

**LHC EXPERIMENT-ACCELERATOR DATA EXCHANGE WORKING GROUP
(LEADE)**

Minutes of the 28th Meeting held on February 06, 2006

Present: S. Baron, N. Ellis, D. Evans, Ch. Fabjan, Ph. Farthouat, R. Hall-Wilton,
Ch. Ilgner, R. Jacobsson, D. Macina, Th. Pauly, A.-L. Perrot, K. Potter,
E. Radermacher, D. Swoboda, J. Troska, E. Tsesmelis, J. Wenninger

1. MATTERS ARISING

Approval of the Minutes

The minutes of the 27th LEADE meeting were approved without modification.

**2. FUNCTIONAL SPECIFICATIONS – DATA EXCHANGE BETWEEN
EXPERIMENTS AND ACCELERATOR (E. TSESMELIS)**

Emmanuel Tsesmelis presented the Functional Specification “Data and Signals to be Exchanged between the LHC Machine and Experiments”, which has been released recently under LHC Project Document No. LHC-DE-ES-0001 (EDMS Doc. No. 701510).

It defines the data exchange between the accelerator and the experiments, both at the hardware and software levels, summarizing the information to be transmitted on the state of the machine and experiments. In case of errors, this data exchange can act as a recording and diagnostic tool. The communication link comprises both the software-based Data Interchange Protocol (DIP) and dedicated hardware links. The protocols themselves are not defined in this functional specification.

Following this presentation, a discussion arose on several topics:

- It was discussed, whether a beam dump should necessarily lead to a ramp-down of the spectrometer magnets.
- Also, there may be the need for a watch-dog, which checks the availability of the network. Otherwise, an injection may not be possible, in case the network is down.
- It needs to be clarified who takes care of removing movable detectors (VELO, Roman Pots) out of the beam position in case of unstable beam.
- The RF-bunch frequency will not be guaranteed during shut down/maintenance.

Detlef Swoboda will follow up a compilation of a detailed list of parameters to be transmitted between the experiments and the machine. He will soon contact a representative of each experiment and of the machine.

3. HIGHLIGHTS FROM THE CHAMONIX XV WORKSHOP (D. MACINA)

Daniela Macina presented a summary of the topics discussed at the Chamonix XV Workshop, held in Divonne on January 23-27.

- It was stated, that reaching an integrated luminosity of 10 fb^{-1} is an absolute goal, and changes in the machine set-up, putting it at risk must not be permitted.
- The bake-out of the LSS upstream of the experiments was discussed. The experiments request that measures are taken to ensure that the LSS are baked-out.
- The LHC dipoles will be operated by the machine, their status is sent to the CERN Control Centre via DIP.
- A pending point is the masking of experiment interlocks for safe beams.
- Topics specific to single experiments were the LHCb polarity change and the responsibility for the ZDC operation, since ALICE is not responsible for the zone where it is located.
- Widely discussed were, among other issues, the LHC Sector Test and its influence on the overall schedule, the quench tests, the 75-ns run and the distribution of machine parameters.
- Daniela also presented some aspects of the Beam Interlock System on behalf of Bruno Puccio, which is a distributed system, consisting of Beam Interlock Controllers and User Interfaces. It acts independently on both beams.

4. BRINGING THE FIRST LHC BEAMS INTO COLLISION (E. BRAVIN)

Enrico Bravin gave his Chamonix XV presentation on various aspects of producing collisions, appropriate to the needs of the experiments. The main aspects of his presentation were the various requirements of the experiments in terms of collision rates, the influence of beam parameters and beam offsets on the luminosity, the beam setting-up using the BPM near Q1, and the luminosity monitors.

LBNL has committed itself to develop and install fast ionization chambers in the four TANs around IP1 and IP55, while CERN will install CdTe detectors from CSA-LETI at IP2 and IP8. Both systems will suffer from integrated doses of several G Gy within 20 years of LHC operation. Enrico also discussed processes leading to background, such as pp inelastic collisions, beam-gas interactions and beam-halo scraping.

A workshop on the instrumentation in the TAN absorber will be held on 10 March 2006.

Provisional dates and room for the remaining meetings in 2006 (16:00 hrs):

March 6, room: 40-4-C01,

April 3, room for this and the following meetings: 40 R-A10,

May 15,

June 26,

July 24,

September 4,

October 16,

November 27.

Ch. Ilgner