LHC RF Meeting 8th May 2008

Participants: John Molendijk, Daniel Valuch, Eric Montesinos, Wolfgang Hofle, Elena Chapochnikova, Edmond Ciapala, Andy Butterworth, Joachim Tuckmantel, Luca Arnaudon, Olivier Brunner, Maria Elena Angoletta, Trevor Linnecar, Philippe Baudrenghien

1. Point 4 status and planning

- Cooldown schedule: The sector 3-4 cooldown is ongoing, but about 1 week late due to last-week's power cut. 80K should be reached at the end of next week, 4.5K in 2 weeks. The cavities should be cold in 2.5 weeks, with conditioning starting first week of June, and LLRF tests on the first cavities towards mid-June.
- Access: The sector 3-4 delay means there will now be no access possible between sector arriving at 3-4 at 80K and the start of sector 4-5 cooldown. Some interventions are needed in the RF zone: we need to check one coupler, 2 ADT amplifiers, and antenna cables. These interventions will probably take less than one day in total, but we will need to organise tokens with B. Belesia. Free access will be possible again at the end of June.
- Preparation for conditioning: The cavity controllers will be set up with simulated vacuum signals so as to be ready for conditioning as soon as the cavities are cold.
- LLRF: All LLRF modules for Sector 3-4 cavities is now installed, the modules for Sector 4-5 will be completed by the time the cavities are cold. LL setup is estimated to take about 2 days per cavity.
- **SR4 installation:** Most of the SR4 work list has been finished. Still waiting for a large number of N-connectors.

2. RF Synchro

- The synchro system is now fully installed in SR4 along with the necessary front-end software. Only the prepulse warning generation in the SPS FC remains to be completed. The LHC prepulse generation with ring and bucket selection has been successfully used to pulse the injection kickers during this week's "injection dry run".
- In the event of a sector test, it will be necessary to have the prepulse warning generation operational.

3. Beam Control

Test bench: A test bench has been set up in the lab, comprising 2 VME crates. One is a real Beam Control crate, the other contains the frequency program hardware. A simulated beam signal will be produced using a VTU. The various modules will be installed and tested progressively. This setup should enable a first measurement of total noise in the Beam Control system.

Hardware status:

- LL loops interface: 5 boards will be received next week.
- LL loops processor: 6 boards received. The DSP code is almost done, the VHDL will be finished today, starting tests. It is possible to simulate SerDes transmission between the loops interface and the DSP using the VME interface.

4. LLRF status

4 Tuner and main coupler control:

- John and Maria Elena are investigating the potentiometer reading problem in depth. Some weaknesses have found in the firmware, but not a definitive explanation. PLC commands appear to pass via the I2C correctly, but the potentiometer readings do not.
- In the last resort, we may have to provide a fallback solution communicating with the PLC via the network, but for the moment we continue trying to solve the problem with the current one.
- Crate Management Module: 1 PCB will be received at the end of this week. All components are available for 1 prototype. John will test it as soon as possible and launch the series as a high priority with TS/DEM.

5. Function Generators

- **4** Installation status:
 - UX45: Everything is installed: 2 chassis with 4 FGCs and inter-rack cabling. Some patch cables are still needed.
 - SR4 ADT: The 2 FGC chassis for ADT have been switched on. David L. is organising the inter-rack cabling.
 - SR4 Beam Control: 1 of the FGC chassis, driving the Beam Control crates, has been installed. The second chassis, with 1 FGC driving the frequency programme plus a hot spare, will be installed this week. The inter-rack cabling has been done, but many connectors are still missing.
- Testing: A test of function loading and execution will be performed either in UX45 or in the Beam Control test in the 864 lab.

6. SPS rephasing

- + Progressing well: full test in the lab in the next week, then install in BA3 FC for parasitic tests.
- 7. SM18
 - **Module LHC4:** The double tube has been mounted on the last coupler of the LHC4 module. The module is now being pumped, and is scheduled to go into the bunker around 26th May.
 - **Test cavity LHC21:** This will be disassembled: the cavity seems to be polluted, but the coupler seems not to be harmed.

A. Butterworth, 8th May 2008