

44th Meeting of the LHC Collimation Working Group, October 8, 2004

Present: Oliver Aberle, Gianluigi Arduini, Ralph Assmann (chairman), Elena Benedetto, Hans Braun, Markus Brugger, Fritz Caspers, Enrico Chiaveri, Fabrice Decorvet, Bernd Dehning, Alfredo Ferrari, Marek Gasior, Barbara Eva Holzer, Lars Jensen, Rhodri Jones, Michel Jonker, Tom Kroyer, Mike Lamont, Laurette Ponce, Roberto Losito, Daniela Macina, Matteo Magistris, Elias Metral, Christian Rathjen, Stefano Redaelli (scientific secretary), Guillaume Robert-Demolaize, Ralph Steinhagen, Markus Stockner, Jorg Wenninger, Frank Zimmermann.

1 Preparation to the collimators MD's at the SPS

1.1 Scope of this meeting

This special Collimation Working Group meeting has been dedicated to the preparation of the collimator tests with beam at the SPS. In particular, the plan for the measurements of the MD of October 11th has to be finalized. A preliminary SPS MD on October 4th was dedicated to setting-up the various beam types required for the collimator tests at the SPS. This gave the opportunity of testing most of the required equipments for the collimator MD's, such as collimator motors, BLM's, various devices for beam measurements, etc.

1.2 Preliminary results of BBQ measurements (M. Gasior)

See slides at http://www.cern.ch/lhc-collimation/files/MGasior_2004-10-08.pdf

Marek Gasior (MG) presented the first results of base-band tune measurements. This is a non-invasive method that allows measuring the tune without exciting beam kicks. The system proved to work well. It was possible to measure tiny tune variations induced on purpose from the control room. The measurements present a significant noise at 50 Hz which is still under consideration. Nevertheless, the system seems very promising. It was also possible to measure tune variations in the order of $\approx 10^{-4}$ while the collimators were moved. More details are given in MG's presentation.

In order to perform reliable tune measurement against collimator positions, it was proposed to regularly move the collimator at a given frequency, between two reference jaw positions, while acquiring tune data. This is not possible with the present software that controls the collimator motors. Periodic jaw displacements can only be done by hand. It was agreed to do that in the collimator MD.

1.3 Status of sensors for measuring the collimator jaw position

In the preliminary MD of October 4th, the reading of the various sensors that measure the collimator jaw positions and gaps were not available. Michel Jonker said that AB-CO is very busy and he is not sure that the sensor reading and logging will indeed be available for next Monday. He will try to do the best to insure that this is the case.

1.4 Status of beam loss monitors (BLM's)

The first measurements of beam losses versus collimator positions showed that the BLM's mounted in the vicinity of the collimator work! Two sets of four BLM's are installed 9m and 12m downstream of the collimator. The BLM's recorded beam loss signal when the

collimators jaws were moved towards the beam orbit. The data acquisition and logging, set-up by Guillaume Robert-Demolaize in collaboration with the BLM team, worked without problems.

However, the signal shows long time decays. It has to be understood whether these are real beam-induced signals or if there is a problem with the signal acquisition/treatment. Bernd Denhing believes that the BLM data acquisition system works properly and the measured signals are actually induced by some beam dynamics effect (tail re-population?).

In addition, RA asked if it is possible to move the second set of 4 BLM's further downstream of the collimator. With the present configuration, the two sets of BLM's give practically the same signal. The BLM team should follow this issues up.

1.5 Planning for the SPS MD of October 11th

The planning agreed for the collimator tests of next Monday is available at the web page: <http://ab-mgt-md-users.web.cern.ch/ab-mgt-md-users/2004/lmd41.htm>

According to this plan, is if foreseen to switch to high-intensity beams starting from 5pm. RA believes that it would be better to decide on Monday afternoon whether to go at high beam intensities or not. It has to be made sure that all the required tests are satisfactorily performed with a low intensity beam before switching to the higher intensity beam. This cannot be decided today. Gianluigi Arduini said that the change of beam intensity requires the availability of the RF people and hence the decision has to be taken as soon as possible. Thomas Bohl stated that there would have been no problem in deciding on Monday afternoon. Therefore, it was agreed that the final decision will be taken on Monday afternoon at 4 pm.

The next meeting will be announced.