

# First Assessment of the Injection loss in 2016

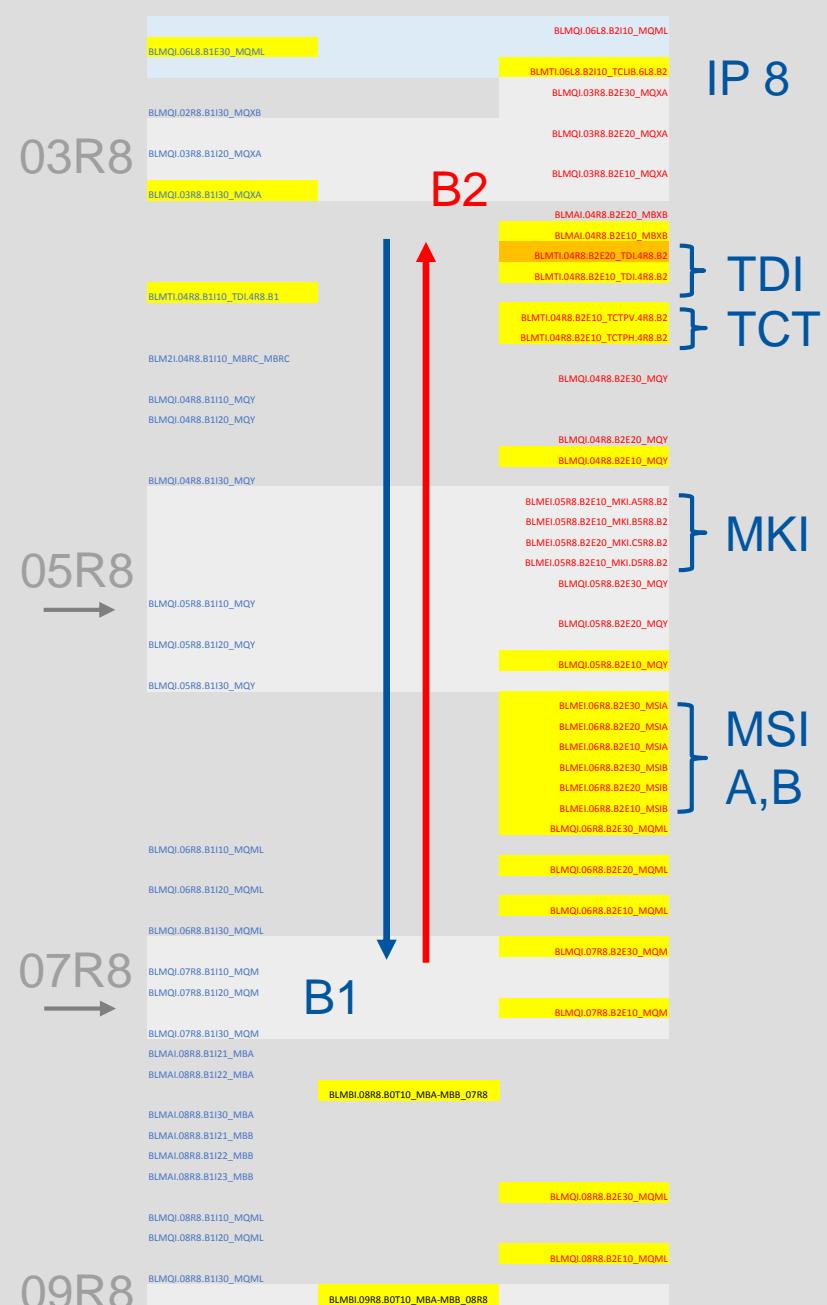
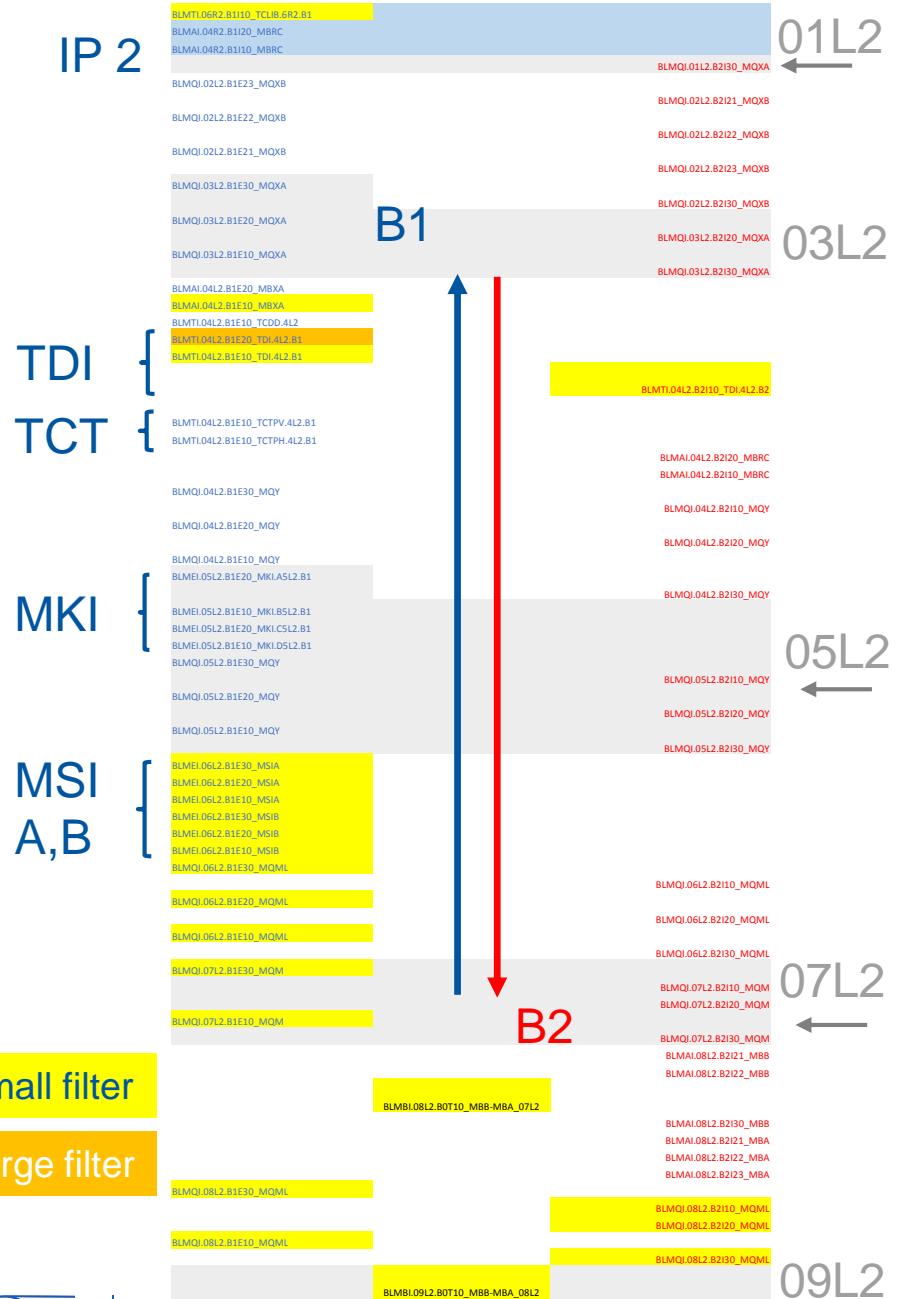
Chen  
TWG Meeting  
02.08.2016



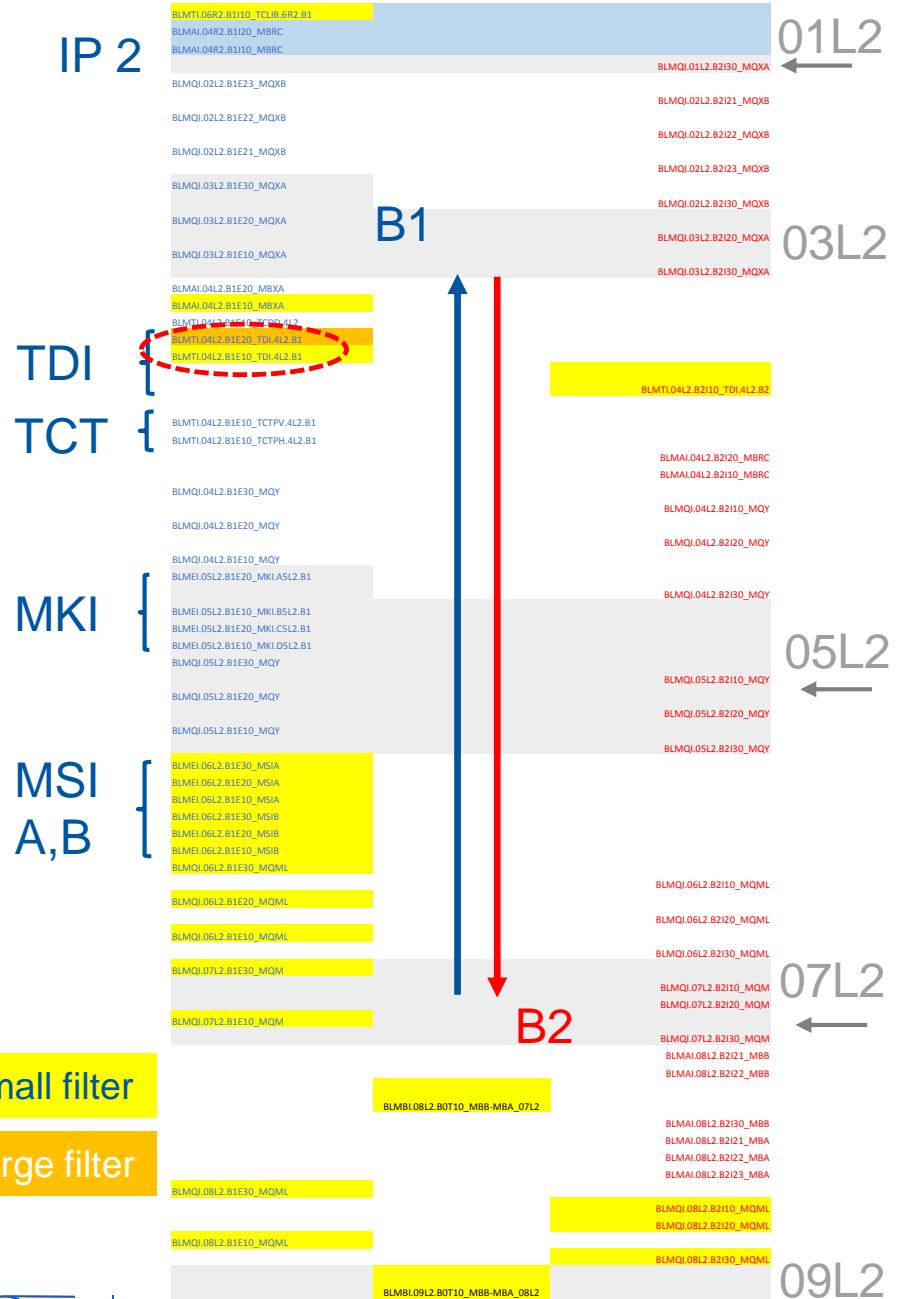
# Current Situation

- 29 families with injection loss related corrections (\_MF, \_RC, \_INJ, \_OI, MKI, MSI, TCT, TDI, TCLI, TCDD)
- 13 Normal families
- 23 BLMs with RC filters (22+1) in IR2
- 26 BLMs with RC filters (25+1) in IR8
- BLM loss during INJPHYS beam mode from June 1<sup>st</sup> to July 25<sup>th</sup> (63 fills)

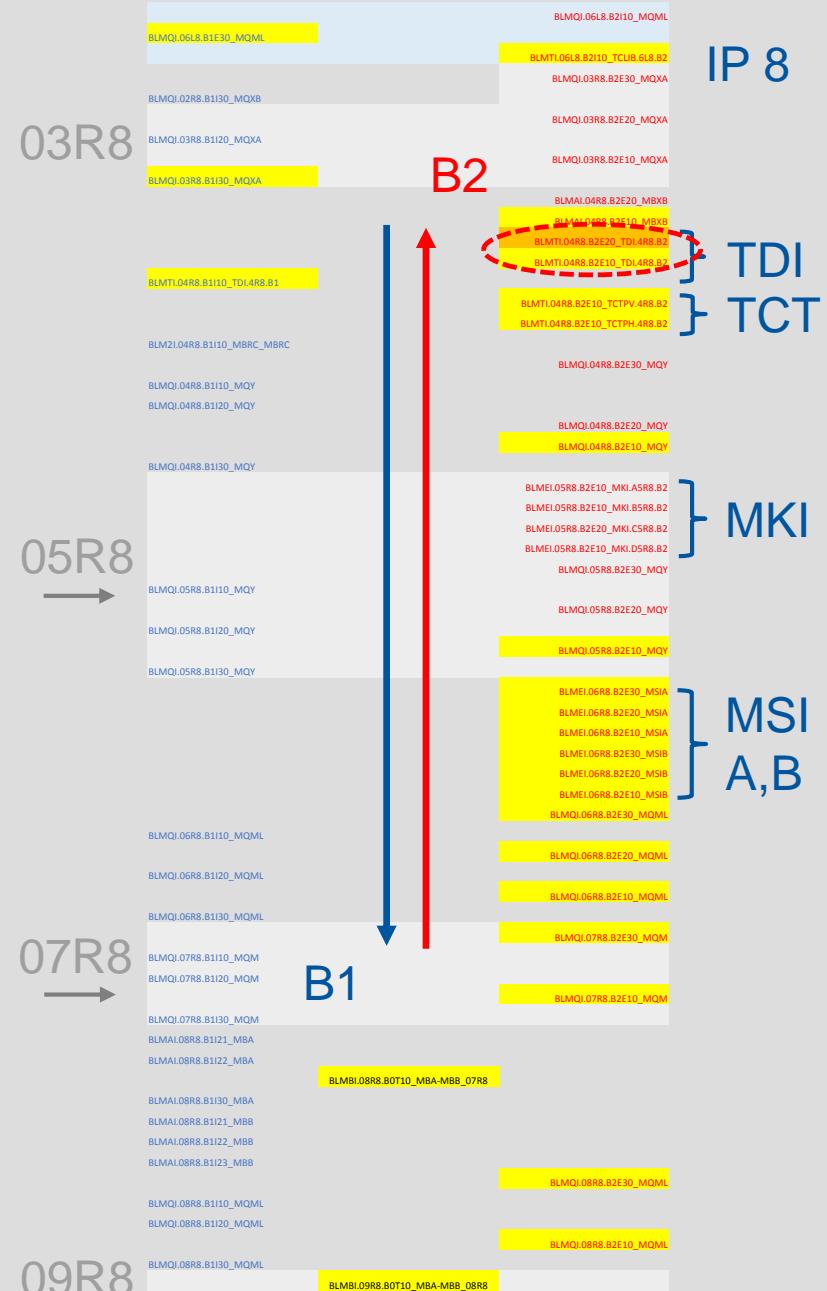
IP 2

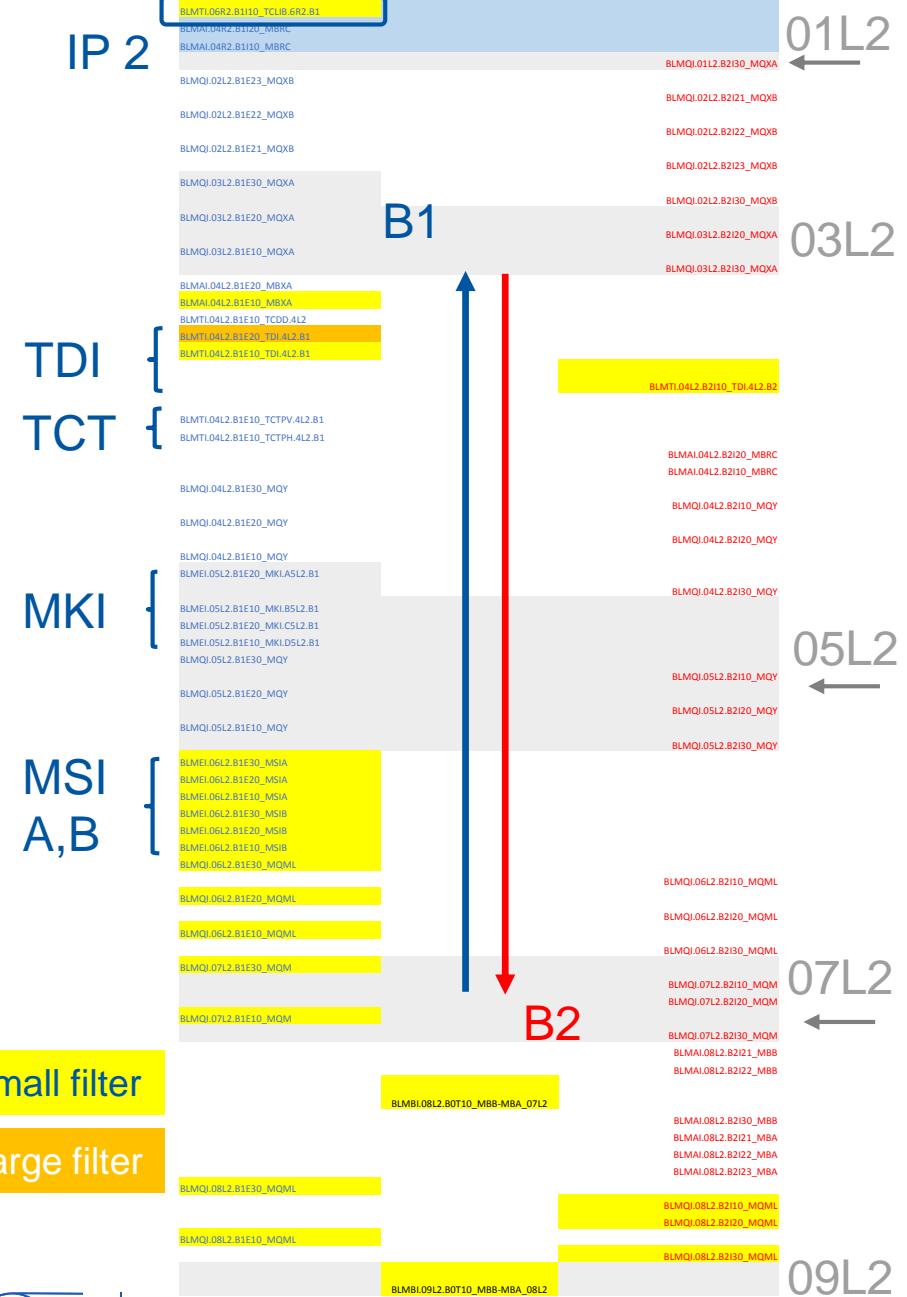


IP 2



IP 8





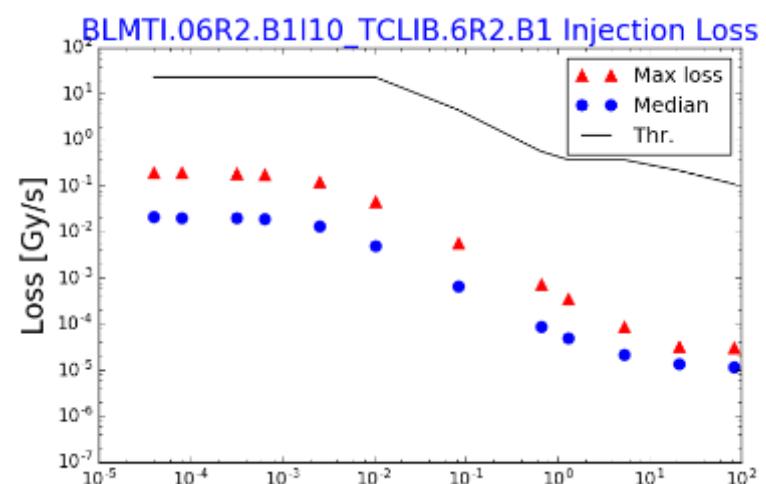
THRI\_TCLI\_RC (1)

THRI\_TCDD (1)

THRI\_TDI\_RC8 (2)

THRI\_TDI\_RC180 (1)

THRI\_TCTVA (2)



IP 2

BLMTI.06R2.B1I10\_TCLI.BR2\_B3

BLMAI.04R2.B1I20\_MBRC

BLMAI.04R2.B1I10\_MBRC

BLMQI.02L2.B1E23\_MQXB

BLMQI.02L2.B1E22\_MQXB

BLMQI.02L2.B1E21\_MQXB

BLMQI.03L2.B1E30\_MQXA

BLMQI.03L2.B1E20\_MQXA

BLMQI.03L2.B1E10\_MQXA

BLMAI.04L2.B1E20\_MBRA

BLMTI.04L2.B1E10\_TCDD.4L2

BLMTI.04L2.B1E10\_TD.I4L2\_B3

BLMTI.04L2.B1E10\_TD.I4L2\_B3

BLMTI.04L2.B1E10\_TCTPV.4L2.B1

BLMTI.04L2.B1E10\_TCTPH.4L2.B1

BLMQI.04L2.B1E30\_MQY

BLMQI.04L2.B1E20\_MQY

BLMQI.04L2.B1E10\_MQY

BLMEI.05L2.B1E20\_MKLA5L2\_B1

BLMEI.05L2.B1E20\_MKI.CS1L2\_B1

BLMEI.05L2.B1E10\_MKD5L2\_B1

BLMQI.05L2.B1E30\_MQY

BLMQI.05L2.B1E20\_MQY

BLMQI.05L2.B1E10\_MQY

BLMEI.06L2.B1E30\_MSA

BLMEI.06L2.B1E20\_MSA

BLMEI.06L2.B1E10\_MSIA

BLMEI.06L2.B1E30\_MSIB

BLMEI.06L2.B1E20\_MSIB

BLMEI.06L2.B1E10\_MSIB

BLMQI.06L2.B1E30\_MOML

BLMQI.06L2.B1E20\_MOML

BLMQI.06L2.B1E10\_MOML

BLMQI.07L2.B1E30\_MOM

BLMQI.07L2.B1E20\_MOM

BLMQI.07L2.B1E10\_MOM

BLMBI.08L2.B0T10\_MBB-MBA\_07L2

BLMAI.08L2.B2I30\_MBB

BLMAI.08L2.B2I21\_MBA

BLMAI.08L2.B2I22\_MBA

BLMAI.08L2.B2I23\_MBA

BLMQI.08L2.B1E30\_MOML

BLMQI.08L2.B1E20\_MOML

BLMQI.08L2.B1E10\_MOML

BLMBI.09L2.B0T10\_MBB-MBA\_08L2

BLMAI.09L2.B2I30\_MBB

BLMAI.09L2.B2I21\_MBA

BLMAI.09L2.B2I22\_MBA

BLMAI.09L2.B2I23\_MBA

01L2

03L2

05L2

07L2

09L2

8/2/2016

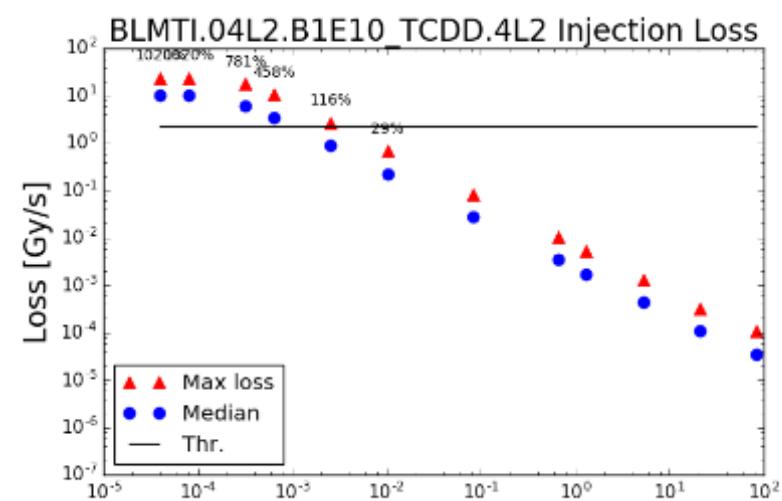
THRI\_TCLI\_RC (1)

THRI\_TCDD (1) (not connected to BIS)

THRI\_TDI\_RC8 (2)

THRI\_TDI\_RC180 (1)

THRI\_TCTVA (2)



IP 2

BLMTI.06R2.B1I10\_TCLI.BR2\_B3

BLMAI.04R2.B1I20\_MBRG

BLMAI.04R2.B1I10\_MBRG

BLMQI.02L2.B1E23\_MQXB

BLMQI.02L2.B1E22\_MQXB

BLMQI.02L2.B1E21\_MQXB

BLMQI.03L2.B1E30\_MOXA

BLMQI.03L2.B1E20\_MOXA

BLMQI.03L2.B1E10\_MOXA

BLMAI.04L2.B1E20\_MRXA

BLMTI.04L2.B1E10\_TCDD.4L2

BLMTI.04L2.B1E20\_TD.4L2\_B5

BLMTI.04L2.B1E30\_TD.4L2\_B5

B1

BLMQI.01L2.B2I30\_MOXA

BLMQI.02L2.B2I21\_MQXB

BLMQI.02L2.B2I22\_MQXB

BLMQI.02L2.B2I23\_MQXB

BLMQI.02L2.B2I30\_MOXA

BLMQI.03L2.B2I30\_MOXA

BLMQI.03L2.B2I20\_MOXA

BLMQI.03L2.B2I30\_MOXA

01L2

TDI

TCT {

MKI

MSI  
A,B

Small filter

Large filter



8/2/2016

03L2

05L2

07L2

09L2

THRI\_TCLI\_RC (1)

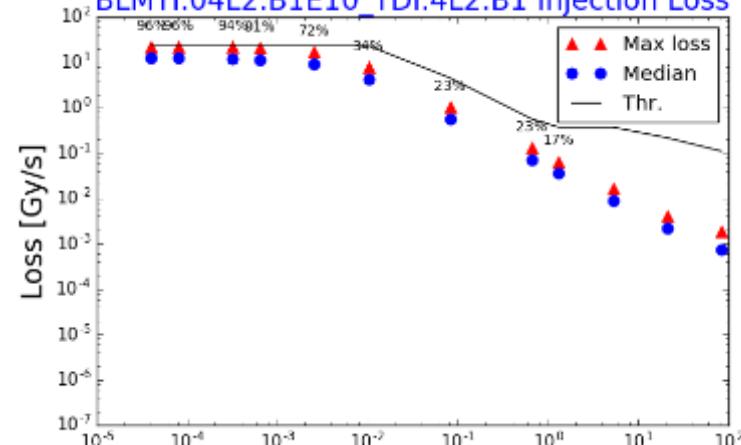
THRI\_TCDD (1)

THRI\_TDI\_RC8 (2)

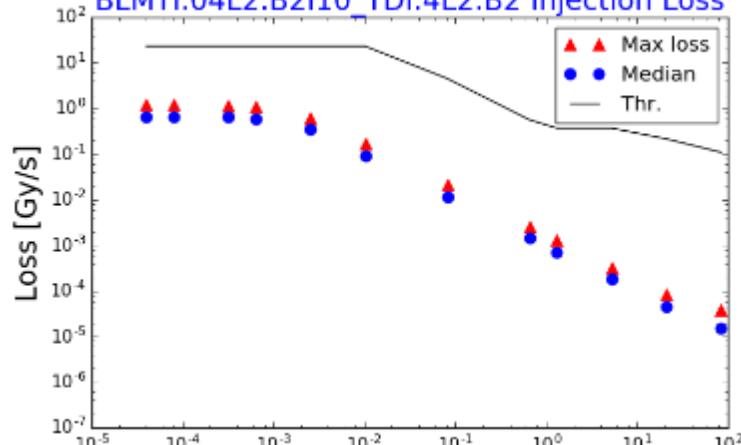
THRI\_TDI\_RC180 (1)

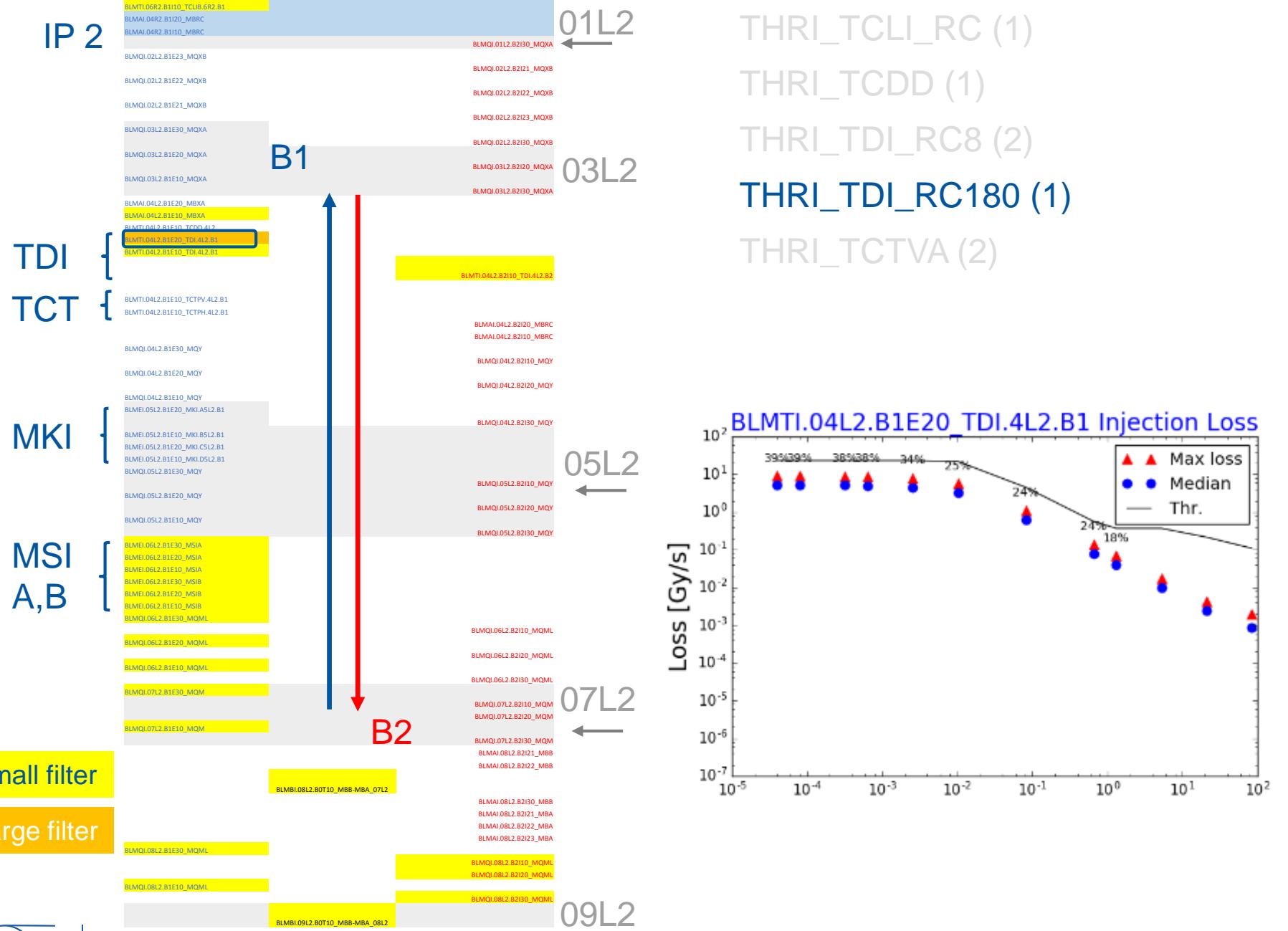
THRI\_TCTVA (2)

BLMTI.04L2.B1E10\_TDI.4L2.B1 Injection Loss

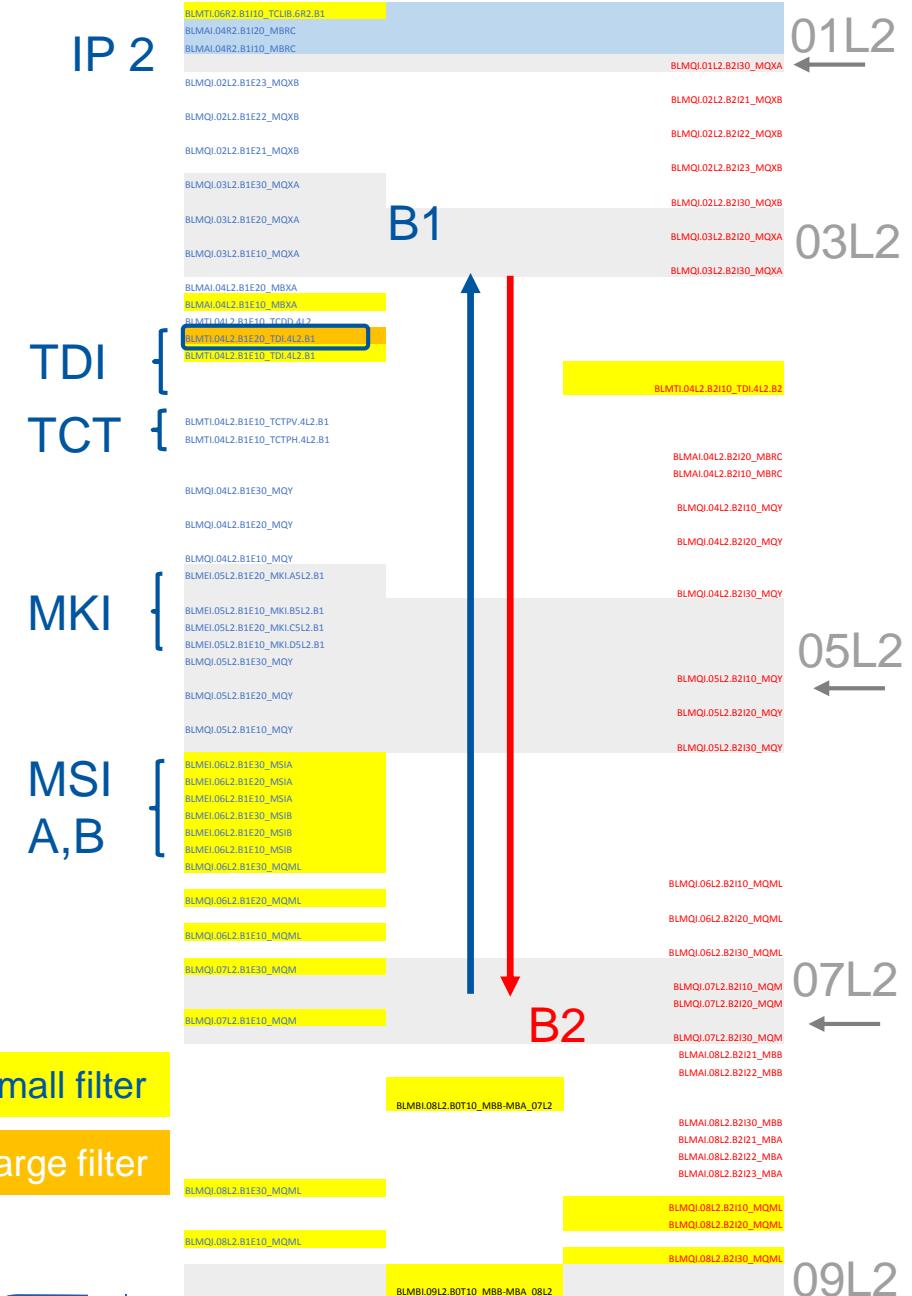


BLMTI.04L2.B2I10\_TDI.4L2.B2 Injection Loss





IP 2



8/2/2016

THRI\_TCLI\_RC (1)

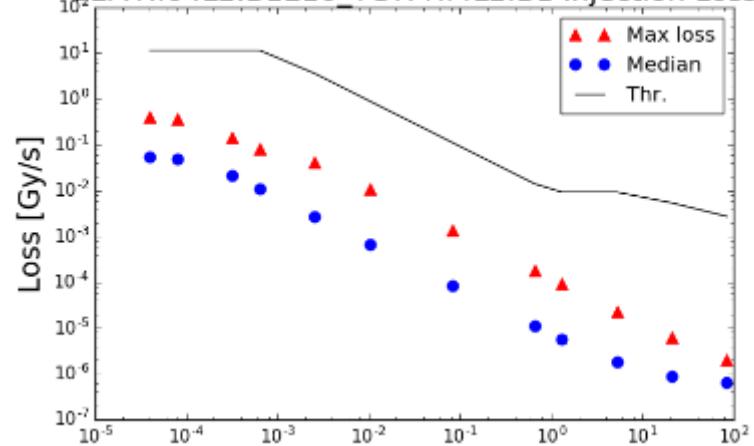
THRI\_TCDD (1)

THRI\_TDI\_RC8 (2)

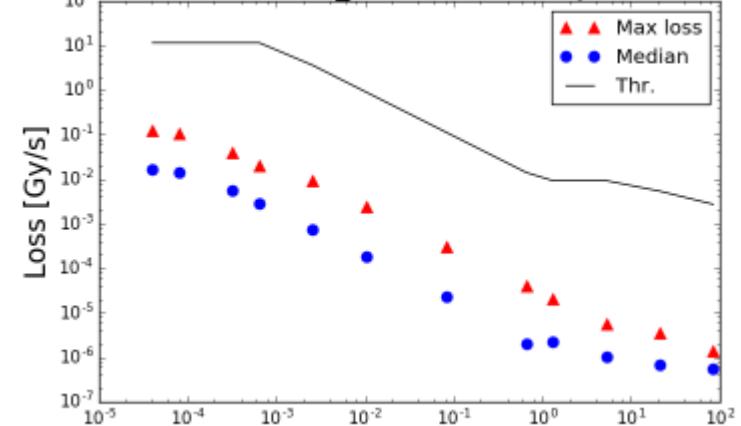
THRI\_TDI\_RC180 (1)

THRI\_TCTVA (2)

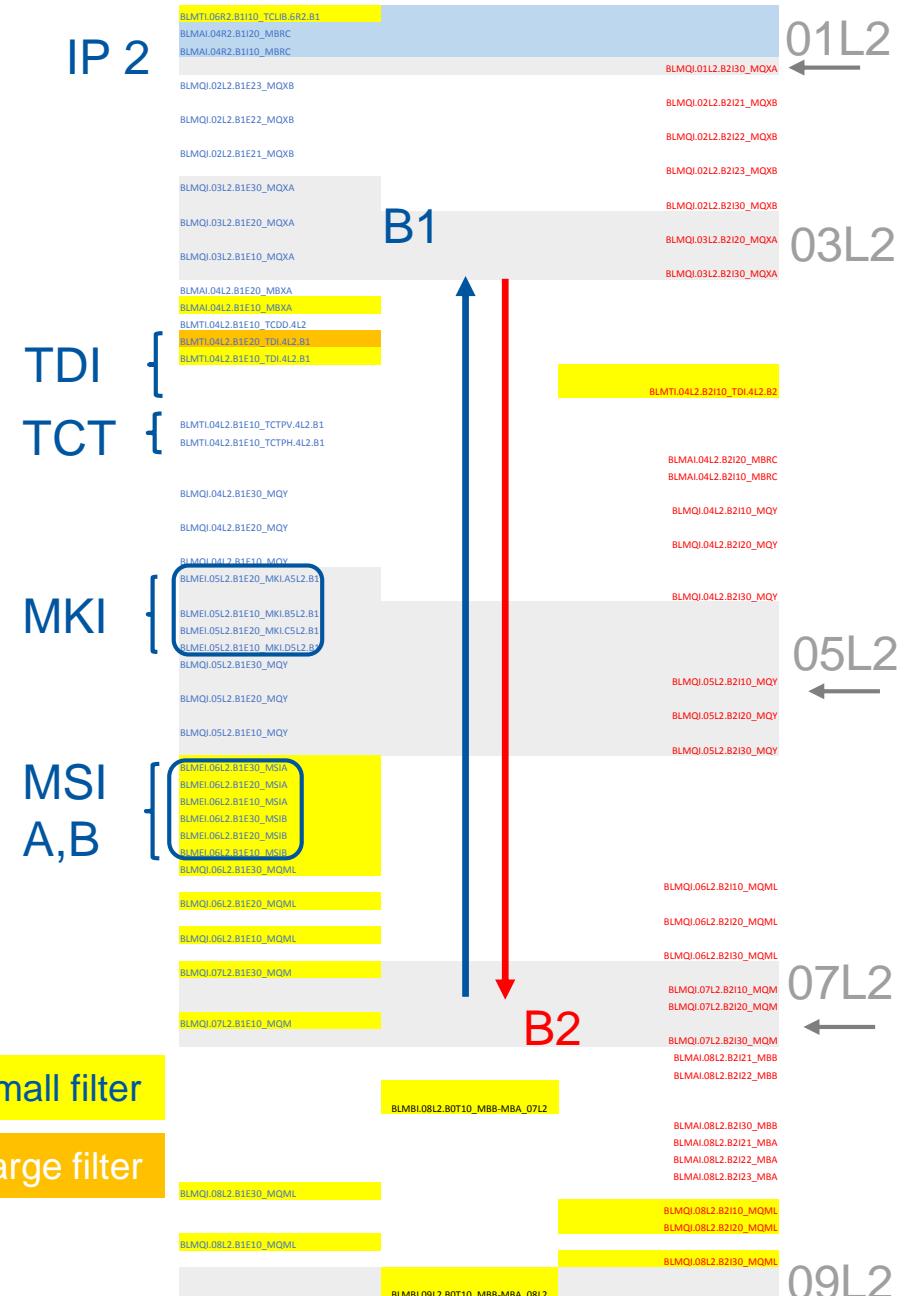
BLMTI.04L2.B1E10\_TCTPH.4L2.B1 Injection Loss



BLMTI.04L2.B1E10\_TCTPV.4L2.B1 Injection Loss

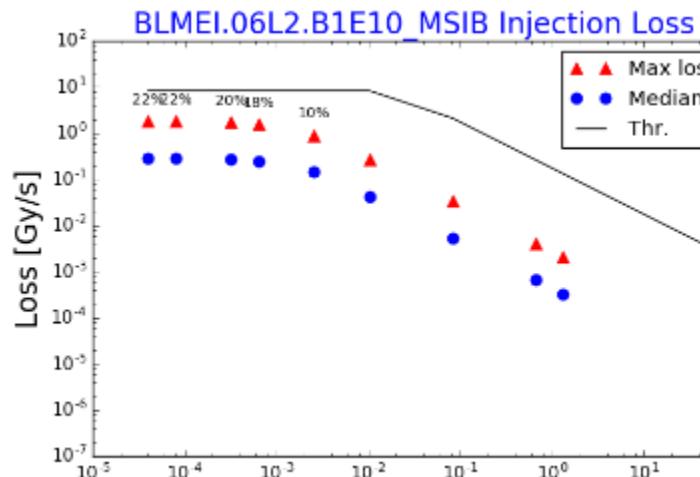
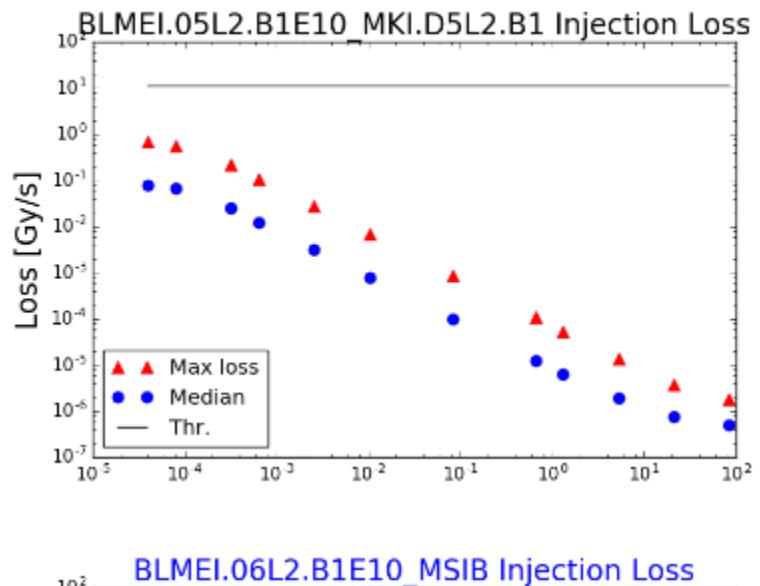


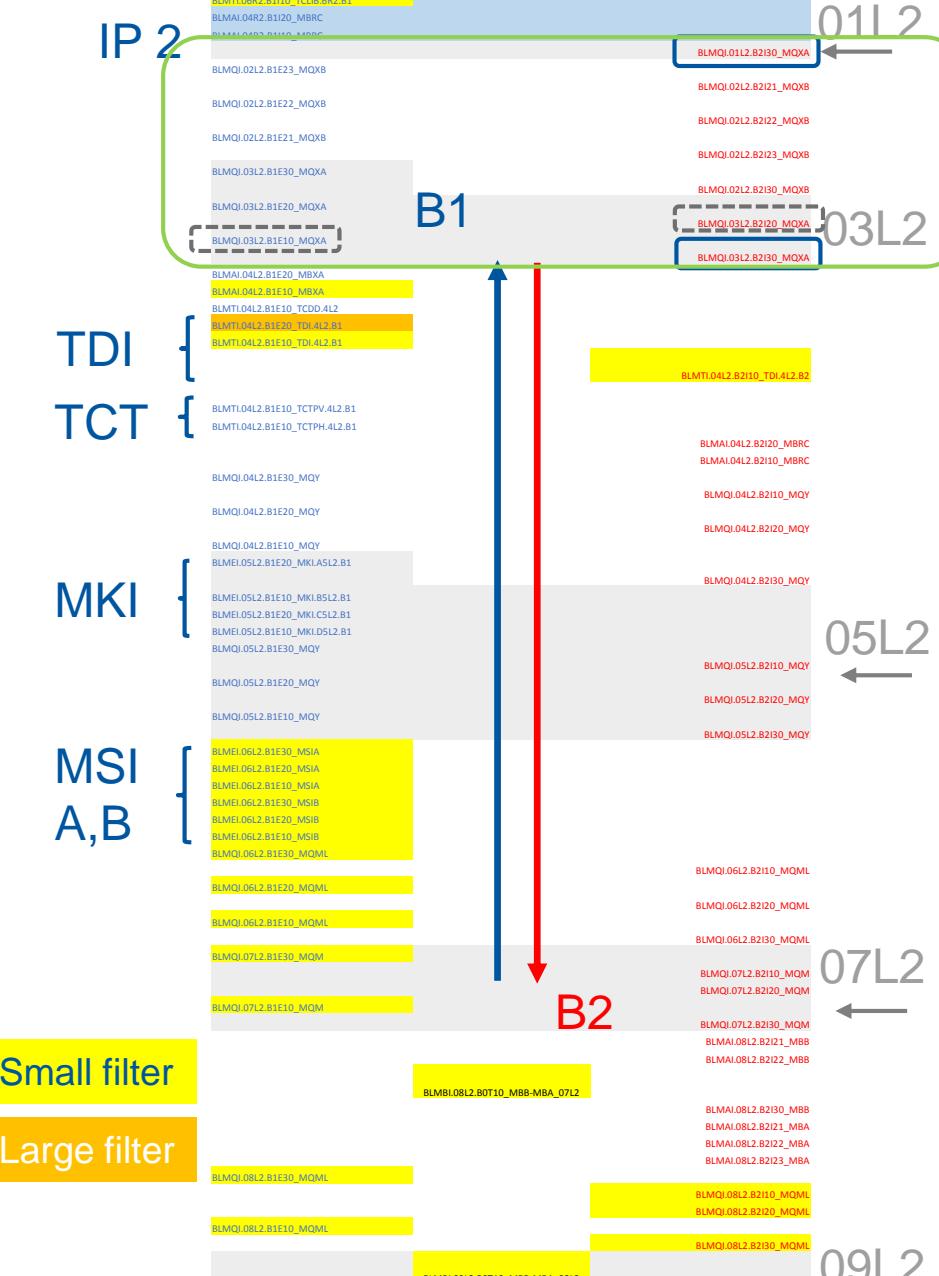
IP 2



THRI\_MKI (4)

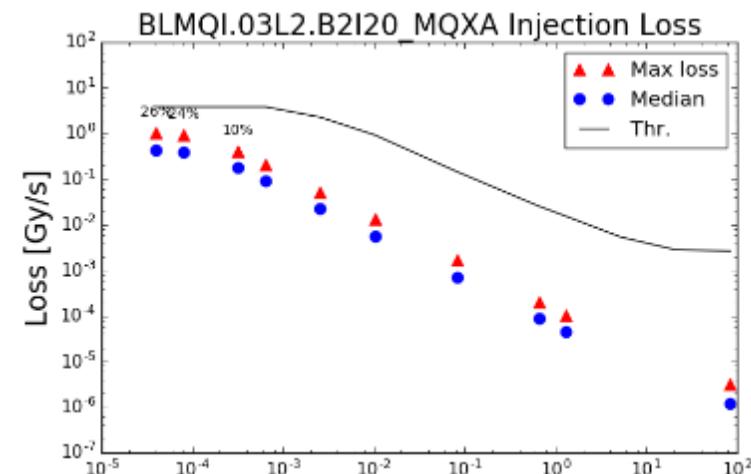
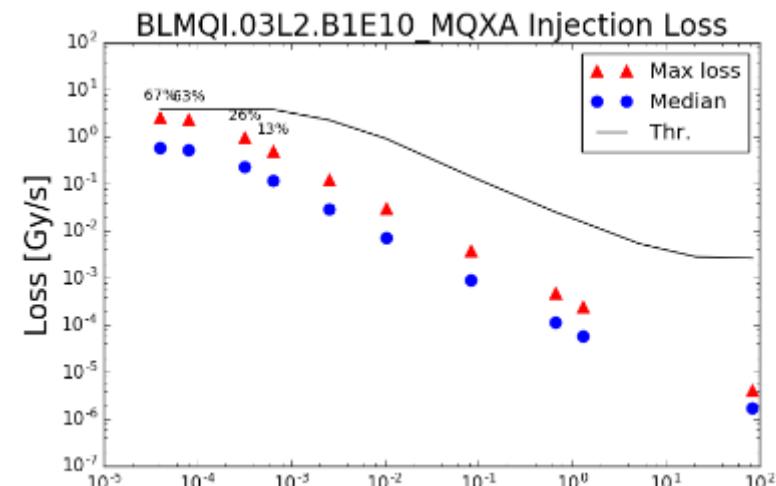
THRI\_MSI\_RC (6)



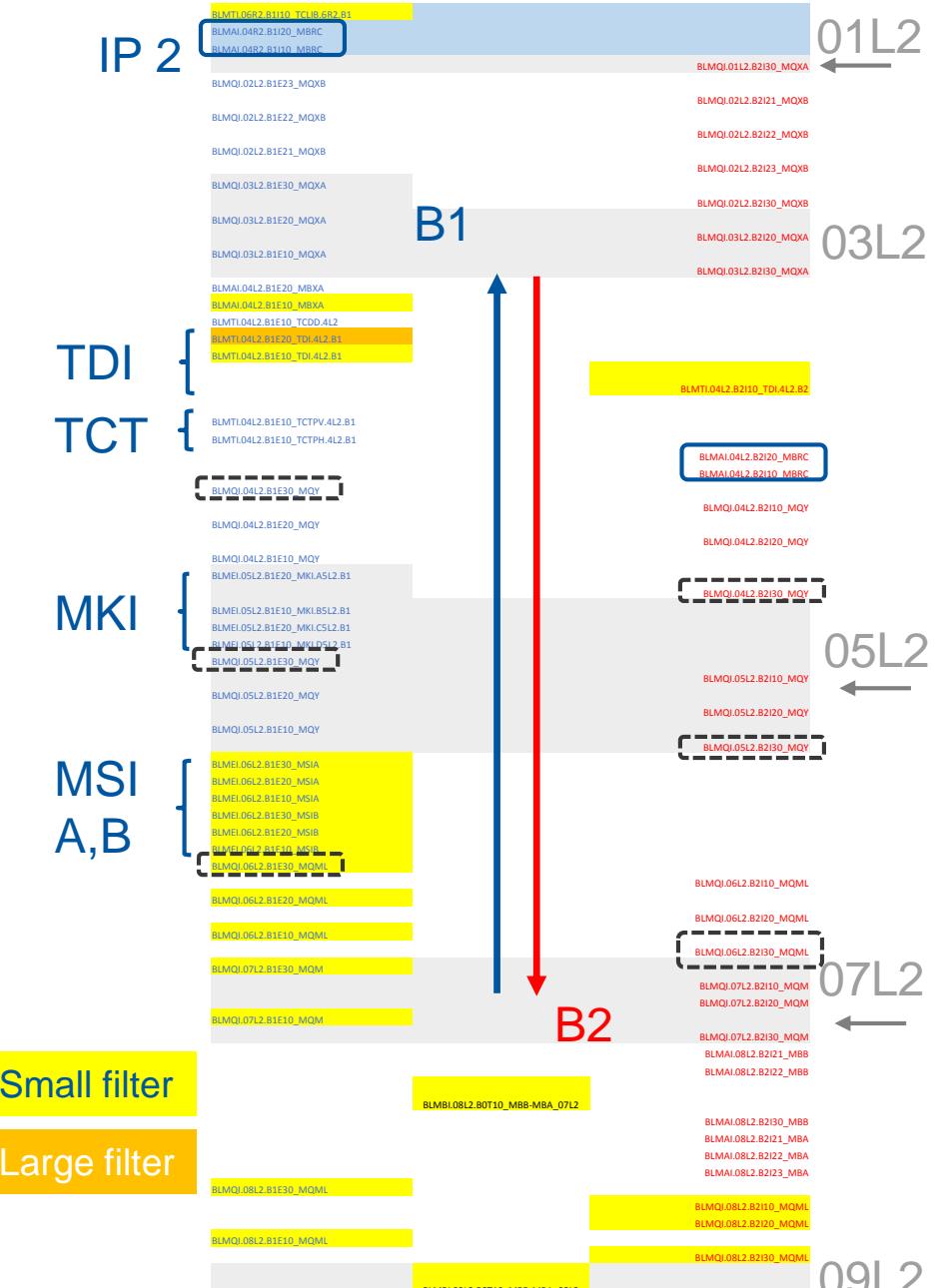


8/2/2016

THRI.IP28.P1\_MQXA\_FT (1)  
 THRI.IP28.P2\_MQXA (2)  
 THRI.IP28.P3\_MQXA\_FT (1)  
 THRI.IP28.P3\_MQXA\_INJ\_FT (2)  
 THRI.IP28.P3\_MQXB\_FT (1)



IP 2



8/2/2016

THRI.LS.P12\_MBRC\_MF (4)

THRI.LS.P2\_MBX\_MF

THRI.LS.P1\_MBX\_RC

THRI.LS.P1\_MQM\_MF

THRI.LS.P1\_MQM\_RC\_INJ

THRI.LS.P1\_MQY

THRI.LS.P1\_MQY\_MF

THRI.LS.P2\_MQM\_MF

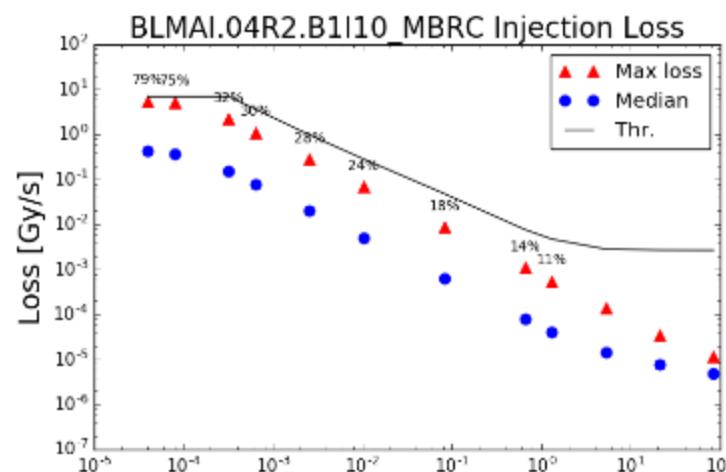
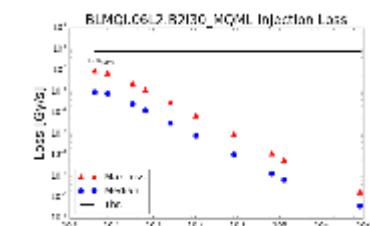
THRI.LS.P2\_MQM\_RC\_INJ

THRI.LS.P2\_MQY

THRI.LS.P3\_MQM (1)

THRI.LS.P3\_MQM\_RC (1)

THRI.LS.P3\_MQY (4)



IP 2

BLMTI.06R2.B1I10\_TCLIB.BR2\_B3  
BLMAI.04R2.B1I20\_MBRC  
BLMAI.04R2.B1I10\_MBRC

BLMQI.02L2.B1E23\_MQXB

BLMQI.02L2.B1E22\_MQXB

BLMQI.02L2.B1E21\_MQXB

BLMQI.03L2.B1E30\_MQXA

BLMQI.03L2.B1E20\_MQXA

BLMQI.03L2.B1E10\_MQXA

BLMAI.04L2.B1E20\_MRXA  
BLMAI.04L2.B1E10\_MRXA

BLMTI.04L2.B1E10\_TCDD.4L2\_B1

BLMTI.04L2.B1E20\_TD.I4L2\_B1

BLMTI.04L2.B1E10\_TD.I4L2\_B1

BLMTI.04L2.B1E10\_TCTPV.4L2.B1

BLMTI.04L2.B1E10\_TCTPH.4L2.B1

BLMQI.04L2.B1E30\_MQY

BLMQI.04L2.B1E20\_MQY

BLMQI.04L2.B1E10\_MQY

BLMEI.05L2.B1E20\_MKLA5L2\_B1

BLMEI.05L2.B1E10\_MKLB5L2\_B1

BLMEI.05L2.B1E20\_MKLC5L2\_B1

BLMQI.05L2.B1E30\_MQY

BLMQI.05L2.B1E20\_MQY

BLMQI.05L2.B1E10\_MQY

BLMEI.06L2.B1E30\_MSA

BLMEI.06L2.B1E20\_MSA

BLMEI.06L2.B1E10\_MSA

BLMEI.06L2.B1E30\_MSB

BLMEI.06L2.B1E20\_MSB

BLMEI.06L2.B1E10\_MSB

BLMQI.06L2.B1E30\_MQML

BLMQI.06L2.B1E20\_MQML

BLMQI.06L2.B1E10\_MQML

BLMQI.07L2.B1E30\_MQML

BLMQI.07L2.B1E20\_MQML

BLMQI.07L2.B1E10\_MQML

BLMBL.08L2.B0T10\_MBB-MBA\_07L2

BLMAI.08L2.B2I20\_MBB

BLMAI.08L2.B2I21\_MBA

BLMAI.08L2.B2I22\_MBA

BLMAI.08L2.B2I23\_MBA

BLMQI.08L2.B1E30\_MOMI

BLMQI.08L2.B1E20\_MOMI

BLMQI.08L2.B1E10\_MOMI

BLMBL.09L2.B0T10\_MBB-MBA\_08L2

BLMQI.09L2.B2I20\_MOMI

BLMQI.09L2.B2I21\_MOMI

BLMQI.09L2.B2I22\_MOMI

BLMQI.09L2.B2I23\_MOMI

01L2

B1

03L2

TDI {  
TCT {

MKI {  
MSI  
A,B {

Small filter

Large filter

8/2/2016

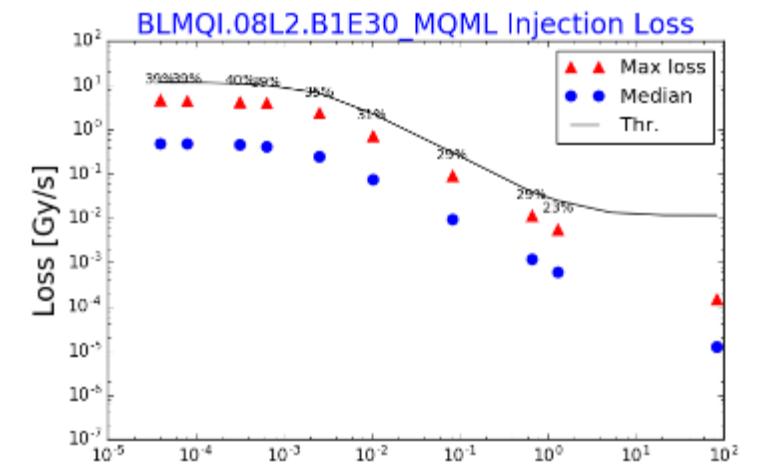
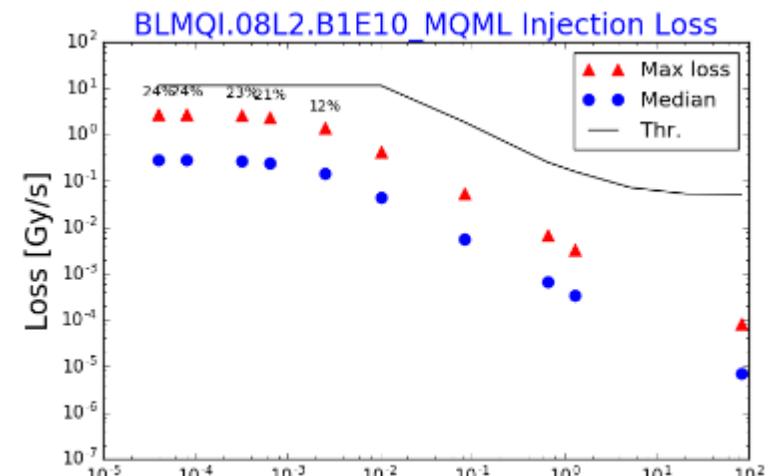
THRI.DS.P1\_MQM\_RC (2)

THRI.DS.P1\_MQM\_MF (1)

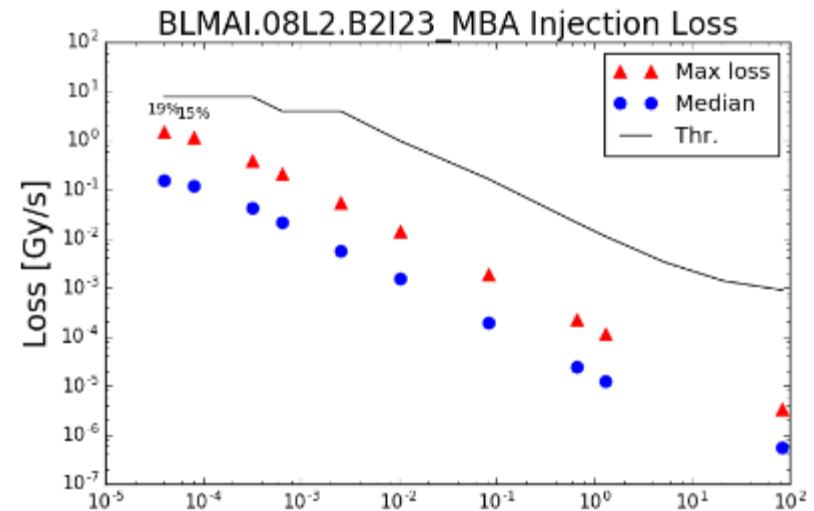
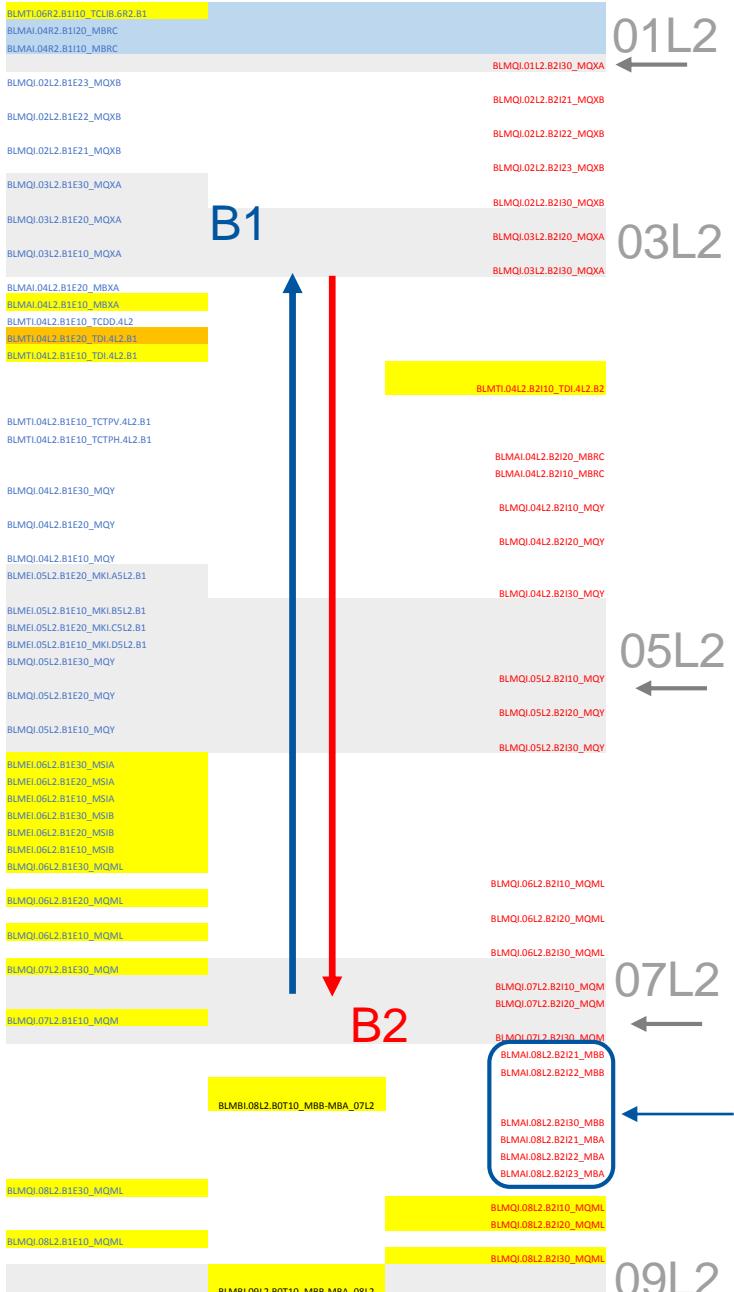
THRI.DS.P2\_MQM\_MF (1)

THRI.DS.P3\_MQM\_MF (1)

THRI.DS.P3\_MQM\_RC\_INJ (2)



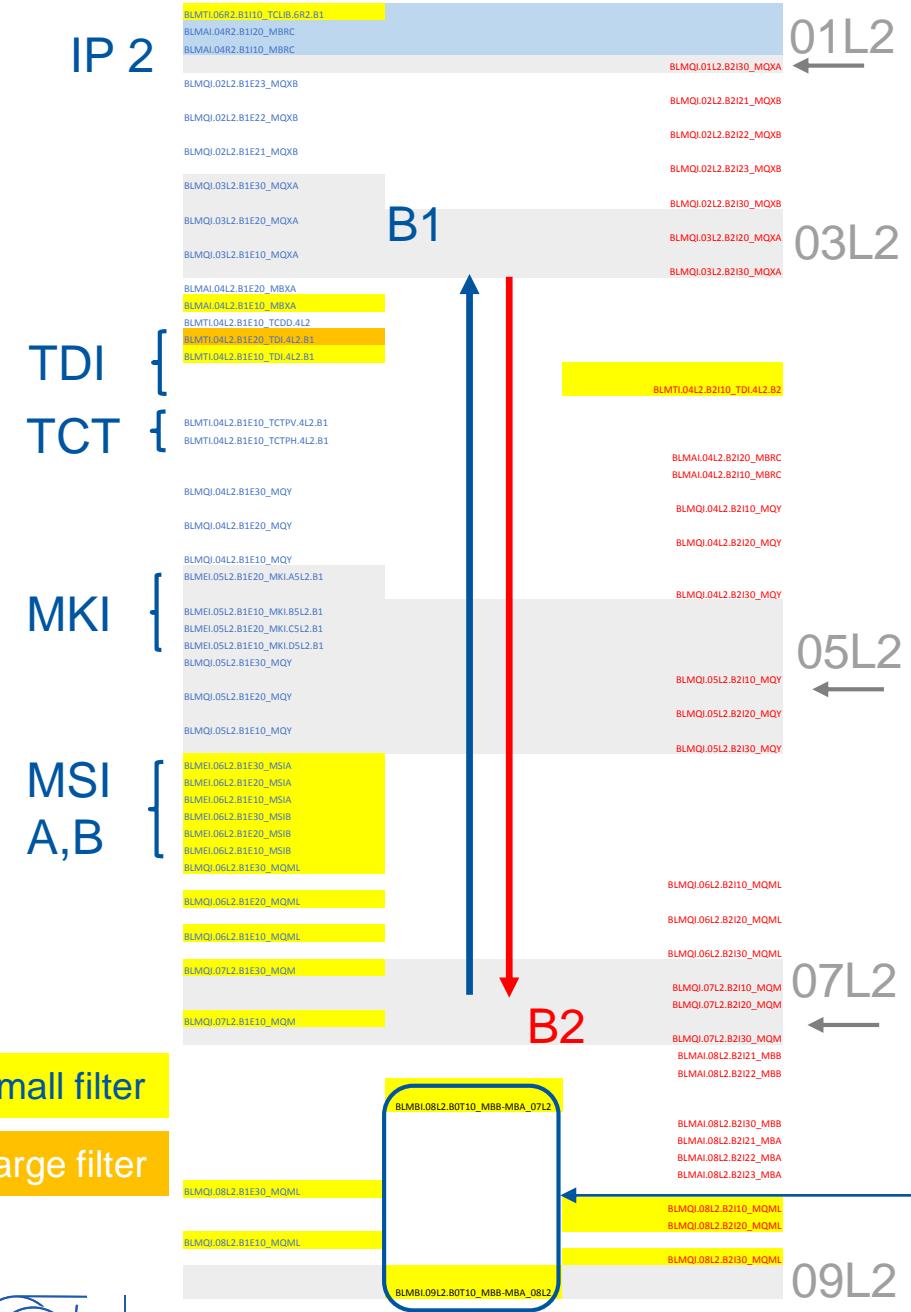
IP 2



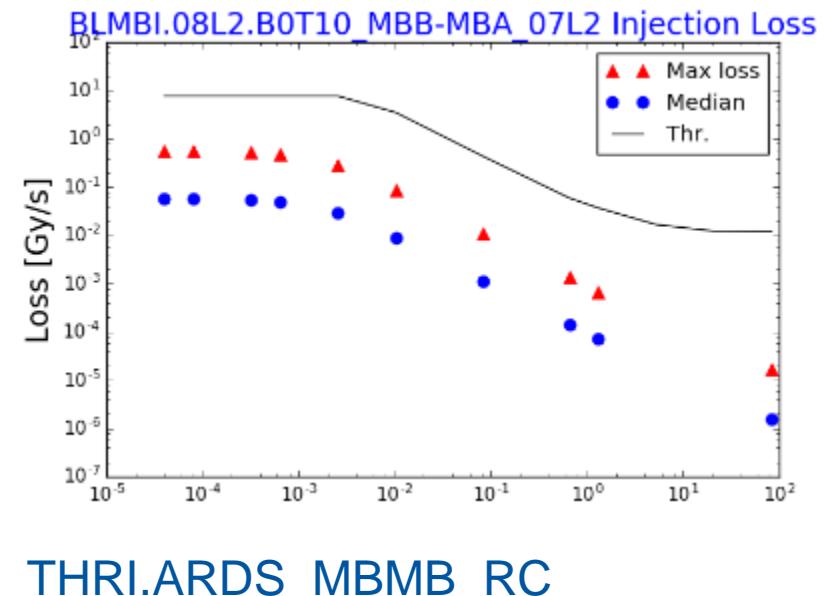
THRI\_B2.2\_MB (5)  
THRI\_B2.3\_MB (1)

2 Legacy Families

IP 2



8/2/2016



THRI.ARDS\_MBMB\_RC

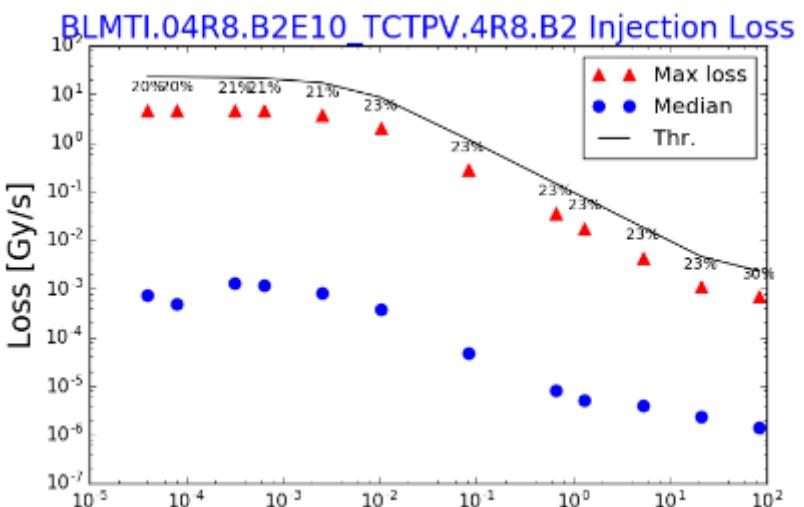
THRI\_TCLI\_RC (1)

THRI\_TCT\_RC (1)

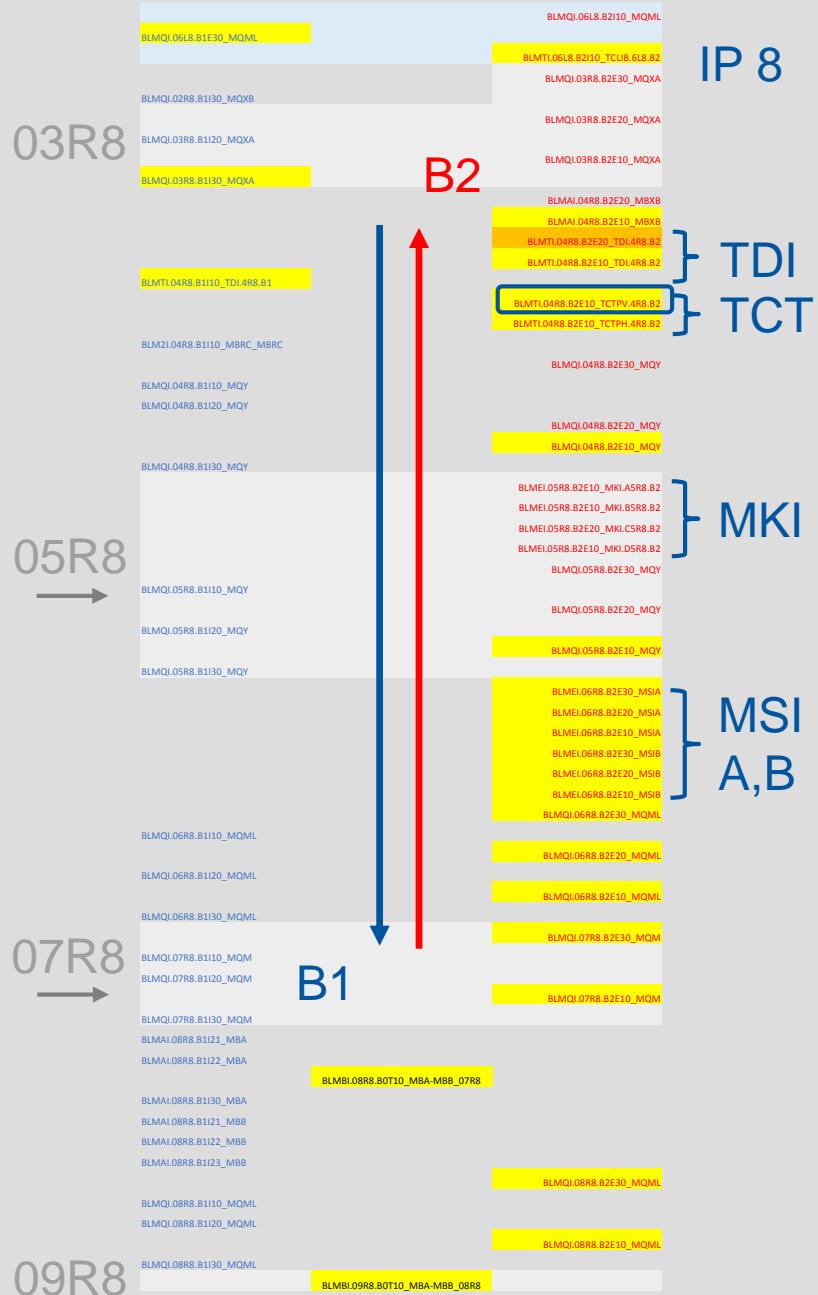
THRI\_TCTVB\_OI\_RC8 (1)

THRI\_TDI\_RC8 (2)

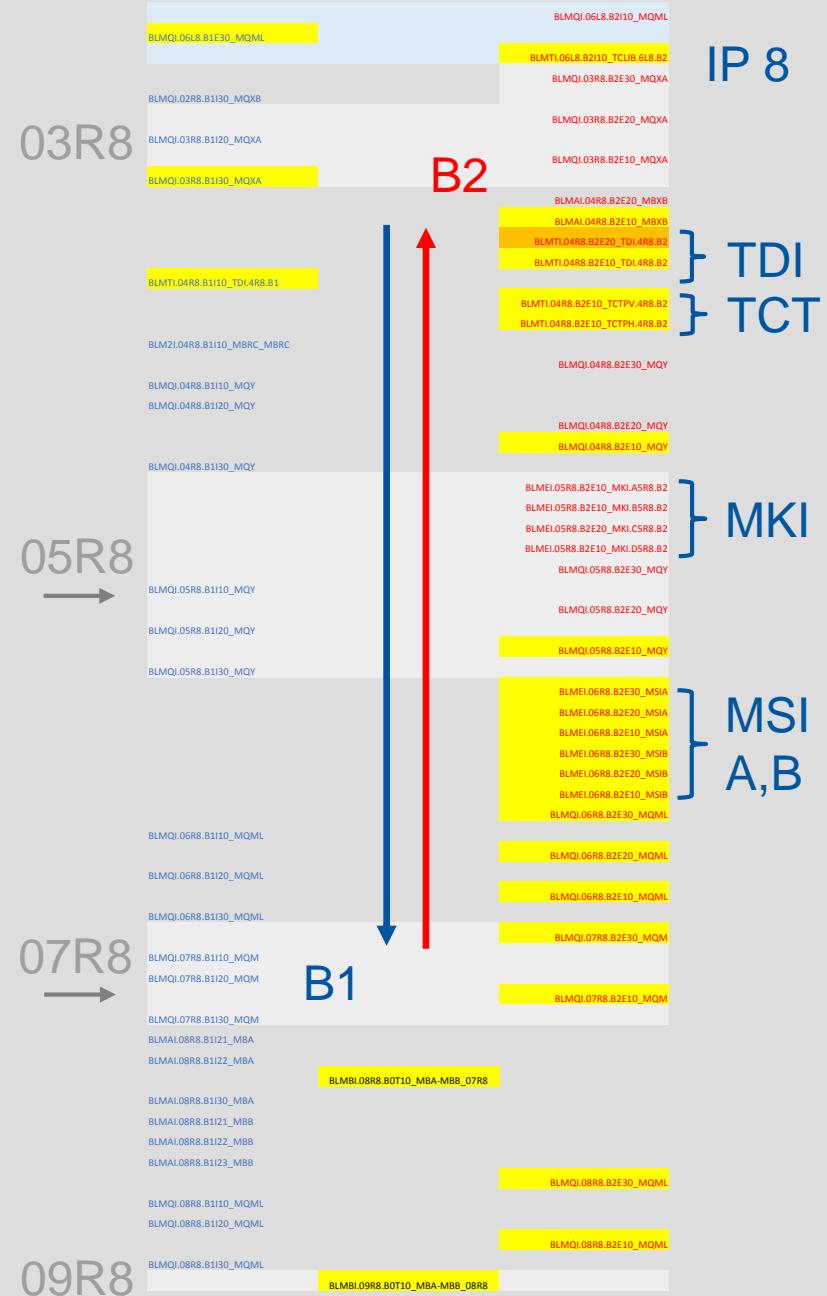
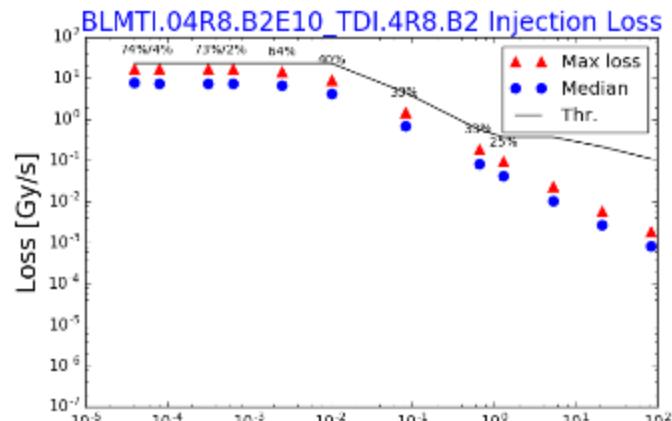
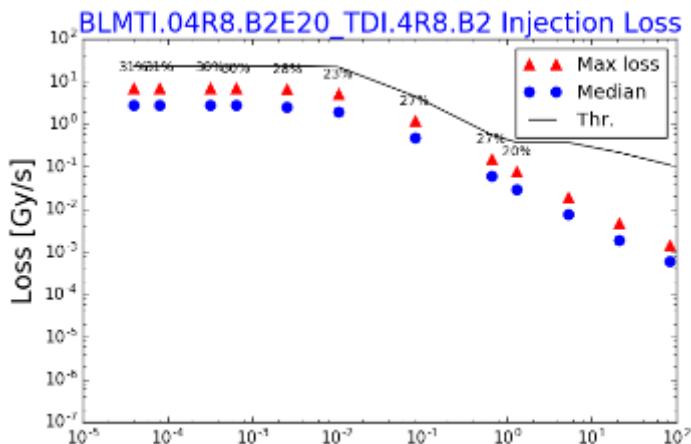
THRI\_TDI\_RC180 (1)



THRI.TCTVB\_OI\_RC8 Long RS increased  
(ECR0048)



THRI\_TCLI\_RC (1)  
 THRI\_TCT\_RC (1)  
 THRI\_TCTVB\_OI\_RC8 (1)  
**THRI\_TDI\_RC8 (2)**  
**THRI\_TDI\_RC180 (1)**



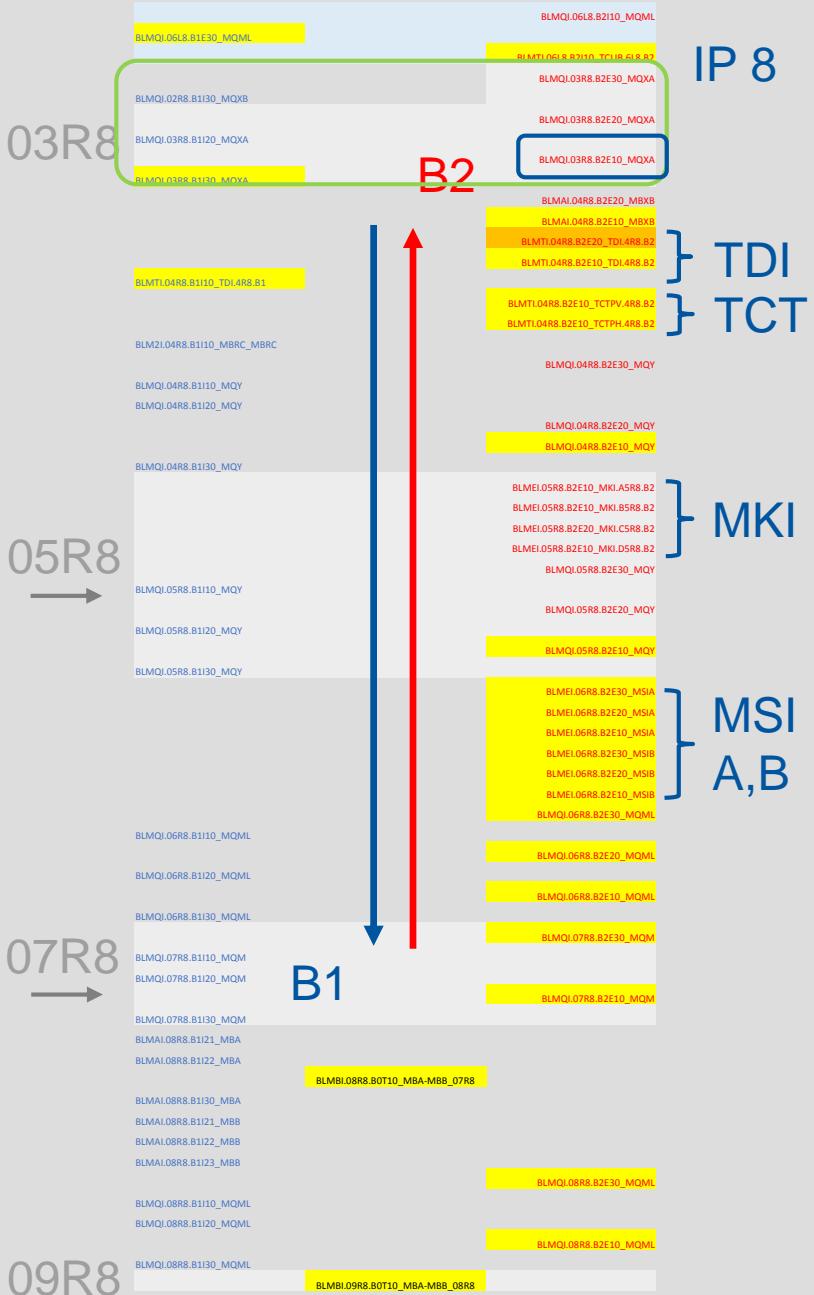
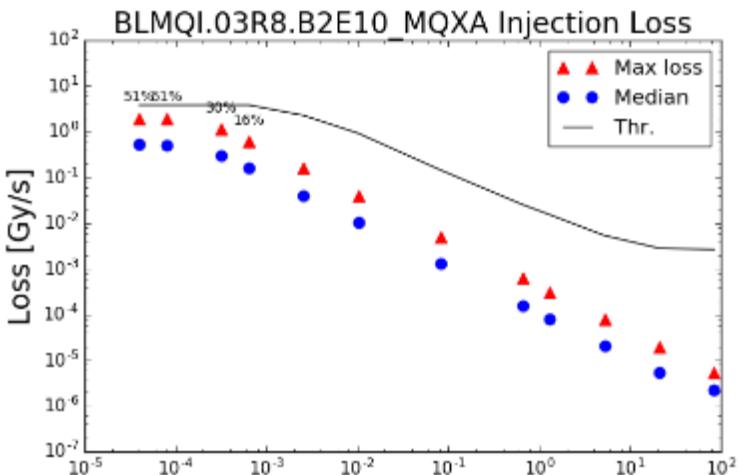
THRI.IP28.P1\_MQXA\_FT (1)

THRI.IP28.P2\_MQXA (2)

THRI.IP28.P3\_MQXA\_INJ\_FT (1)

THRI.IP28.P3\_MQXA\_RC\_INJ\_FT (1)

THRI.IP28.P3\_MQXB\_FT (1)



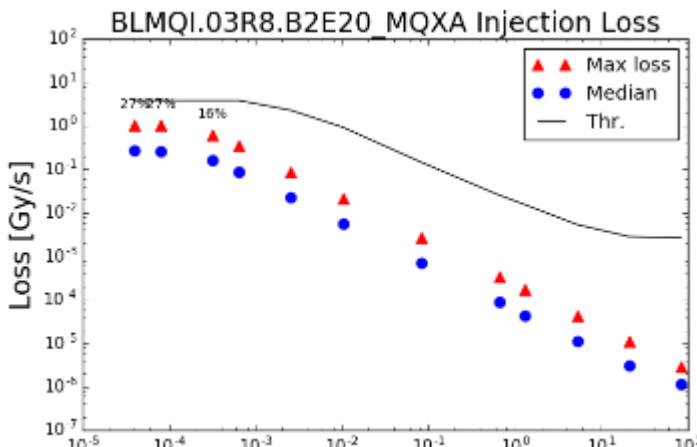
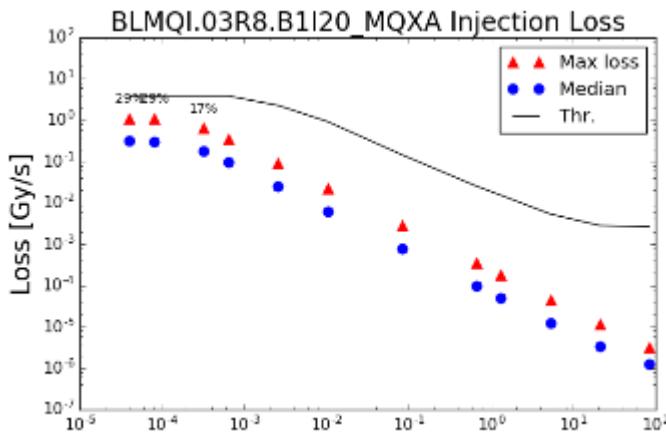
THRI.IP28.P1\_MQXA\_FT (1)

THRI.IP28.P2\_MQXA (2)

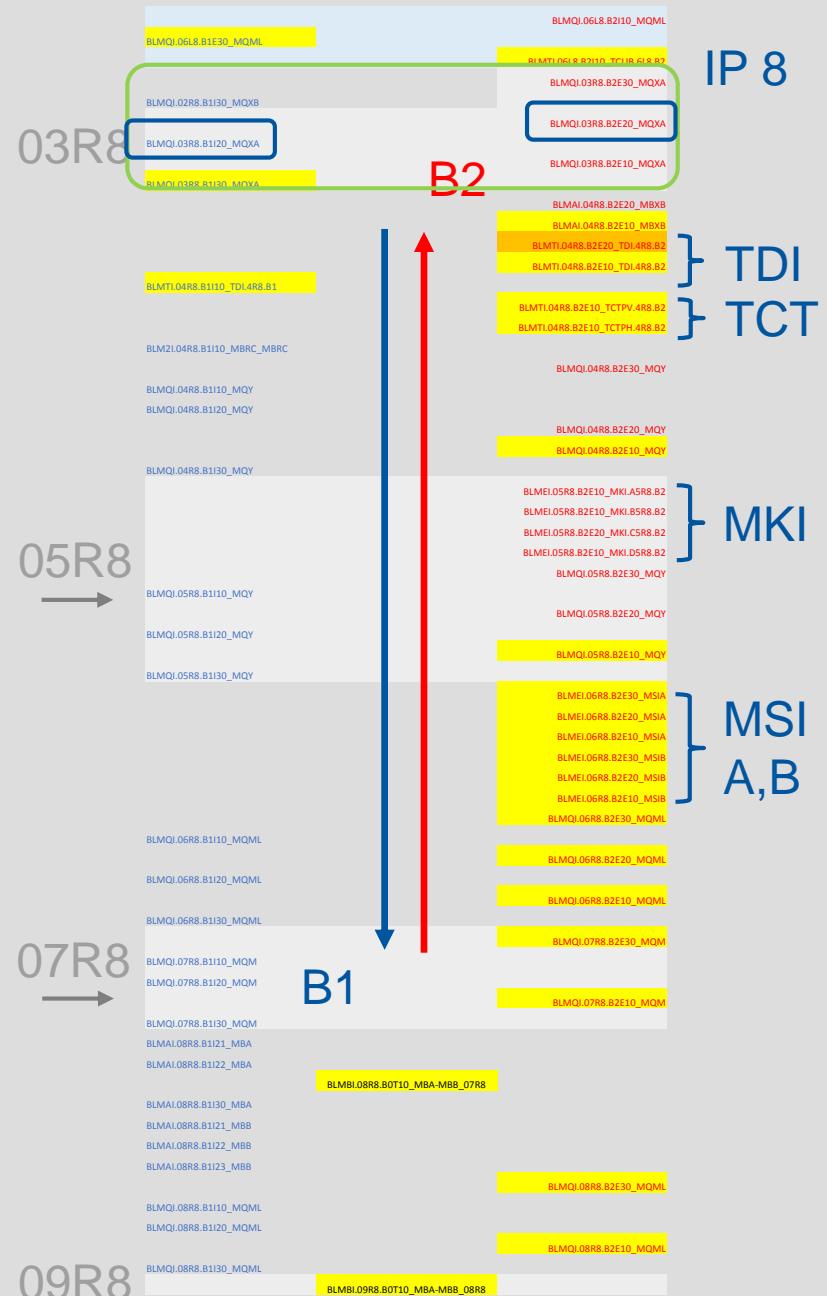
THRI.IP28.P3\_MQXA\_INJ\_FT (1)

THRI.IP28.P3\_MQXA\_RC\_INJ\_FT (1)

THRI.IP28.P3\_MQXB\_FT (1)



8/2/2016



20



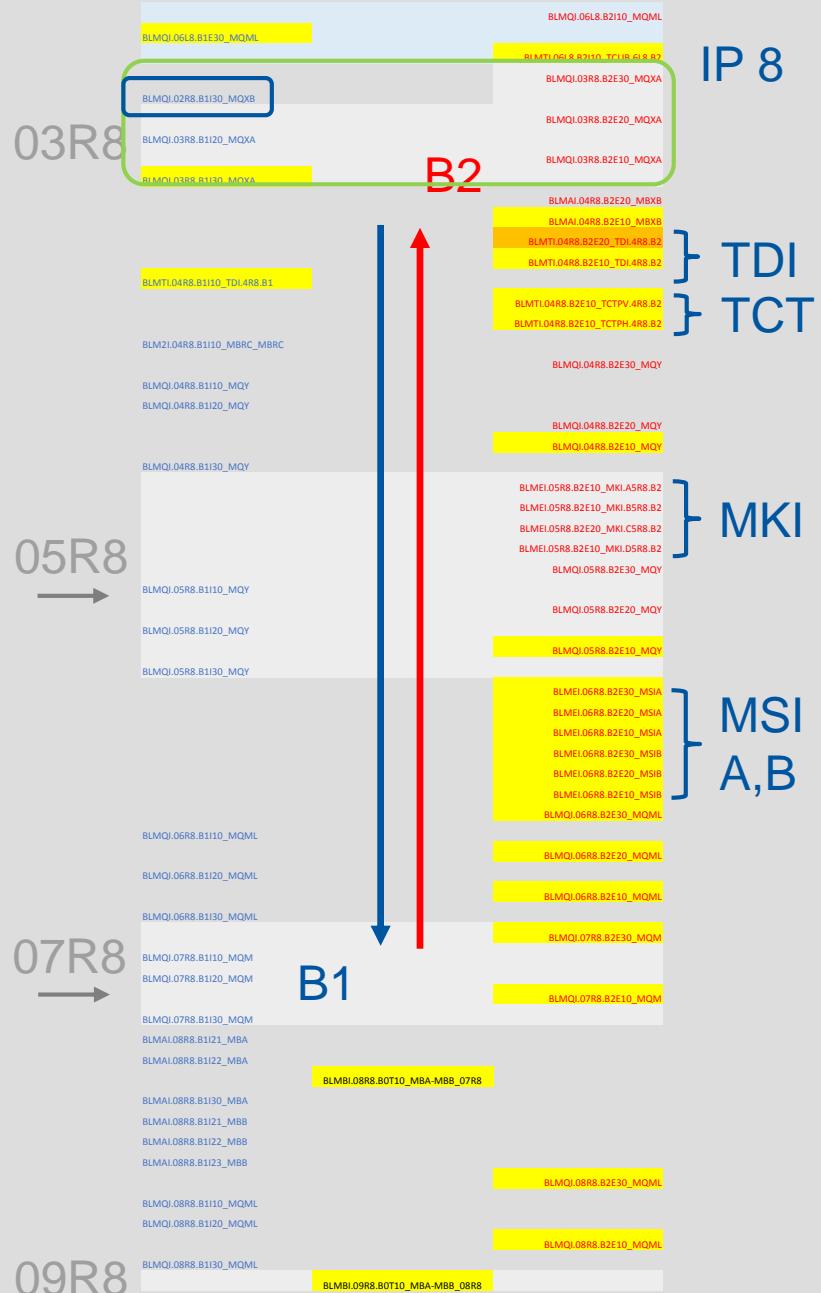
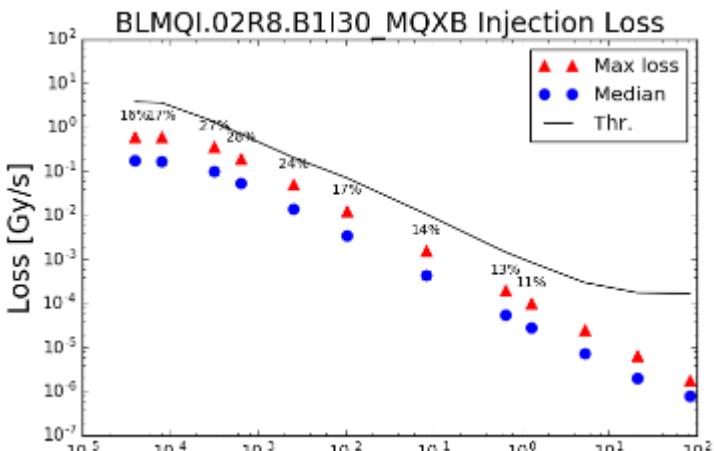
THRI.IP28.P1\_MQXA\_FT (1)

THRI.IP28.P2\_MQXA (2)

THRI.IP28.P3\_MQXA\_INJ\_FT (1)

THRI.IP28.P3\_MQXA\_RC\_INJ\_FT (1)

THRI.IP28.P3\_MQXB\_FT (1)



# Summary

- Highest loss to threshold ratio during the injection is in the TDI families, which will be mitigated after the filter change
- BLMs in the MQXA,B families without INJ corrections have seen losses near warning levels during the injection.
- MKI families have flat thresholds
- All LS.P3\_MQxxx families have flat thresholds