

LHCb Technical Board 25/09/2000

Agenda

- 1.) Approval of the last TB summary (28/08/00)
- 2.) Status of background studies and beam pipe design G. Corti
- 3.) Status of tracking studies M. Merk
- 4.) Discussion of Memorandum of Understanding (MoU) H.J. Hilke
- 5.) Update of Major Milestones H.J. Hilke
- 6.) AOB
 Organisation of future LHCb weeks T. Nakada
 M&O
 RICH 2 position in z

Participants: J. Christiansen, G. Corti (part time, for item 2.), H. Dijkstra, R. Forty, N. Harnew, J. Harvey, H.J. Hilke, B.Koene, D. Lacarrere, J. Lefrançois, R. Lindner, M. Merk (for item 3), T. Nakada, T. Ruf, B. Schmidt, O. Schneider, A.Schopper, U. Straumann, I. Videau, D. Websdale

Excused: W. Flegel

- 1.) The summary of the Technical Board meeting on July 28th was approved and will be accessible on the LHCb Web.
- 2.) G. Corti informed the TB on the latest beam pipe design with a reduction of Aluminum wall thickness from 2 to 1.5 mm in the 250mrad cone. The effects of the beam pipe on the Tracker and RICH performance have been better understood and further optimization is needed. Priority for the optimization studies will be given to the first part of the beam pipe. The background coming from the machine is under study and results are expected end of year 2000. The beam pipe section downstream of the muon filter is under investigation as well.
The HERA-B beam pipe design will be compared to the LHCb beam pipe and studies will be performed to evaluate, if it is worth to consider a similar geometry at LHCb.

3.) M. Merk summarized the present status of the tracking software:

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| <i>GEANT simulation of hits</i> | |
| new, more realistic version | 30/09/00 |
| <i>Detector response to GEANT hits</i> | |
| new version for IT + OT | end October 2000 |
| <i>Track fit</i> | |
| C++ fit VELO/IT/OT | 30/09/00 |
| Pattern recognition | |
| seeding OT | ready |
| seeding IT + OT | end October 2000 |
| magnet tracking | ready |
| <i>Spill over: no full GEANT version</i> | |
| standalone simulation results of occupancy | available |
| pattern recognition | awaits full simulation |

He informed the TB that, with the present beam pipe, the occupancy in the Outer Tracker exceeds 20% due to a considerable amount of secondary particles coming from the beam.

A dedicated meeting to prepare decisions on the next steps regarding the tracking is scheduled for end of October. This should give the possibility to conclude on the consequences for the Inner and Outer Tracker design in the next LHCb week in November.

4.) H. J. Hilke proposed to concentrate the discussion on the '*summary table of the value of deliverables and the commitments of the funding agencies*' and the '*sharing of responsibility among the institutes*', which are Annex 8 and 9 in the MoU. He stated that parts of Annex 9 are still missing and that both annexes have to be finalized in the next days in order to receive the endorsement at the CB meeting on the 29/9/00. LHCb supports the submission of the MoU to the RRB in October 2000 rather than April 2001, as April would reduce the available construction time for the Calorimeter and RICH systems to an unacceptable level.

5.) Major Milestones:

Vertex:

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| Design of mechanics is completed: | Aug-00 |
| Design of Silicon Detector is shifted by 8 month | Feb-01 |
| Submission of the radhard chip (SCTA) shifted by 4 month | Nov-00 |
| TDR submission | May-01 |

Inner Tracker:

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| Freeze Chamber Parameters (geometry, size, resolution) shifted by 4 month | Jan-01 |
| TDR submission: | Sep-01 |

Outer Tracker:

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| Conclude from realistic simulations present up-down cell splitting ok? shift of IT/OT boundary? | Nov-00 |
| Decision on self-shielding or double kapton straws: | Dec-00 |
| Agreement on production sharing model: | Dec-00 |
| Demonstrate production of split-anode module | Jan-01 |
| TDR submission | Mar-01 |

RICHes:

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| Design has been completed | May-00 |
| TDR submitted | Sep-00 |

Muon System:

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| Major chamber parameters are fixed | Jul-00 |
| Detailed technical design is expected for | Dec-00 |
| The FE architecture baseline exists, but it is considered very expensive. | |
| The TDR submission has been postponed by 4 month | May-01 |

Calorimeters:

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| The engineering design has been completed | Apr-00 |
| TDR has been submitted | Sep-00 |

Trigger:

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| TDR submission | Jan-02 |
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DAQ:

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| The interface technology (Control system) has been defined | Sep-00 |
| The Event building strategy has been defined | Jan-00 |
| TDR submission | Jan-02 |

Computing:

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| Prototype 1 (Complete set of Simulation Reconstruction Analysis packages) | Jun-01 Jul-00 Dec-00 |
| Prototype 2 and TDR will be submitted in in agreement with the other LHC experiments. | Dec-02 |

6.) AOB

Future LHCb weeks:

T. Nakada opened the discussion about the organization of the meetings during future LHCb collaboration weeks. The TB agreed on more condensed summaries of the computing, electronics, physics/particle-identification/tracking and trigger meetings during the plenary sessions. The sub detector meetings should be held in parallel as in the past.

Maintenance and Operation (M&O):

H.J. Hilke informed the TB about the discussion of M&O cost sharing among the institutes. Three options are proposed at present - sharing pro rata of investment, number of authors or a combination of both. The combination of author list and investment rata seems to be the preferred solution in ATLAS & CMS. The sharing of M&O cost within LHCb will be discussed in the Collaboration board.

RICH 2 position in z:

The decision about the position of RICH 2 along the beam axis has to be made in the collaboration week in November 2000 and a discussion on this subject will be scheduled before that date.