Minutes of Collimation Remote Commissioning Meeting
12th of December 2014

Participants: C. Bracco (CB), R. Bruce (RB), S. Redaelli (SR), A. Rossi (AR), B. Salvachua (BS) and G.Valentino (GV).

Agenda:
- Status of TCDQ
- General updates on HW commissioning
- MP sequences
- Update on temperature acquisition
- AOB
- To do list

Status of TCDQ

GV received an email from M. Pimentel and N. Magnin asking to test the new FESA class for the TCDQ. The tests will be done on Monday with BS and CB. We will check if there are other parameters which need to be logged.

SR mentioned that the movement should be validated, with the possibility to manually change the limits from the application. Then BS can test the ramp functions.

General updates on HW commissioning

GV mentioned that the logging of the expert parameters has been finalized for the collimators and PXIs. BS asked if the expert parameter logging variables should also be logged on the collimation disks. SR mentioned that this should not be necessary.

BS said that AM will provide list of collimators today.

List of available collimators provided shortly after the meeting:

TCL.5L1.B2	TCTPV.4R2.B2	TCDIV.87645	TCDIV.29012
TCL.4L1.B2	TCLIB.6R2.B1	TCDIV.87804	TCDIH.29050
TCTPH.4L2.B1	TCLIB.6L8.B2	TCDIH.87904	TCDIH.29205
TCTPV.4L2.B1	TCTPV.4L8.B1	TCDIV.88123	TCDIV.29234
TCDD.4L2	TCLIA.4L8	TCDIH.88121	TCDIH.29465
TCLIA.4R2	TCDIH.87441	TCDIV.20607	TCDIV.29509
TCLA.7L3.B2	TCLA.A5L3.B2	TCLA.7R3.B1	TCSG.A6L7.B1
TCP.6L3.B1	TCLA.A5R3.B1	TCLA.A7L7.B2	TCLA.A6L7.B2
TCSG.5L3.B1	TCSG.A5R3.B1	TCLA.D6L7.B2	TCSG.6L7.B2

TCLA.6L3.B2	TCLA.B5R3.B1	TCLA.C6L7.B2	TCSG.E5L7.B2
TCSG.B5L3.B2	TCSG.B5R3.B1	TCP.D6L7.B1	TCSG.D5L7.B2
TCLA.B5L3.B2	TCLA.6R3.B1	TCP.C6L7.B1	TCSG.B5L7.B1
TCSG.A5L3.B2	TCP.6R3.B2	TCLA.B6L7.B2	TCSG.A5L7.B1
TCSG.B5L7.B2	TCSG.A4R7.B1	TCSG.B5R7.B2	TCSG.A6R7.B2
TCSG.D4L7.B1	TCSG.A4R7.B2	TCSG.D5R7.B1	TCLA.B6R7.B1
TCSG.A4L7.B2	TCSG.B4R7.B2	TCSG.E5R7.B1	TCP.B6R7.B2
TCSG.B4L7.B1	TCSG.B5R7.B1	TCSG.6R7.B1	TCP.C6R7.B2
TCSG.A4L7.B1	TCSG.A5R7.B2	TCLA.A6R7.B1	TCP.D6R7.B2
TCLA.C6R7.B1	TCLA.D6R7.B1	TCLA.A7R7.B1	

BS prepared the sequence with ramp and squeeze. However, no collimators were available for testing.

BS is currently developing an application to import single values from a file. This would be useful when for instance updating the parking beam process, or for MDs. GV announced that the LSA table and associated API for storing the alignment values has been prepared by the LSA team. There are 4 categories (injection, flat top, end of squeeze, collisions) similar to those used in the loss map table. SR asked if one could distinguish between multiple alignments done during the squeeze. GV replied that one can also store and filter by optics ID.

SR asked about the status of comparing the offline to the online generation of settings. BS replied that she compared one point during the ramp. RB commented that he imported the ramp functions in mm and did some more systematic comparisons. The values were the same within a couple of um.

SR mentioned that the usage of the jaw angle in the make rules should be checked. The current implementation forces the jaws to become parallel, even though the angle is a parameter in the hierarchy. RB commented that in the Mathematica function generation tool, the angle is also set to 0. GV mentioned that we could start having angles in the jaw settings with the more precise BPM-based alignment. SR reminded that the angle of orbit is different to the angle of the beam envelope.

Action: the jaw settings calculation with the orbit and envelope angles should be checked.

Action: missing import and comparison for the squeeze function.

SR reminded that there was also an application that for a given generated function with limits for ramp and squeeze, derived the equivalent energy and betastar limits.

Action: GV to revise the generation of energy and beta limits vs time in the lhc-app-collimators project

SR mentioned that when everything is ready, we should try to run some complete cycles. The old analysis done in 2008, i.e. synchronization of the system, should be repeated. When the timing goes around, the start collimator event is sent to the front end. One should have microsecond synchronization around the ring. Then, the next step would be to check the setting reproducibility during the cycle. For this, A. Masi should provide the full system for a few nights.

BS reported that tested the RBAC was tested at top level. She checked that she could generate all the functions and thresholds, and load them to a few collimators. The tests will be done for RBAC and sequence at same time once the collimators are available.

GV reminded about the energy parameters for the TCTs, as only the beta parameters had been created. BS replied that this could be done today.

Concerning the collimation data in DIP, BS said that she made the request for all collimators to appear in DIP.

MP Sequences

BS and GV tested the MPP sequence and verified that it works manually. BS and CB to revise script used to analyse results. GV commented that he is currently following up the automation of these tests and their inclusion into the AccTesting framework. This would allow faster completion of the tests (collimators can be scheduled one after the other without needing to open the dedicated GUI each time), and automatic import of the test results into MTF.

SR mentioned that GV should review the hardcoded names of the BICs. M. Zerlauth and A. Masi can provide the updated collimator-BIC mapping. One should also check the MTF location for the figures. In the existing results table, GV should also implement additional checks that are currently done offline based on the logging data, i.e. that the movement was blocked.

Update on temperature acquisition

Concerning the temperature acquisition, SR mentioned that he does not yet have the list of the new (~100) temperature sensors from A. Masi. These temperature sensors should also be logged. GV will develop an improved temperature vistar with a selection of temperature sensors and e.g. correlation with beam losses.

AOB

SR mentioned that GV will take over as secretary of the meeting. Not many more meetings are expected, but the Friday morning slot should be kept for eventual meetings as needed during beam commissioning.

GV is following up the inclusion of the new Roman pots into the databases with B. Farnham. The FESA class has been upgraded, and the pots should soon be available for movement tests.

To do list

See file in:

http://lhc-collimation-project.web.cern.ch/lhc-collimation-project/LS1/2014-commissioning/material/2014-HWC-TODO.htm

- Logging: GV has to follow-up the hierarchy issues and the TCDQ logging.
- BS will test the RBAC for all the collimators which are now available.
- GV will repeat the controls stress tests by sending commands to the collimators at 50 Hz.
- MPP: GV and BS to try the MP sequences with IP2 and IP8, which should be connected to the BIS.
- Temperature sensors: AM to provide a list.
- BS and RB to follow up import and comparison of the squeeze function.
- SR and RB to check the jaw settings calculation including the angle.
- GV to ensure that the generation of energy and betastar limits from the Java application still works.
- The TCDQ movement will be tested by GV, BS and CB next week.