Stefano Redaelli, 22-01-2008

92nd Meeting of the LHC Collimation Working Group, January 21st, 2008

Present: Paul Anton Letnes, Ralph Assmann (chairman), Chiara Bracco, Markus Brugger, Helmut Burkhardt, Francesco Cerutti, Michel Jonker, John Jowett, Luisella Lari, Roberto Losito, Marco Mauri, Alessandro Masi, Valentina Previtali, Stefano Redaelli (scientific secretary), George Smirnov, Matteo Solfaroli Camillocci, Thomas Weiler.

Comments to the minutes and follow-up of actions

Roberto Losito sent comments to the draft minutes of the special collimation meeting on TCDQ control issues of Dec. 13th, 2007, and clarified the role of ATB in the software preparation. The comments have been incorporated into the final version of the **minutes**, distributed last week. No further comments were given.

R. Assmann followed up the open action from last meeting about the upgrade of the SPS collimator prototype to the final LHC hardware. After discussion with the parties involved, it was concluded that **the SPS prototype cannot be upgraded for the 2008 run**. The collimator is activated and the procedures to work on it require long time, not compatible with the installation schedule. On the other hand, the prototype presently installed in the machine will be **kept operational**. A. Masi, M. Jonker and S. Redaelli will asses the requirements to achieve that.S. Redaelli warned that, in particular after the change of controls architecture (see Section 2), it would be wise to perform beam tests. R. Assmann replied that tests should be performed at the laboratory test stand.

Agenda of this meeting

- Review of open actions (S. Redaelli)
- Final design of the FESA class (M. Jonker)
- Collimator hardware commissioning procedures (T. Weiler)

List of actions from this meeting

Action	People	Deadline
Implementation of energy-based limits of collimator gaps	A. Masi	Update in 2 weeks
Configuration of collimator inputs into the BIC's (input required from coll. and inj. projects for 2-in-1 collimators)	A. Masi	Update in 2 weeks
Planning for collimator commissioning per sector	CPS	Mid. February
Specification for the automatic beam-based procedures	MJ, RA	Spring 2008
Calibration and interlocking of the tank position	ATB-LPE	Spring 2008
Proposed temperature dump levels for the various collimator types	FLUKA, TS-MME	Before beam operation
Collimator damage levels for impacts of ion beams	J. Jowett	End of 2008
Final version of MTF collimator commissioning procedure	T. Weiler	End of Jan. 2008

(Complete list at http://lhc-collimation.web.cern.ch/lhc-collimation/action.htm)

The next meeting will be Monday, February 4th, 2008.

Provisional agenda: **http://lhc-collimation.web.cern.ch/lhc-collimation/**

Stefano Redaelli, 22-01-2008

Minutes of the meeting

1 Review of open actions (S. Redaelli)

An updated list of open actions from previous meetings is available on the usual web page. S. Redaelli encouraged everybody to have a look at the list and to send him feedback.

2 Final design of collimator FESA classes (M. Jonker)

After discussions with the parties involved, M. Jonker announced that it was agreed to merge the two FESA classes of the present controls architecture into a **single FESA class under the responsibility of AB-ATB**. A. Masi agreed to implement into the low-level FESA class the **synchronization functionality**. A meeting will take place tomorrow between Michel, Alessandro and Stefano to finalize the list of the FESA class properties and system states. The impact on the top-level controls will have to be assessed. The implementation of **automatic procedure for the beam-based alignment** (originally part of the CSS class) will not be jeopardized within the new architecture: the procedures will be implemented in a separate process and will stay under the **responsibility of AB-CO**. AB-CO will also keep the responsibility of the middle-level controls hardware (gateways, synchronization cards, cabling, temperature sensors, ...).
R. Losito asked when the implementation of automatic alignment procedures will start. R. Assmann replied that a Maltese student has been proposed by H. Schmickler to work on that in close collaboration with M. Jonker. Michel and Ralph shall prepare as soon as possible detailed specifications for the implementation of the automatic alignment procedures.
M. Jonker also gave an **update on the status of controls installation** in the various LHC points. LHC6, LHC7, TI2 and TI8 are not yet ready for commissioning because the Ethernet connection is still missing at the gateway locations. Installation will take place by mid February. However, gateways with the final configuration can be deployed in temporary locations where the connection is available, which could provide the required functionality if needed.
A. Masi brought up the issue of the **2-in-1 collimator inputs into the BIC**. Should we also have an input on the BIC of the beam that it is not collimated? R. Assmann stated that this should be the case. S. Redaelli believes instead that we can only send inputs to the BIC of the collimated beam because for the other beam we do not have measurables to interlock upon (position limit functions will only be defined for the collimated beam). Discussions will continue off-line: A. Masi will send the proposed layout of BIC connections for comments and will report back the working group in two weeks (input from the injection project is also required).
R. Assmann commented on the **motorization of the collimator tank** ("fifth motor"). In some cases the tank is close to the other beam pipe and one could hit it in case of large tank movements. How can we make sure to avoid that? A. Masi and R. Losito replied that it is not clear how to calibrate the fifth motor axis: the mechanical stops cannot be reached and the calibration procedure used for the other motor axes cannot be used. This issue requires further follow-up from the ATB-LPE team.

3 Collimator hardware commissioning procedures (T. Weiler)

T. Weiler presented the **procedures for the collimator hardware commissioning** in the LHC tunnel and the corresponding **MTF steps**. The complete note on collimator commissioning is available at this **link**. Thomas distributed the draft for comments last week and received some feedback (in particular from S. Redaelli and A. Masi). R. Assmann

stated that the MTF structure should be frozen in about one week and encouraged everybody to send feedback to Thomas. Ralph also suggested to outline more details of some step and to updated the time estimates. Thomas will sendout within a few days an updated version for comments.
R. Assmann commented that the quoted **13h per collimators** seem too long: we should indicate the required time in the assumption that all works as it should. If something goes wrong we will need to take more time accordingly. Responding to a question by Ralph, A. Masi replied that in most cases the ongoing activities cannot be done in parallel with the present manpower because three people are often required for each step (one at the collimator, one at the racks and one on surface).
S. Redaelli proposed to have a first MTF step on the **verification of the collimator corner orientation** in beam coordinates (which is a critical configuration parameter): the test takes a short time and in case of errors we risk to damage the collimator. R. Assmann believes that this is not necessary because the orientation should be checked before the hardware commissioning takes place.

The next meeting will be Monday, February 4th, 2008.