Revision of BLM thresholds affected by UFOs around MKIs

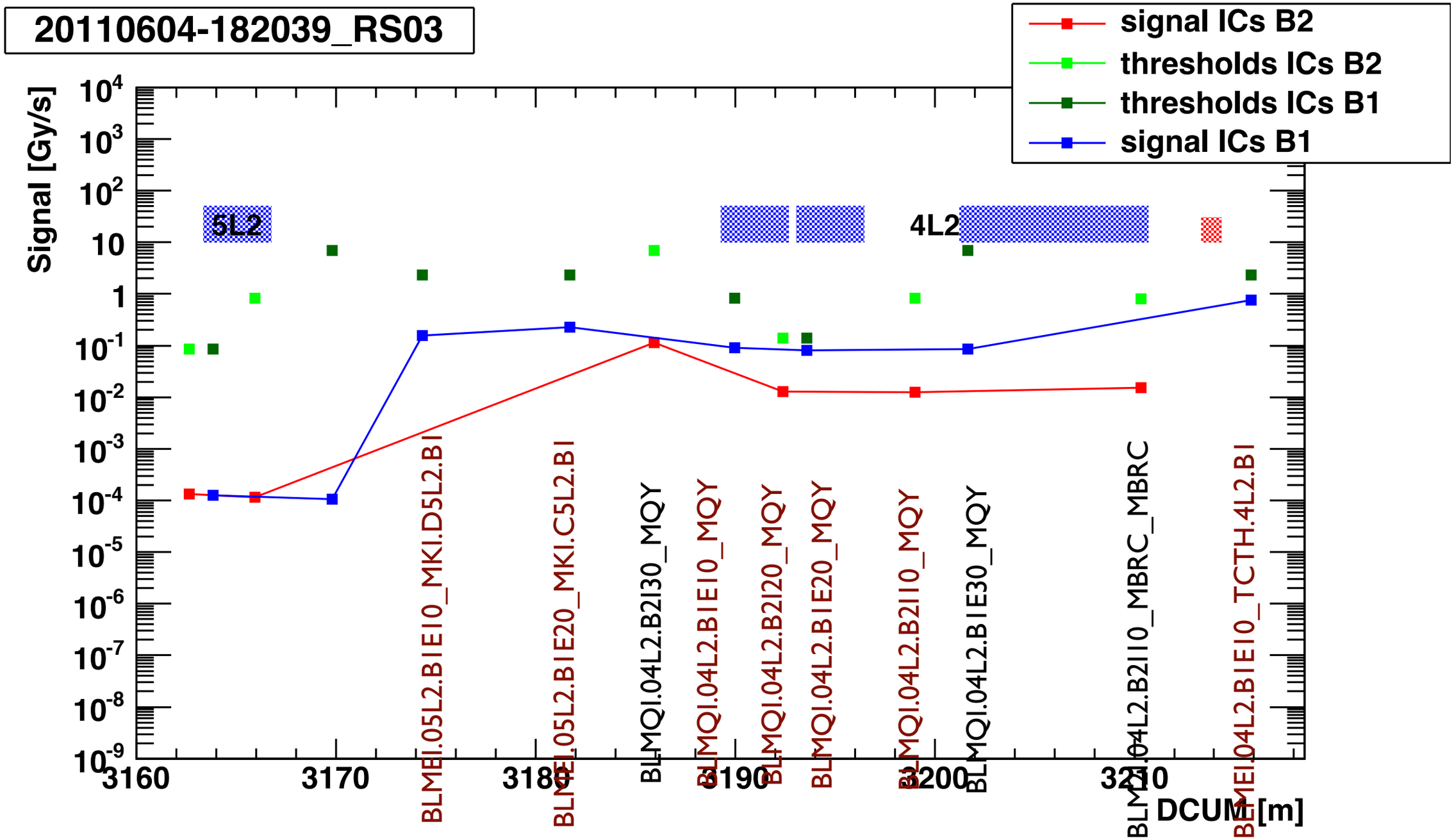
E. Nebot for the BLM team

7 beam dumps (UFO) analyzed

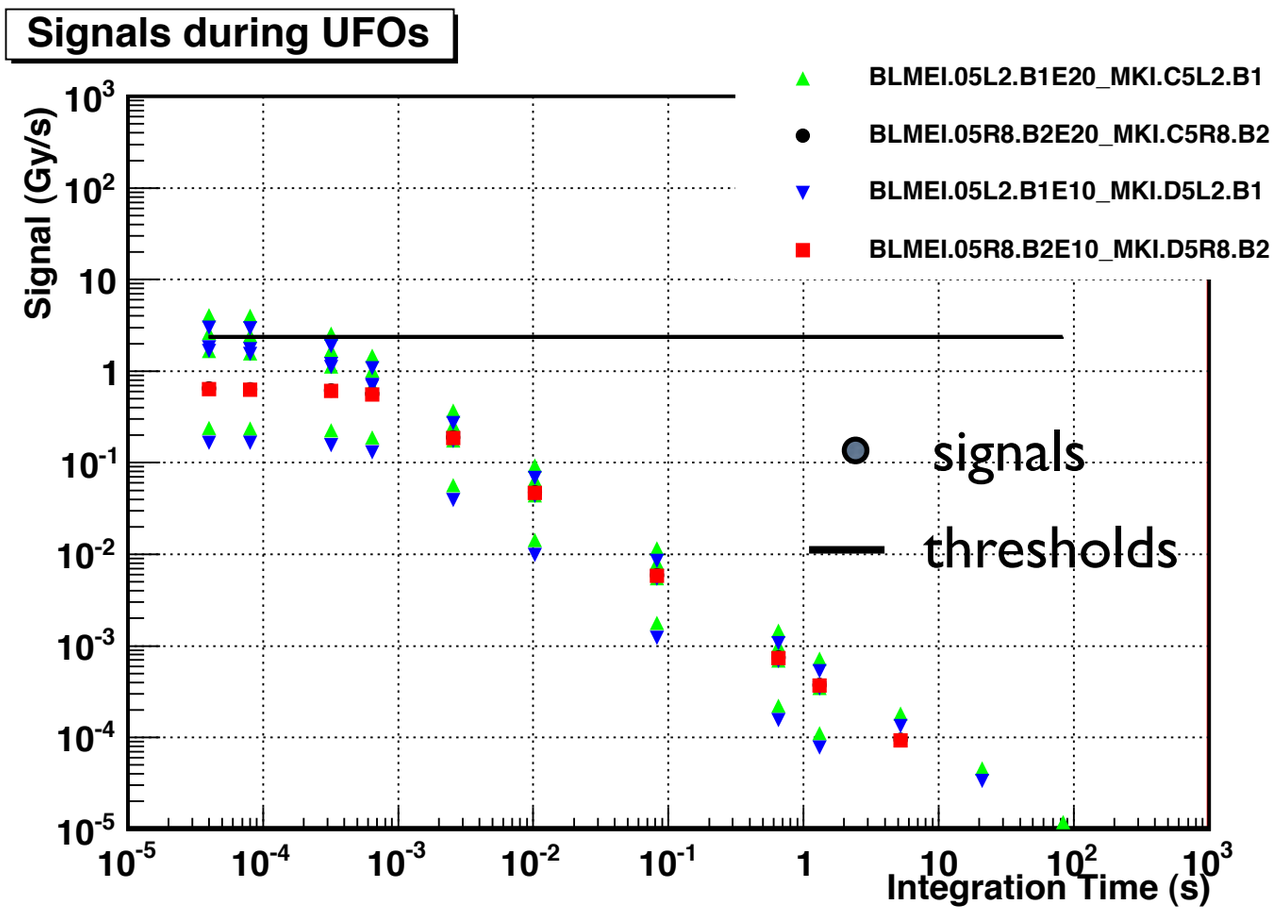
1 @ 450 GeV => 06-06 13:15

6 @ 3.5 GeV => 31-05 06:22, 31-05 22:20, 02/06 21:50, 03:06 18:24, 04/06 20:20 and 05/06 06:56

Limiting monitors: MKI, TCTH and MQY (cell 4) in IP2 and IP8



WARM elements => Threshold = MF x Master Threshold



MKI:

Thresholds at 10% of elec maximum => 2.3 Gy/s

Max observed signal = 2xThreshold
BUT.....It could have been a factor 5 (B. Goddard)

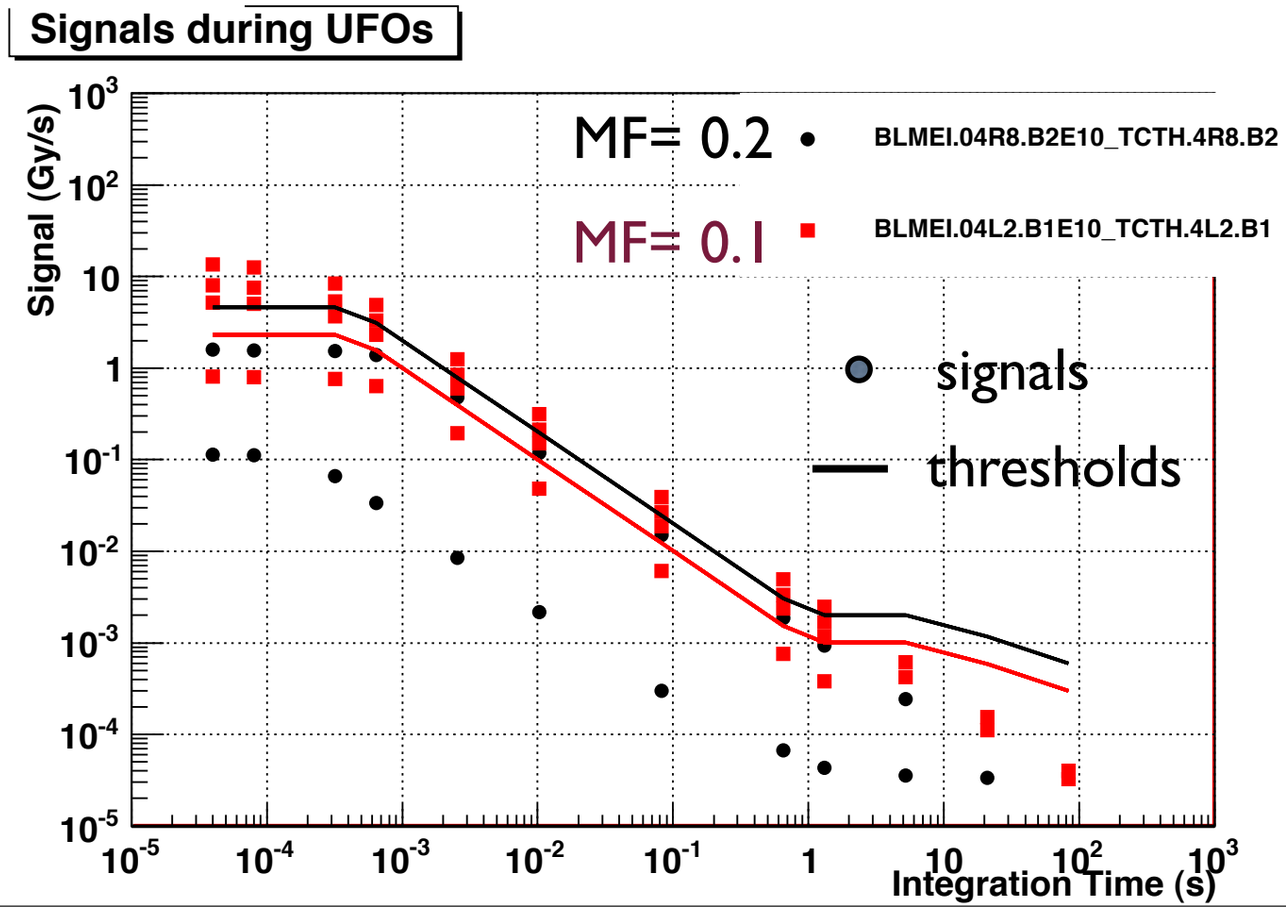
AND... BLMs not foreseen originally (requested by Injection team).

Increase a factor 5. MF = 0.1 -> 0.5

TCTH:

Max observed signal = 6xThreshold
some still raising

Increase a factor 5. MF = 0.1 (0.2) -> 0.5



MQY (P2) => Threshold = MF x Master Threshold

Some UFO signals exceed the theoretical Quench limit by ~ 1.5

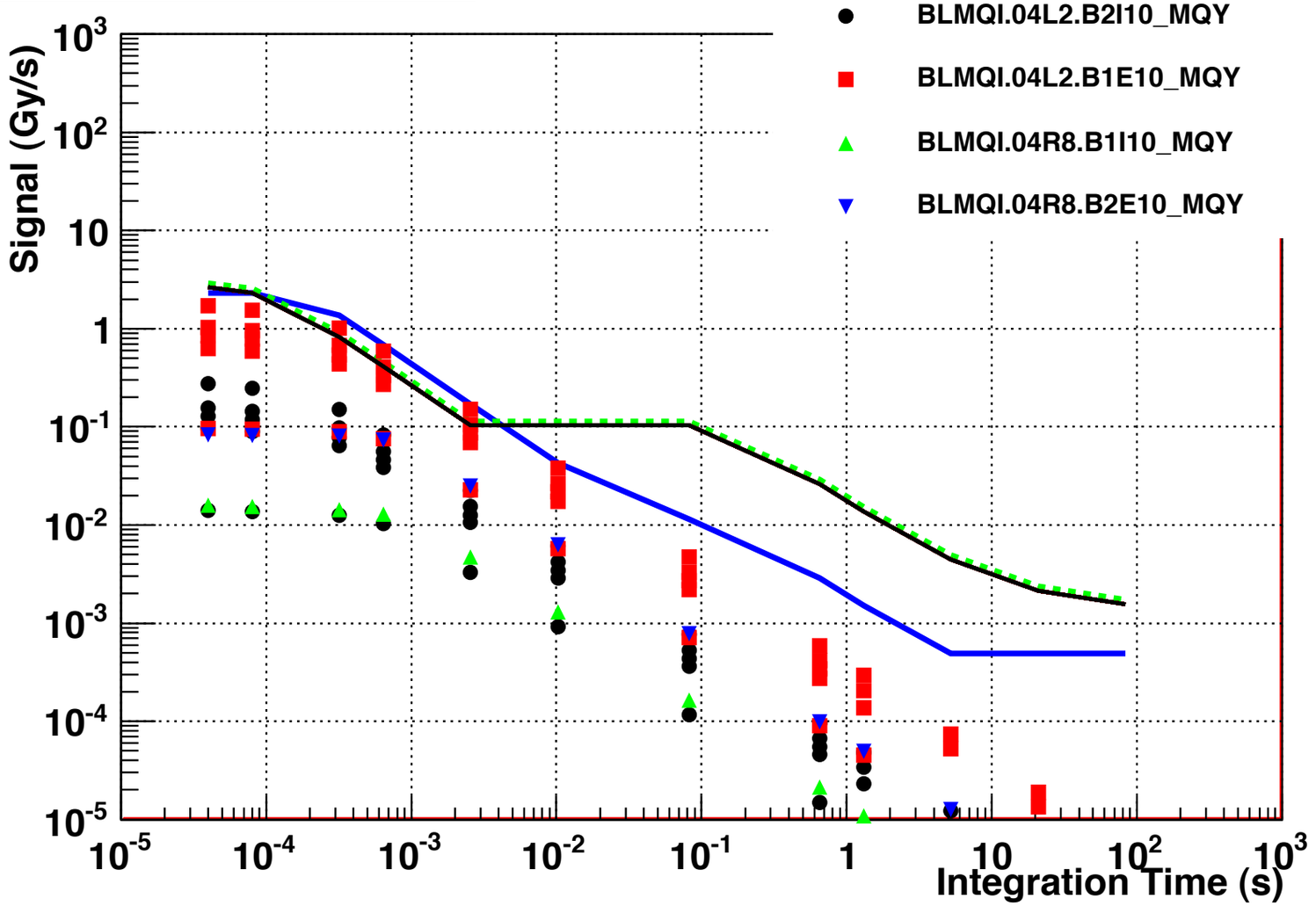
CORRECTION = UFO + QUENCH TEST

3 x RS01and RS02

5 x RS03, RS04 and RS05

1/3 x RS07, RS08, RS09 and RS10

Signals during UFOs



MF = 0.1 AGAIN
Factor 10 margin to play
with in case of more UFOs

— Proposed threshold

— Applied threshold (MF= 0.3)

- - - Quench level

MQY (P2) => Threshold = MF x Master Threshold

Some UFO signals exceed the theoretical Quench limit by ~ 1.5

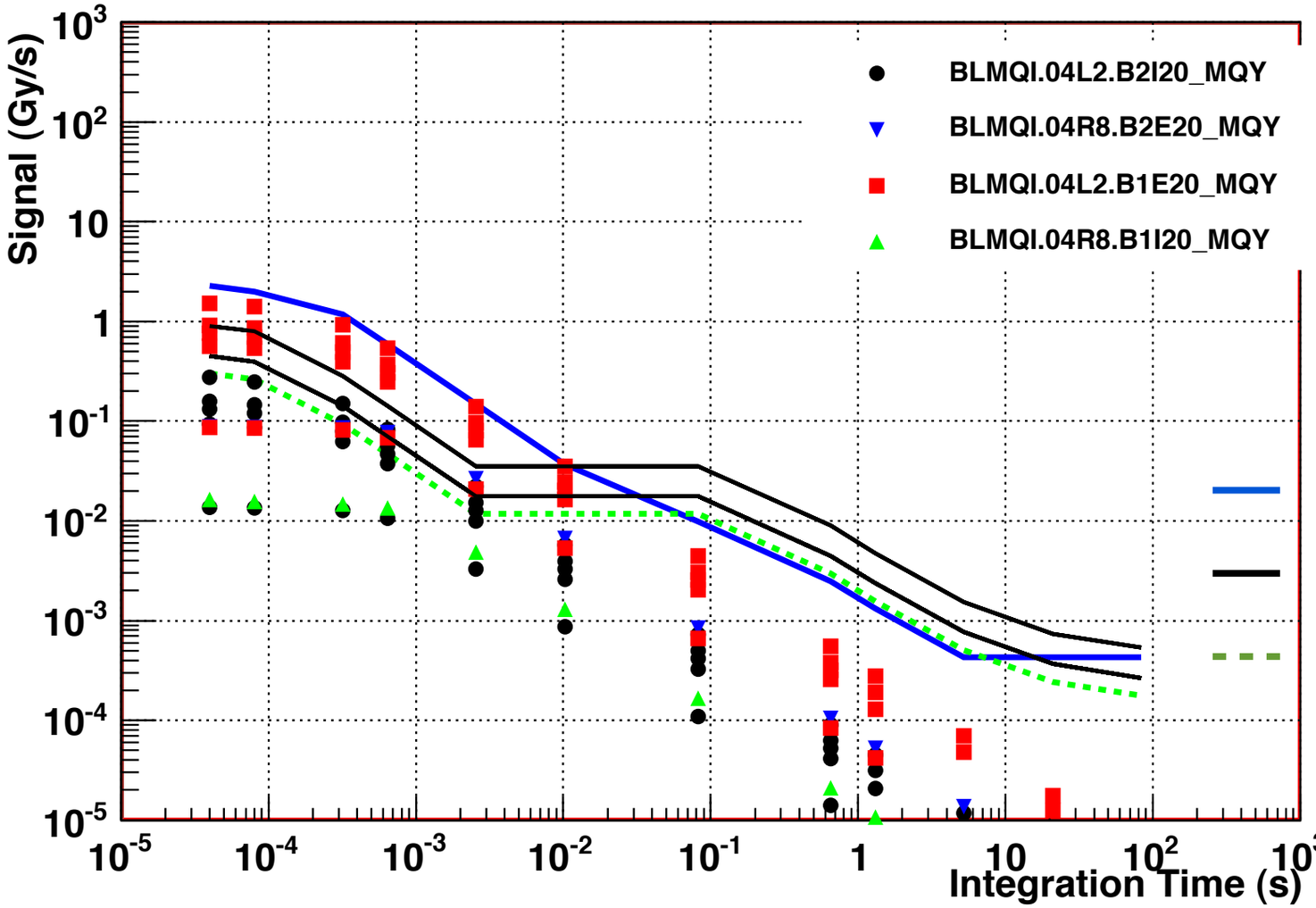
CORRECTION = (UFO + QUENCH TEST) X 8.4 = MAX OBSERVED SIGNAL

3 x RS01 and RS02

5 x RS03, RS04 and RS05

1/3 x RS07, RS08, RS09 and RS10

Signals during UFOs



MF = 0.1 AGAIN
Factor 10 margin to play
with in case of more UFOs

Proposed threshold

Applied threshold (MF= 0.5 -> MF =1.0)

Quench level

BACK UP

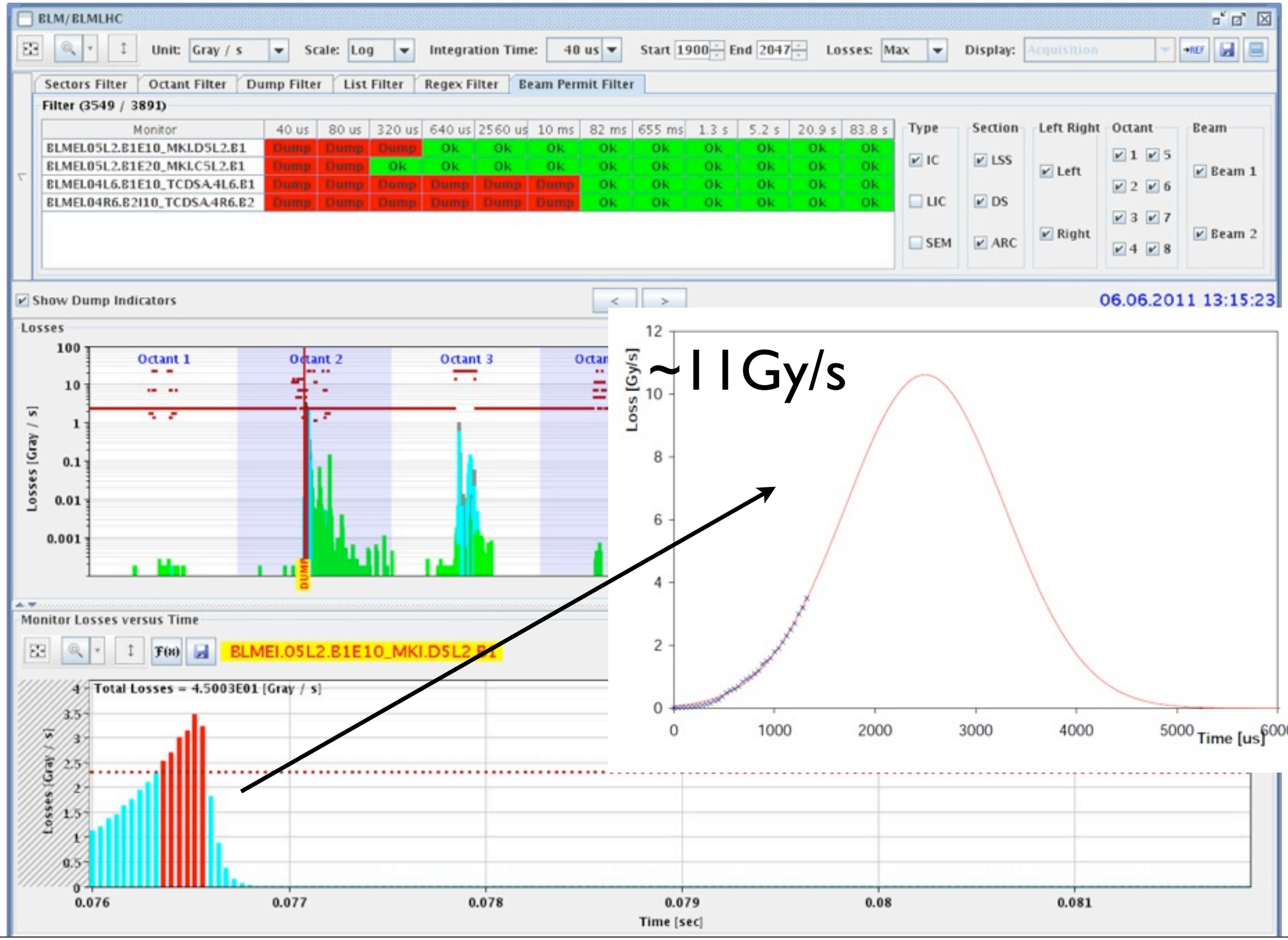
Beam Dump at 450 GeV. 06/06 13:15

Monitor name	Dcum (m)	signal (Gy/s)	Thres (Gy/s)	ratio
BLMEI.05L2.B1E10_MKI.D5L2.B1	3174.321	3.49e+00	2.316	1.50e+00
BLMEI.05L2.B1E20_MKI.C5L2.B1	3181.699	2.69e+00	2.316	1.16e+00
BLMEI.04L2.B1E10_TCTH.4L2.B1	3215.872	2.10e+00	2.316	9.06e-01

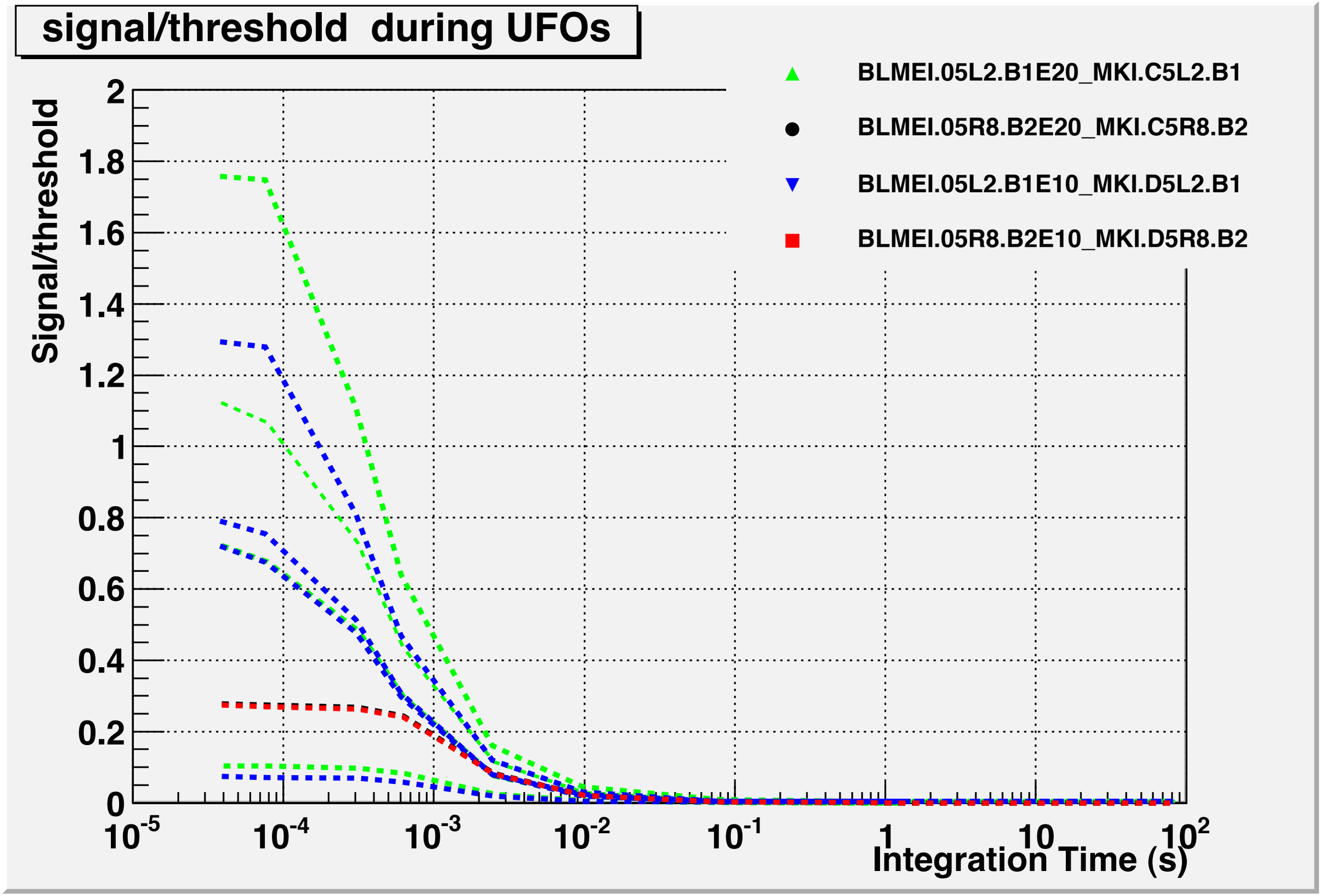
Every other monitor is below 10% of the threshold.

BLMQI.04L2.B2I30_MQY	3185.929	7.30e-01	6.950	1.05e-01
BLMQI.04L2.B1E10_MQY	3189.964	5.05e-01	6.950	7.27e-02
BLMQI.04L2.B1E20_MQY	3193.580	2.72e-01	4.702	5.78e-02
BLMQI.04L2.B1E30_MQY	3201.657	2.75e-01	6.950	3.96e-02

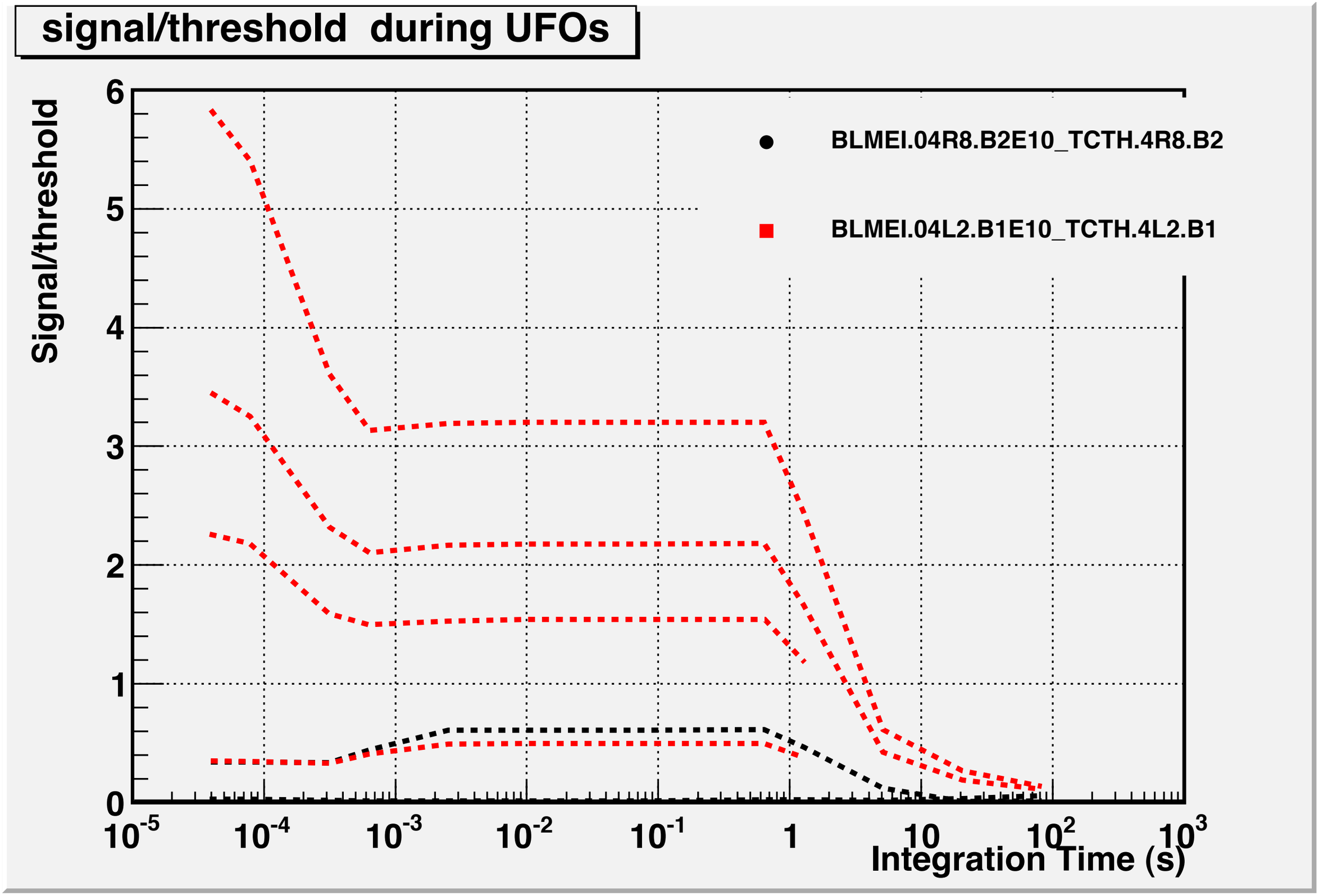
Monitors protecting MKIs. Dump at 450 TeV



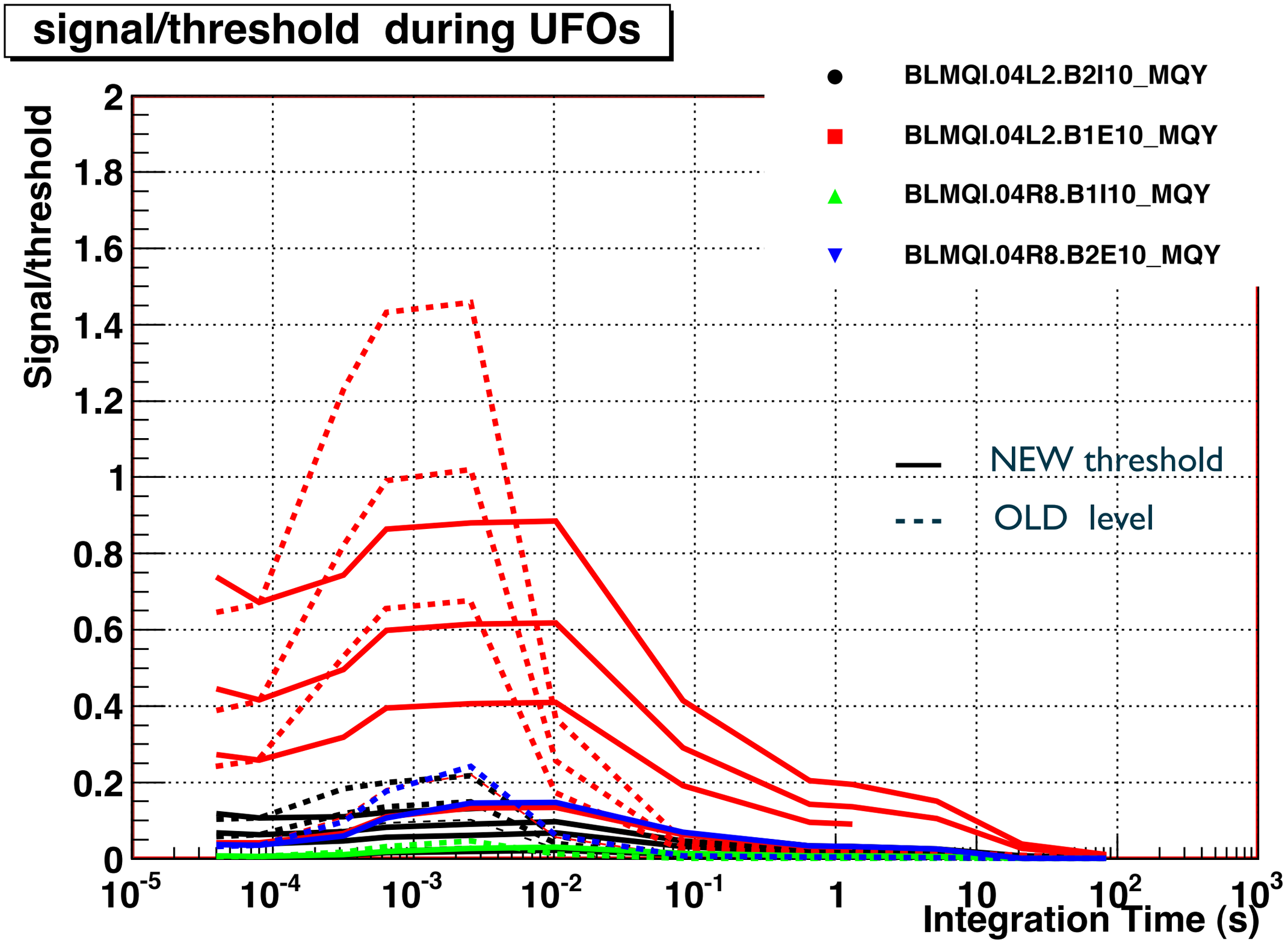
Monitors protecting MKIs. Dumps at 3.5 TeV



Monitors protecting TCTHs. Dumps at 3.5 TeV



Monitors protecting MQYs. Dumps at 3.5 TeV



Monitors protecting MQYs . Dumps at 3.5 TeV