LHC RF Meeting

31st January 2008

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

1. **Status of UX45 equipment:**
   - **Conditioning progress:**
     - Conditioning restarted yesterday after the lift repairs. Some calibration problems were fixed, and we now see almost nominal field on 3 cavities.
     - Some HOM interlock trip levels were adjusted upwards.
     - Radiation measurements from RP indicate less than 3mSv/h inside the RF zone, not measurable outside.
   - **Power and field calibrations:**
     - Calibration of the Tuner Control board power and accelerating voltage acquisition channels was performed during the lift repairs stop. The results are found to be dependent on the LO level, which explains why we see different values in LHC from those found in the lab. The variation of 0.5dB in LO level between cavities will give a variation of only about 0.2dB in the calibration, which means it will not be necessary to recalibrate every time we change a board.
     - The drive chain gain has not been measured on module 1 beam 2. This will be done after warm-up of the sector.
   - **LLRF commissioning:**
     - Tuner tests have been started, using the conditioning software in CW to have the vacuum loop active. Narrow band noise was seen from the counter module used as frequency reference; this was solved using the 10MHz reference from an Agilent instrument.
     - Periodic phase jumps were seen on the spectrum, and these were traced to a periodic reset of the DDS by the conditioning software. This has since been removed.
     - A tuner sweep with recording of error signal shows the expected response apart from the phase jump spikes, and the overall tuner behaviour is correct. The tuner step response was measured. With an integration time of 4 seconds, one motor step was seen about every 4 seconds with a zero deadband, i.e. the tuning is fairly stable.
     - It is planned to move onto RF feedback this afternoon.
     - The setpoint module cannot be tested at the moment with FGC functions since a small modification needs to be done by AB/PO on the FGC chassis for these to work properly.
   - **Cryo stability:** Powering tests continue with quenches; no large pressure increases have been seen in the cavities.
   - **Software and controls:**
     - Some slow response and communication problems were seen yesterday when conditioning from the lab. A reboot of the front-ends and PC consoles cleared the problem.
     - FESA software for the Tuner Control board is ready, and can be installed today.
     - Coupler position: the potentiometer reading is correct, and we should use this, not the counter. To be discussed with Maria Elena.
   - **Sector 34 equipment:** The 8 power stations of 34 have been running, all heater curves have been measured and thermal power calibrations made.
   - **Installation and cabling:** Christophe Nicou will take over from JC Perrier for overseeing the remaining cabling and installation.

2. **UX45 planning:**
   - There will be a 1 week extension of powering tests (week 7) with 1 day of access next week.

3. **ADT:**
   - **Transformer maintenance:** the maintenance at Pt 4 has been done. The 400V for ACS PCs taken from same circuit as ADT, so switching off ADT power cuts the ACS converter controllers.
   - **Power tests:** DC tests continue in UX45. RF power tests have been started in 867.
   - **HV resistors:** A few resistors are still needed to finish the 20 amplifiers, these are expected mid-February.
   - **UX45 analogue acquisition :** Cabling is ongoing. All cables have been prepared, and connector mounting has now been started.
   - **Cable repair:** About 1 week of access will be needed in the RF zone for cable repair and measurements.

4. **ADT LL:**
   - **Feedback module:** The LL module for the damper has been sent to the drawing office, where design of the PCB has started. 4 prototype cards will be produced. The main difference between the old and new cards is the inclusion of the fast digital input.
   - **Function generators:** It has been decided to use 1 additional function channel per module to have a coefficient per pickup instead of a single phase function. This requires 2 additional FGCs, and it has been agreed with AB/PO that we will use the hot spares.

5. **LLRF and synchro:**
   - With the likelihood of a sector test early in the 2008 run, installation of the synchro system is the next priority after the UX45 commissioning.
   - Donat has given 2 Rx fibre optic VME modules to BT for the revolution frequency transmission for the beam dump dry run.

6. **Beam Observation:**
   - The acquisition hardware is being installed in UX45, with the aim of testing a simulated Mountain Range acquisition with triggering and software etc.
   - With only 1 digitizer per pickup, the bunch profile analysis for logging and experiments will conflict with expert measurements. It is agreed that to we should buy 2 more digitizers to solve this.

7. **Test stands:**
   - 112 has been restarted. SM18 will start next week, testing klystrons for India. The ACS test stand will be cold from week 7, with the conditioning system operational on module 4.

8. **SR4 equipment storage:**
   - The NIM power supplies are stored in SR4.
   - The RF zone in SR4 is not locked. With equipment and instruments stored here this could be a security risk, but if locked it will pose problems for people from IT and PH who need to access the fibre installation. To be decided: who should have a key.

Next meeting: Thursday 7th February at 08:45 in the JB Adams room 864 2 B-14.

A. Butterworth, 1st February 2008