

# **AOB: Increase of the RS12 thresholds in IR7**

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section**

**99<sup>th</sup> BLM Thresholds Meeting**

# Reminder collimation specifications for LHC

- BLM thresholds collimation model was reviewed and updated for Run 3 during LS2:
  - Summary at 88th BLMTWG: <https://indico.cern.ch/event/1096834/>
  - At the moment, we are running with MF = 0.6

RS	Times	Max. Values
RS01 - RS06	40 $\mu$ s - 0.01 s	125 kW x 1 s
RS07	0.08 s	500 kW x 1 s
RS08 - RS10	0.6 s - 5.2 s	500 kW
RS11	20.9 s	500 kW x 10 s
RS12	83 s	100 kW

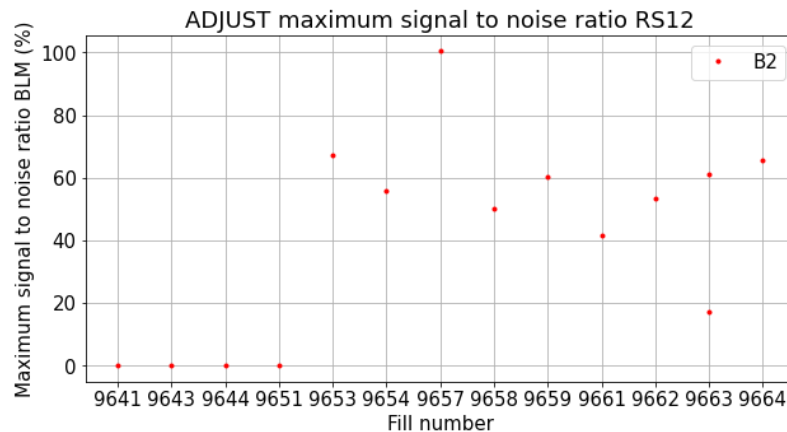
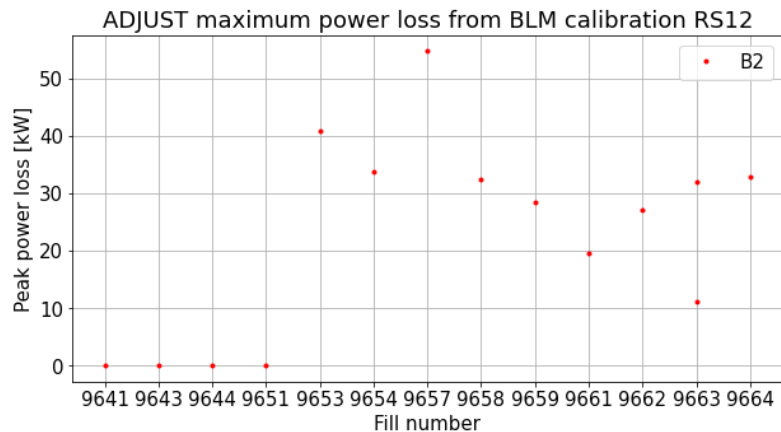
→ 60kW with MF=0.6

Maximum allowed power loss for master thresholds

For HL-LHC, specifications for the maximum power load go to 1MW (factor 2 higher!)

# RS12 limitation during operation

- RS12 reaching warning and even dump levels for B2 at the start of ADJUST (most limiting BLMTI.06R7.B2I10\_TCP.B6R7.B2)
- BLM thresholds well aligned with the estimated power loss using the BLM calibration with RS12



# RS12 limitation during operation - Proposal

- The beam lifetime goes indeed well below 1h at the start of ADJUST when the beams are going into collisions, but by the time RS12 (~83 s integration time) triggers, the lifetime is already recovered
- It has been observed that for some fills, the BLM signal to dump ratio was:
  - RS12 at 40%
  - RS11 at 14%
  - RS09 at 10%
- Should we give more margin to RS12 (factor of 2 wrt lower RS)?
  - Aiming to have RS12 at 20%, better aligned with the other RS and still within HL-LHC specifications
- This would imply a change in the RS12 master thresholds of the 9 BLM thresholds families in IR7
  - 1/2 shift for the preparation of the change (in the shadow)
  - Apply the change during a rampdown