ALFA Threshold Proposal

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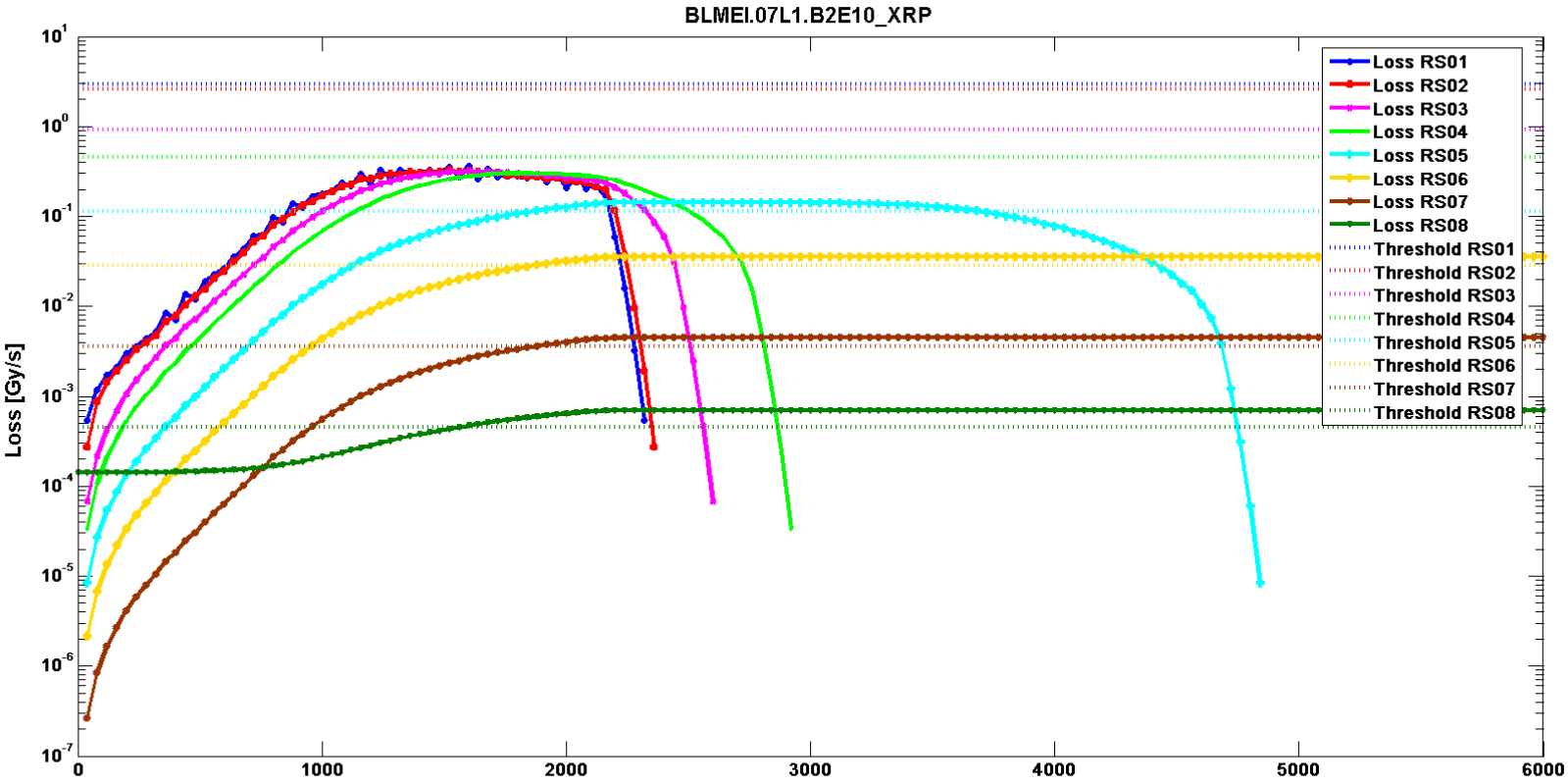
117th SPS and LHC Machine Protection Panel Meeting

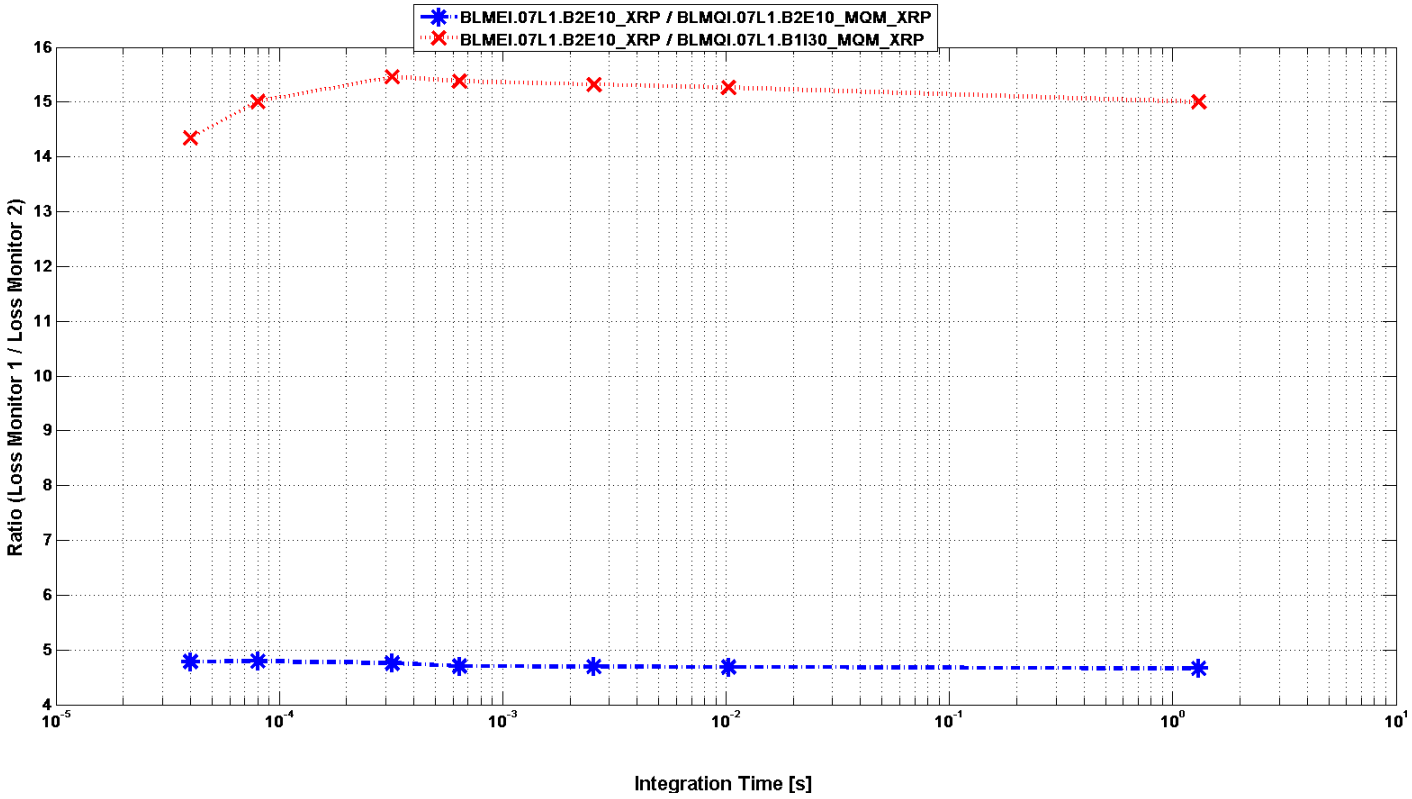
25/09/2015

UFO Event 25/08/2015



Monitor BLMEI.07L1.B2E10_XRP requested a beam dump on RS05-09

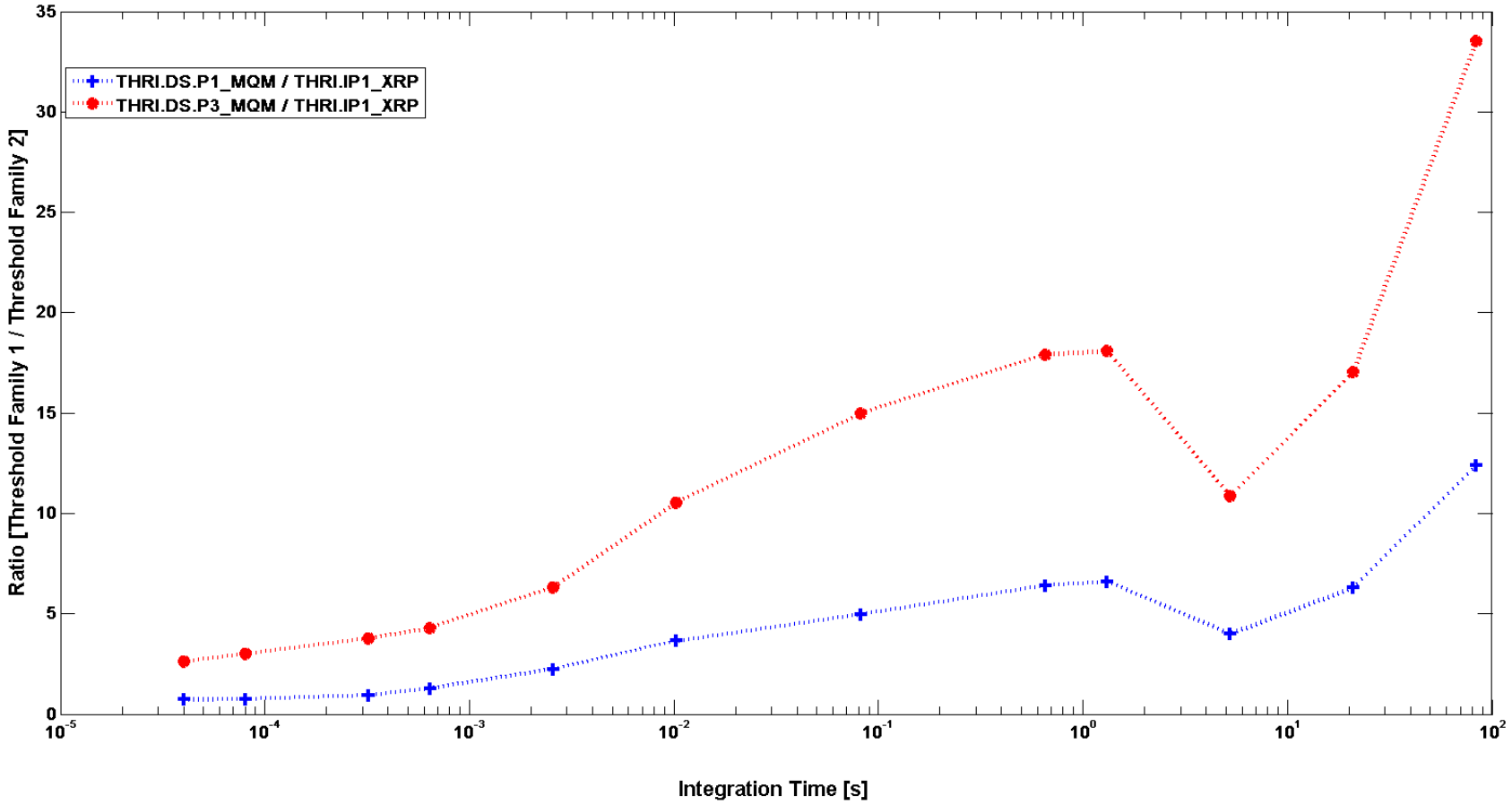
Ratio of Losses



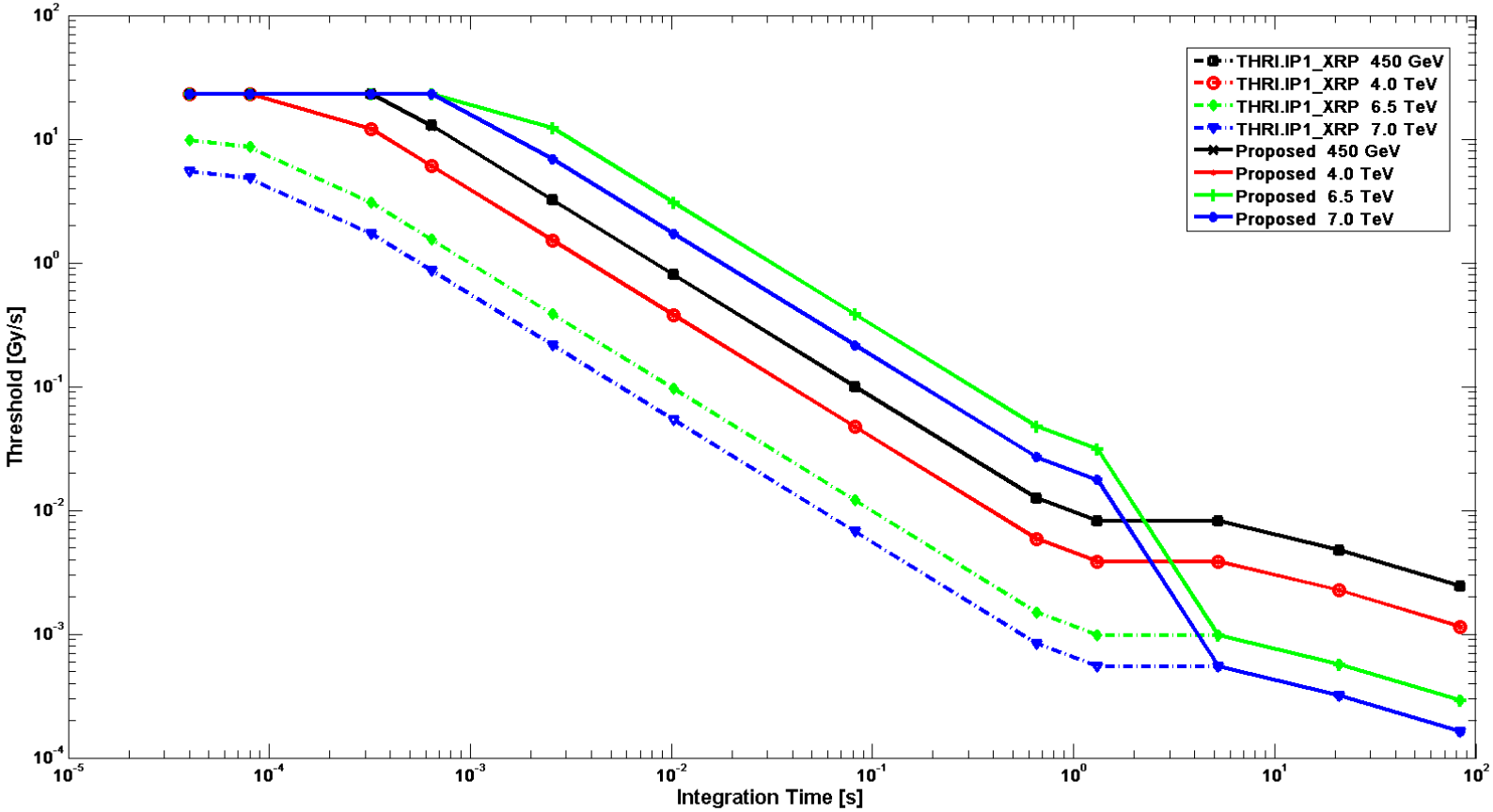
- Monitors BLMQI.07L1.B1I30_MQM_XRP and BLMQI.07L1.B2E10_MQM_XRP are the closest ones downstream to the XRP monitor that dumped the beam
- The UFO signal was ~4.8 times smaller in the B2E10 monitor and ~15 times smaller in B1I30

Ratio of Current Thresholds

- P1 applied thresholds are ~6.6 times higher for RS9 than the XRP thresholds
- Factor 32 increase (=~4.8×6.6) should be sufficient to avoid dumping the beam with ALFA BLMs before other elements

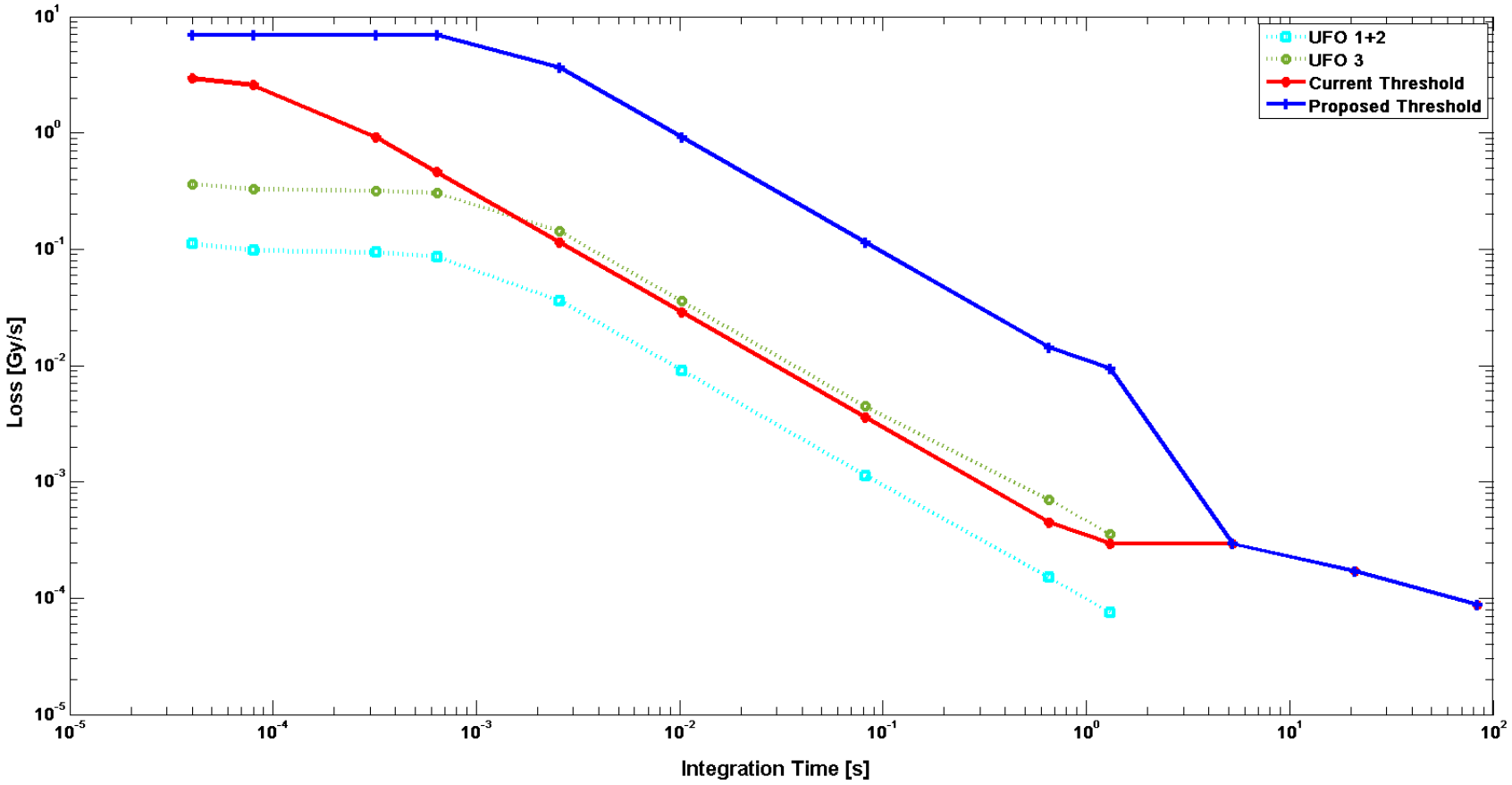


Proposed Thresholds



- Proposal would be to increase the RS1-9 by a factor 32 for 6.5 TeV and above
- RS10-12 would remain intact

UFO Duration



Summary

- Proposal is to increase thresholds for top energy on RS01-09 by a factor 32
- This would allow operation and still provide protection to ALFA with RS10-12
- Details of the changes are reported in LHC-BLM-ECR-0039
- New thresholds could be written to electronics in week 41