MPP meeting 12 November 2010

Original agenda:

- ALICE beam dump on mini-UFO (A Di Mauro)
- CMS mini-UFO observation (M . Guthoff)
- UFO update (E. Nebot Del Busto)
- Quench test with wire scanner at 3.5 TeV (M. Sapinski - tbc)
- Recommissioning 2011:
  - PIC (I. Romera)
  - SMP (B. Todd)

Present:

Juan Blanco, Richard Jacobsson (LHCb), Andrzej Siemko, Mariusz Sapinski, Arjan Verweij, Barbara Holzer, Eduardo Nebot, Siegfried Wenig (Atlas), Nicola Bacchetta (CMS), Bernd Dehning, Giulia Papotti, Massimiliano Ferro-Luzzi, Mirko Pojer, Annika Nordt, Tobias Baer, Moritz Guthoff, Richard Hall-Wilton, Ben Todd, Ivan Romera, Antonello Di Mauro (Alice), Ruediger Schmidt, Jorg Wenninger, Mike Koratzinos.

Minutes:

Mini UFO at Alice (Antonello)

Antonello presented the Alice beam dump of 28/10/10 at 20:04:21. It is not a typical UFO signal. Happened during the ramp. Dump initiated by a BCM signal from RS32. At the same time RS1 was at about 10% of threshold. There is a small signal in the BLMs of the TCP (about 1% of the magnitude of a typical UFO).

Mini UFO in CMS? (Moritz)

Moritz presented the CMS event that happened on 12.10.2010 at 22:09:13 (fill 1410). This is the first mini UFO seen in CMS in the beam condition monitors. It happened during squeeze. The spike seen at BCM2 (-Z/inner/top) was at about 25% of threshold. There was no dump triggered. (only RS1 and RS10

currently can dump the beam). Duration of event: about 320usec. This is the only UFO-like event seen in the whole year at CMS. Search for more miniUFOs in the data is underway.

UFO update (Eduardo)

Eduardo presented the latest in his search of UFOs that have not triggered a beam dump. His current full set of data is 109 UFO candidates from about 380 hours of stable beam (60 h more than the previous presentation). The linear increase of UFO rate with beam intensity presented before is verified with the full data set. The signal strength does not seem to depend on the number of bunches. The duration of the loss has a small tendency to decrease with more bunches. All this analysis is using RS5. What about shorter RSs? There is no correlation with soot or MLI seen in sector 34.

There are some gaps along the ring and a couple of hot spots. For beam2 the hot spot is around injection at point 8 and for beam 1 in the middle of the arc in S78.

Eduardo then showed his analysis (first look) at non-stable beams. Aim is to increase statistics by about 50%. He sees no events at injection energy. The cms UFO would not be seen by this analysis.

One suggestion for even more statistics is this: The analysis currently requires 3 BLMs in a row above the analysis threshold. Can this be relaxed to 2? Eduardo will try to run the analysis with 2 blms.

A file with all UFO candidates will shortly be put on the web (the MPP documents page). Can any of our colleagues decipher the pattern of hot spots and holes?

Wire scan quench test (Mariutz)

Mariutz presented the analysis of the latest quench test: a series of wire scans with different speeds were performed. Finally the magnet that quenched was D4 (4.5K). The loss pattern over time has an exotic shape and is 45msec long. Why the wire survived? At a similar experiment in the SPS the wire breakage came at 3e11 MeV/mm but at the LHC we had 9e11MeV/mm and the wire is still not broken (we know that from the fact that there is still electrical continuity). Wire will be inspected at the end of the run. (its resistance can be measured in situ, and it is held in place (extended) with 5 grams of longitudinal force.

Mariutz also presented his preliminary calculation (using Fluka) of the energy density in the coil. Ultimately an accuracy of a factor of 3 can be obtained.

Is it possible to do a quench test with a bump on the same magnet?

Some relevant news: BLM audit: preliminary summary was presented yesterday. The conclusions will be presented in due course.

Changes in powering interlocks during Christmas (Ivan)

Ivan presented all powering interlock changes that will be performed over the long technical stop. The full information can be found in his slides. Some highlights: Upgrade of the PIC: There will be a interlock depending on the state of quench heaters – a slow power abort in case of more than 2(1) heaters discharged for a dipole(quad) magnet; Possible modification of the PIC-BIC configuration after the HWC period; FMCM, WIC: no changes.

Changes in Safe Machine Parameters system during Christmas (Ben)

Ben very briefly outlined the changes envisaged to the SMP system. There is some new stuff (changes in orange in his slides) Squeezing factor goes in. Beam presence flag redone. Also, in the SPS SMP, the system foresees HiRadMat extraction.

Time estimate for the changes: some days during the winter stop. Need a ramp to verify everything. Then start with a beam above the presence beam flag and scrape it. Then perform a setup beam flag test. There are also some tests for the SPS side, hopefully in the shadow of other work.

Richard then brought a long-lasting request from LHCb: would it be possible to keep “movable devices allowed in” TRUE during dump mode also? Currently, LHCb wastes many hours of data taking during the year due to this, since, if after the VELO is retracted there is some delay to dump, they do not take valuable data. Some discussion followed. Problem can be circumvented if we dump in stable beams. We might like to consult with TOTEM also.