

Results on BLM Noise Analysis after
modification and exchange of cables
in R3

(2nd part, TS#5 in Nov. 2011)

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Overview

Three long signal cables have been exchanged during the TS#4 in September 2011 for testing purpose. In total 17 BLMs are affected and two types of cables have been used: MBB16 and NES18. They were installed in cell 06 and 11 in R3.

The cable in cell 06 (MBB16) has been changed back to NG18 during the TS#5 in November 2011, because more noise than before was seen. The proper connection of all channels affected has been verified and the noise level is now as it was before the exchange during TS#4.

In cell 11, the outer shielding of one cable has been opened on the BJBAP side during the TS#5 in November 2011 in order to verify the best shielding option.

The results presented here concern the cable tests and exchanges during the TS#5 in Nov. 2011 only.

Cable NES18 for BLMs in 11R3 (MQ)

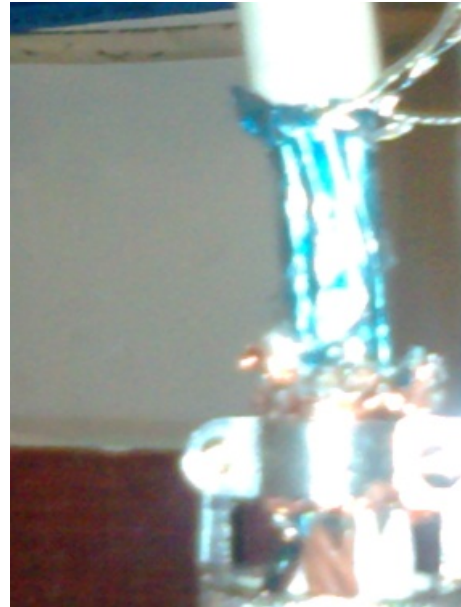
3) **NES18**: Cable: 1302155 < --- > BY02=UJ33 to BJBAP.B11.R3

Element: **MQ 11R3**

Cable length ~ **733 meters**

7 BLMs affected:

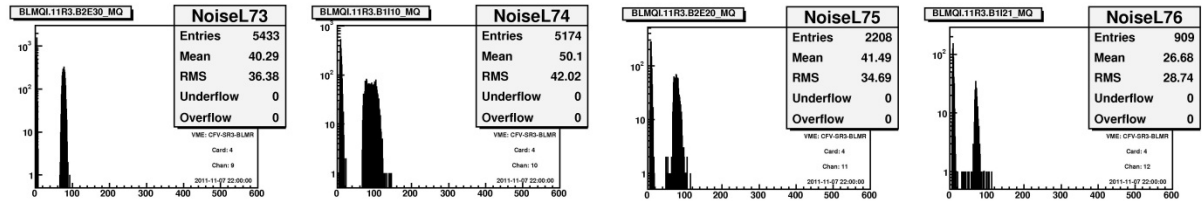
BLMQI.11R3.B2E30_MQ
BLMQI.11R3.B1I10_MQ
BLMQI.11R3.B2E20_MQ
BLMQI.11R3.B1I21_MQ
BLMQI.11R3.B1I22_MQ
BLMQI.11R3.B1I30_MQ
BLMQI.11R3.B2E10_MQ



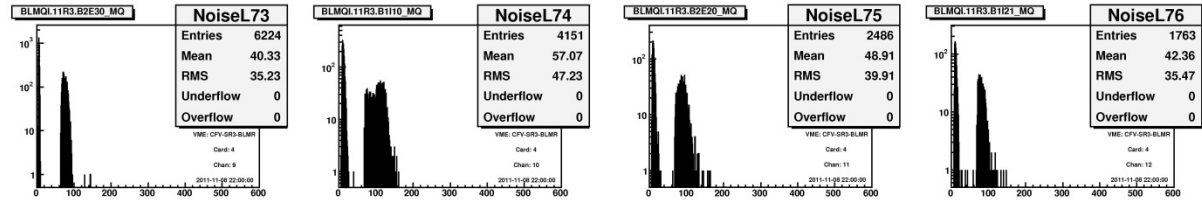
The outer shielding of this cable has been opened on the BJBAP side.

Noise for BLMs in 11R3 (MQ)

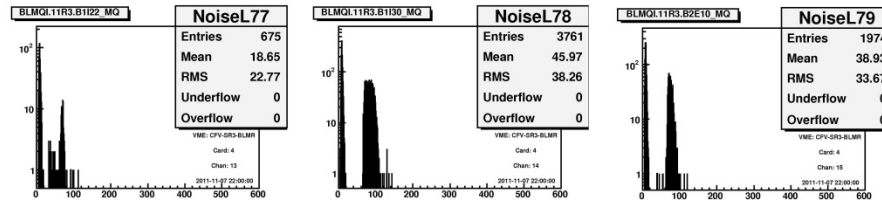
Before:
standard shielding



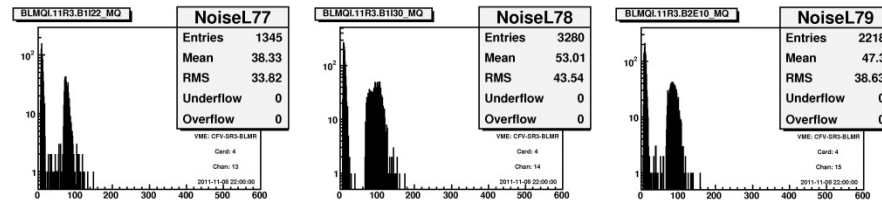
After:
shielding open on
one side (BJBAP)



Before:
standard shielding



After:
shielding open on
one side (BJBAP)



Results on Max. Noise for NES18 cable for BLMs in 11R3 (MQ)

Results on maximum noise (in BITS) for RS01 (integration time=40 μ s)

9 hours of data were taken

1 BIT = (3.62e-9/40e-6) Gy/sec

ExpertName	After	Before	Ratio Before/After
"BLMQI.11R3.B2E30_MQ"	129	93	0.721
"BLMQI.11R3.B1I10_MQ"	167	146	0.874
"BLMQI.11R3.B2E20_MQ"	164	129	0.787
"BLMQI.11R3.B1I21_MQ"	147	111	0.755
"BLMQI.11R3.B1I22_MQ"	149	113	0.758
"BLMQI.11R3.B1I30_MQ"	174	143	0.822
"BLMQI.11R3.B2E10_MQ"	159	122	0.767

Conclusion: the noise level is increasing when opening the shielding on one side of the cable (BJBAP side).

Summary

The signal cable in cell 06 (MBB16) has been changed back successfully from a MBB16 type cable to the original NG18 type cable.

The NES18 type cable which is installed in 11R3 has been tested for the best shielding option and the outer shielding of one cable has been opened on the BJBP side.

The comparison between the maximum noise for both options (a) outer shielding opened and (b) standard shielding shows that the noise is at a minimum level when having standard shielding.