

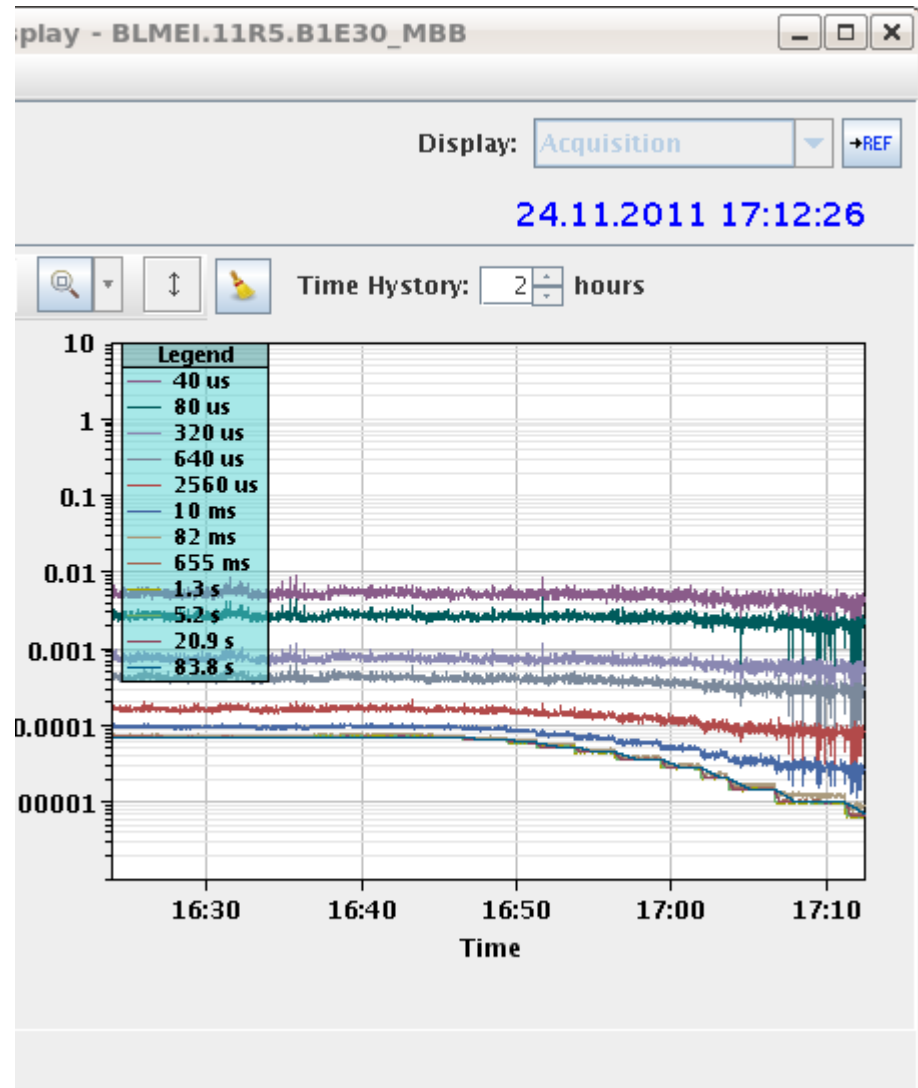
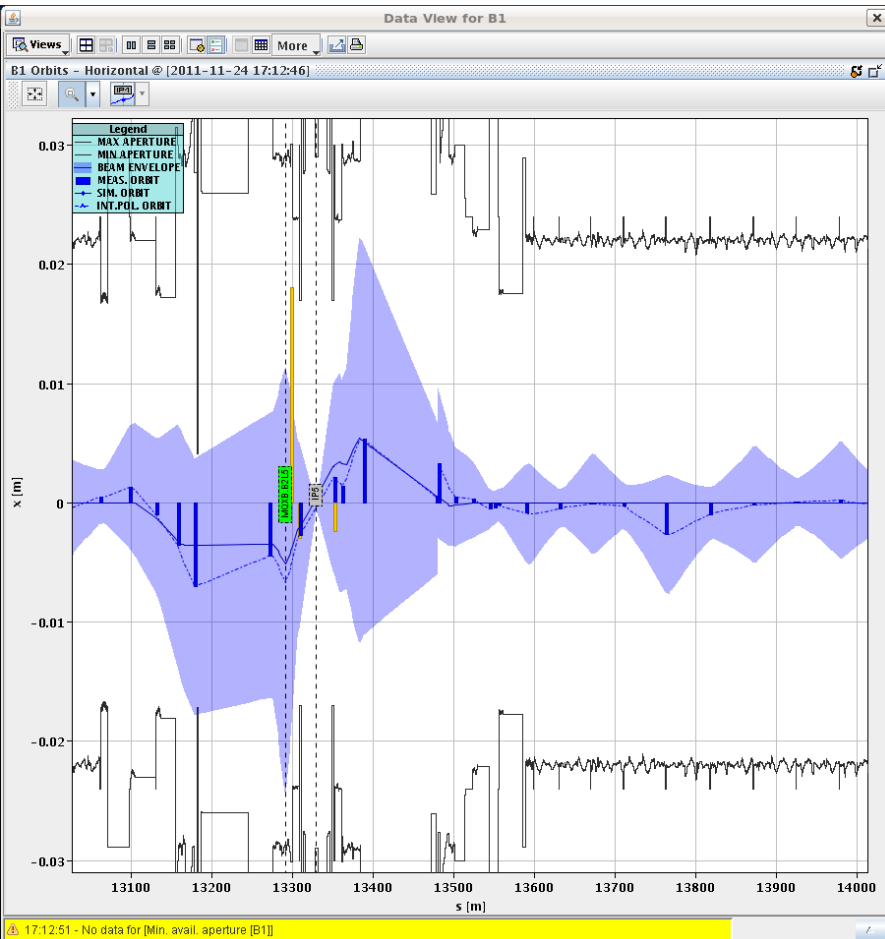
Heavy ion MD results and requests for 2012

MD results from 2011 Heavy ion run

- ❑ Proton-lead feasibility test (only one on “MD time”)
 - Injection, ramp, rephasing (cogging) with different revolution frequencies
 - 2nd part of MD lost (more bunches, collisions)
 - Reported at LSWG 8/11/2011
- ❑ ALICE polarity reversal
 - Pass through small long-range separations
 - Important for future physics conditions
- ❑ BFPP mitigation
 - Bump technique applied successfully
- ❑ Pb collimation quench test
 - No quench but quite successful
- ❑ Much data on emittance, luminosity evolution, etc

BFPP mitigation with orbit bump

12 sigma envelopes from online model



6/12/2011 – quench test on physics time

- ❑ 09:00 – 15:30 : quench test – 3 attempts – no quench.
- ❑ Attempt no.1:
 - 1.8×10^{11} charges / beam, ~ 20 bunches.
 - Rapid 1/3 order resonance crossing beam2 H plane. Beam dump on BLM thresholds.
 - Loss on **10 ms** int. window of monitor BLMQI.09L7.B2I10_MQ. This monitor had its master thresholds increased RS > 80 ms.
- ❑ Attempt no. 2:
 - Reverted to initial master threshold on BLMQI.09L7.B2I10_MQ (and another monitor), but set MF to 1.
 - 3.4×10^{11} charges / beam, ~ 37 bunches.
 - Rapid 1/3 order resonance crossing beam2 H plane. Beam dump on BLM thresholds at Q19 (not modified) on **82 ms** RS.

Quench test (continued)

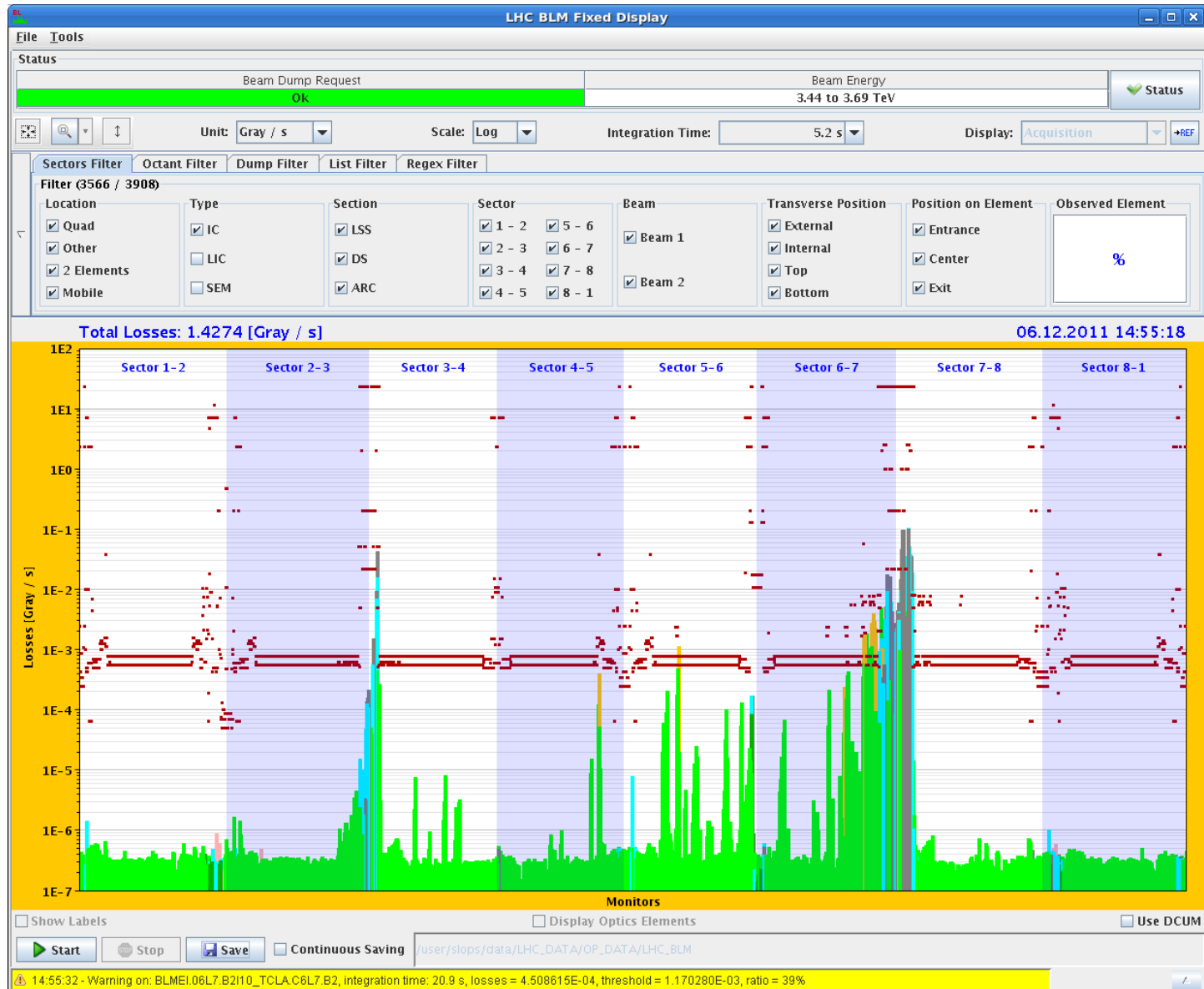
□ Attempt no. 3:

- MF set to 0.3 for 26 arc monitors (cells 11L7, 19L7, 29L7, 24R5).
- 3.2×10^{11} charges / beam, ~ 37 bunches. RF M1B2 tripped.
- Slow resonance approach on for B2 H. Lost most of the beam, but no dump.
- B1H dumped on BLMs during fast resonance crossing.

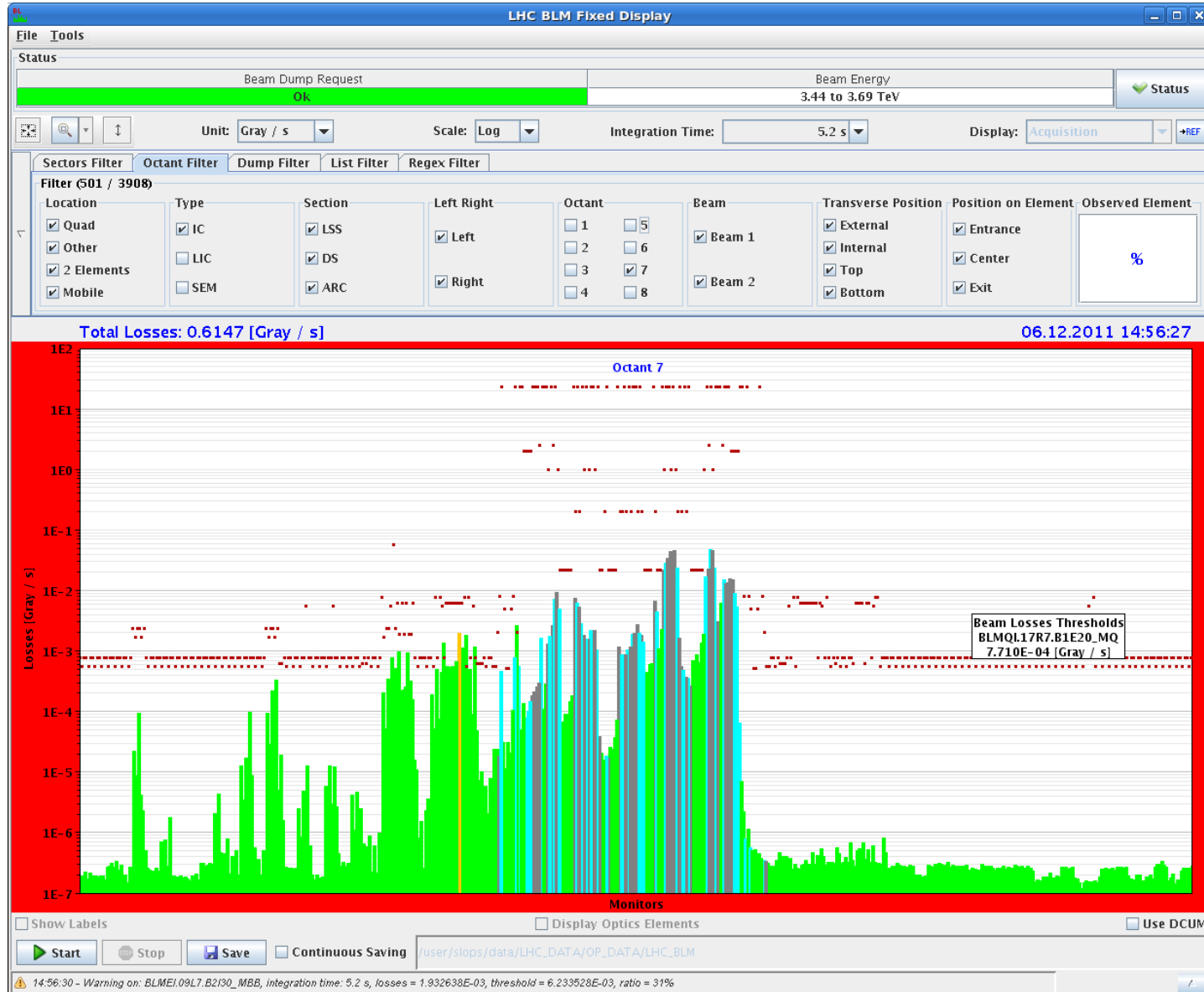
□ Comments:

- No quench during all these exercises.
- For fill3, beam2 shortly lost the cryo start in the matching section 67 due to increased temperature (2.7K from 1.9K) in the missing dipole. Limit is 2.15K.
- Otherwise cryo temperature increase at the 20mK level at the Q9.

Attempt no. 3 – slow crossing B2H



Attempt no. 3 – slow crossing B2H



Quench test summary

Test	Beam	Loss rate	Dump Location	Dump RS	Dump/Quench limit
Fast	2	$2 \times 10^{10}/75$ ms	Q9	10 ms	~ 1.5
Fast	2	$2.5 \times 10^{10}/100$ ms	Q19	82 ms	~ 2
Slow	2	$5.4 \times 10^{10}/$ s	Q9	-	~ 1
Fast	1	$2.7 \times 10^{10}/500$ ms	Q11	82 ms	To be analyzed

Requests for 2012, preliminary

- ❑ Continue p-Pb feasibility
 - As soon as possible Week 33 or floating?
 - Crucial to plan physics programme
 - ₙ Experiments need to plan for luminosity
- ❑ Pb collimation quench test (no MD request yet)
 - Go further, better conditions (BLMs, ADT, ...)
- ❑ Pb collimation, reduce local energy deposition
 - Extend BFPP technique to IR7, IR3, several bumps, know locations, signs for isotopes
 - New idea, needs study
- ❑ Proton collimation, reduce local energy deposition
 - Similar technique may work for protons
 - New idea, needs study