


LHC RF Meeting

6th October 2006


Participants: Luca Arnaudon, Thomas Bohl, Olivier Brunner, Andy Butterworth, Edmond Ciapala, Wolfgang Höfle, Trevor Linnecar, Pierre Maesen, Eric Montesinos, Frode Weierud.


1. UX45/RUX45 installation (Olivier et al.)


Olivier showed some [pictures](#) and outlined the recent progress. In addition to installation work, electrical testing has also started on interface equipment, i.e. the first phase of hardware commissioning has started.

 **Alignment:** This has now been successfully completed for all modules. Support blocks on one module had to be quickly cut by about 1 cm, the floor height being more than expected at that position. We expect that a fine re-alignment will need to be re-done once all work is terminated.

ADT and APW remain to be done.


 **Vacuum chambers:** Installation will start at the end of October. Pumping will start in November.


 **Waveguides:** Alignment and final bolting of the waveguides to the transitions on the couplers was done relatively easily for the inner (beam 2) modules. The outer (beam 1) modules presented more difficulties. The cavities nearest the IP could be done by adjusting the waveguide suspension system, but the outer (most difficult) ones need modification of one waveguide element on each side. This is being prepared. In the meantime we have taken away the waveguide connections to all modules, to prevent risk of damage due to them being stood on during cabling and other activities.


 **HV Bunker installation:** A second HV bunker has now been installed. The controls interfaces have also been successfully tested.

Cabling:

- TS-EL has announced that 95 % of cables have now been installed and tested.
- In the klystron zone all cables have been pulled. The excess lengths are being cut to allow better access in the areas round the klystrons and circulators. HV cables to the klystron HV boxes will be connected next week, with the aid of a 'nacelle' lift.
- Cables around the modules are being put in place. Supports have been put on the modules to guide the cables and to hold them. One module is practically complete, with all connectors fitted. One control cable is too short and an extension will be fitted - the signals are LF and will not be degraded.
- Flexwell cables from the Faraday cages to the trenches are now all in place. Two cables were too short, but sufficient slack could be gained from the routing in the trenches. All cables have been successfully bent away from the transport zone. Plates have still to be put over the trenches in the ~1m section next to the Faraday cages. Additional support will be needed in the trench floors, between the cables.
- The 3/8 inch flexwell cables for the reflected cavity power to the Faraday cage have been routed to RUX45 instead of the waveguides on the platform. Pulling new cables would mean removing the trench covering plates. Alternatively: either the cables could be extended and routed back through between the walls or they could be cut where they pass up the shielding wall after emerging from the trenches and new sections leading to the waveguides connected or spliced on.

 **ADT kickers:** Protecting cages have been put in place, similar to those made for the APW.

 **Controls equipment:** installation in the ACS racks will start next week.

 **Earthing:** Grounding cables have been put on racks and chassis. The HV junction boxes in the US have been earthed. We should add our earthing connections into the general UX45 earthing layout by TS-EL Drawing (**CDD LHCEIE_4012**)


Networks and computing infrastructure: (Luca)

- Fibre optics and transceivers Equipment and fibre optics tubes have been installed in SR4 and UX45. Some fibres remain to be blown through the tubes. When this is done the networks can be activated by IT, probably in November.
- RF Server: The RF server will be installed in the CCC. It is therefore independent of other activities and could/should be installed as soon as possible.
- Wireless networks: A number of transmitters will be installed. The locations are being studied by IT.
- PCs and consoles for UX45 and SR4 are ready for installation, as soon as the network is activated.


2. ACS couplers and cavities: (Eric, Pierre)


 **Coupler for single cavity module:** Coupler MC125 will be fitted.

 **Coupler assembly:** Assembly of MCs 132 and 133 will start next week.


 **Temperature sensors:** ACS cavity Cernox temperature probe data is being put in MTF (Pierre)


3. ADT (Eric, Wolfgang)


 **Dubna amplifiers:** The Dubna team leader will visit on 24th October. We now expect 15 amplifiers to arrive in mid-November; the testing to be completed by the Dubna team by the end of the year.

 **Kickers:** The two remaining kickers will be completed together with the amplifiers.

4. AoB

 **ADT blow-up: (Corrected 12th Oct 2006)** Wolfgang has been asked to present noise estimations at the forthcoming LHC luminosity upgrade workshop in Valencia. A first simulation, from a KEK specialist, shows the effects of quantization in our 12-bit system and a resolution of 1um would produce minimal blow-up. However the simulations need to be repeated for the exact LHC situation and over the length of an entire coast.

 **LEIR controls:** The LEIR cavity/power system PLCs have recently been upgraded to IEPLC and FESA. This has allowed writing of LabView remote control interfaces and these have been successfully tested. The recent successful results with FESA for the LEIR beam control system are also very encouraging.

 **Space in H112:** Part of the area will be used for temporary storage of DFBs. (till March 2007). We still have ~6 LHC klystrons/circulators in H112.

Next Meeting: Friday 13th October at 08:45 in the JBA room.

E. Ciapala, 11th October 2006 / 12th October 2006.