

# LHCb Technical Board 18 & 20 Februar 2002

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## Agenda

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| 1. LHCb schedule , Test beams   | H.J. Hilke    |
| 2. Budget Situation   | H.J. Hilke    |
| 3. Working group on LHC Experiment-Machine<br>Parameter and Signal Exchange | A. Smith      |
| 4. LHCb Light (Monday and Wednesday)  | T. Nakada     |
| 5. AOB  |               |
| ➤ Halogen free PCB  | H.J. Hilke    |
| ➤ EDR for RICH 2  | O. Ullaland   |
| ➤ Cabling   | H.J. Hilke    |
| ➤ PRR Calorimeter (Wednesday)   | J. Lefrançois |

**Participants:** G. Carboni, B. D'Alemagne, H. Dijkstra, W. Flegel, R. Forty, J. Harvey, H.J. Hilke, D. Lacarrere, J. Lefrançois, R. Lindner, C. Matteuzzi, M. Merk, T. Nakada, C. Padilla, T. Ruf, B. Schmidt, O. Schneider, A. Schopper, A. Smith, O. Steinkamp, U. Straumann (Monday), D. Websdale (Wednesday)

Excused:

J. Christiansen, D. Websdale (Monday)

### **1. LHCb schedule / Test beams**

H.J. Hilke discussed the latest information on the new **LHC schedule**. It is expected that the new schedule will be announced officially only in March but, on purely technical grounds, it seems safe to assume a delay of 1 year. As the experiments have already been asked to present their ideas on how to react to this, Project Coordinators/Leaders should start discussing possible effects on their subsystem in the group meetings this week.

HJH proposed to use the following **guidelines**: Projects under construction (magnet, ECAL/HCAL modules) should not change the present schedule unless this would bring any advantage. The other projects should study an **overall re-optimization** including the prototype, construction and commissioning phases. We may delay the starting point for detector installation by 6 months to July 2004 and plan to have all subsystems (except possibly part of the DAQ/Trigger farm) installed by August 2006. This would give us 6 months of commissioning for the full detector with access, assuming that continuous access is terminated January 31<sup>st</sup> 2007. (Annex 1)

**Test beams.** HJH had to present the LHCb requests for the years 2002 to 2006 during the last closed session of the LHCC. He based his comments on the summary prepared by Rolf Lindner with the information received from the subsystems and stressed three conclusions: 1. LHCb could live from 2003 to 2006 with allocations close to those agreed for this year. 2. LHCb strongly prefers reductions each year to a complete closure for one year. 3. IF a closer in one year was imposed, least damage would occur in 2005 (we shifted this date from 2004 to 2005, because we got hints that the West Area once closed might never be opened again).

On February 15<sup>th</sup>, we received a copy of a recommendation by M. Calvetti (chairman of the LHCC) , to the DG suggesting the possibility to close the SPS in 2005 and with question marks for 2006, except for CMS requests. As task-force-one has prepared a similar recommendation, it looks likely that the SPS be closed in 2005. All subsystems are, therefore, requested to prepare a new test beam planning, including possibly an enhanced use of the

East Area in 2005 and 2006 (we shall probably get increased competition from the other experiments) and strong arguments for the need for higher energy beam in 2006. Details of RL's summary and HJH's comments can be found on the Web under LHCb Test Beams.

## **2. Budget situation**

H.J. Hilke summarized our present CORE budget situation, as compared to the cost table in the MoU. Due to Wilfried Flegel's successful effort to reduce the magnet cost by another 500 kCHF (all major orders are placed!) and due to the reduced cost estimates prepared for the TDR's of the OT, Muon System and DAQ/ECS, the MoU underfunding of 1.75 MCHF could be reduced to zero! And this despite of some reduction announced for the funding from China and Russia.

On the other hand, further reductions from some Funding Agencies are not yet excluded. All Subsystem Coordinators/Leaders are, therefore, requested to continue striving for further cost reductions, in order to build up some contingency for unforeseen problems. As many of us have experienced in the past months, it is vital for LHCb NOT to produce any cost overrun! In particular, any cost savings on OT must be shifted to the IT, the sum NEW (IT+OT, include TT1) must be = OLD (IT+OT).

## **3. LHCb- Light**

In the first TB session, T. Nakada summarized briefly the progress during the past weeks. The second TB session was largely devoted to a detailed discussion, based on the latest news from the Tuesday LHCb-Light meeting.

The TB agreed to take as baseline for future LHCb-light studies:

- Three 'seeding' stations, ST1-ST3 (some worries remaining on the need for a 4<sup>th</sup> station);
- No shielding plane and as a result a magnetic field between TT1 and VELO;
- A vertical RICH 1, including aerogel and composite mirrors (not excluding the possibility to use Be mirrors, if required);
- The latest RF shield design and 4 stations removed from the VELO

Until our next LHCb week, we must try to progress in particular on:

- TT1: Define the requirements from physics as the basis for the choice Si vs. straws (the cost difference is estimated to be around 2.5 MCHF!).
- Beampipe: position of transition sections and installation procedure.
- The effect of 'curling' electrons inside RICH1.
- Submission dates for the TDRs for IT, LIGHT and Trigger.

## **4. Working group on LHC Experiment-Machine Parameter and Signal Exchange**

Alasdair Smith reported from the first meeting of the LHC Experiment-Machine Parameter and Signal Exchange working group. This new working group includes one representative of each experiment and from the appropriate SL groups. Two topics were discussed: the size and stability of the luminous region and optimisation of peak and integrated luminosity. It was mentioned that the 95% luminosity region may blow up from about 18 cm to 30 cm after some 10h of collisions. A.S. will follow-up this. The next meeting will discuss beam position monitors, data exchange with experiments and measurements by experiments on beam quality. A. Smith asked for suggestion for names of persons within LHCb who should be

consulted on such subjects; Beat Jost, Hans Dijkstra and Thomas Ruf were agreed; others are welcome.

The minutes of the meetings will soon be put on the WEB.

## 5. AOB

### ➤ **Halogen free Printed Circuit Boards**

H.J. Hilke informed the TB about the latest discussions on the replacement of FR4 materials, containing bromium as flame retardant addition, by halogen-free material, as demanded by new EU rules for the near future. CERN' s new safety rule 41 already now demands the replacement or compensatory measures.

Several tests have been carried out on printed circuits, the most significant ones by H. Mueller on a complex, 8-layer Readout Unit card. They showed that the replacement material gives results comparable to those of a FR4 card. Results can be found at: <http://lhcb-tech-coor.web.cern.ch/lhcb-tech-coor/Safety/documents/H-muller.pdf> In this document, lists from TIS are copied on producers of the base material and of firms willing to produce the printed circuits with these new materials.

As big industry has started to move into this direction (e.g. for portables and computers) and the results obtained show no technical counter indication, HJH concluded that we cannot avoid following this change. Rolf Lindner and HJH will inform the Collaboration on any updates on producers and are willing to buy some material in common to avoid everyone chasing it.

Coordinators/Project Leaders were asked to encourage their electronics groups to get involved asap.

### ➤ **EDR for the RICH 2**

O. Ullaland informed the Technical Board about the RICH 2 Engineering Design Review, which will be held on Friday 15<sup>th</sup> March at 9:00. M. Doets and M. Ferro-Luzzi have agreed to act as external referees. TB members interested may attend the meeting. The draft of an EDR note will be sent to TB members and referees by the end of February.

### ➤ **Cables/cabling**

We shall agree with Jorgen Christiansen on a contact person for our needs for cables from the stores. HJH is following discussions on general CERN support for the choice/testing and purchase of cables and connectors.

### ➤ **PRR for Calorimeter**

J. Lefrançois summarized the answers proposed to the questions raised in the written report of the Production Readiness Review held on November 29<sup>th</sup>.

