

Comments from Jorgen previously give to Natalia directly by Email.

Dear Natalia

I have taken a look at your JINST paper and it is very nice and clear to read.
I just have a few comments/corrections below.
Up to you if you include this before going through formal CMS paper review.

Up to you if you want to check with the AFE designers, if results are appropriately presented.

It is obviously a bit controversial if the DIFF AFE could have been made compatible with CMS needs by their proposed improvements (as was the case for the LIN AFE). Your phrasing of this is good, so just leave as is.

Jorgen

Page 1 bottom: I think this footnote is not really needed in this paper.

Line 61: and serial -> and a serial

Line 74: duplicated word: from

Line 81: verify a sufficient -> verify sufficient

Line 86: explain why RD53A is half sized chip. Could be: , as sharing chip recticle with CMS outer tracker chips.

Line 96: internal signals -> internal charge injection signals

Figure 2: I think the sketch of the analogue front-end is more clear if threshold trimming is shown attached to the threshold branch, not the signal branch.

Line 155: signal amplitude -> signal charge

Line 184: given by design -> given by the limited area available for hit buffering

Figure 10. I am a bit surprised by the digital efficiency losses shown in this figure. The pixel regions are now organized as 4 x 1 pixels (not 2x2 pixels) so the effective area covered by a pixel region is the same for the two pixel aspect ratios (50 x 200).

Where did you get the numbers from ? (Sara ?). Could be that pixel region organization has been changed since then.

Figure 11: A bit "disturbing" to see that for the upper right curve that resolution seems to get a bit better if having worse charge resolution (can clearly not be the case).

Line 215: TID of 350Mrad.

Important to mention if pixel chip was biased/power during irradiation (normally not the case when irradiating sensors).

If not powered, TID effects on the pixel chip is actually much smaller than if powered.

Line 261: with threshold -> with increasing threshold