Operation of Muon Tracker in PbPb collisions of 2015

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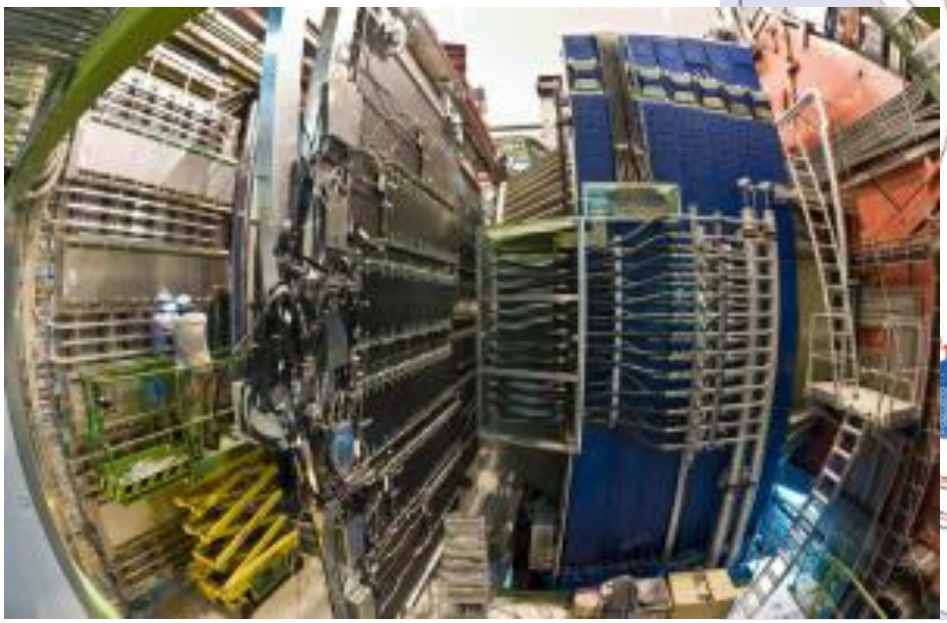
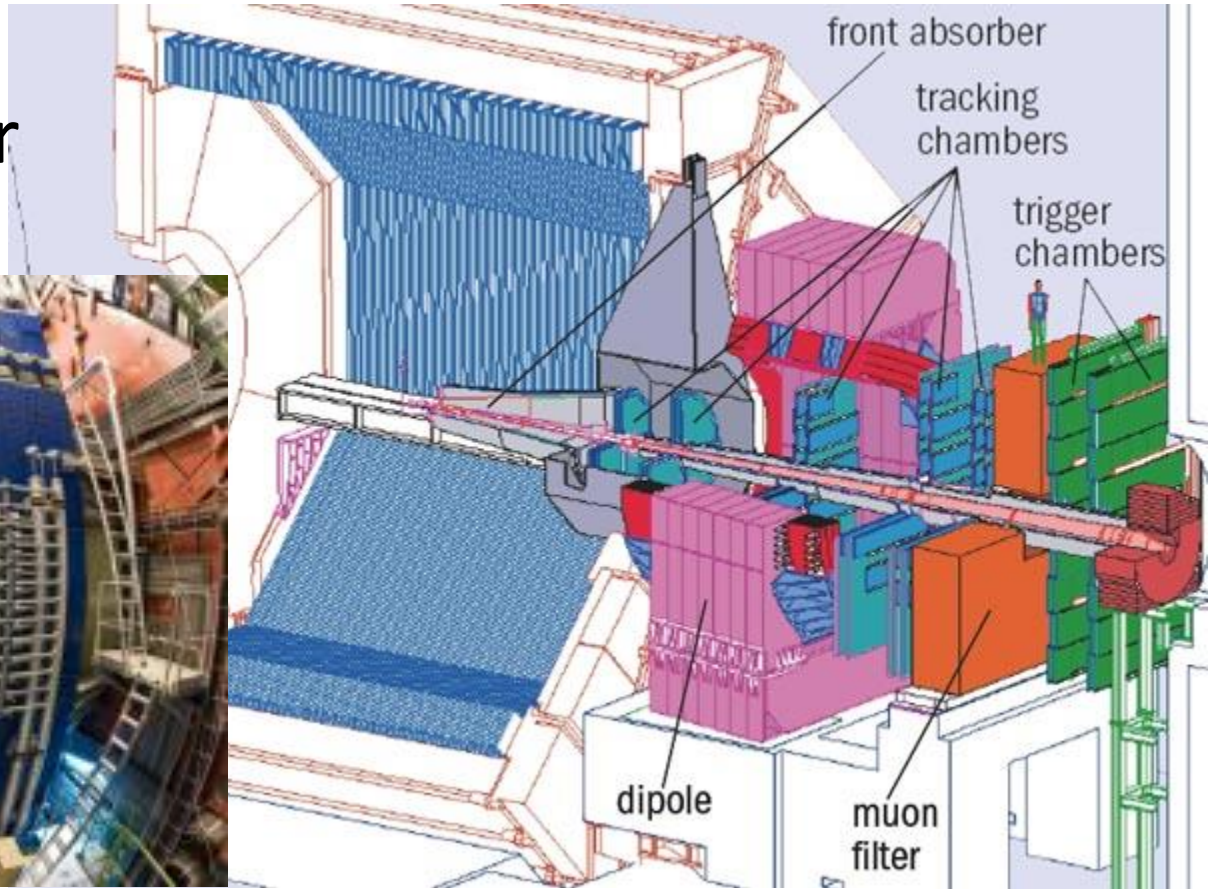
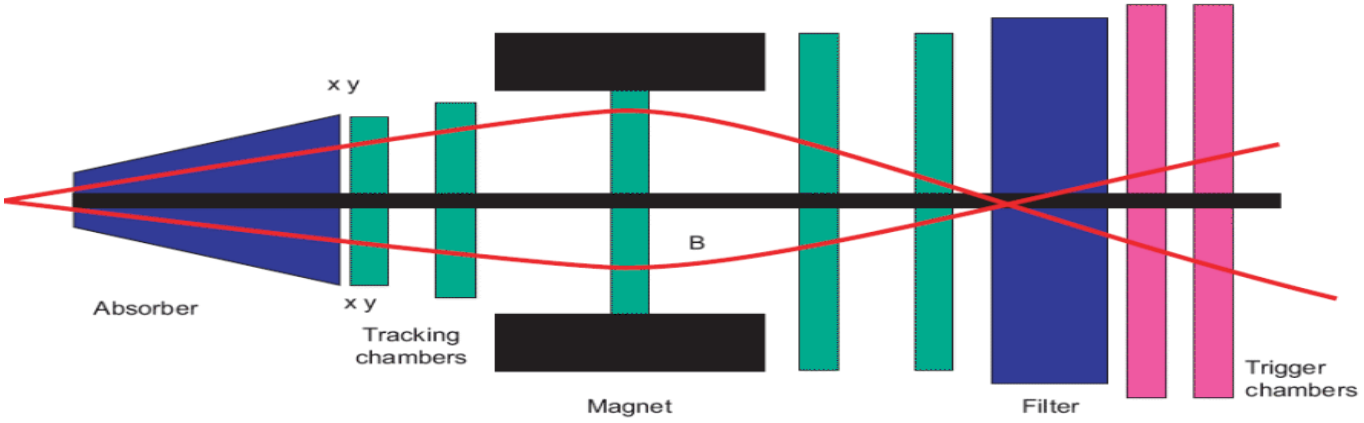
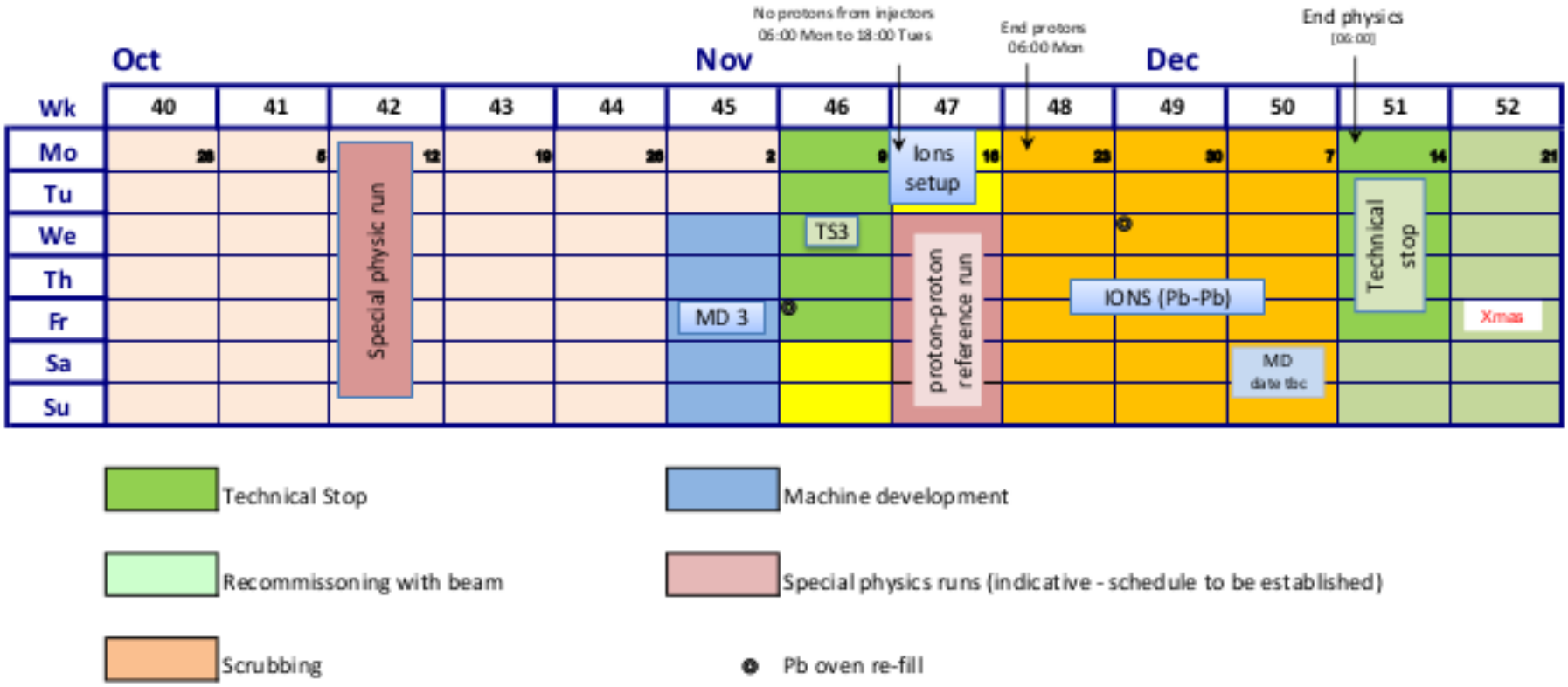
Muon Spectrometer







LHC planning

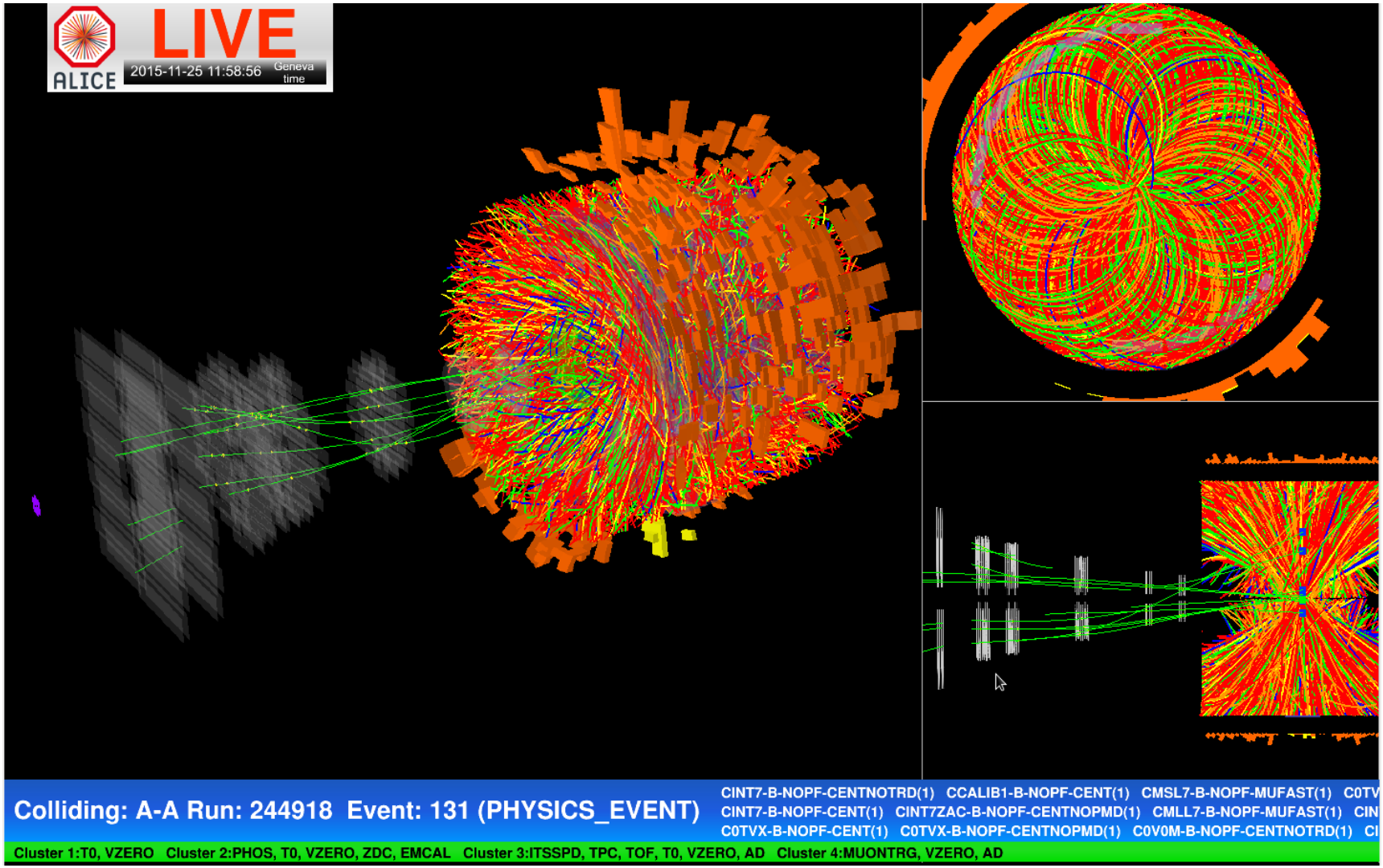


About 3 weeks of beam time for PbPb at 5.02 TeV, actually started since 25th Nov,2015 and stopped on 13th Dec,2015

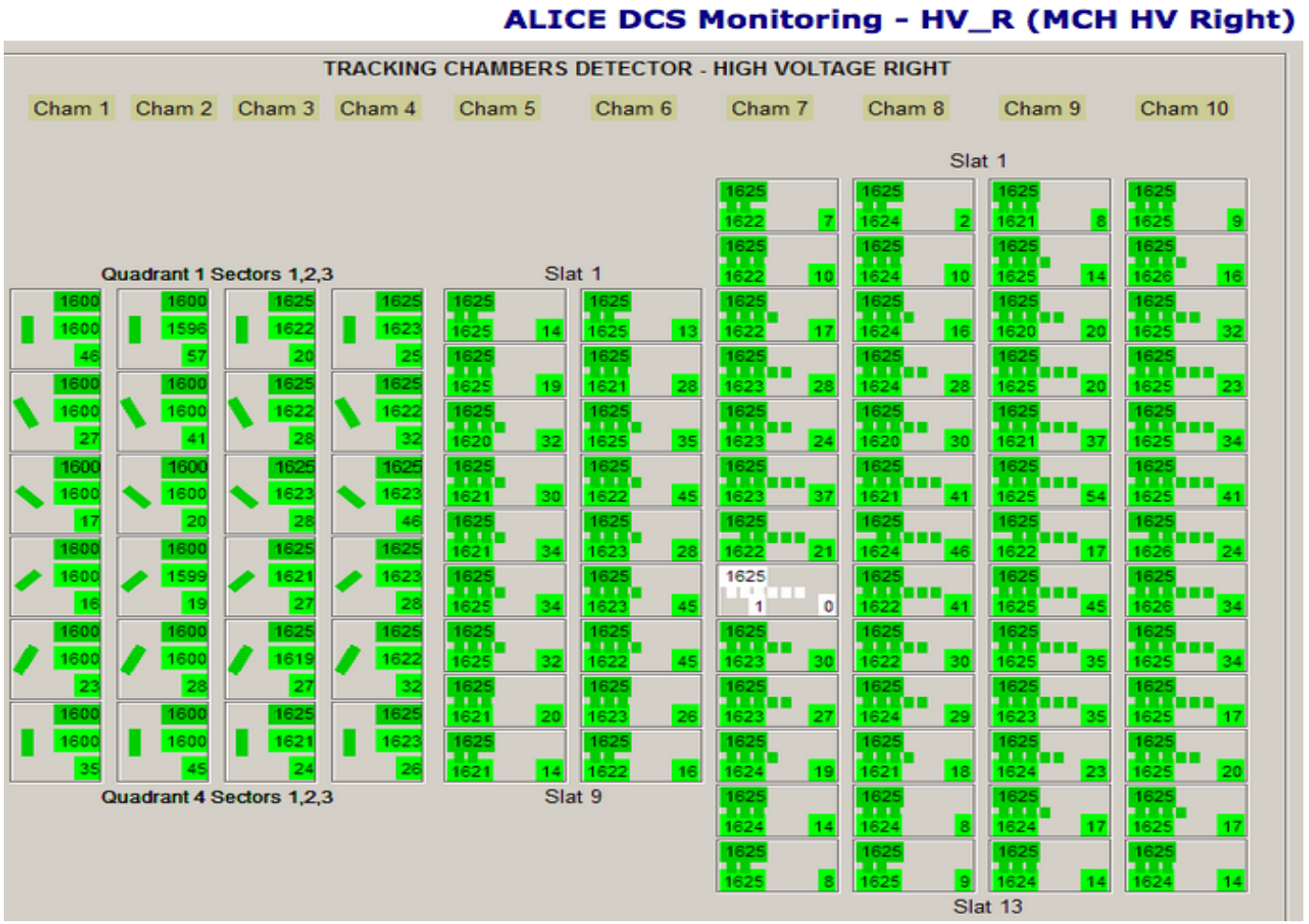
Technical Stop 3

- Change and validation of Ch3 top left quadrant
- Replacement of slats
  - Ch5L : 2 slats
  - Ch8R : 3 slats
  - Ch9L : 1 slat
- Update and testing of PAR procedure

PbPb Events

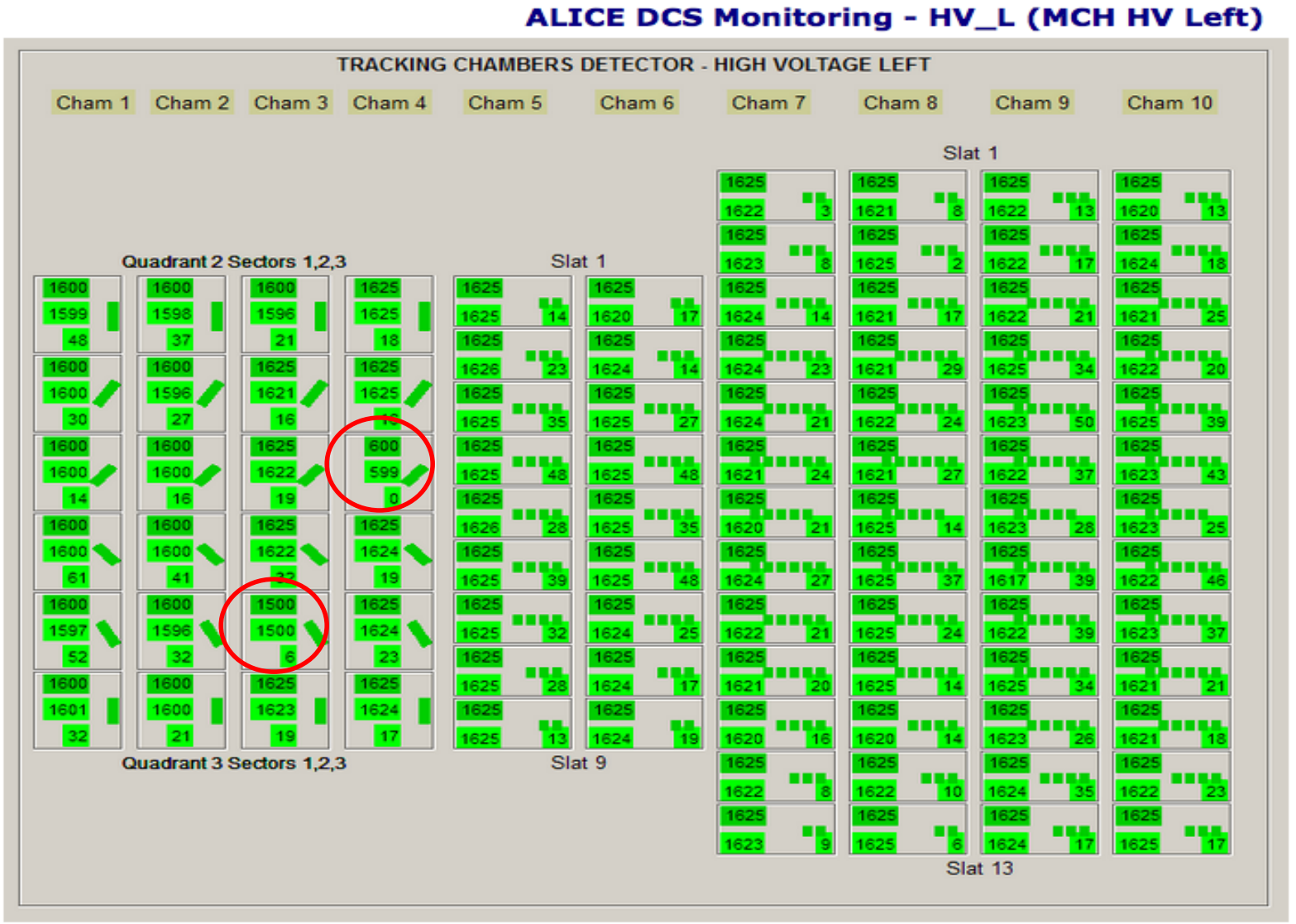

ALICE
LIVE
2015-11-25 11:58:56 Geneva time
Colliding: A-A Run: 244918 Event: 131 (PHYSICS_EVENT)
CINT7-B-NOPF-CENTNOTRD(1) CCALIB1-B-NOPF-CENT(1) CMSL7-B-NOPF-MUFAST(1) C0TV
CINT7-B-NOPF-CENT(1) CINT7ZAC-B-NOPF-CENTNOPMD(1) CMLL7-B-NOPF-MUFAST(1) CIN
C0TVX-B-NOPF-CENT(1) C0TVX-B-NOPF-CENTNOPMD(1) C0V0M-B-NOPF-CENTNOTRD(1) CI
Cluster 1:T0, VZERO Cluster 2:PHOS, T0, VZERO, ZDC, EMCAL Cluster 3:ITSSPD, TPC, TOF, T0, VZERO, AD Cluster 4:MUONTRG, VZERO, AD

Detector current

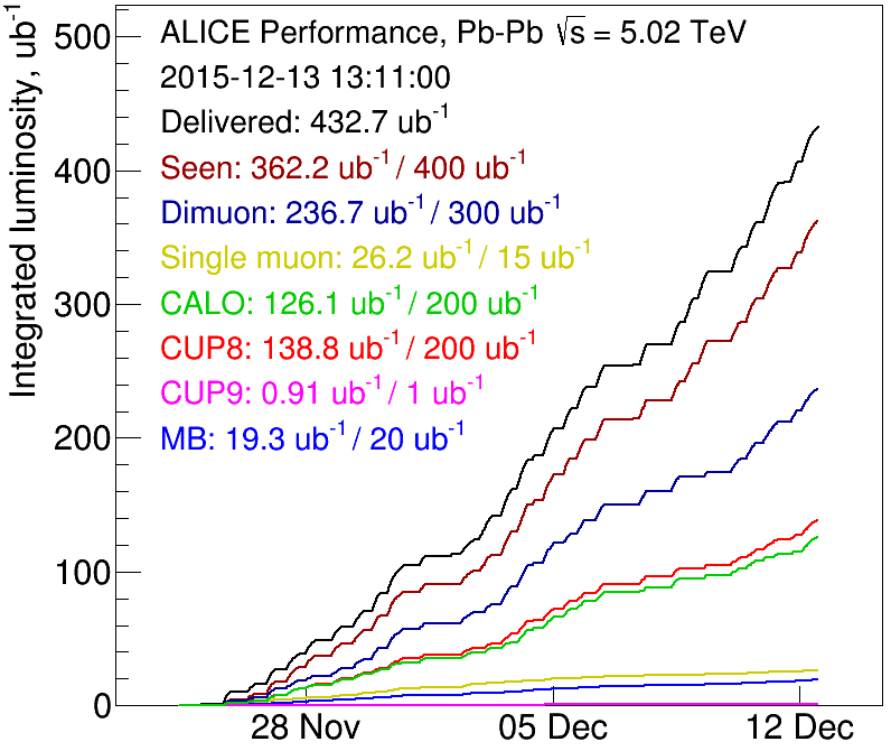


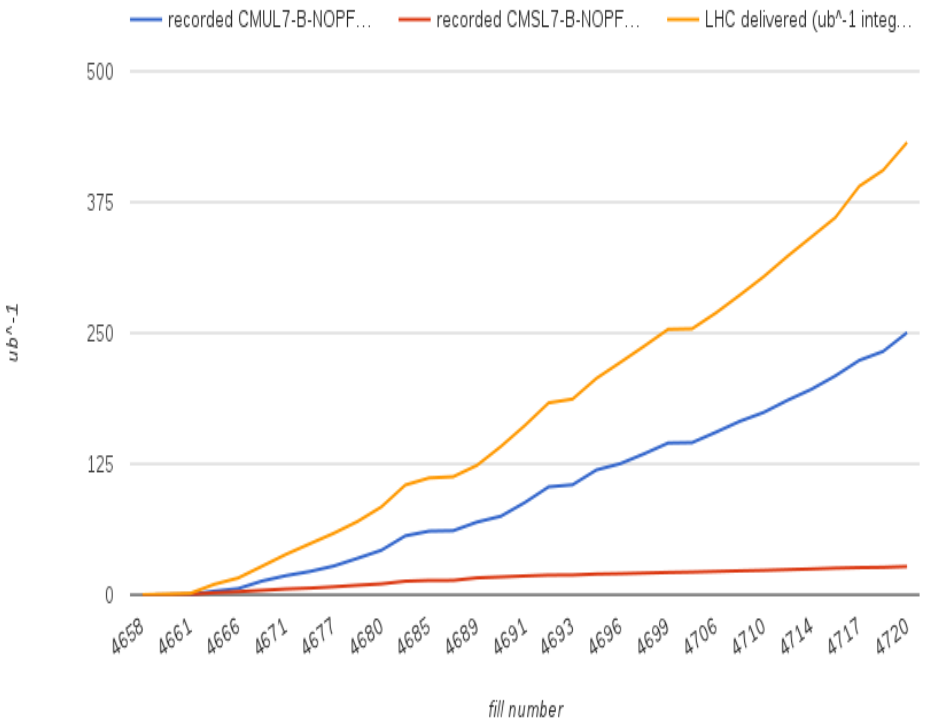
~ 60 nA current in Ch1 at the beginning of the run for 444 colliding bunches

Detector current



Statistics



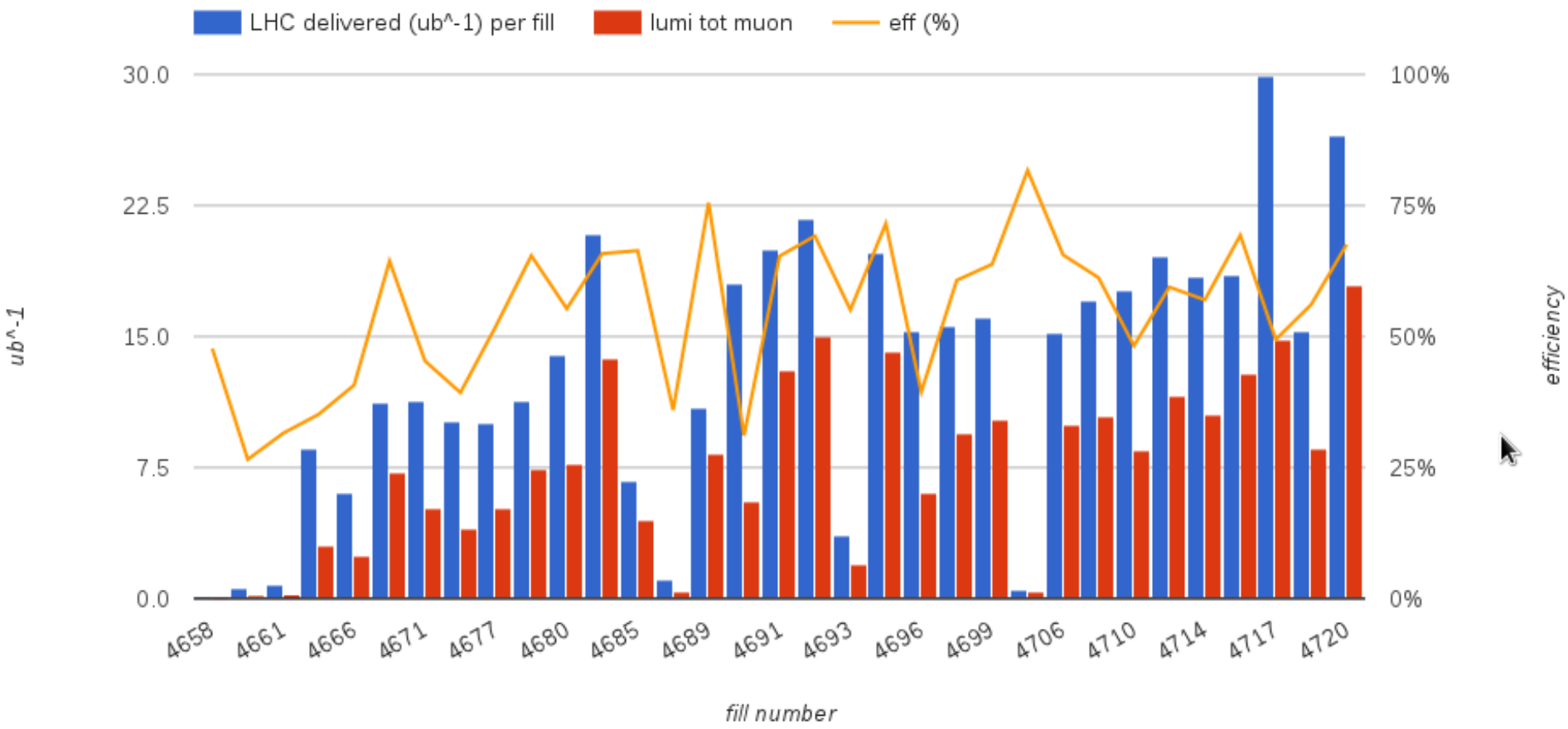


Recorded muon luminosity (in ub^-1)

All LHC15o :	250
LHC15o with ZDC :	233
LHC15o with ZDC and no LV trip :	225

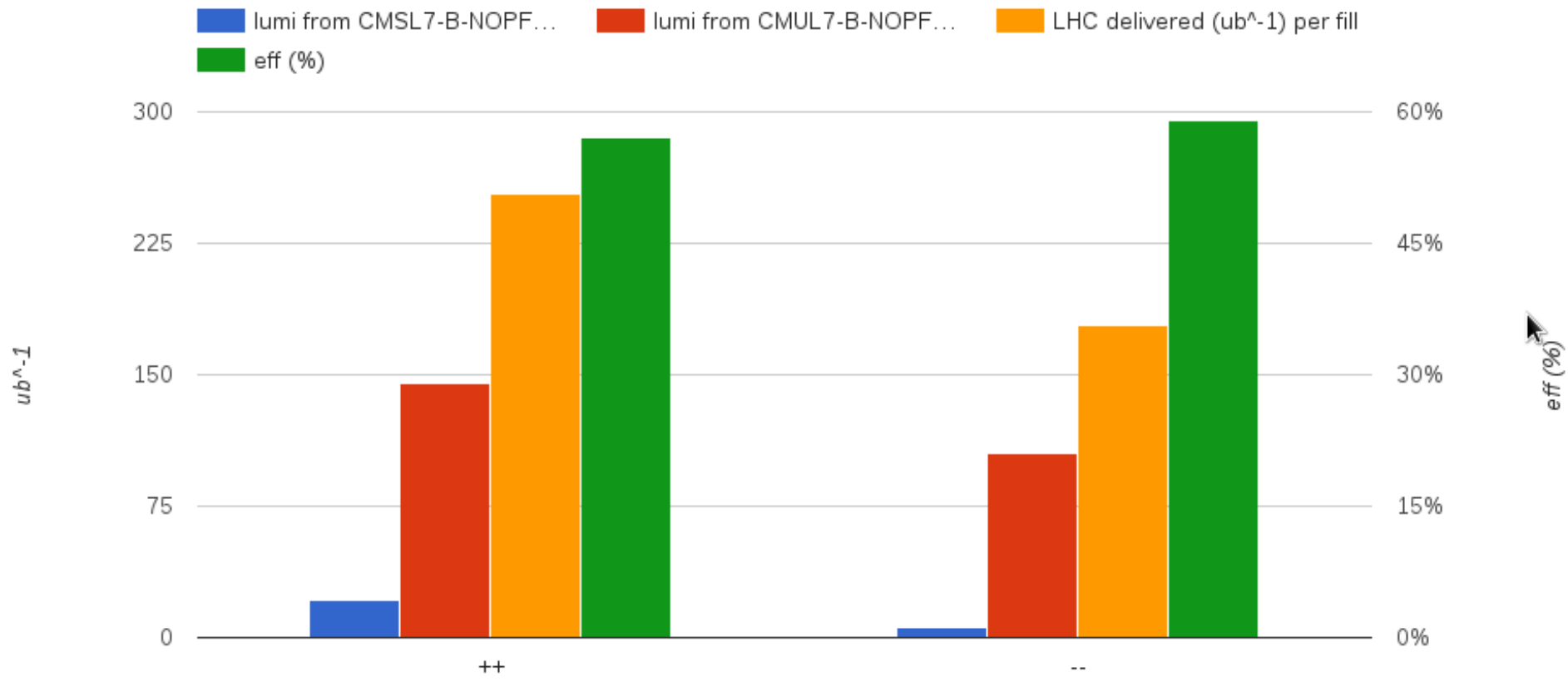
QA approved 137 runs are used for analysis for pass1 with 128 M of MUL and 47 M of MSL events

Data collection efficiency



Including ALICE efficiency, Muon recorded 50% of the delivered luminosity of LHC

Luminosity per polarity

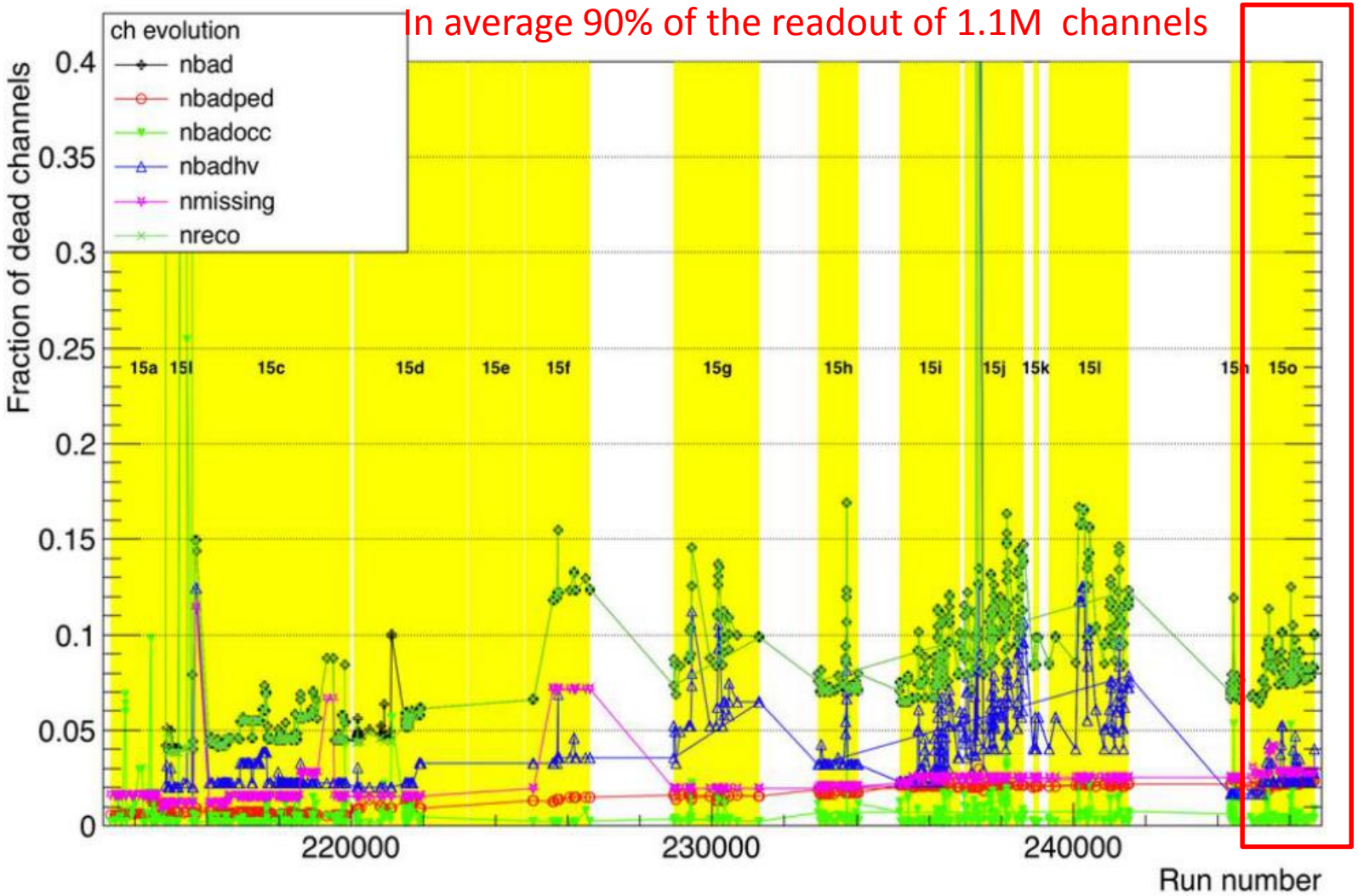


Similar amounts of data with different magnet polarities ++ and --

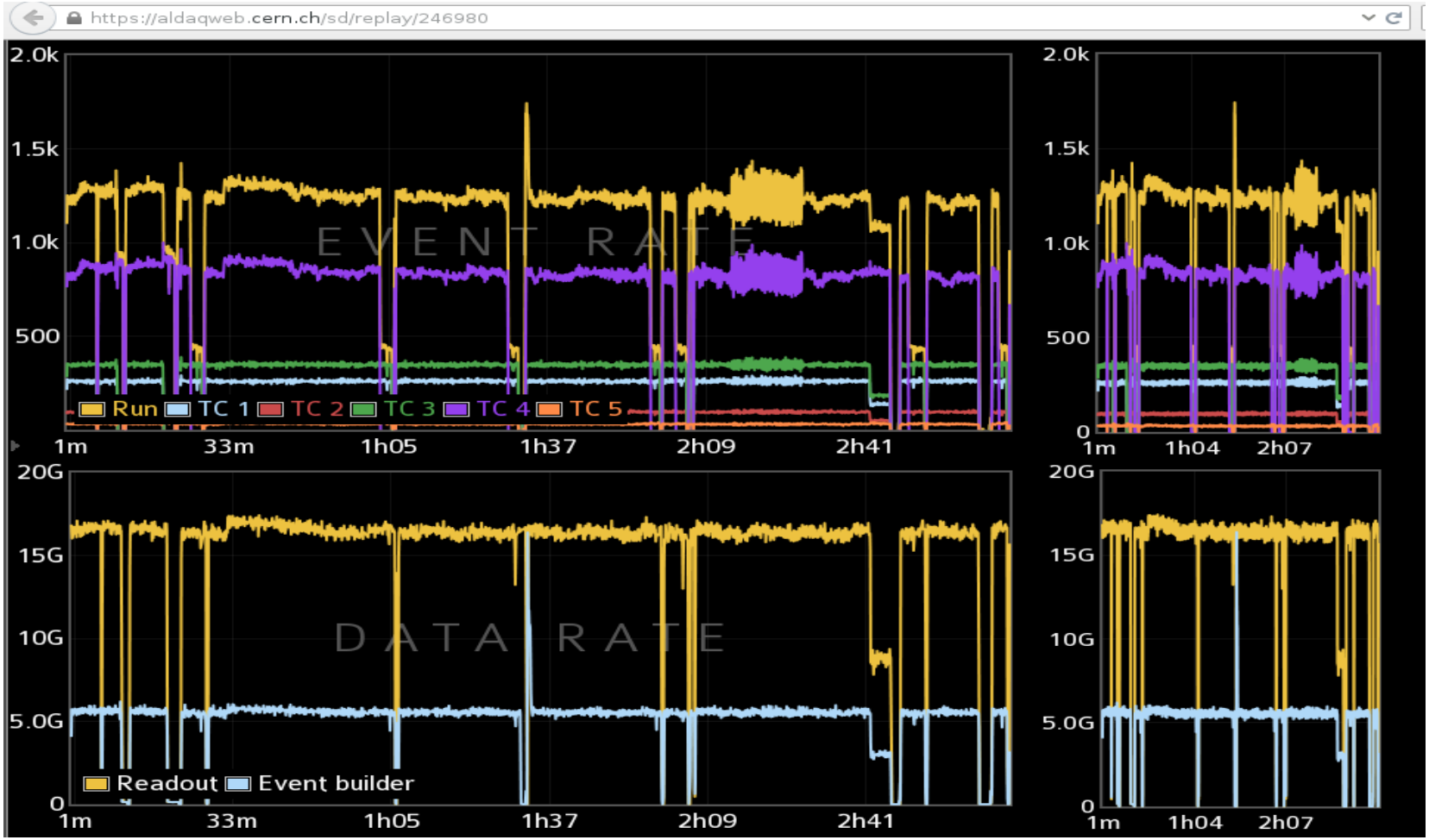
Detector completeness

In average 90% of the readout of 1.1M channels

Pb-Pb

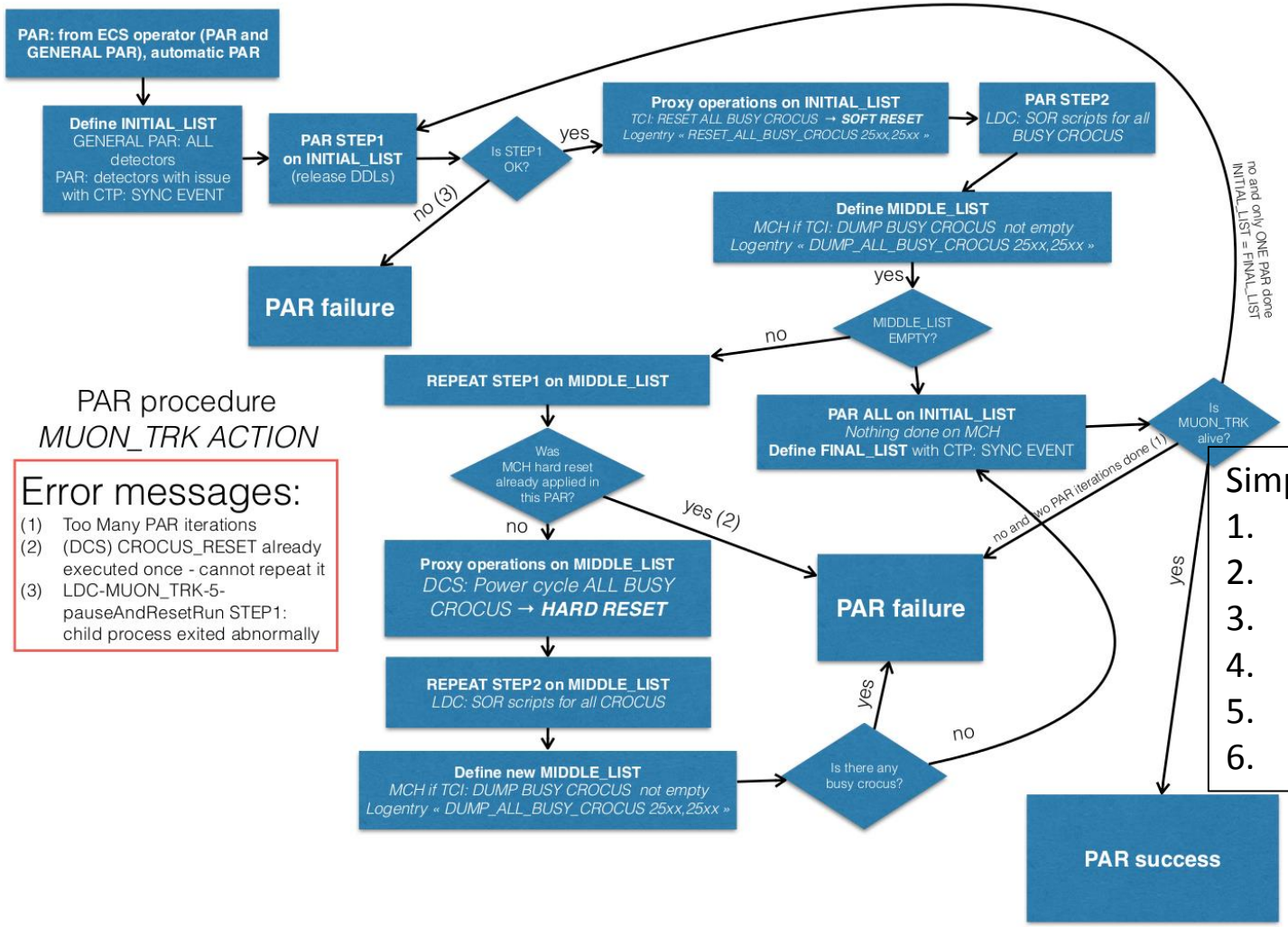


Performance Improved due to PAR



Run : 246980 (~3 hours), 9 PARs → Joining 9 runs if we compare with Run1 operation

PAR procedure



PAR procedure
MUON_TRK ACTION

Error messages:

(1) Too Many PAR iterations
(2) (DCS) CROCUS_RESET already executed once - cannot repeat it
(3) LDC-MUON_TRK-5-pauseAndResetRun STEP1: child process exited abnormally

Simplified Steps :

1. Check BUSY
2. Find the BUSY CROCUS
3. Apply SOFT RESET
4. If 3 fails apply HARD RESET
5. Success : Send SYNC events
6. Fail : Stop run

Issues

- Few LV trips (in 6 runs)
  - never experienced earlier (very rare)
- One LV temperature issue
  - Replaced in less than hour on 1st Dec 2 hour access (normally takes two hours)
- HV trips
  - Not so many in single fill
  - Improved user interface for tripped HV exclusion/inclusion available in central DCS page

Issues

Main MCH errors: PAR failure

N_RUN	= 298
Duration	= 158h 38’
N_PAR tot	= 174
PAR failure	= 45 (26%)
MCH PAR Failure	= 19 (11%)

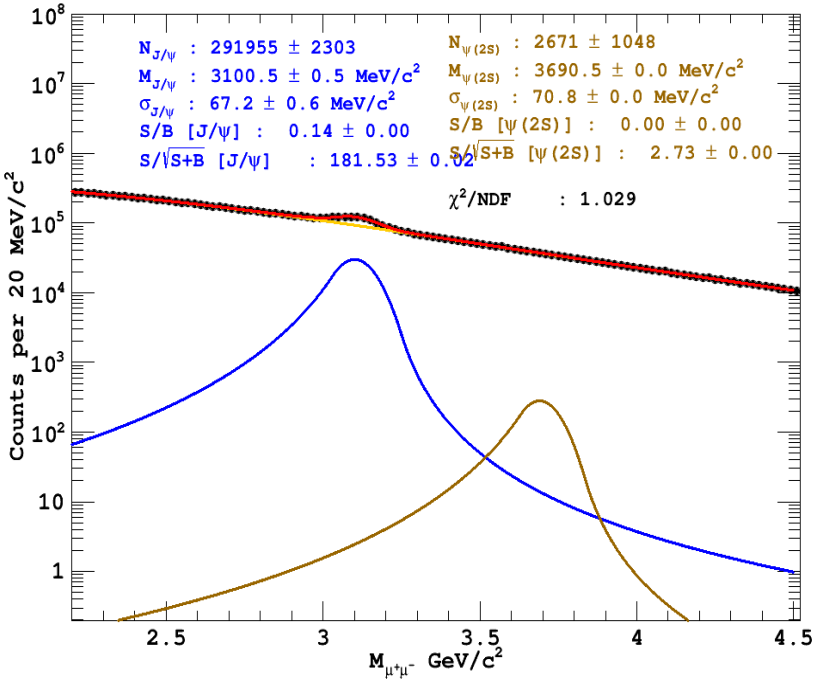
Issues seen (most frequent first):

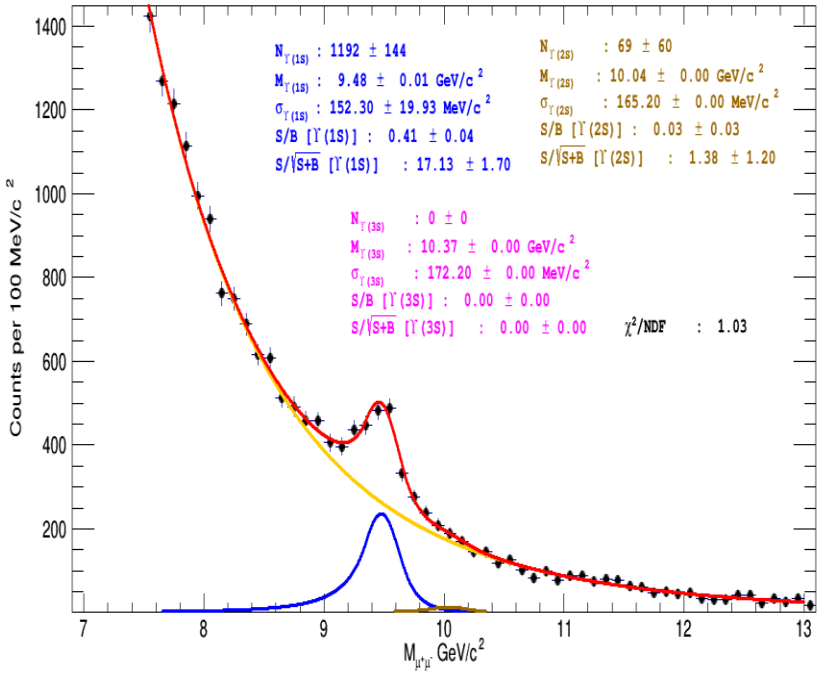
- PAR executed for PMD or TPC, MCH seen busy and PAR failed (10) --> Issues with PAR with detectors belonging to different clusters: DAQ procedure fixed on 10/12
- CROCUS not detected as busy by proxy operation on Trigger Crate Interface (5)
- PAR executed for MCH and several CROCUS went busy during a PAR (2)
- LDC stuck during PAR (2)

Plans

- DCS : LV data points in OCDB (to consider properly the LV trips)
- DAQ :
  - Failure to load pedestals (rare)
  - Online exclusion of high occupancy BPs during the Run
- Winter shutdown maintenance

Quarkonia





Without QA about 0.3 M J/ψ and 1100 Υ

See the next talk in DQ session for ongoing analysis

Thanks

Slide sources : Corrado, Cynthia, Laurent, Evgeny, Roberto