LHC RF Meeting 13th August 2004

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

1) SM18 Progress

• **Bunker and equipment tests:** Bunker doors were closed and interlocks tested and approved by RP. Tests were done on arc detectors. Lhe level reading is now reliable and cryo operation stable; module 3 is now cold. Interlocks were tested.

• **Module 3:** Conditioning of the coupler for cavity A started during the week and 200 kW continuous was quickly reached. However during the most recent tests arcing has occurred in the klystron output waveguide at intermediate power levels. With a short-circuit klystron operation is OK up to full power. This is now being investigated.

• **LLRF tests:** These should continue next week, as soon as the coupler can be conditioned to full power and the cavity to full voltage. Tests planned are: open loop response, ripple on the cavity antenna signal and calibration of power levels.

• **The VME controller crate:** (Andy) This has been installed, with the RF front end module and is controlled using FESA and Labview over the network. Detected RF drive signal data can be read back and displayed. Other signals, e.g. antenna will be connected next week.

2) Klystrons, loads & circulators. (Olivier)

• Two loads/circulators have been tested in H112. 14 out of 20 have now been delivered. A replacement part has been received for the load recently delivered with a blocked cooling channel.

3) ADT Status (Wolfgang)

• Kickers: The two short test chambers have now just arrived from Dubna.

• Anode power converters:

• **Supplier visit:** Two engineers from the supplier spent the day at CERN and discussions held with together with K. Kahle (ST-EL) and C. Gomez (AB-PO). K. Kahle presented various options for transformers and connections, while the suppliers presented estimates for total harmonics produced on the supply grid, based on both 6 pulse and 12 pulse configurations. TS-EL would prefer the reduced total harmonics of a 12 pulse configuration. It is difficult to estimate the effects of the mutual interference produced by multiple supplies on the same transformer. At present we have little experience in using the simulation tool (Micro-cap) used by them.

• SPS Test: Measurements will be done on the existing SPS damper systems in BA2; the supplies are also 6-pulse but the power is less. Maximum power is used during tune measurements.

• *Test possibilities*: The idea of testing at least two supplies under full load on the same transformer was raised. The possibilities will be looked at: either in B867 or in SR4, if the infrastructure could be put in place in sufficient time.

• *Other users in SR4:* We should check that there are no other users planning to connect equipment on transformers feeding ADT anode supplies. We do not need to leave transformers in place for ACN.

• **Feedthroughs.** Sparking has occurred during recent tests, due to the present high humidity levels. Some form of heating around the insulator, or the use of a water repellant gel, is being studied with AB-BT.

4) B867 test area for ADT (Wolfgang)

• Scope: It was agreed that two amplifiers should be installed in the B867 test stand, so that the anode power converter can be run at full power.

• Cost estimate: A cost estimate for water and electricity is being prepared. (Eric)

5) DiC & Cabling lists (Luca et al.)

• ACS: Luca showed an extract of the new re-organized cable list, with its supplementary information fields and sorting facilities. (See $\underline{EXAMPLE}$). All ACS cables have now been entered.

• **ADT:** A first draft has been prepared by Wolfgang and is now being completed by Frode. Names of all equipment, racks etc. have been defined. These should be entered or updated where necessary in the appropriate layout drawings for UX45 and SR4. While the cabling list will not be fully completed till Frode's return from vacation, sufficient information has now been entered for procurement of cable and connectors by TS-EL.

• **ADT RF diagnostics cables:** Finalizing the layout for ADT diagnostics and selection of material (e.g. multiplexers for HOMs etc.) is ongoing by Wolfgang, Daniel and Andy. This mainly affects the internal rack cabling only; cables to the surface (for example 8 coax for HOMs) are already defined.

• **Cabling of equipment inside racks:** As stated last meeting, this can be done using the same form of excel file. It would be useful to do this very soon, to identify and enumerate the large numbers of connectors and simplify their ordering.

• **APW:** The cabling still has to be entered in the new excel form.

6) SR4

• Control area: The equipment layout in the assigned racks has been defined roughly for some systems (e.g. Beam Control). Work is ongoing to define ADT, APW & Diagnostics and ADT power controls. (Action: Luca, Ed, Eric, Thomas, Andy)

7) Integration in UX45

• All Sylvain's drawings have been given to the integration team (R. Valbuena). The possibility of starting CE work in UX45 before finishing the QRL remains a possibility.

8) Planning and commissioning: (Olivier)

• Feedback has been given to those who commented on the commissioning note and a revised version prepared. The main additions relate to cryo operation and availability, access for AB-BDI and also to software requirements.

9) EVM: (Trevor)

• **Reporting:** To keep planned value and earned value as close as possible we are asked to update our reporting and re-check starting and finishing dates for all WUs.

• **CERN staff:** CERN staff manpower is now counted separately and the estimates in all the individual WUs must be removed.

• LS staff: Recent locally recruited staff should also be taken out.

Next Meeting: Friday 20th August at 08:45 in the JBA Room 864-2-B14

E. Ciapala, 19th August 2004