

# VMM3 noise measurements

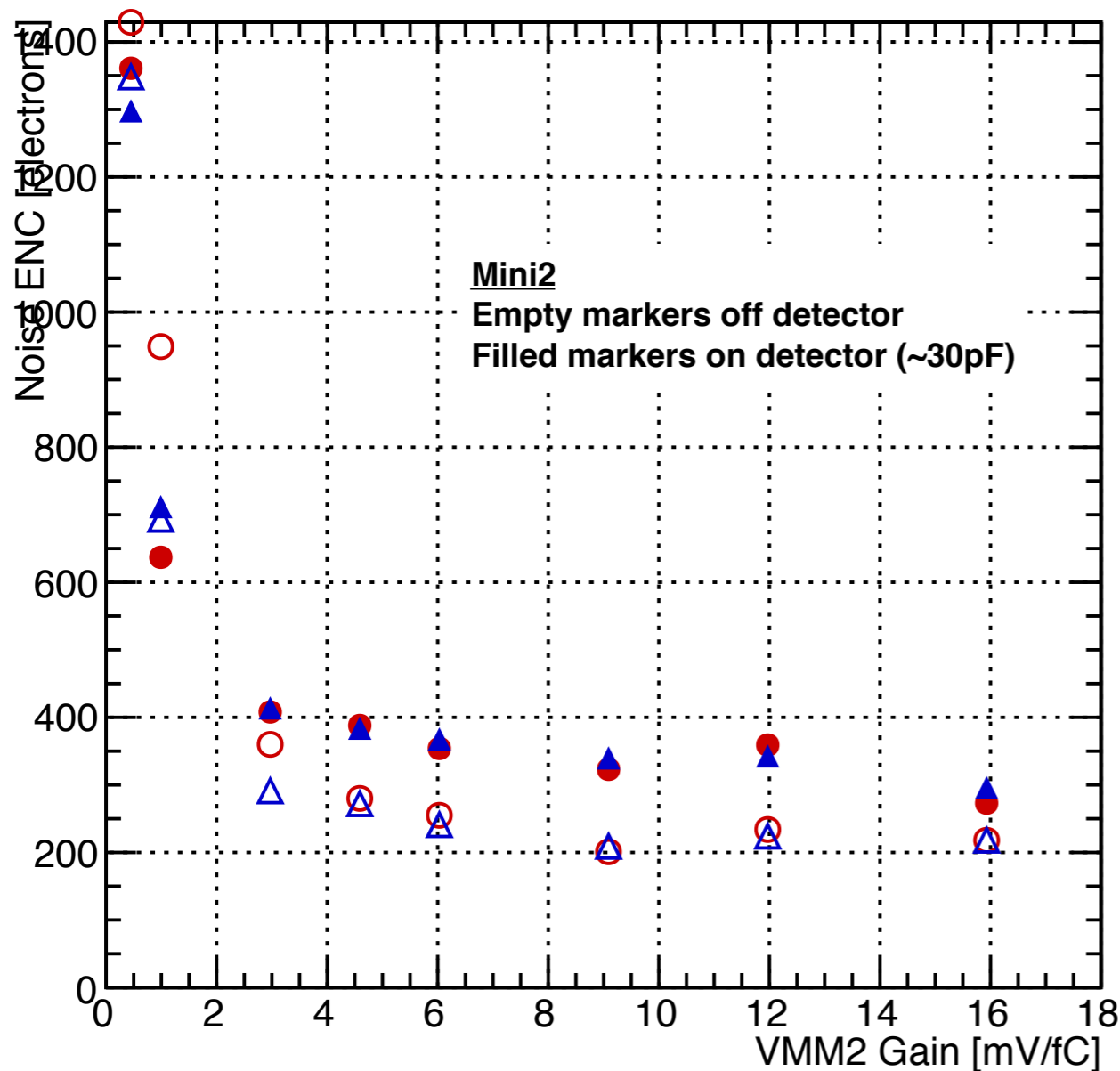
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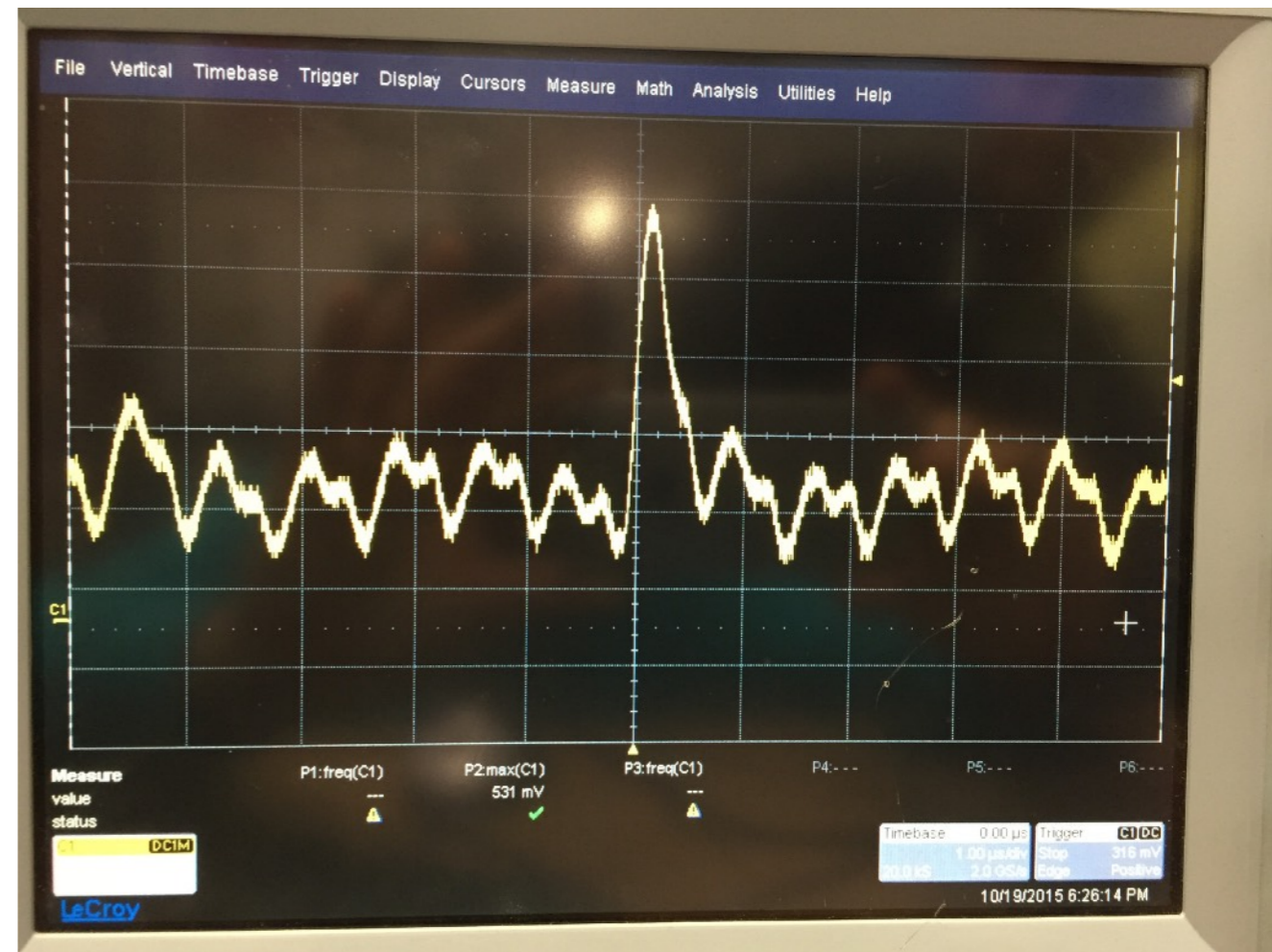
*Brookhaven National Laboratory*



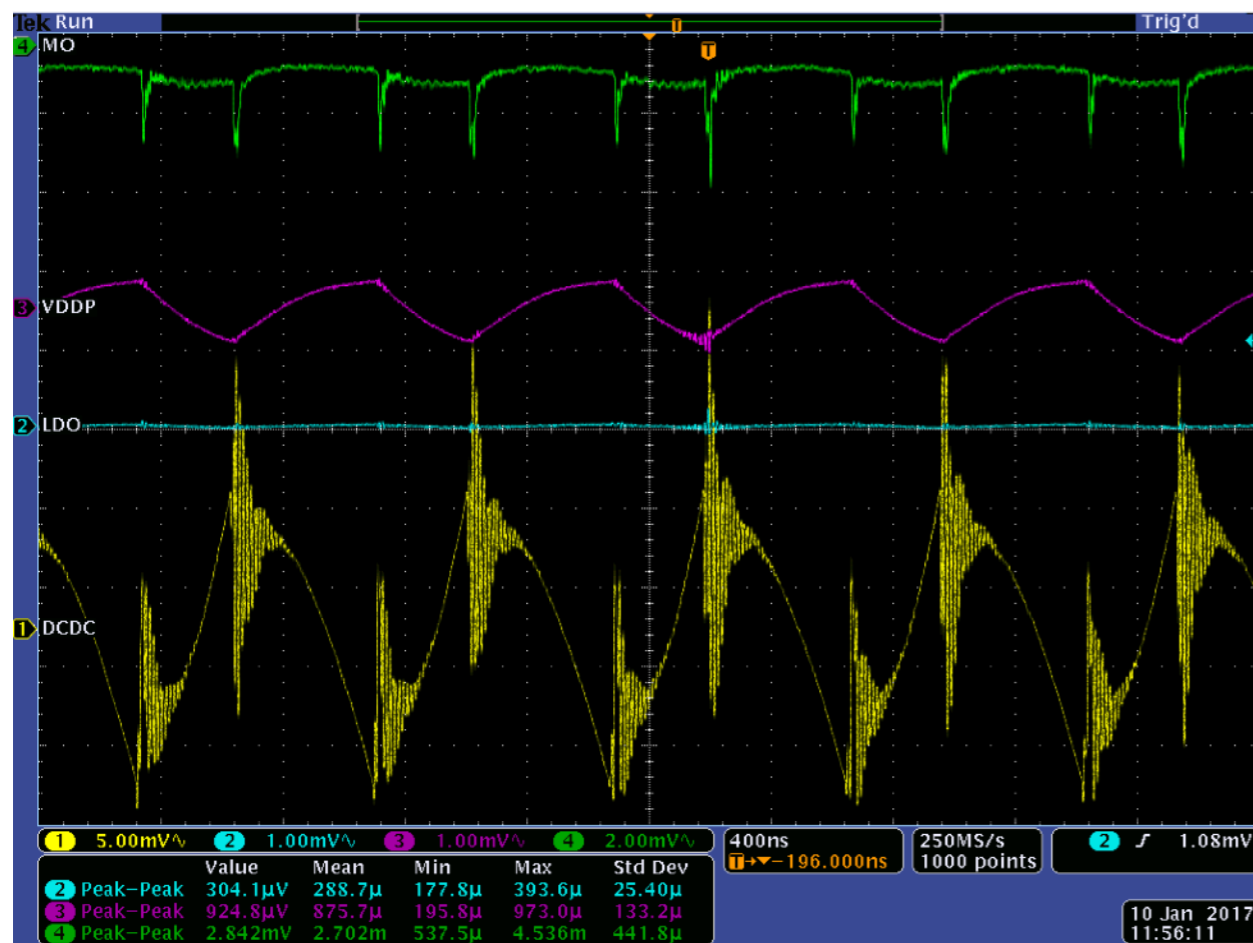
- VMM2 noise measurements were done with Mini2 board, and the MMFE8
- The mini2 was found quite close to the VMM theoretical noise (left plot) but we have seen noise coming from pickup of the dc-dc in the VDDP
- Several efforts and brainstorming was done to understand it and eliminate it.



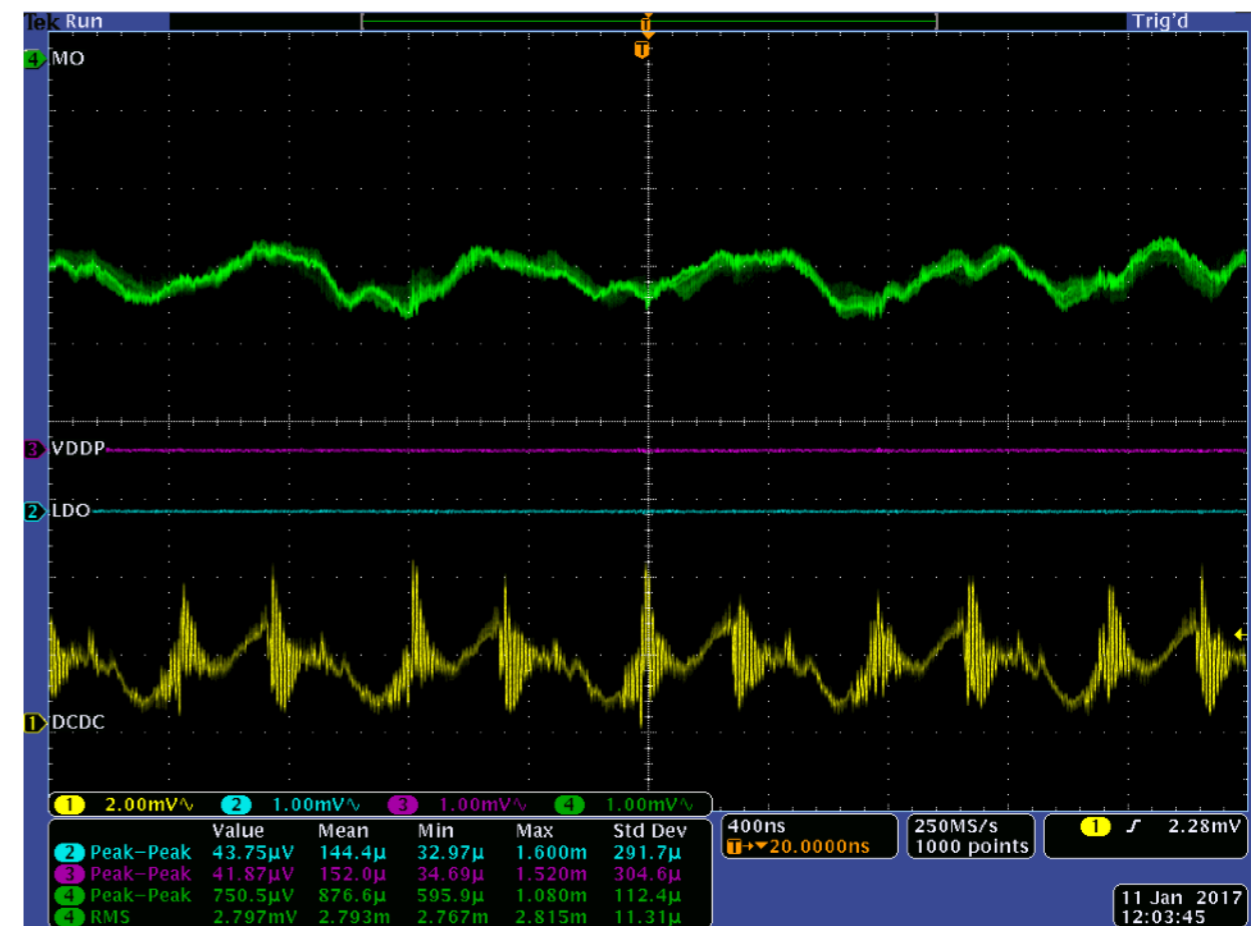
MMFE8 Noise testing - 06/11/2015



- Beginning of the 2017 we met at BNL with several people and Gianluigi to understand more and tackle the noise down.
- We have observed the the noise on the VDDP was not present after the LDO so this was an indication of pickup coming from the ground line
- Second day we were able after some modifications on the board, to minimise considerably the noise. Suggestions were given to AZ after that.

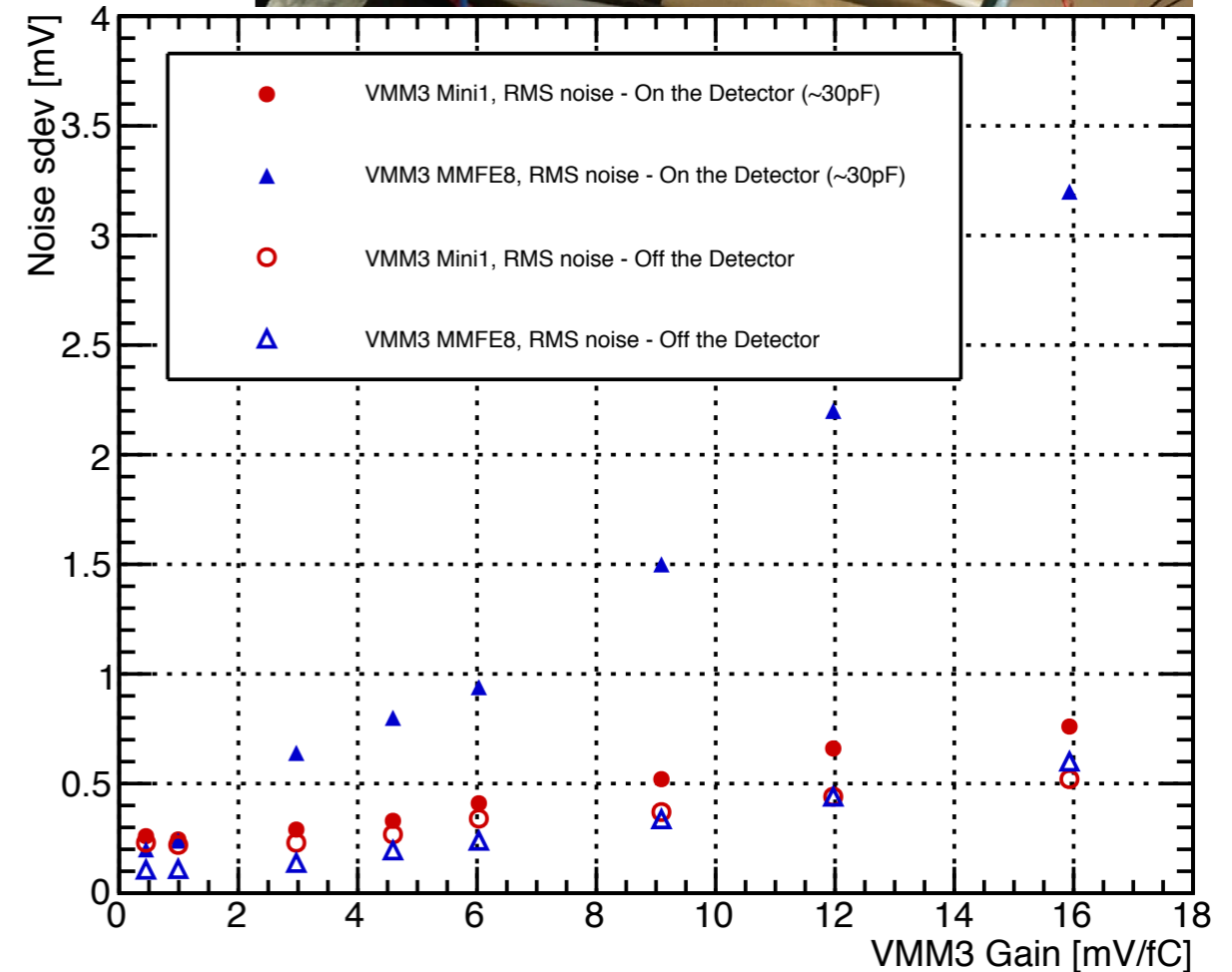
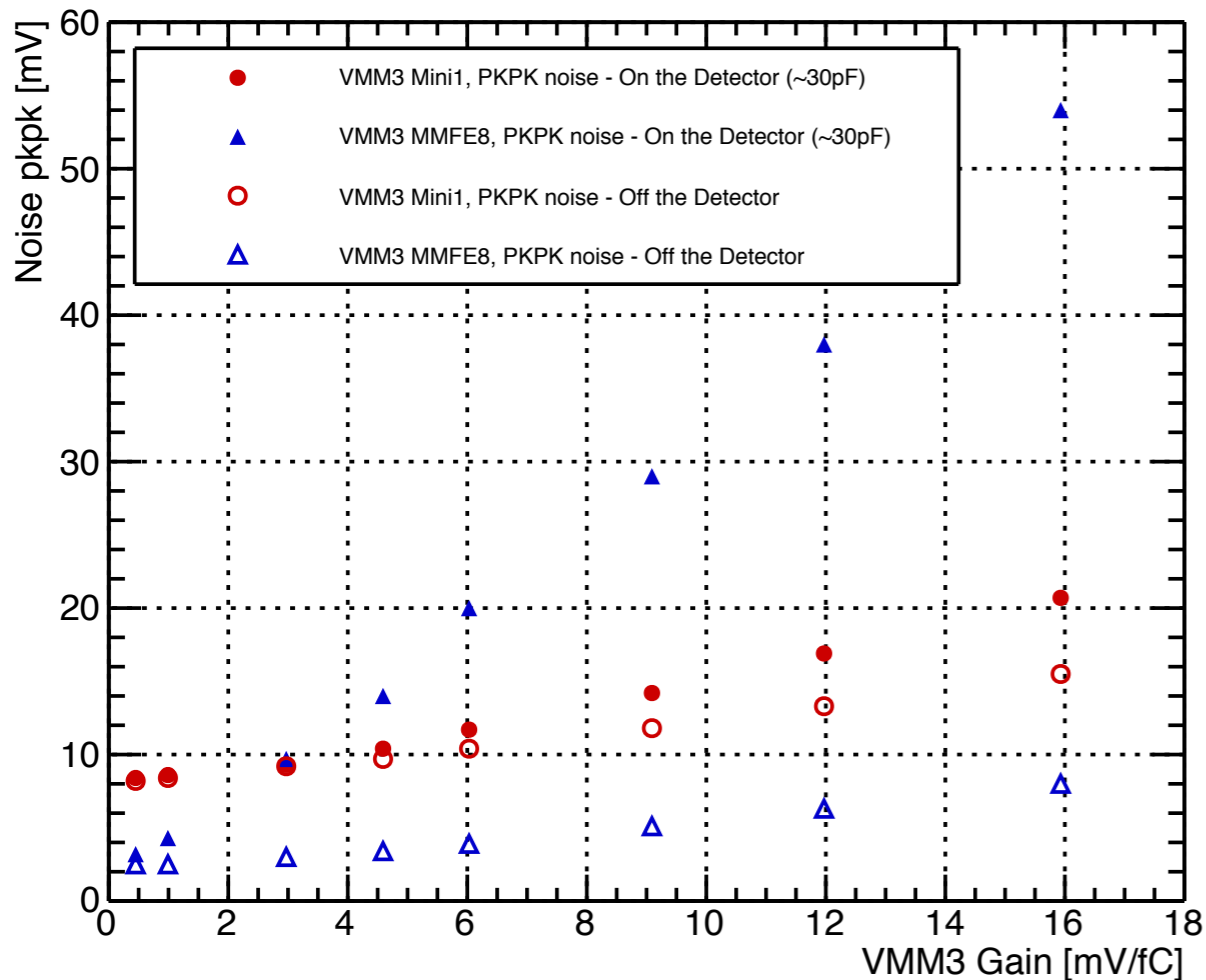
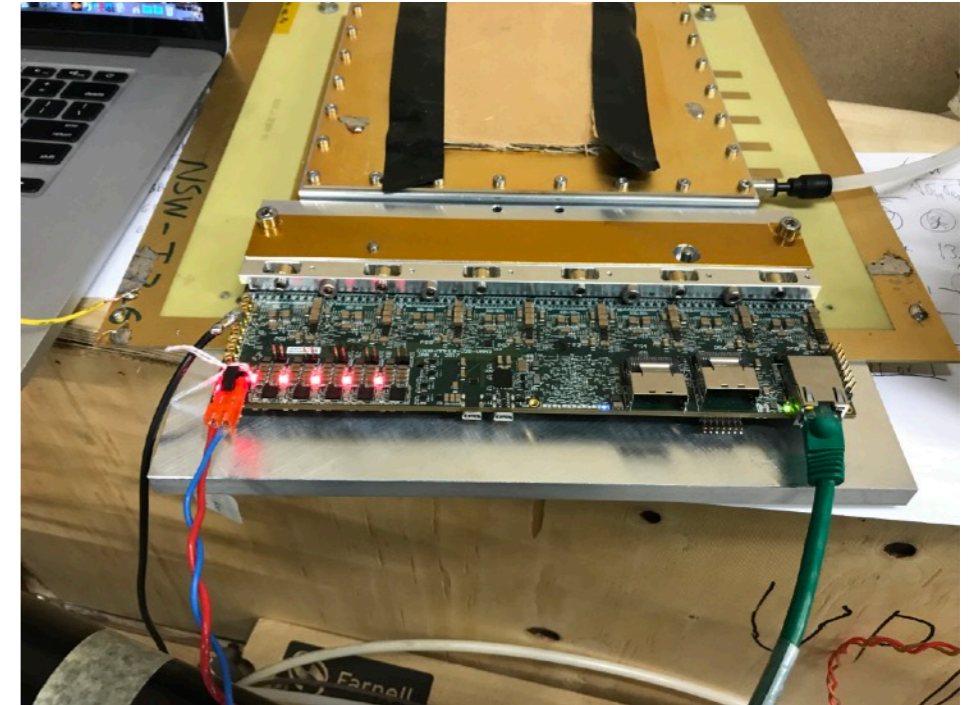


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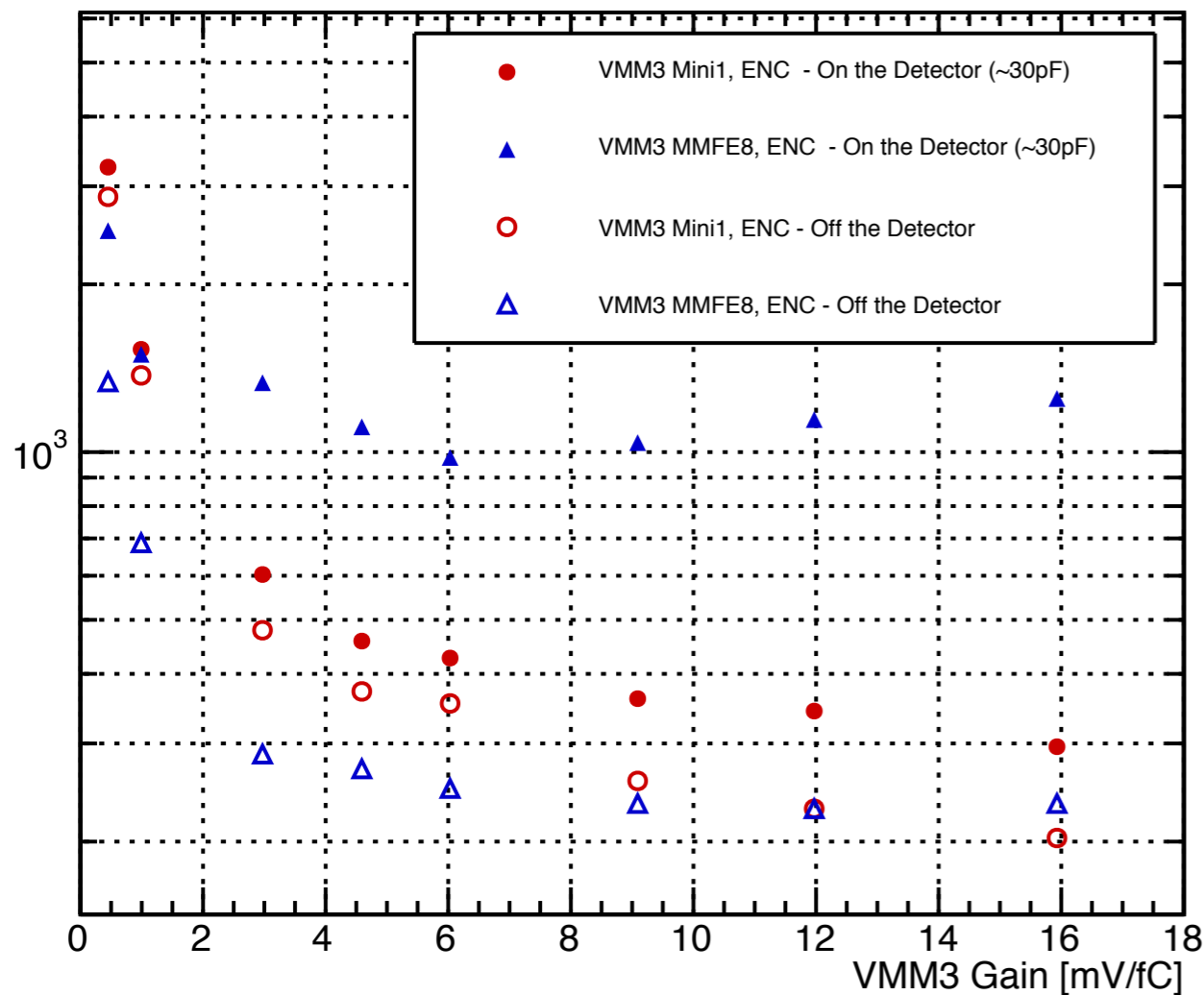


DPO4104 - 11:10:39 11.01.17

- Some preliminary measurements were done with the MMFE8-VMM3 board (FEAST, no-LDOs)
- Board is very quite without capacitance
- Board has improved a lot with capacitance. Still some residual pick up is observed (preliminary)



- A factor of 3 ENC is observed with the board with respect to theory and some other measurements done with the Mini1 board.
- There is some modulation observed on the type of noise-pickup on the oscilloscope
- There was no effort to tackle the noise down since there was no time available at the moment but there is under our plans.



- There is a hint showing that the pickup noise is coming from the input directly since it is shaped, left is the VMM3 mo with 200ns and the right one with 25ns integration time

