MPP meeting 25 November 2011

Original agenda:

```
- Ion Quench Test (proposed procedure and BLM threshold changes) – G.Bellodi
- Automated verification of BLM threshold changes - A.Skaugen
- SMP<->GMT transmission cross-check – B.Todd
- AOB
```

Present:

A. Siemko (TE/MPE), D. Valuch (BE/RF), E. Nebot (BE/BI), A. Skaugen (BE/BI), B. Dehning (BE/BI), S. Wenig (PH/ADO), S. Wagner (TE/MPE), A. Di Mauro (PH/ALICE), M. Zerlauth (TE/MPE), E.B. Holzer (BE/BI), J. Wenninger (BE/OP), R. Schmidt (TE/MPE), G. Bellodi (BE/ABP), J. Jowett (BE/ABP), N. Bacchetta (PH/CMS), R. Jacobsson (PH/LHCB), M, Schaumann (BE/OP), M. Sapinski (BE/BI), D. Wollmann (TE/MPE), B. Todd (TE/MPE), S. Gabourin (TE/MPE), and J. Blanco Sancho (TE/MPE).

Minutes:

MD quench test: motivation and proposal (G. Bellodi)

Giulia explained the motivations for the ion quench test MD.

Joerg commented that the "lower quench limit scaling with magnet current (x2.5)" looks optimistic because the margin is not linear with the current. **Nicola**: if the x2.5 factor goes like x5 then you are not at 80% of the nominal but beyond that. Is that normal? **John**: it is not surprising.

Giulia presented the MD proposal which is mostly what has been done for the proton quench test MD. The horizontal loss maps will be done by going to the 3rd order resonance with the beams. As the ADT transverse dumper was not fully qualified for p+ they decided to not use it for ions. **Daniel Valuch** commented that the ADT team was not invited to the previous talks. They get a little bit excited when it is said that the ADT is not qualified.

Markus commented that before the MD the BLM thresholds are increased above what it is going to be reached. **Barbara** added that modifying the master threshold is a fairly quick procedure.

Markus: Is there any simulation to derive the quench limit for ions? Or we assume it is the same as for protons? **Marius**: It is expected to be the same.

Marius commented that for the B1 second fill, with the monitor factor (x10) when doing the test we will be very close to the dump limit. For the Q9 monitor 1 you see the showers from the collimators and it might be necessary to touch the master threshold. **Daniel Wollmann** pointed out that for Q9 the shower is not the dominant effect.

Markus: it should be check that all mask-able BLMs will not go above the thresholds too because we will be above the relaxed thresholds. **Joerg**: for the moment is 3E11 so for the second run B1 the intensity is above it.

Joerg commented that concerning the date it would be better to do it on Monday or Tuesday but not on Saturday as it requires a lot of people to be involved.

Andrzej: Q9 has no special QPS cards and might be interesting to install some. Markus commented that these cards have a better bandwidth and more resolution. **Markus** proposed to check it with **Matteo**.

Andrzej: It is going to be done for both beams? **Guilia** answered that priority is to do it for B2 as there is already information from the p+. That is why B2 has more priority than B1.

Markus said that the ADT will give more flexibility if it can be configure. **Daniel Valuch** explained that it can target a 0-11us gap. It has been proved in a previous study with **Ruediger** and **Matteo**. It is only needed 30min (at injection) for calibration and settings. With the ADT you can inject many bunches and only excite the ones you want. **Markus**: How confident are you that you can do it in 30mins. **Daniel Valuch** the parameters are the same as for the AGK and the dumper. It is only the excitation strength that has to be tuned to get the needed loss rate.

Eduardo commented that the ADT could be used to get pattern recognition for the BLM loss maps. (H & V vector decomposition).

The panel recommended using the ADT and to calibrate it during next week (30min).

Thresholds for the MD Ion collimator quench (E. B. Holzer)

Barbara presented the factors needed to reach three times the quench limit for B2 & B1. **Barbara** commented that if for the first ones it is needed a factor bigger than 10 then it would require touching the Master threshold. Otherwise it would only require touching monitor factors.

Markus said that as the ADT will be used then he suggested **Barbara** to prepare another table for a factor 12. **Markus** asked **Barbara** to prepare a draft of the MD procedure with a link to the thresholds in EDMS for Monday 28-November.

Automated verification of BLM threshold changes (A. Skaugen)

Audun presented a new tool that can verify all the thresholds (384 thresholds) of each BLM monitor (4000 monitors) in an automatic way. The tool compares the BLM thresholds against LSA database after a threshold change or an MCS check request. The tool runs on a weekly basis and produces a document with the changes that is distributed by email to the BLM experts.

Markus: Do you intend to bring the tool to operators, so they can run it after an MD or between fills. **Joerg**: The tool is written in python and to integrate it for the operators it should be done in java. **Eduardo**: Originally it was implemented to run only after a threshold change, which is not very frequent. **Markus**: It would be good to dump the results to the logbook automatically. It is based on the new, more efficient, BLM data format? **Audum**: yes, now takes 15min to run, before it took 40 min to run.

SMP Cross-check (B. Todd)

Ben presented the proposal for the new SMP cross-check board (CISC). The SMP system generates a set of flags that are distributed to the users via Timing network. The timing network was never designed to be a dependable system. There are concerns about the values are not being transmitted through the timing system. At the moment there is a SIS method, slow but methodical, that checks the consistency of several parameters.

The new board will only check the flags that are used by machine protection systems. The CISC will record the last 10 SMP values for each flag and compare them with the current timing transmission. If there is not any coincidence, it will trigger a beam dump.

 A prototype will be ready for February/March 2012. On March/April 2012 it will be enabled.

Why there are exactly 10 values compared? **Ben**: the interval between transmissions in the SMP is 100ms. The reaction time for the SMP is 400ms. 10s was the buffering time requested by **Joerg** but 1s was easier to implement in hardware.

Ben: 'Beam presence flag' is not included in list of flags to be checked as it is used in software.

Joerg: The SIS method will be kept for redundancy. SIS method looks a little further than just the flags.

Markus: How many incidents have happen of missing or faulty transmission values? **Ben**: 2 incidents had happened due to BIS sent the values with a high priority.

Markus asked for statistics and diagnosis in the CISC card.