

LHC RF Meeting

18th February 2005

Present: Thomas Böhl, Philippe Baudrenghien, Olivier Brunner, Andy Butterworth, Edmond Ciapala, Wolfgang Höfle, Trevor Linnecar, Pierre Maesen, Volker Rödel, Elena Shaposhnikova, Joachim Tückmantel, Daniel Valuch, Frode Weierud.

1. ACS Couplers, SA2 and conditioning

- **SA2 Conditioning:** Couplers MC118 and 119 are practically finished. They will be fitted to module 2 with already completed 116 and 117.
- **Couplers MC120 and 121:** There is a leak on one coupler, around the second polarization ceramic. Improved finishing of the niobium rings is now being done.

2. ACS Modules and SM18 (Pierre)

- **Soleil incident:** A water cooling problem for the SM18 cryoplant resulted in overpressure in the He supply to the Soleil module during its final tests in the bunker. The 1.4 bar safety valves opened, discharging a large quantity of helium into the bunker. The bunker was closed at the time. The oxygen alarm did not reach the Pompiers, although it was properly triggered in the bunker. An incident report is in preparation. For the LHC modules the valves are connected to a discharge line; this was not implemented for Soleil.
- **Module 3:** (Couplers fitted and in bunker) Measurements are in progress. The frequencies of one cavity (D) seem to be more or less the same as 6 months previously. Measurements will be completed Monday.
- **Cavity Tuning:** Solutions for module 5B (and possibly others) are being followed up, mainly the disc spring idea (Olivier). Cu Be springs (for low temperatures) are available off the shelf. The aim is to add not more than 10 % additional load on the tuning system. Some form of tensioning nut/screw will probably be needed. Silver plating may avoid problems with using grease in vacuum.
- **Module 5:** has been opened, superinsulation also has to be taken away from adjacent cavities to access the tuner of cavity B. The cavity will be measured warm. The exact difference in frequency expected between warm and cold has to be checked. We should also check up on the original spec for frequency tolerances. **(Action: Trevor, Ed)**

3. ACS Power (Olivier)

- **Klystrons:** Klystron 14 has been tested; klystron 16 will be tested next week.
- **Power converter:** A factor 3 has been gained in the total ripple; the biggest improvement is in the 100 Hz component. Larger capacitors (4 or even 8 uF) will be tried. We should collect all the SM18 ripple tests and measurements into one report. **(Action: Ed, Daniel, Olivier, Philippe)**

4. ADT (Wolfgang)

- **Drawings:** Drawings for left and right hand assemblies need to be made (GL and GR); GA drawings are obsolete. New signature rights for uploading drawings into CDD need to be given. We have requested additional draftsman support in FSU AB13.
- **B867 Water:** To follow up.
- **Vacuum interlocks for ADT:** Cabling for the vacuum pumps on either side and in between the two ADT assemblies is the responsibility of the AT-VA. Details of interlocks were agreed with J-C Billy (AT-VA) some time ago (*April 2003!*). We should check the present status. **(Action Ed, Luca)**
- **Drive amplifiers:** 12 have now been received. 12 more are ready for shipment. Two from the end of the first batch have poorer specs; they may be rejected before the company delivers the new batch. A final batch of 12, plus four originals made conform to full series spec, would be delivered by the end of March.

5. Low Level RF (Philippe)

- **Faraday Cages:** Delivery dates for the Faraday cages fit with the installation planning. The detailed organization of the work will be done nearer the time.
- **RF modules:** Tests on the RF feedback and tuner control modules are progressing well.

6. APW (Thomas)

We do not need to wait for final detailed drawings before giving the dimensions and positions needed by S. Chemli. He will be contacted to see what information he still needs on RF equipment and layout. **(Action: Volker)**

7. Flexwell Cables (Wolfgang)

Finally the order will be sent out, compensated and normal cables together. The supplier will have to specify the delivery date for compensated cables on receipt of the order.

8. UX45 Installation and planning (Olivier))

- **CE Work:** Tunnel and shielding walls are under construction.
- **Aleph rails:** Lateral supports may need to be installed in the trenches once the rails are removed in order to support the weight of material being moved across the UX45 floor. A solution for passing the cables will be found.
- **Cryo connections in UX45:** A meeting has been organized with AT-CR to follow-up proposals in the presentation by S. Claudet on the cryo system at Point 4 at the 2005 LHC Performance Workshop.
- **TCC Presentation:** Will not be on 25th Feb.

9. Interlocks and connection to Beam Permit system (Andy)

The Beam Permit system allows for ‘maskable’ and ‘unmaskable’ inputs. This is related to ‘Safe’ beam, defined as that below which at no damage can occur. It is a function of intensity and energy. For ‘safe’ beam ‘maskable’ interlocks can be inhibited, on operator request. At 450 GeV the maximum ‘safe’ beam is 3.5 mA. We probably do not want to inject this much if one SC module is empty; hence He level, or He tank temperature, should be unmaskable. A list of interlocks will be made, with proposed maskable / unmaskable status for each, to be agreed upon and given to the Machine Protection team.

(Action Ed, Andy, Luca)

10. AoB

- **HOM electronics (Daniel):** A work unit should be introduced in EVM to cover electronics and RF parts for monitoring of ACS HOM coupler signals, using the Beam Control budget code.

(Action Philippe/Daniel)

Next Meeting: Friday 25th February at 08:45 in the JBA Room 864-2-B14.

E. Ciapala, 22nd February 2005.