# LHC RF Meeting 14<sup>th</sup> January 2005

**Present:** Luca Arnaudon, Olivier Brunner, Andy Butterworth, Edmond Ciapala, Pierre Maesen, FrodeWeierud, Volker Rödel.

## 1. ACS Couplers, SA2 and conditioning

• **SA2 Conditioning:** Conditioning of couplers MC116 and 117 is practically finished; the test cavity will be taken to SM18 to change over the couplers (fitting of 118 and 119.).

• **Power Supply control:** The ex-LEP VME controller is still used for control of the HV power converter. A spare hard disc should be prepared in case of failure. (Action: Andy)

## 2. ACS Modules and SM18 (Pierre)

• **Module 3:** Very slow vacuum 'leaks' were detected after bakeout on the couplers of cavities B and C (Couplers 112 and 114). Extensive tests revealed that the leaks were coming not from the couplers but from their vacuum gauges. New gauges had been fitted before the couplers were mounted on the module. On the decision of the vacuum group the gauges will be changed next week. This can be done outside the clean room, with nitrogen overpressure in the cavities, then pumping and bakeout will be done.

• **2005 Planning**: The aim of completing all four remaining modules by the end of 2005 depends on thermal cycling (of module 4) in the 'second' bunker. Preparation of electronics for this in the second bunker requires about 2 months of work. Since the retuning process has gone better that originally expected, module 4 may be the only one remaining to be done - if module 5 is OK. The investment in equipping the second bunker is then probably not justified, particularly in view of other commitments. The aim is now therefore to complete modules 3, 2 and 5 this year, giving the four required for the machine. Other work will still go on for module 4 (the least advanced) but final conditioning and test will be pushed into early 2006. Thermal cycling of module 4 could be done during the summer vacation period. The planning will be updated.

## 3. ACS Power (Olivier)

• **Klystrons:** Thales will be visited in two weeks and the problem of blocking of the cavity tuning mechanisms will be followed up. Klystron 13 is now under test.

• Arc detectors: The new version, from Daniel and Luca, will be tested in SM18. The detector is mounted on a circular base, allowing the same model to be fixed onto waveguides or on the main coupler port.

• HV ripple tests: will continue this week in SM18 (G. Pecheur)

• **Tetrode or simple divider:** The proposed solution is to keep the tetrode. A DC heater supply will be used. Reverting to a simple divider solution if decided later will be made as easy as possible. The DC supply will be checked for damage immunity using a 60 kV spark gap...

• **Power converter ripple:** Optimizing of the power converter for minimum ripple is ongoing (G. Pecheur, R. Genand & F. Bordry). Increased capacitor values are an option => 2 uF to 4 uF or 8 uF.

#### 4. ADT (Frode)

• **Tetrode Power Amplifiers:** Control and interlocking of these is being looked at by Frode and Luca. The connections are not completely defined yet. There will be two burndy 28 way connecters (1 male, 1 female) but we do not have a detailed pin assignments list from Dubna.

• Grid Supplies: Tests on Ug1/Ug2 supplies are going well.

• **HOM attenuators:** LEP recuperated 200 W attenuators are being tested and measured to obtain the series of 40 HOM loads.

# 5. UX45 Installation and planning (Olivier)

• CE work: The construction of the RUX45 tunnel walls will start next week

• **Platforms:** The DAI has been signed. There will be meeting with D. Ryan next week to check the final drawings. The work should start sometime from the end of February.

• **Trench rails:** There has been a request from Atlas to recuperate the rails in the cavern floor. Removal of the rails would mean that heavier covering plates would be needed for the trenches. It would probably also ease the laying of the flexwell cables.

• Earthing system: Copper bars and the mesh system for the floor need to be defined urgently. We will first look at solutions adopted by AB-BT.

• Floor marking: The positions of the klystrons and their electronics racks should be marked. This needs the help of the survey specialists.

## 6. Access System (Ed)

Final proposals on the UX45 and RUX 45 access systems were presented to us by G. Roy and P. Ninin last week, prior to their presentation at the 2005 LHC Performance Workshop. The mode allowing RF tests while the machine is open is now defined as "RF Enable" mode. The procedure for establishing this has been simplified compared to that in LEP. We will be able to control the access to RUX45 from a console in the cavern, when permitted by the CCC. A search of the RUX will be needed. The procedures will be defined and selective lists of people with access rights will be made up. Concerning safety, the access system interlock will act directly on the 18 kV cells. There will however be a short delay before this happens, allowing us to switch off in controlled manner using the non-delayed interlock signal. A short summary of the meeting gives more details and some actions to be followed up.

#### 7. Controls and Software

• Storage for production equipment (Luca): Space needs to be found for temporary storage of series production equipment. Among the options are: the new re-arranged hall in B865, to be followed up with AB-BDI and tent 956 where containers are already available.

• **Software and planning (Andy)**: The proposal for planning of software effort was discussed at a recent meeting with FB section. The principal activities for 2005 will be work on FESA classes for LEIR and LHC, LHC low level RF equipment, basic signal acquisition and logging for SM18 and PLC interfacing using FESA/IEPLC.

Next Meeting: Friday 28<sup>th</sup> January at 08:45 in the JBA Room 864-2-B14.

E. Ciapala, 20<sup>th</sup> January 2005. (*Minor corrections 20 01 2005*)