LHC RF Meeting 27th May 2005

Present: Luca Arnaudon, Thomas Bohl, Olivier Brunner, Andy Butterworth, Edmond Ciapala, Wolfgang Höfle, Trevor Linnecar, Pierre Maesen, Eric Montesinos, Volker Rödel, Joachim Tückmantel, Daniel Valuch, Frode Weierud.

1. UX45 Installation (Olivier)

CE Progress: Bunkers and platform construction work continues. Bunker walls on the RH side have been completed and the other side will be done next week. The roofs then have to be done. The remaining waveguide holes in the tunnel walls will be made next week.

Water cooling: Connection of the US45 demineralized circuit into UX45 is in progress.

Faraday cages: Problems with door size and clearance with the bunkers are resolved. However, when the Faraday cage were moved further away from the transport zone, to allow space to bend and fit the cables on the back of the cages, the HV bunker layout was not changed accordingly. The bunkers will not be moved now and the available options will have to be studied when the cages are to be installed.

Flooring: The false floor for the HV bunkers has been ordered. The area around the ACS and ADT racks has been cleared and offers obtained for the false floor. Earthing will put down first.

Trenches: The layout for the supporting structure in the rail trenches and the routing of the cables from klystrons to the Faraday Cages are being worked on and will soon be finalized.

Layout drawings: Updated and corrected layouts for UX 45 are being made.

Cable trays and DiC: The tray layouts are almost finished and the information will be included in the DiC. The DiC lists are practically complete. Some missing items are the exact locations of connections in the racks in SR4 (the racks themselves are all defined) and details of LF signal monitoring in UX45. (Action: Andy + Luca)

ACS HOM cables: Due to problems with routing large numbers of HOM cables (There are 8 per cavity) - in particular the cable trays at the edges of the cavern near the tunnel - it would be convenient to take the outputs which go only to cable loads (half the total) to the racks on the cryo side. Concern was expressed (Thomas) about bringing signals which will have HF content near the sensitive APW electronics. Other locations for these cables should first be looked at.

(Action: Olivier & Thomas)

Water connection for ADT: The four connections have been done by TS-CV.

Electrical layouts: Second versions of **LHCEB**___4041 and **LHCEB**___4042 are now in CDD approval. There has been a meeting with ST-EL. Note that the Faraday cages will have UPS 220 V only. Normal supply will only be used for lighting. ADT and ACS racks in UX45 will have both UPS and normal in each rack.

! The connections for the proposed warm recovery line heaters for the ACS modules have been omitted. The exact power requirements need first to be obtained from AT-CR (roughly 20 kW per module) (Action: Pierre)

Installation follow up meetings: Olivier will hold regular meetings at 14:00 each Wednesday in his office to organize the week's activities and follow up any problems. Everyone concerned with current installation activities is invited to participate.

2. ACS Couplers (Eric)

Coupler production: Mechanical parts ($\lambda/4$ line and body assembly) for the next two couplers have been completed and the delay incurred will not interfere with the planning.

Conditioning in SM18: Conditioning of coupler and cavity A of module LHC 2 has been completed in all modes, pulsed FM etc. for all coupler positions and 8.3 MV/m has been reached in the cavity. The addition of computer controlled automatic change of the pulse duration has made a big improvement to the overall time efficiency of the conditioning process.

3. Modules (Pierre)

Module 2: Conditioning of cavity B will start next week. LLRF tuner tests will start in week 24; final equipment and software test are being completed in the Lab. There will also be ample time for RF feedback tests on module 2.

4 Module drawings: A very large number of drawings exist and they have been put on the AB-RF Nice server. They will all have to be checked and the most important drawings verified and put in CDD. For the moment the priorities are on drawings needed for integration, tuner modifications and He dome modifications.

4. ADT

Dubna: (Wolfgang). One amplifier and one set of electrodes with supports are in customs and should be shipped in a week or so. Two kicker tanks are complete, paperwork is being prepared for the shipment of 20.

Anode Supplies: (Wolfgang). The first supply was accepted following the factory tests. Delivery will be next week. It will be taken directly to B867. The controls interface will be verified first.

B867 test stand (Eric & Luca) The test area has been prepared and electrical cabling done. Controls equipment is being installed in the racks and cabling will follow. A drum of 3/8 cable will be taken from the recently delivered stock of uncompensated cables in SR4.

SR4 Floor supports for damper power converter: Estimates are being made for the necessary supports. A drawing has been made – this needs to be checked against the converter 'footprint' and the SR4 supports. (Action: Olivier with F. Moro)

5. LLRF (Ed from Philippe)

Fibre Optics: A 'Demande d'Installation des Fibres' (DiF) has been prepared by Philippe and given as preliminary information to Luit De Jonge. There are over 70 fibres in this list at the moment. Information is fairly complete but still missing are the definition of the connections to the experiments and the exact location of RF equipment racks in the 'Equipment Room' of the new CCR.

The CCC equipment racks will be in what was computer area of the PCR (CCR) but attribution to the various groups still has to be done. We will have three racks at least. The person responsible is D. Bakker AB-OP. The existing fibre optic junction area in the ex-LEP equipment room will stay intact.

RF group responsibility for the experiments' fibres is a concern – piquet service etc. However there are advantages in using a single design everywhere, avoiding interfaces which might bring their own problems. (Action: Trevor)

Overall cost of interface modules may be high if we use the high spec. interfaces need for analog signals in all applications; we may need to develop two versions.

- **Faraday cages:** We are in the final stages of choosing the supplier.
- **Tuner loop:** Start testing in SM18 in week 24

Next Meeting: Friday 3rd June at 08:45 in the JBA Room 864-2-B14.

E. Ciapala, 1st June 2005.