5 December 2003

LHC EXPERIMENT-ACCELERATOR DATA EXCHANGE WORKING GROUP (LEADE)

Minutes of the 13th Meeting held on 27 October 2003

Present: R. Assmann, P. Baudrenghien, G. Beetham, M. Bozzo, K. Eggert, D. Evans, P. Grafström, M. Huhtinen, R. Jacobsson, R. Jones, D. Macina, C. Rathjen, A. Smith, W. Smith, E. Tsesmelis

1. APPROVAL OF THE MINUTES

The minutes of the 12th Meeting were approved without modification.

2. UPDATED NOMINAL LHC BEAM PARAMETERS

(Francesco Ruggiero)

Francesco Ruggiero presented an update to the nominal LHC beam parameters. He underlined that the revisions have been necessary in order to ensure the LHC operational margins, compatible with a primary collimator aperture of > 6 σ and with a 1 mm reduction of the available mechanical aperture at the inner triplet magnets.

Francesco pointed out that the revisions are minor. For the high luminosity insertions IR1 and IR5, they are restricted to the proton bunch intensity (1.1×10^{11} protons → 1.15×10^{11} protons), β* (0.5 m → 0.55 m) and the full crossing angle (300 μm → 285 μm). These parameters yield an unchanged nominal peak luminosity of 1.0×10^{34} cm^{-2} s^{-1}.

The updated parameters for LHC ion operation and for the TOTEM special runs will be presented at a future meeting of LEADE.

3. STATUS OF LHC LUMINOSITY MONITOR (LUMINOMETER)

(Ralf Assmann)

Ralf Assmann presented the status of the LHC luminosity monitor (Luminometer) Functional Specification. The specification has been distributed to the relevant machine and experiment groups and their comments have been incorporated in the latest version of the document. The issues brought up concern the following:

- Update to include the revised nominal LHC beam parameters.
- Calibration and accuracy of the Luminometer. A presentation on this subject will be given at the next meeting of LEADE.

- TOTEM requests that the beam crossing angle should have an accuracy of at most 0.2 μrad. In the current design, the beam instrumentation has a resolution of ~7 μrad. Further discussions are required to find a solution.

4. LUMINOSITY MONITORING INSTALLATION AT IR2

(Daniela Macina)

Daniela Macina presented the ongoing work concerning integration studies at IR2. In particular, she reviewed the status of work to integrate the Luminometer and the ALICE ZDC calorimeter at IR2. Two technologies are under evaluation for the Luminometer – polycrystalline CdTe detectors and Fast Ionization Chambers – and a decision between the two is to be taken imminently. The ALICE ZDCs will measure the centrality of the heavy-ion collision via the measurement of the spectator neutrons and protons. To minimize radiation damage, the ZDCs will be located on a movable platform and put in the data-taking position only when collisions are established.

Outstanding integration issues include the space requirements of the Luminometer and ZDCs and the optimisation of the beam pipe dimensions. A progress report on these open issues will be given at the next meeting of LEADE.

Integration of the the Luminometers at IR8 will need to be done in the future.

5. ALTERNATIVES FOR BPTX READ-OUT

(Richard Jacobsson)

Richard Jacobsson presented the work on the Beam Phase and Intensity Measurement (BPIM) read-out for the BPTX done together with Grzegorz Kasprowicz. The proposed solution is to serve as an alternative to the use of ALICE T0 electronics or a digital scope. A BPIM PCB board has been designed with the functionality to measure both the beam intensity (bunch-by-bunch) and the phase between the incoming bunch signal and the bunch clock. Simulation studies of the architecture have provided encouraging results and the group is in a position to launch production of the board.

It was proposed to convene a dedicated discussion on the development of read-out electronics for the BPTX, with the aim of converging on a single design.

Action: E. Tsesmelis

6. A.O.B.

The next meeting of LEADE will be held on Monday, 15 December at **16:00** in the **Conference Room Bat. 14-4-030**

E. Tsesmelis