

LHC RF Meeting

17th April 2008

Participants: Frode Weierud, Daniel Valuch, Eric Montesinos, Wolfgang Hofle, Elena Chapochnikova, Edmond Ciapala, Andy Butterworth, Vittorio Rossi, Joachim Tuckmantel, Luca Arnaudon, Olivier Brunner, Maria Elena Angoletta, Thomas Bohl, Trevor Linnecar

1. ACS tunnel equipment status

- + **Cooling:** Cooling water is back on enabling Faraday Cage operation. The Faraday Cage temperature interlock is now installed.
- + **Insulation vacuum leak:** A small accident occurred on one module: disconnecting the antenna cable caused small leak. This was fixed (connector tightened) and the insulation vacuum pumped down. A procedure will be defined for connecting and disconnecting these connectors. A modification will be made to the cabling with installation of a small Flexwell jumper.
- + **Software:** The migration from FESA 2.9 to 2.10 for ACS power controls has been difficult but is now complete.
- + **SR4:** Installation work is progressing well (David L).
- + **Planning:** Sector 3-4 cooldown starts next week. Tunnel will be closed for 3 weeks. Access still possible with token if really necessary. Access in 3 weeks for 2 or 3 weeks. Sector 4-5 is still warm, looking for broken PIMs and plastic pieces. If everything goes well, cooldown starts mid May, with the cavities cold by 3rd week of June.
- + **Vacuum and cavity protection:** The ping-pong ball tests should not pollute cavities since regions around cavities are warm with NEG. The tests are only taking place in the arcs.

2. ADT

- + **Amplifiers:** A broken water safety valve has been replaced. 1 problem with a PIM, now OK. Limiting power in tests as no spares for resistors. A second problem with a capacitor occurred. The amplifier in question is connected on the same power supply as first one, suggesting that the fault may be linked to a power supply problem.
- + **Cables:** The damage site on the broken cable has been located. The cable appears to have been cut by mistake. The calibration campaign continues. Measurement of stripline pickup connections are finished.

3. ADT Low Level

- + **DSPU cards:** The schedule for manufacturing of the DSPU cards has been defined as follows:
 - End May: Delivery of 4 boards, assembled by an external firm, followed by 2 weeks of validation.
 - Mid June: Launch 8 supplementary modules manufactured by an external firm, for delivery end July.The FPGA code is implemented, apart from the Network Analyser functionality (Beam Transfer Function measurement) which is the next priority, needed for operation unless at fixed energy. FPGA loading from the external chip does not work, and the interface to the FGCs is in development.
- + **Transverse position measurement:** Maarten is working on the FPGA code. Daniel has received the series of the digital card, prototypes of the RF front-end card are being tested in the lab and the new version seems to be working well. Final tests will be completed by next weekend, followed by ordering of PCBs.

4. LLRF

- + **LL loops interface card** now works (Jorge). 6 boards will be received within 3 weeks (only 2 are needed for installation). Lab testing continues and the software interface will be fixed next week.
- + **Tuner Control** is now the priority for DSP development (motor control with feedback via potentiometer, etc.).

- ✚ **Faraday cage installation:** There are 3 weeks left until the sector 3-4 cooldown. During this time we need to set up the switch/protection modules in 12 cavities, and install all missing LL modules.

5. Beam observation

- ✚ **Installation:** Some fibre modules need to be installed; there will be no access to the UX45 platform from next week for 3 weeks.
- ✚ **Acquisition hardware:** A number of problems have been encountered: the digitizers did not work in certain slots of the cPCI crate due to a problem with the backplanes, and were also not calibrated after bootup of the crate. The software required for sharing of a single pair of digitizers between mountain range, bunch length measurement and ad hoc signal observation will be complicated. The purchasing procedure for a second pair of boards (plus an additional 2 for ADT) is being investigated with AB/CO (Andy, Thomas, C-H Sicard).

6. UX45 cleaning

It was noted that there is lots of dust everywhere in UX45. A number of solutions were suggested: The gerant de site could be asked to organize some cleaning (but with risks of damaging equipment!), or we could organize a campaign with the FSU. The air filters will be changed in the Faraday Cages. Could the floor be painted? A roof over the racks and/or klystrons was also suggested.

7. Parameters for 5 TeV operation

Elena reported that the 5TeV run parameters are currently in discussion. No blow-up will be required in 2008 in LHC, but it is not clear if it is needed in SPS. The beam in LHC will be more sensitive to RF noise at 5TeV than at 7TeV due to the lack of radiation damping.

A. Butterworth, 4th May 2008