

Period coordinator report 18.6.–25.6.2004

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1 Summary

From 18.6. – 13.6.2004 8am 25ns running with tests of hadron programme setup. Data taking with positive proton/pion, negative pion and muon beam. Setup of Primakoff and diffractive trigger. After that no beam during scrubbing period with following work: Installation of new HV crate to allow for more separation of RICH high voltage. Preparation of ECAL2 readout with SADCs. Readout of target solenoid magnet with FIADC and readout of SM2 NMR with scaler in normal DAQ data stream.

2 Detector status

BMS: HV of station 6 was off on 18.6.

Silicon: latency scans on 18.6. Noise in station 5 due to voltage drops. Fixed by 25.6.

Target: Microwave polarization reversed compared to first longitudinal period. Decided to start with longitudinal field orientation for next period. Readout of magnetic field of solenoid in DAQ through FIADC (Comment 8480, 8481).

SciFi: HV crates for station 6/7 and 8 lost settings on two days in a row. Reason unknown. Values reloaded from file.

MM: MM3x trips due to SM1 changing field without switching off MM. During scrubbing period cooking of MM3x. Exchanged frontend cards.

DC: script for activating central regions fixed.

Straws: Changed the HV module for ST06Y1 (18.6.) New threshold settings for station 3 and 4.

GEM: low voltage problems fixed.

RICH: Problems with communication of DAQ to richctrl process 19.-21.6. Seems to be fixed by reboot of richctrl PC. Installation of new HV crate. Better segmentation of HV to chambers. All chambers have now separated HV except chambers PD1 and PD5.

MWPC: One frontend card changed on 21.6.

MW1: Installation of new gas system for MW1 and future RICH wall.

MW2: Frontend cards exchanged to repair for missing channels.

W45: One frontend card exchanged (CATCH 274 port 14).

ECAL2: Installation of readout with SADCs for 350 channels. Connected to pccorb17 but not in standard readout.

HCAL1: calibration data taken on 19./20.6.

HCAL2: ok.

SM1: There is an alarm if the magnet is on negative current, this should be changed for the negative pion beam.

SM2: NMR-probe counting of frequency in scaler (comment 8388) as detector **SCSM2**. This gives a very precise field measurement in the DAQ data stream.

DAQ: Fix end of run script for taking calorimeter pedestals and loading of CATCHes. New kernel 2.4.26 on event builders and readout-buffer PCs. Crashes of pccoeb02.

Online: The database mirror PC tbed014d had a hardware failure, which prevented cool from running.

DCS: License expired for computer with ISEG HV (Si/Straws) 18.-21.6.noon. Need to save setup files, in case HV crate loses settings. **All detector groups should check that they have recent setup files.**

3 Hadron setup

Target: Cu of a few mm thickness was placed between Si1 and Si2.

Veto Box: Put next to beam close to Si platform. Tuning performed, efficiency on all channels greater than 95%, except one with high noise, probably PM.

CEDARs: Timing is measured to be 400 ns late for the trigger (Comment 8402). The multiplicity is in the readout; the information from each of the 8 PMs is not in the readout. Pressure scans with high intensity proton/pion beam and with negative pion beam could not be performed due to problems with operating the CEDARs.

Beam killer: Beam killer 1 at +22 680 mm, beam killer 2 at +29 340 mm. Beam killer 3 in front of GAMS. Remote control for moving platform not yet installed.

Multiplicity trigger: Positioned between Si2 and Si3 at -3 578 mm. No control of position.

Positive pion beam setup: Beam file M2.51, absorbers out, Magnetized iron blocks: muon and positive, SM1 at 2500A, SM2 at 5000A.

Negative pion beam setup: Beam file M2.52, absorbers out, Magnetized iron blocks: muon and negative, SM1 at -2500A, SM2 at -5000A. Setup was done 18.6. evening, runs were taken on the 20.6.

Primakoff trigger: Primakoff trigger is about 20 ns late.

Coincidence between beam trigger and Primakoff hodoscope and ECAL2 summation. Central part of the ECAL2 (8 groups, 1 group consists of 4*32 lead glass blocks) was connected to summation boxes and trigger logic.

Trigger rate for ECAL2 group trigger threshold values 45, 25 and 15: beam trigger $5 \cdot 10^5, 5 \cdot 10^5, 5 \cdot 10^5$, respectively. Prim. trigger $2 \cdot 10^3, 5 \cdot 10^3, 15 \cdot 10^3$, respectively.

Diffractive trigger: Coincidence between beam trigger and multiplicity counter and HCAL2 summation. The multiplicity counter was placed between Si2 and Si3 stations. Cu target (few mm thickness) was placed between Si1 and Si2. Beam trigger rate = $6 \cdot 10^5$. The coincidence BT + Mult.coun. = $9 \cdot 10^4$ for threshold 1.5 mip and $7 \cdot 10^4$ for thresh. 2 mip. Coincidence Bt + Mult.(2mip) + HCAL2 (4-5GeV) = $5.5 \cdot 10^4$.

DAQ: All equipment used for the hadron beam tests were included in the DAQ. A special version of cool was provided (/afs/cern.ch/user/k/krala/compass/run_cool).

All equipment related to the hadron beam setup has been removed after the 25ns beam period.

4 Important runs

Alignment runs: With p/pi+ target head empty: run **36356** magnets off, run **36363** magnets on. With muon beam: SMoff runs **36458-36462**, SMon runs **36454,36457**. Alignment for beam killer (inner veto and beam trigger) with GEM central regions activated: **36451, 36452**

pi- beam: runs **36442,36443,36445**

pi+ beam diffractive trigger: GEM central regions activated **36436, 36437, 36440, 36441**

pi+ beam Primakoff trigger: **36370, 36371**