

L1TBPTX Status

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Introduction

- Concerns about the good performance and efficiency of the BPTX system exist since it started to be used to veto events in 2011 (pre-BPTX veto).
- This concerns escalated with 2 events of BPTX system problems during 2012 one of which caused +1h data loss.
- I suggested to build a tool that would compare the LHC bunch structure to the BPTX firing, which would start working at RAMP and could trigger an alarm.

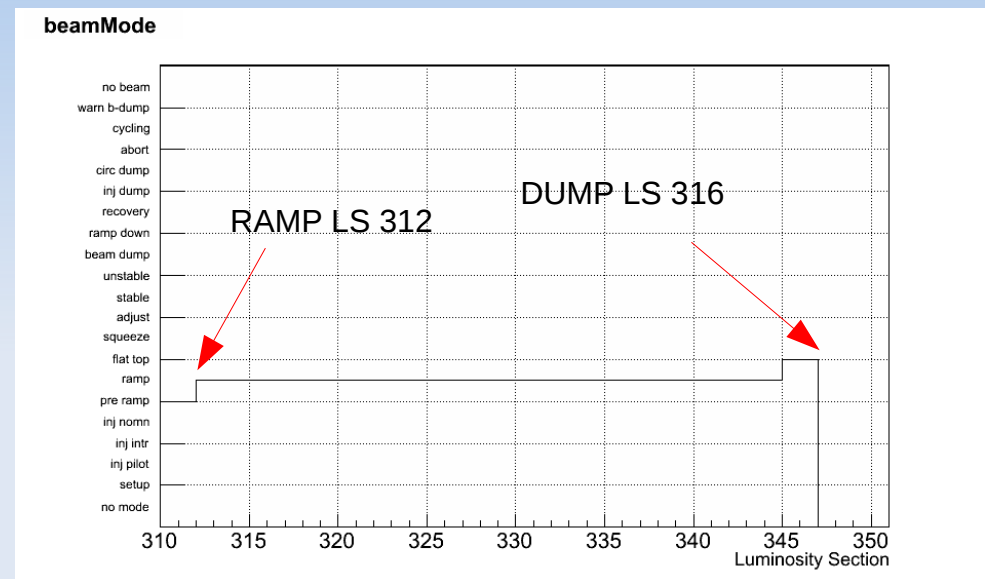
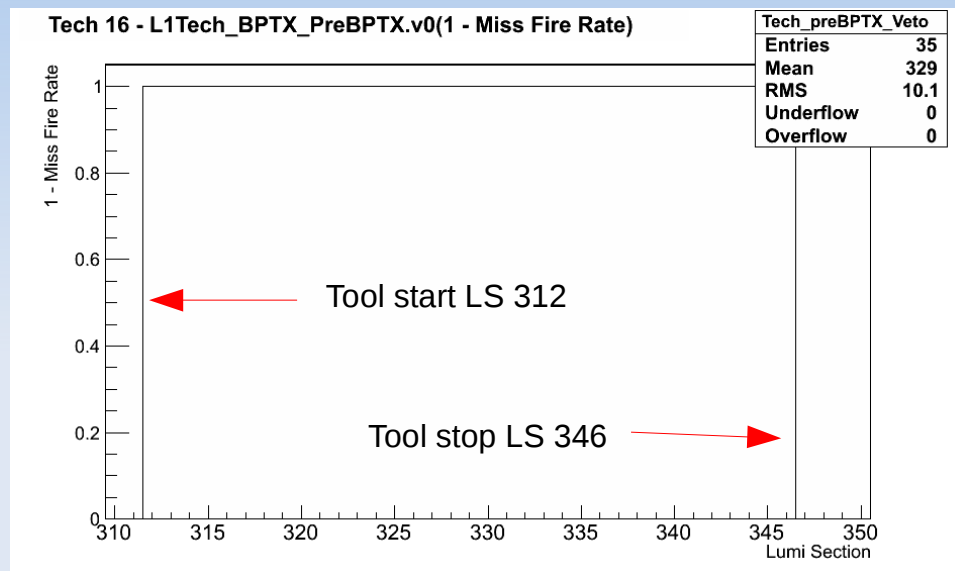
Tests implemented

- The following tools/monitors were implemented:
 - BPTX Efficiency (compared with LHC Bunch Structure)
 - BPTX Miss-Fire (compared with LHC Bunch Structure)
 - BPTX Rate (stability test)
- This tools test every event that they see on the DQM and GT event window (-2 to +2 events)

Problems found

- In the first version of the tool I noticed that we were only getting information on the bunch structure at STABLE BEAMS even that I specifically designed the tool to start working at RAMP.
- Further investigation showed the database was only updated with bunch structure at STABLE BEAMS
- Contacted WbM people (responsible for the DB table I am using) to ask if it could be updated at RAMP.
 - After a few days they were able to make change and now the tools are fully functional.

Problem Solved



- After WbM intervention, L1TBPTX starts and stops working at the correct times.
- As it can be seen at run 202386 the tool starts and RAMP and stops at beam dump

Next Steps

- Field test between RAMP and STABLE BEAMS is necessary to ensure tool detects BPTX being in a bad state.
 - This will be done as soon as the technical stop is finished.
- Create an alarm client for the L1TDQM connected to the Summary plot like discussed before with Vasile and others.
 - Implement BPTX test into the new alarm client.