

78th Meeting of the LHC Collimation Working Group, October 23rd, 2006

Present: Ralph Assmann (chairman), Giulia Bellodi, Alessandro Bertarelli, Chiara Bracco, Roderik Bruce, Helmut Burkhardt, Francesco Cerutti, Barbara Eva Holzer, Verena Kain, Daniel Kramer, Jacques Lettry, Roberto Losito, Laurette Ponce, Stefano Redaelli (scientific secretary), Federico Roncarolo, Lucia Sarchiapone, George Smirnov, Maciej Sobczak, Helmut Vincke, Thomas Weiler,

1 A.O.B.

- The final date of the collimator MD are the following: October 31st, November 7th (SPS MD) and November 9th (TT40). This is different than what was originally announced. Minutes of previous meetings have been changed accordingly.
- The collimator installation in TT40 was carried out on October 18th. Everything worked properly and the collimator could be installed without major problems. At the end of the installation, a vacuum leak was found and this postponed by a few hours the startup of beam (V. Kain). Laser vibrometer, accelerometers and microphone were successfully installed and tested.
- Roberto Losito reported that the sensor equipment of the TT40 was installed without problems. By the end of this week his team will perform a detailed calibration of the jaw positioning. As for the SPS SS5 collimator, the installation of the required equipment (on surface) will be finished by the end of this week. Roberto's team then will need some time without beam to test the connections. R. Assmann suggested to leave an access request on the white board in the control room to be called in case of an unexpected access, in order to perform tests as soon as possible.
- Roberto also reported that PXI system to be tested for the low-level control is nearly operational. He confirmed that this will be tested at the SPS MD's.
- S. Redaelli reported about the status of the commissioning of high intensity beams at the SPS. The PS cannot provide 4 batches of 72 nominal bunches as in 2004. At the last APC meeting, E. Métral proposed that one could get the nominal total intensity of the LHC injection batch with 6 batches of 48 nominal bunches (which the PS can provide). Successful tests were carried out by E. Métral and G. Arduini, who managed to get 5 batches (80% of the nominal intensity). However, the commissioning of the 6 batch extraction might not be performed before the collimator MD and our MD time might be required to setup the nominal intensity. In this case, extraction on the collimators could shift to the reserved date, at the very end of the run. We will have to see how the commissioning of high intensities goes in the next MD's and then decide how to proceed.

2 Proposed planning (C. Bracco)

C. Bracco presented the tentative planning for the collimator MD (both TT40 and SPS). These proposals were already presented last week at the APC. By the MD date we should assign to each allocated time slot the list of people that will be involved. We have to make sure that the required people will be available during the MD.

C. Bracco discussed in detail the various phases of the MD, with tentative time estimates. The planning of all MD days are posted on the collimation web page at the following address:

http://lhc-collimation.web.cern.ch/lhc-collimation/files/CBracco_2006-10-23.pdf

People were encouraged to look at these tentative planning in detail and to give feedback, notably on the list of people that will be present/required for each phase. Chiara will collect feedback from the people concerned and prepare a list of all the participants. The list should include also the people that are required to be available "on call".

Jacques Lettry asked about the proposed list of measurements to perform with the laser vibrometer. S. Redaelli and A. Bertarelli replied that this was discussed in detail at the last collimation working group meeting. The idea is to go to high intensities as soon as possible to achieve the main goal (demonstrated the robustness of the collimator jaw). Then, if time permits, additional dedicate measurements can be done with lower intensities until the end of the MD. In addition, measurements could be performed to setup the data acquisition during the beam-based alignment at very low intensities. Jacques confirmed that this will provide valuable information and also some feedback on how to set the acquisition parameters for the following measurements at higher intensities.

R. Assmann commented that he would like to have at least two measurements in the worst failure case (full intensity, 5 mm impact parameter): one at low and one at high acquisition frequency.

J. Lettry also commented that one can take several consecutive measurements at high acquisition frequency, which all together could allows to effectively measure for longer times. Additional input will be required from Jacques' team and from A. Bertarelli in order to finalize the detailed measurement program.

S. Redaelli proposed to measure vibration also with beam on TED (located about 5 m downstream of the collimator). This could tell whether the data acquisition chain is affected by radiation (no effect is actually expected). Jacques said that this will be possible. R. Assmann agrees that this should be done.

R. Losito asked whether an access is foreseen at the beginning of the MD. R. Assmann replied that this is not the case for the moment but we reserved some time in case an access will actually be needed. The main goal of the SPS is to test the collimator controls and we must therefore be ready to sacrifice a few MD hours if it will be necessary to perform the required adjustments before starting the MD with beam.

R. Assmann also reminded that the time allocations presented by C. Bracco are tentative estimates. For example we will invest more time on the commissioning of the controls if this will be required to make them work properly. The other studies will follow, with low priority.

It was noted that the planning for the second MD day will be tuned after having seen the achievements of the first day. R. Assmann stated that we will certainly try to explore also higher beam intensities in order to extend the measurement regimes for impedance studies. Additional input is expected from the impedance colleagues, who are trying to find out the best beam parameter set to measure the inductive by-pass effect.

H. Vincke asked about radiation issue at SS5. As there are basically no changes with respect to what we did in 2004, there should be no issue.

A. Bertarelli asked about the precision of the laser vibrometer in the estimate of absolute displacements (a signal integration is required because this device measure vibration velocities). J. Lettry replied that this is a known issue, in particular for high frequencies. He suggested that one could cross-calibrate the laser measurements with know steps of the motors. In addition, acquisitions at different frequency will help to understand systematics of the signal integration.

The next meeting will be announced.