BFPP losses during the p-Pb run vs S12 thresholds

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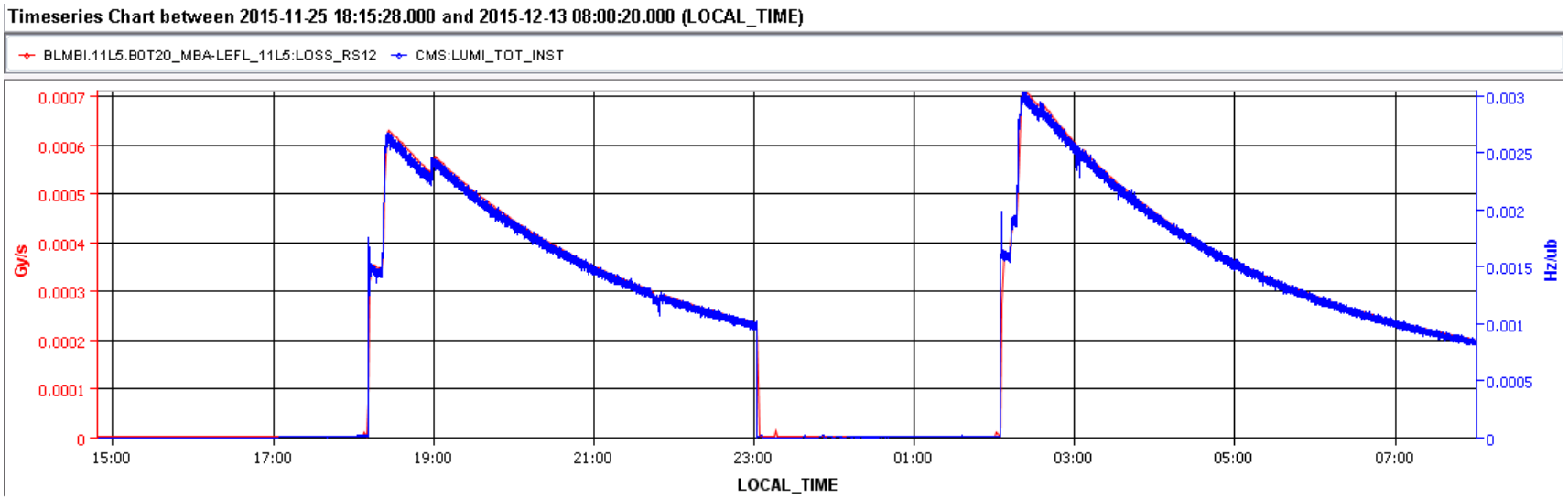
Introduction

- During the 2015 Pb-Pb run, had to increase BLM threshold above MB-LE interconnect left of IR5
  - BFPP losses in MB.B11L5 (bumps not strong enough to move losses into LE)
  - Thresholds for this BLM tailored to UFOs (THRI.ARDS_MBMB)
  - Increasing the MF from 0.499 to 1.0 mitigated the problem
- 2016 p-Pb run:
  - BFPP cross section for p-Pb much smaller compared to Pb-Pb
  - But the luminosity in IR1/5 will be higher and we operate with lower S12 thresholds (for certain BLM families - including the one above)
  - No bumps will be applied, BFPP losses expected to remain in MB.B11 next to IR1/5

Expected signal



- Experience from 2015:
  - 700 μGy/s for a BFPP Pb ion beam with $\sim$70 W ($3\times10^{27}\,\mathrm{cm}^{-2}\mathrm{s}^{-1}$, 6.37 ZTeV, cs=276 b)
- Expectation for 2016 (scaled from 2015 based on beam power)†:
  - 36 μGy/s for a BFPP Pb ion beam with $\sim$3.6 W ($1\times10^{30}\,\mathrm{cm}^{-2}\mathrm{s}^{-1}$, 6.5 ZTeV, cs=42 mb)

†Will also depend on the actual loss location of the BFPP ions.

Threshold evolution MB-MB BLMs S12

Period	MF	UFO AdHoc	THR RS12 (@6.5 TeV)
2015			
startup – 15/10	0.333 (std)	-	270 μGy/s
16/10 – end	0.499 (UFO)	-	405 μGy/s
2016			
startup – 11/08	0.333 (std)	3$\times$ (RS01-05)	270 μGy/s
12/08 – now	0.100 (S12)	-	81 μGy/s

$\rightarrow$ *BFPP-induced signal should remain below 50% of dump threshold but risks to produce unnecessary warnings (i.e. above 30%) if the anticipated luminosity is reached.*

$\rightarrow$ *Should increase MF for this monitor*