# LHC RF Meeting 25<sup>th</sup> October 2007

**Participants:** Maria Elena Angoletta, Olivier Brunner, AndyButterworth, Edmond Ciapala, Pierre Maesen, Eric Montesinos.

## 1. P4 & RF Planning

**General P4 planning:** Cool-down of sector 4-5 is progressing well, 80K has been reached. 4.5 K will be reached at the earliest by start of week 46. The following two week period, weeks 47 and 48, are devoted to filling the cavities, doing tests on the access system (see below) and doing the low power tests on the ACS modules.

**Preparation and test of the access and RP systems:** This is now being organized with the help of the hardware commissioning team. A meeting was held on 24<sup>th</sup> October on the tests to be done, with hardware commissioning, access and RP specialists. The morning of Friday 16<sup>th</sup> of November has been reserved for operational tests. The RUX45 and UX45 zones will be closed. An interlock test procedure will be prepared by the access team. Control of the electron stoppers needs to be checked with the vacuum group; all other systems have already been tested, including RP monitoring, and will be verified again before the test.

For real operation, once field is being put in cavities, dosimeters will be needed for access into the RF areas. Measurements will be made in the surrounding areas on first powering of the cavities. A major problem is that personnel who might be in these areas might not have personal dosimeters. If the radiation levels are above that corresponding to an uncontrolled zone (1 mS/y) either access will need to be prevented by closing certain access points, or RP monitor interlock levels will have to be lowered. The latter may limit our tests. Clearly the best solution would to have all personnel equipped with their dosimeters, as will be the case once LHC is operating.

During hardware commissioning we will give one day per week (Wednesdays) free access for other activities, and be prepared to stop with 2 hours notice for urgent interventions. We have been also been warned that access system installation and tests in neighbouring areas may cause interruption of RF tests.

#### 2. Equipment status in tunnel (RUX 45)

**Vacuum in module M2.B2:** (*LHC 5-Oceania*). A leak test will be done by the vacuum group today ( $25^{th}$  October). The required equipment is in place. We should know whether or not there is a leak straight away.

**Damper amplifiers:** Two amplifiers have been repaired. One has a capacitor failure on the input stage; the other needed a tetrode to be changed.

# 3. Klystrons in UX45

**Water cooling:** A weld has broken on a pipe near the pumping station. All systems in sector3-4 will be off till early next week. This prevents power tests on all klystrons as all four bunkers are fed from the sector 3-4 supply.

**Klystron boiler replacement:** The eight klystrons for sector 3-4 are back in place.

**Klystron power tests:** These have resumed with the testing of the second four klystrons. Calibrations for all eight klystrons are now good. Software for controlling the klystron drive from the conditioning DDS has been de-bugged. A GUI panel with software knobs has been made and is now in use for changing the drive level and frequency.

**Overvoltage protection:** Daniel has completed the fast voltage detector and is now testing it. Four cards in production. Once these are installed and tested in the bunkers AB-PO will restore the power converters to full power operation.

# 4. ADT systems

**Power tests:** All kickers have been taken to maximum voltage in cw. All eight anode converters have been run at full power. Tests with pulsed RF will now be done on all systems. Setting up of Power Interlock Modules will be done during the pulsed power tests.

**Vacuum measurement:** An analog measurement of vacuum will be brought to the control racks, for observation and conditioning, if needed.

**Controls:** Eric has prepared a spec. for the remote control application for the ADT power systems, to be discussed with Luca.

**Spare amplifiers:** The resistors needed to complete two spare amplifiers will be delivered next week.

## 5. LLRF

**Patch cables:** The cables to complete cage A feedback installation are being made up and put in place.

## 6. SM18:

**Module 4:** The bellows on two double walled tubes for the couplers were found damaged when their protective collars were removed. (Cavities B and C). In order to fit the couplers we will need to take the two tubes from the test cavity. Two other tubes can be prepared and fitted to the test cavity in about four weeks.

**LHC21:** Filling of the test cavity will start on the 12<sup>th</sup> November.

Next Meeting: Thursday 1<sup>st</sup> November at 08:45 in the JBA room.

E. Ciapala, 25<sup>th</sup> October 2007.