

# LHC RF Meeting

## 7<sup>th</sup> January 2004

**Present:** Luca Arnaudon, Philippe Baudrenghien, Andy Butterworth, Olivier Brunner, Edmond Ciapala, Wolfgang Höfle, Roberto Losito, Trevor Linnecar, Joachim Tückmantel, Daniel Valuch.

**Excused/Absent:** Thomas Bohl, Elena Chapochnikova, Eric Montesinos, Volker Rödel.

### Agenda:

- UX45 Layout
- SM18 activities/planning
- ADT News
- AoB, (including weekly time slot for future meetings)

**1) UX45 Layout:** The latest layout is agreed by everyone. The LLRF racks are moved from the cryo side of UX45 to the klystron side, just behind the level of the TX45 tunnel opening. They will be housed in two small Faraday cages, 10 racks in each. HV bunkers are now arranged two on either wall of the UX. ACS and ADT racks are in the remaining areas behind the bunkers.

- The actual loop delays for each klystron/cavity have been checked. The maximum is around 630 nSec, which could be reduced by 12 nS using air spaced flexwell cable. The delays for each klystron/cavity loop will be tabulated. **(Action: Philippe)**

- We should prepare a RF technical note on the new arrangement and the reasons for it.

**(Action: Volker)**

- To complement this, a note should be produced on the radiation studies. A draft is in preparation by Andy and the final version can be finished within the next week.

**(Action: Andy)**

- The klystron driver amplifiers remain close to the klystrons.
- The cables from the LLRF racks to the amplifiers will need to go via patch panels below floor level, to allow moving of klystrons.
- We should pre-warn the design team (C. Hauviller) about the new layout.
- It would be possible to put a roof on the ACS and ADT rack areas, depending on cable access and ventilation requirements.

- Cabling will be done in July 1005. We need to complete our cable lists.

- Faraday cage options should be studied soon. **(Action: Philippe)**

### **2) SM18 activities/planning:** (Roberto)

- Helium will be back on 21<sup>st</sup> January. The remaining 3 cavities of Module 3 will be conditioned. In the meantime the frequencies will be checked.

- New electronics for control of the module will be installed in racks near the bunker, similar to the machine layout. In this way a quick 'minimally disruptive' change can be made from the old to the new system, probably in April.

- He Gauges: Contacts proposed by the supplier are not gold-plated, a requirement normally specified. We will obtain samples of the proposed connectors for chemical tests.

**(Action: Roberto)**

- Soleil: The agreement has been finalized and awaits formal agreement by the management and signing.

### **2) ACS Couplers** (Ed in info from Eric)

- Vacuum problems have occurred after bakeout on two of the next set of couplers. On one this was due to a leaking window, probably due to non-uniform brazing of a copper ring. Although inspection before assembly had showed that brazing had not fully penetrated the gap around the metallised part of the ceramic, it had however been leak tight. This 'one off' incident is therefore not a major concern. For the other the leak was due to a crack in the

second polarization ceramic, in spite of it being a new version with carefully mounted niobium rings top and bottom. During December 2003, a series of tests were done on a special set up to check the assembly procedure and to measure the deformation of the ceramic during tightening. As a result the assembly and tightening up process has been improved and this has been shown to produce successful results.

- Tests in SA2 on two couplers, one having a steel ring in place of the second ceramic and the other having a ceramic with pre-cut niobium rings, have been ongoing over the Christmas break and to date 200 kW pulsed power has been reached.

- All parts for the next four couplers should nevertheless be ready in time for assembly at end of March. Our aim is therefore to have four couplers, able to stand normal bakeout temperature, in the next module.

- The laminar flow set up in B252 needs refurbishing of the floor and will be out of use for two weeks.

#### **4) ADT (Wolfgang)**

- The problem of the kicker tank construction quality has received attention from Dubna management. A new company has been found to do the welding and they will provide welding samples by the end of February. Short test chambers will be produced at CERN and also by Dubna for April. By August a complete tank should be delivered, for vacuum acceptance in September. The following production of 19 tanks would be completed by the end of 2004. The option of doing critical welding of Dubna supplied machined parts at CERN is being kept open. A vacuum specification is to be prepared for Dubna's new contractor.

- Rhenium coating of the ceramic mounting supports for the kicker electrodes has to be approved by the vacuum group.

- Full details of [collaboration discussions are available here](#).

- Driver Amplifier: The forthcoming test date for the prototype will be agreed with the manufacturer.

- Ug1 and Ug2 supplies: There will be a visit to the factory on the 27<sup>th</sup> of January

- Anode Supplies: The tender opening is on the 15<sup>th</sup> of January.

#### **5) AoB**

- **Loads and Circulators** (Olivier)

Two sets have been received and will be power tested next week in H112.

- **LEP Equipment Recuperation in ISR** (Olivier)

There is roughly one month work remaining to clean out the racks and recuperate material. Racks are being stored in UX45 (C. Guillaume). Radiation tests are being done before the LEP SC modules are moved. VA group have so far only recuperated material from easily accessible modules.

- **Future Meetings**

Friday morning is the preferred time. **Start will be at 08:45.** We will attempt to keep meetings short on days when there is a TCC meeting, or else find an alternative time.

#### **Next Meeting:**

**Friday 16<sup>th</sup> January 2004 at 08:45 to 10:00 latest in Salle J.B.Adams (864-2-B14)**

E. Ciapala, 8<sup>th</sup> January 2004.