LHC RF Meeting

4th June 2003

Present:
Luca Arnaudon, Philippe Baudrenghien, Olivier Brunner, Andy Butterworth, Elena Chapochnikova, Edmond Ciapala, Wolfgang Höfle, Trevor Linnecar, Joachim Tückmantel, Daniel Valuch.
Excused/Absent: Thomas Bohl, Eric Montesinos, Roberto Losito, Volker Rödel.

1) Matters arising from previous meeting 28th May:

i) Vacuum:

- *Pick-ups:* The expected vacuum in warm parts of the machine is 1E-10. This value is used in radiation simulations. Rates would scale with poorer vacuum near the pick-up.

ii) HOMC connections and power dissipation:

- CK50 has power handling of 150 W at 800 MHz. Lengths of flexwell (~50 m of 3/8") would be needed to attenuate to this level for the WB HOMC outputs which do not need to go to the RF controls racks. Loads to dissipate this amount of power are relatively large but could still be a solution. The cables to the racks are already 80 m long. The final proposal is still in preparation (**Action:** Ed, Joachim, Philippe).

2) Round table

i) Cooling water for RF Power (Olivier)

- TIS (R. Trant) has confirmed that safety regulations would not apply to the valves to reduce pressure to RF power equipment in UX45 (issue raised by Joachim). A limited number of spare valves would be needed, say 4 out of 16. The valve cost is roughly 2 kSfr. In SM18 correct pressure can be obtained by manual control of valves but protection is still needed against incorrect operation.

ii) Klystrons (Olivier)

- The next 3 klystrons may be late in delivery.

iii) WG Directional couplers positioning (Olivier)

- Exact estimation of change in RF phase due to waveguide is in progress (Daniel). However, roughly 0.3° change per meter can be expected when running at full power. A maximum of 3° tuning error could be tolerated. Exact RF phase for the beam is maintained in any case by the LL RF feedback systems.

iv) Radiation studies (Andy)

- Geometry simulations are done; any changes can be incorporated easily. The concrete forming the first corner of the existing access chicane from UX45 to the tunnel was not included in the previous RP studies, as it was not shown on the RF layout plans. The additional shielding round the edge of the UX45 shielding wall resulting from these studies may now not be necessary. Some results are expected by the end of June.
- The RF layout drawings should in any case be updated to show the exact tunnel geometry. (**Action:** Volker/Sylvain)

v) Low Level RF (Philippe)

- The first PCB card (IQ demodulator) for the LL RF has been assembled and tested. The bandwidth exceeds the +/- 10% (80 MHz) specified.
- Numbering for electronics cards and systems has been agreed. Those done by EST will be given EDA (Electronic Drawing Archive) numbers and all documentation will be in EDMS. Handling of cards and modules done inside the group needs to be clarified.

(**Action:** Thomas)

vi) EVM (Trevor)

- Transfer of F-code WUs to budget code 95540 (IES = infrastructure and exploitation) needs intervention by P. Bonnal. For the moment this code indicates less that the correct amount. The overall total is not affected. Some re-checking of future WUs needs done.

Next Meeting:

11th June at 09:00 in 864-1-C01

E. Ciapala, 5th June 2003