Level 1 Trigger – DQM

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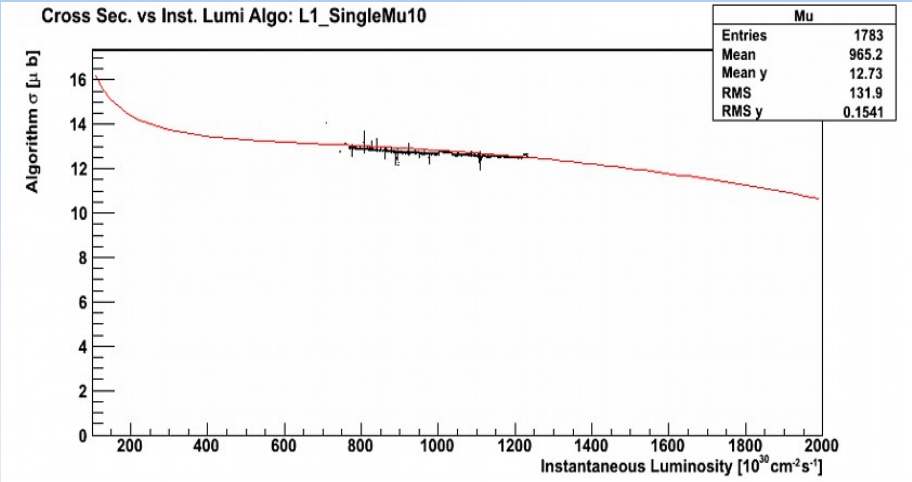
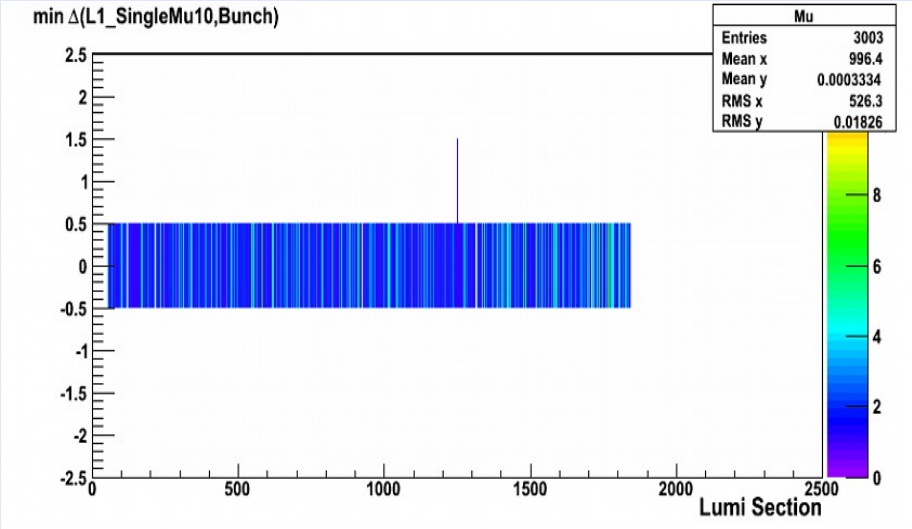
(LIP)

Status

- New L1T DQM tools for rate and synchronization monitoring now 1 month online
- Several improvements, comments and corrections being developed and will be deployed soon.
- New tool to monitor L1T Occupancy is now being developed.

Status





- Trigger shifters already using currently implemented tools for certification.
- L1TRate Monitor compares selected triggers observed cross section with predictions from WbM fits from previous runs
- L1TSync Monitor compares triggers bx against LHV filling scheme

Block Certification

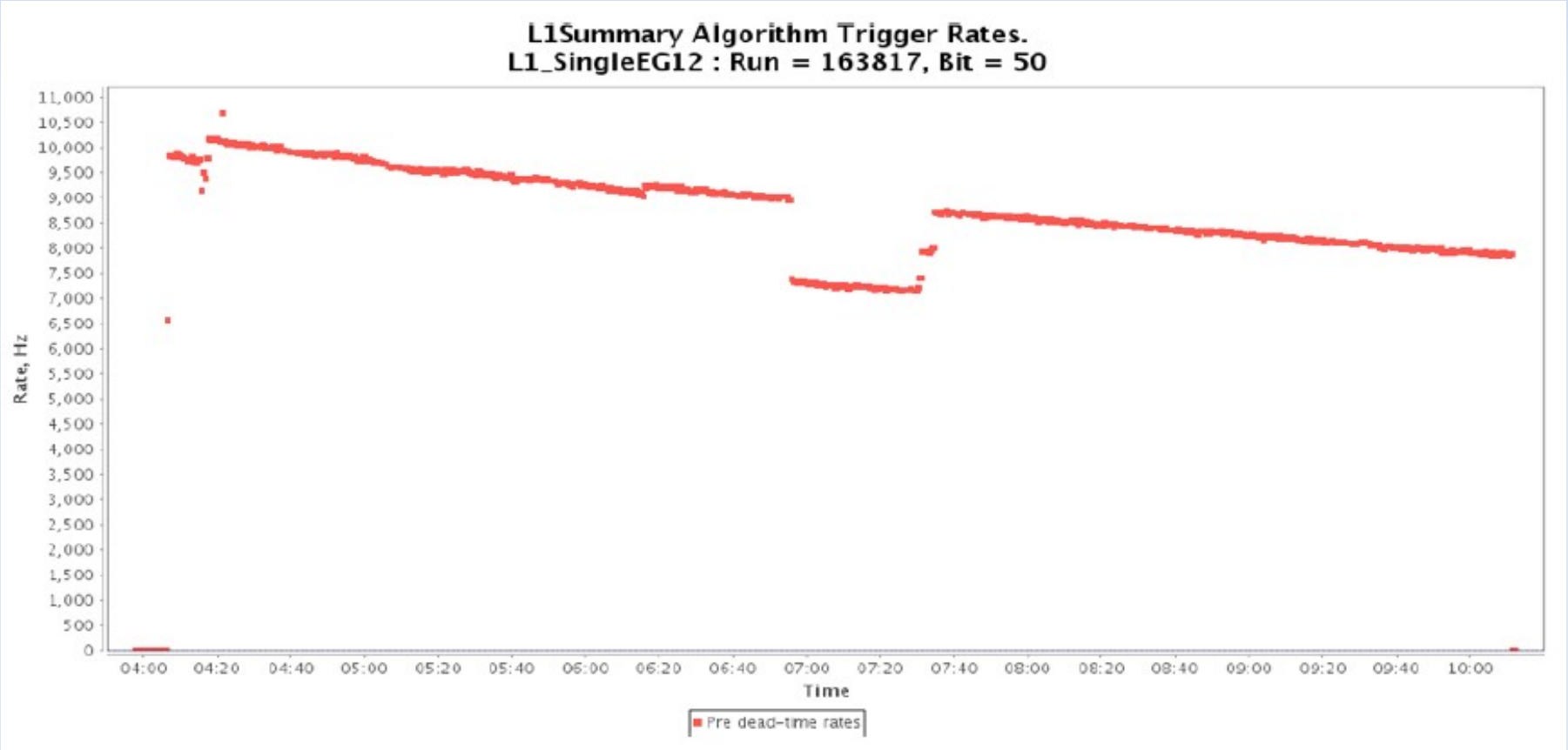
- Since some tests some times lack proper statistics to reach a significant conclusion in a single LS we need to make LS blocks for certification
- We implemented in L1T Synchronization certification by LS blocks. Block size depends on statistics contained in it self
- Problems we found:
  - Online current problems will be detected only when block is finished.
  - For consistency blocks need to be of consecutive LS under the same conditions (ex. beam status)
  - Current methods work for online, but require careful implementation offline (several jobs in parallel, block must be done in the end)

Reason L1T is marked bad

- Big chunks of runs due to detector issues (eg ECAL HV going down, etc) [most of lumi loss, but it's not "L1T" issue!]
- Few lumi-sections within several runs due to specific trigger issues (usually very high rate spikes due to links between trigger primitives and regional triggers or hot towers showing up in calorimeters) [small lumi loss]
- Very few times it happened a wrong configuration was set and we had to declare BAD [very small lumi loss]

Reason L1T is marked bad

- EE HV problem lead to rate problems and consequentially made some LS to be marked bad



(LIP)

Conclusions

- New L1T tools now in production and being used for certification
- Further upgrades to current tools will be deployed soon
- L1T normally is not a direct cause for big data losses at certification