
CERN

SEM BLMs removed around TDE

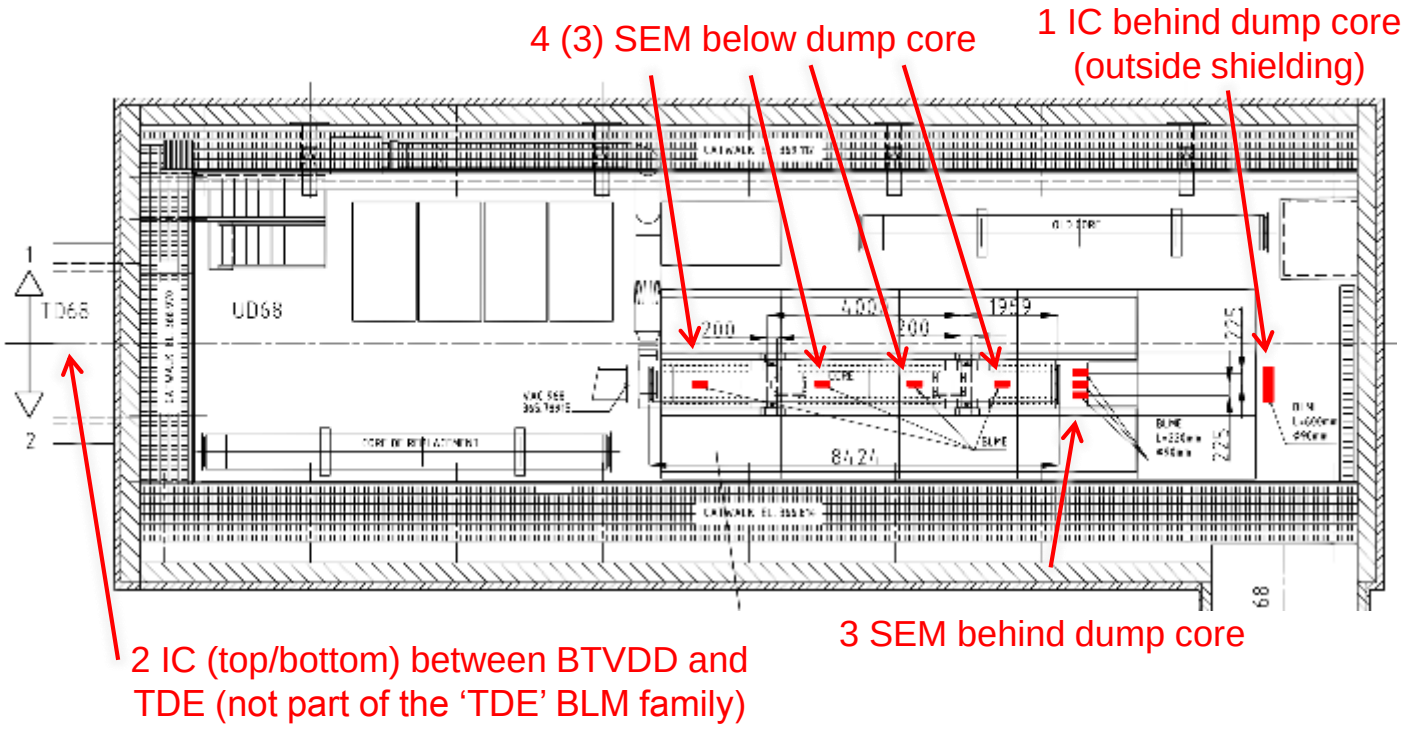
N.Magnin – MPP 01.09.2017
C. Wiesner, W. Bartmann, C. Bracco

Dump BLMs: Overview

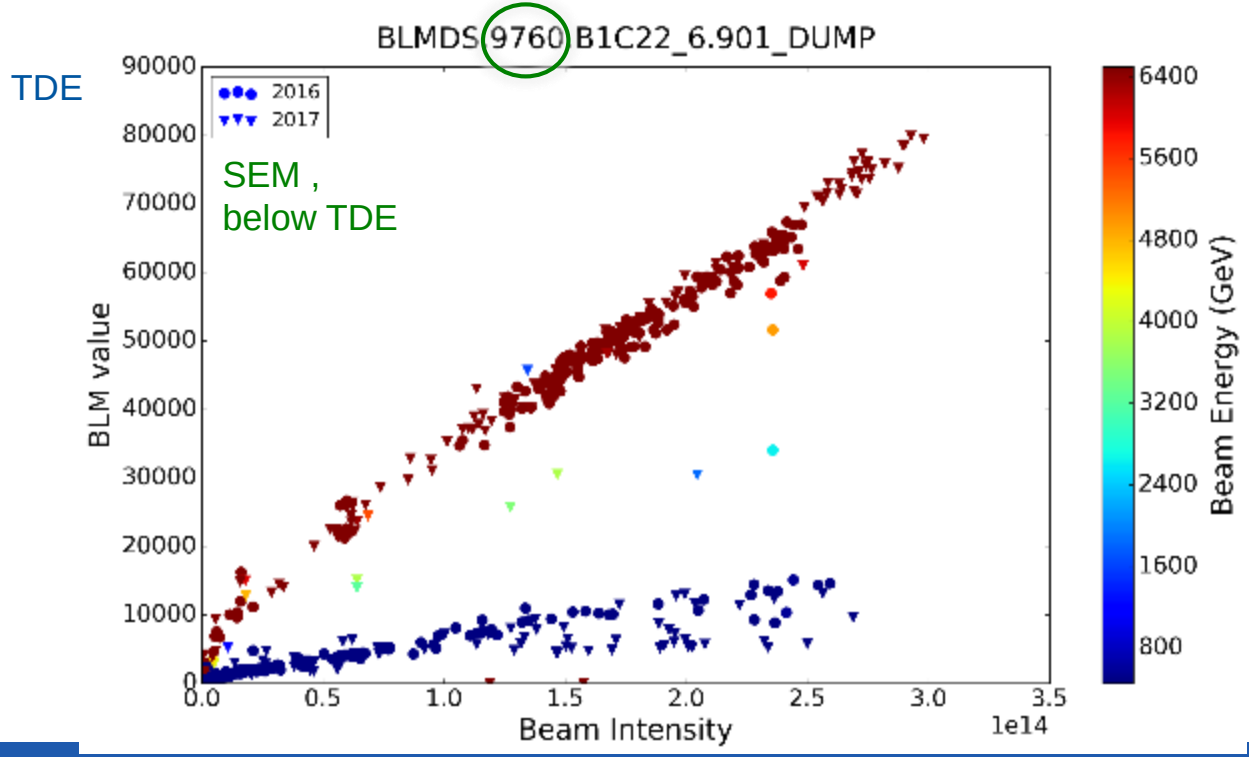
DEVICE_NAME	PROPERTY_NAME	BEAM	GROUP	FAMILY	LIMIT_RATIO	NOISE_THRESHOLD	RC_FACTOR	IS_MASKED
HC.BLM.SR6.C	BLMDI.9822.B1C10_13.200_DUMP	B1	TDE	TDE	0	1	1	0
HC.BLM.SR6.C	BLMDS.9697.B1C10_0.668_DUMP	B1	TDE	TDE	0.004694	3000	1	0
HC.BLM.SR6.C	BLMDS.9723.B1C20_3.119_DUMP	B1	TDE	TDE	0.006352	3000	1	0
HC.BLM.SR6.C	BLMDS.9742.B1C21_5.105_DUMP	B1	TDE	TDE	0	3000	1	0
HC.BLM.SR6.C	BLMDS.9760.B1C22_6.901_DUMP	B1	TDE	TDE	0	3000	1	0
HC.BLM.SR6.C	BLMDS.9775.B1C31_8.501_DUMP	B1	TDE	TDE	1	3000	1	0
HC.BLM.SR6.C	BLMDS.9775.B1L30_8.501_DUMP	B1	TDE	TDE	0.007741	3000	1	0
HC.BLM.SR6.C	BLMDS.9775.B1R32_8.501_DUMP	B1	TDE	TDE	0.157004	3000	1	0
HC.BLM.SR6.C	BLMDI.9822.B2C10_13.200_DUMP	B2	TDE	TDE	0	1	1	0
HC.BLM.SR6.C	BLMDS.9698.B2C10_0.750_DUMP	B2	TDE	TDE	0.021740524	3000	1	0
HC.BLM.SR6.C	BLMDS.9723.B2C20_3.278_DUMP	B2	TDE	TDE	0.041263698	3000	1	0
HC.BLM.SR6.C	BLMDS.9742.B2C21_5.187_DUMP	B2	TDE	TDE	0.080861589	3000	1	0
HC.BLM.SR6.C	BLMDS.9775.B2C31_8.501_DUMP	B2	TDE	TDE	1	3000	1	0
HC.BLM.SR6.C	BLMDS.9775.B2L30_8.501_DUMP	B2	TDE	TDE	0.146085705	3000	1	0
HC.BLM.SR6.C	BLMDS.9775.B2R32_8.501_DUMP	B2	TDE	TDE	0.196243514	3000	1	0

No more XPOC check on TDE IC, as lower limit is 0 !

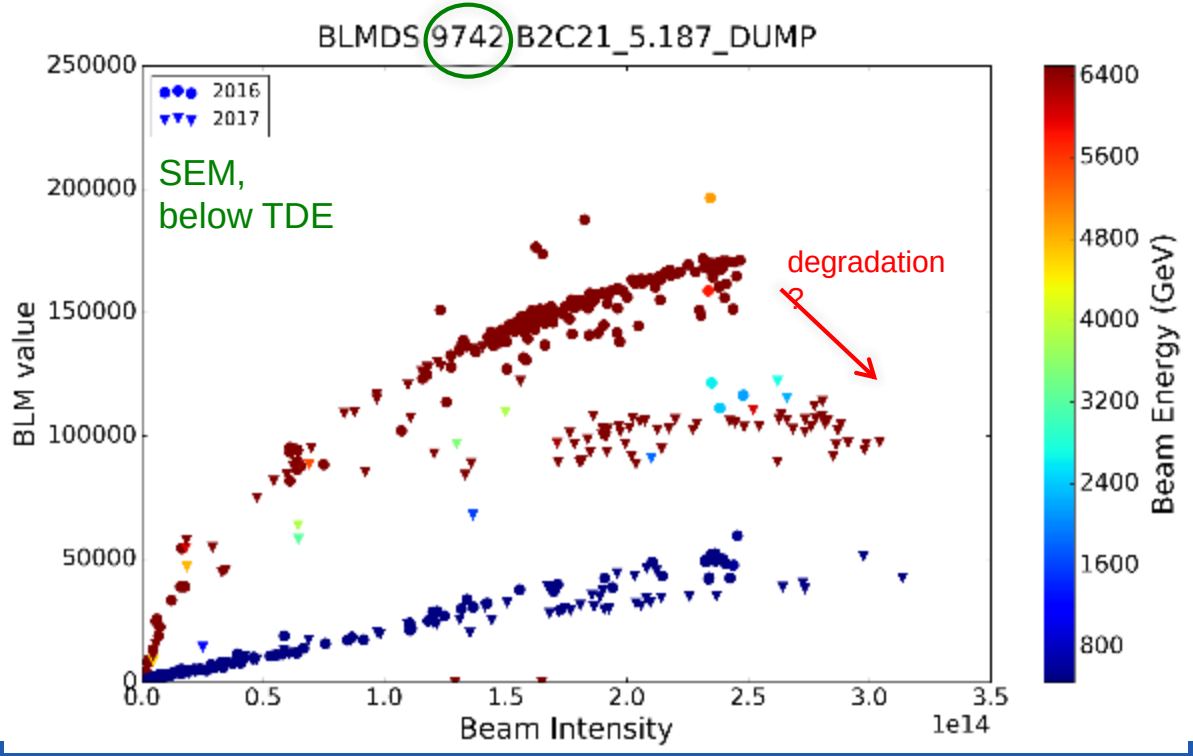
Dump BLMs Positions



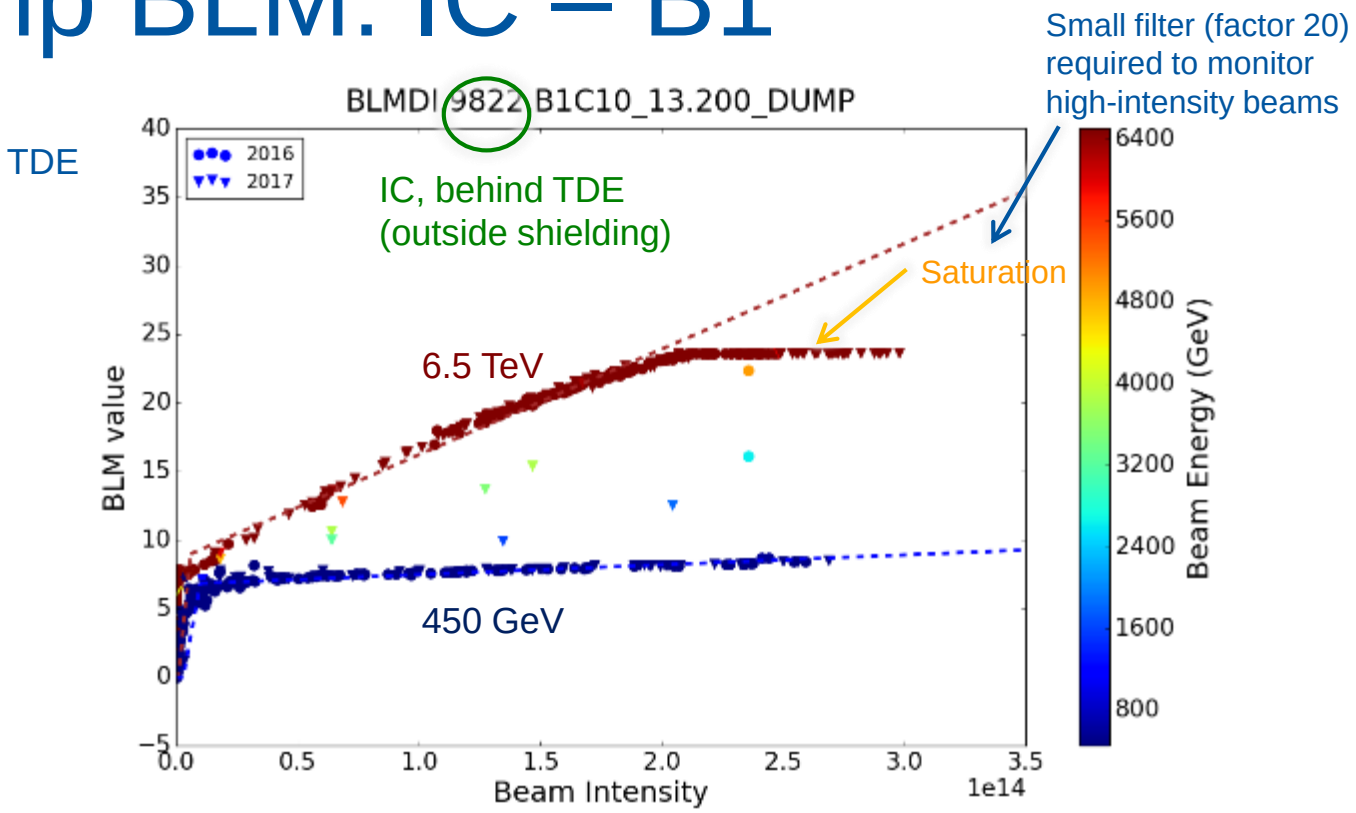
Dump BLM: SEM – B1



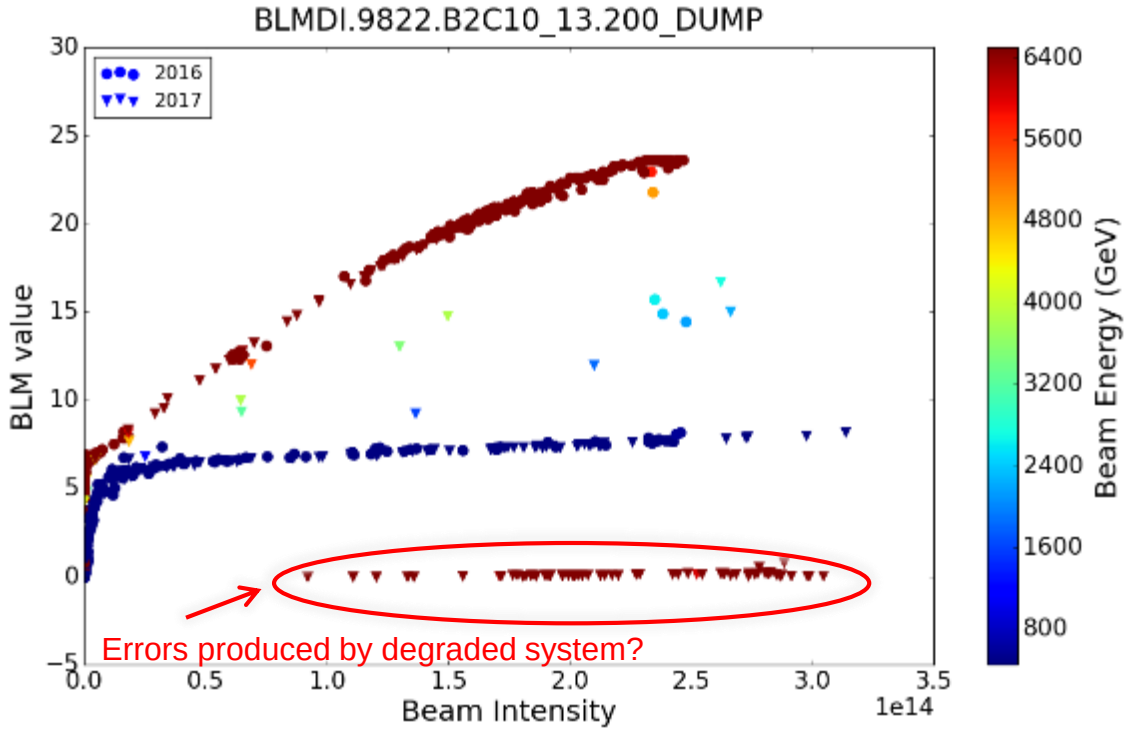
Dump BLM: SEM – B2



Dump BLM: IC – B1



Dump BLM: IC – B2 – problems



BLM data analysis

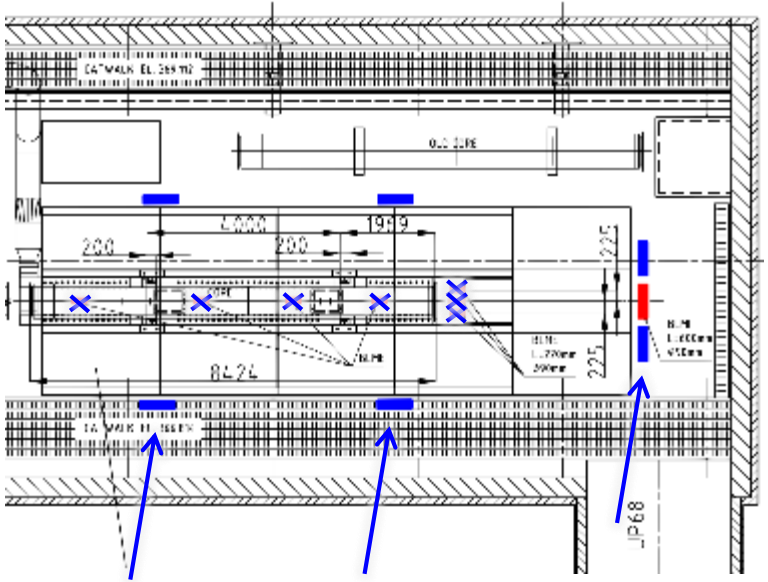
- Good intensity/energy correlation for all B1 monitors, some SEMs show larger spread of correlation, in particular the failing one.

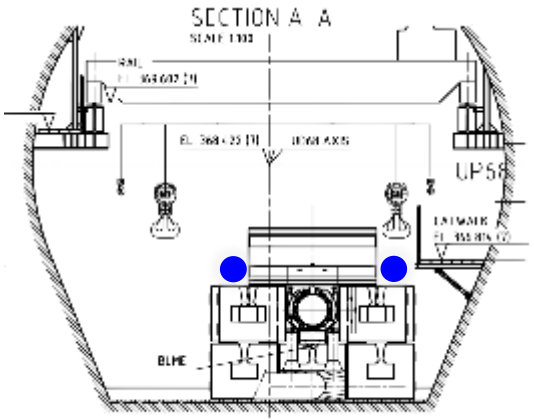
- Very nice correlation for the IC, saturated above 2e14 at 6.5 TeV; this requires a small filter.

- B2 shows degradation of int/energy correlation with losses during 2017 for all monitors, SEMs inside shielding and IC outside shielding; all daisy chained, suspect cable issue due to radiation.

New dump BLMs – Suggestions

Proposing 6 new BLM: LIC and/or IC with small filter (factor 20)





2 BLM on each side (right/left) 2 additional BLM behind dump

Priority is to re-establish redundancy. Exact positions are being discussed with BI. Independently, BI is planning to replace cabling.

Planning suggestions

- Keep all SEMs disconnected as already done
- Install filter (factor 20) on existing IC - next TS (mid-Sept)
- Use available channels to install LICs outside the shielding -YETS
- Back up present IC with LIC to get direct reference - YETS
- Until new monitors are installed, don’t establish XPOC thresholds on existing ICs; this would often fail for B2

With this proposal we rely on the ICs before the dump cavern to check that all the beam is dumped (for B2) and after the YETS we can establish XPOC thresholds around the newly installed monitors