 and the equipment already installed:

• SR4: Now that the ADT power converters are in place and all the cabling work is done, the area needs to be cleaned up and all floor panels put in place. (Action J-C Perrier)

• **RUX45:** Awaiting the first module (Asia). Cabling around the module will need to be arranged to allow the module to be put in place and connectors fitted as easily as possible. Welding of the QRL extension in the RB46 side is not complete but this does not affect installation of the module

• The VIC for equipment installation in RUX45 was done last Wednesday

• ADT Water in RBs: Connections are now in place and supports fitted.

• Klystron water in UX45: The safety valves (10 bar) between the input and output pipes are now in place.

• **Klystrons and equipment:** Klystron racks are now in UX45, ready to be put in position. First circulator and klystron are being put in place now. Installation of the klystrons is being prepared with IC.

• **Faraday Cages:** Improvised connection of 220 vac for lighting is still present and could be a danger. Correction of the normal wiring for lighting inside the cage (changing colours of

wires) has been requested and will be done soon. Connectors for the coax cables in the trenches will be fitted next week.

• **HV Junction Box in US45:** The difficult job of installation the box and making the HV connections has been successfully completed by J. Pradier and C. Nicou.

• **HV Bunkers:** The commutators are in place in all four bunkers and the HV connections have been completed. The control racks have been installed and connected in all four bunkers, the cabling having been successfully tested.

Bunker door locks have suffered (malicious?) damage and cannot be locked

2. LLRF

Back Planes: Some LLRF backplanes of the 10 produced have short circuits due to bad soldering. They can be repaired, and the problem will be brought up with TS-DEM.

The issue of effort for testing, including design and construction of special equipment and manpower was raised. It will be discussed. There is also a problem for organizing procurement of components for the forthcoming large scale production of LLRF modules.

DDS Conditioning Module: Test on the first proto back from the design office are very promising. (Three cards have been made). Powering was successful and the JTAG circulated to all devices. Tests with the software team are now ongoing and the RF part will be tested next week.

Tuner RF – Version 2 has been launched.

3. ADT in B867

Power interlock: (Daniel/Luca) This has been successfully tested in B867.

Power tests (Eric) Power tests (on resistors) will continue now that the power interlock system has been fully tested

4. AoB

4 Machine protection. The Machine Protection team announced at the LTC they are missing information from RF. We have already provided all the information we have. To be followed up.

(Action: Andy)

Cryo operation for ACS: A meeting was held last Friday on the operation of the Cryo system for RF. A large number of issues were discussed and a summary is in preparation by AT-CR. The issue of He levels and measurement was raised, CR have concerns about the risk of overfilling the first cavity or not properly filling the last. We have agreed to do a test in SM18 on the spare module (Europe), Monitoring at all four gauges and heating with the bath heaters to simulate operation with RF on all cavities. Joachim pointed out that without couplers we can make full field in the cavities with a low power generator.

Layout Drawing LHCLJ4GA007. This has been sent round for approval and useful comments have been made. The necessary corrections will be made to some layout and functional names and the drawing re-archived.

Next Meeting: Friday 25th August at 08:45 in the JBA room.

E. Ciapala, 18th August 2006.