

SPIROC1b wilkinson ADC measurements

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outline

- SPIROC1b
- ADC measurements
- simulation crosscheck

SPIROC1b

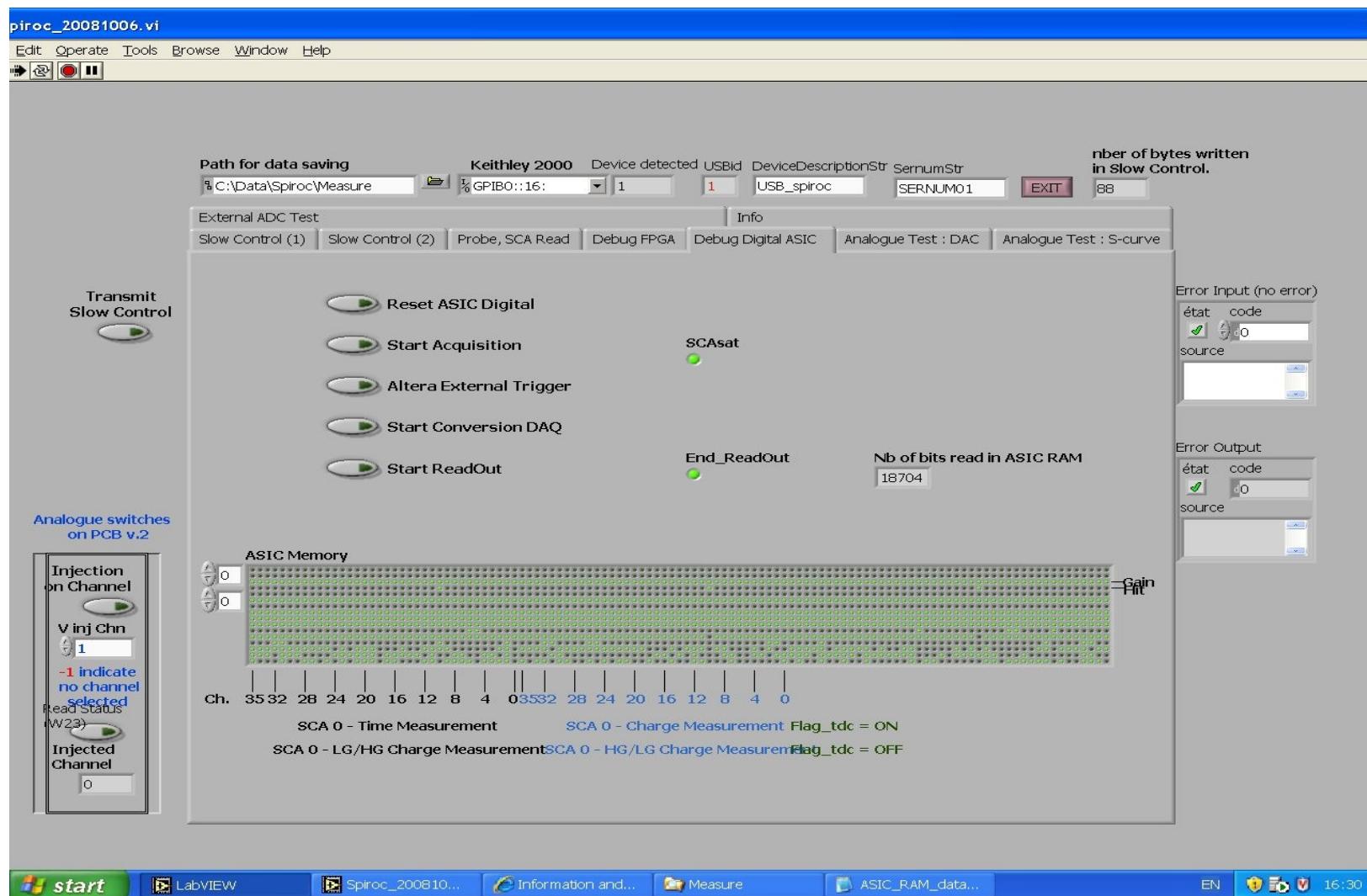
- spiroc1 chip + new pcb board
 - the new board provides RAMP for ADC conversion
 - track & hold control via labview program
 - RAM data visible in labview

SPIROC1b labview program



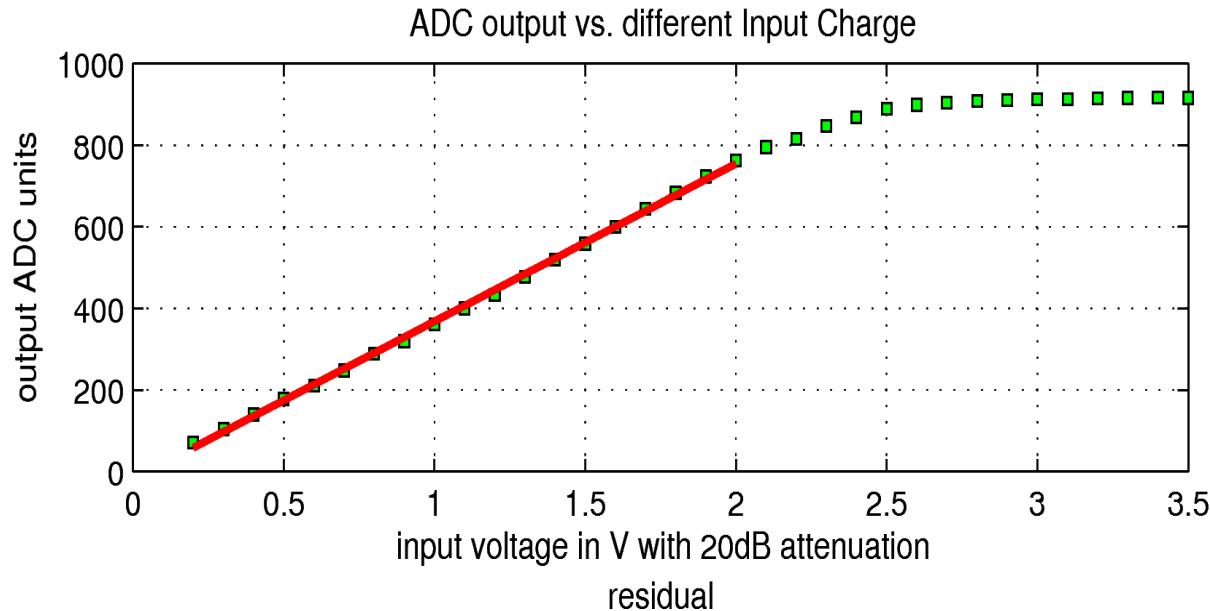
HOLD control via bit4 in W2

Gray Code output & Hit Channel

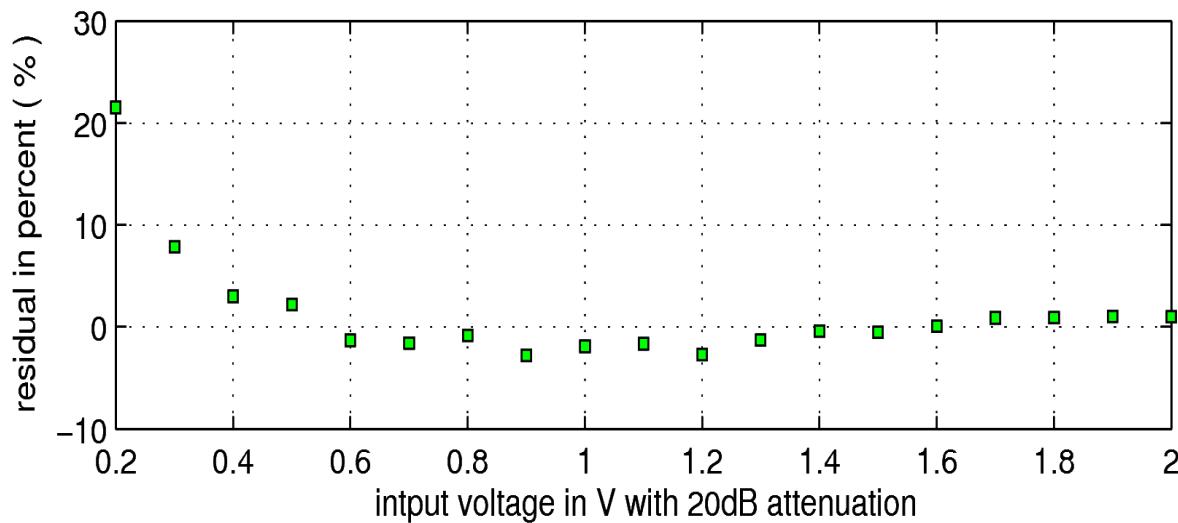


RAM display, and readout via labview

Preliminary linearity check of the ADC output

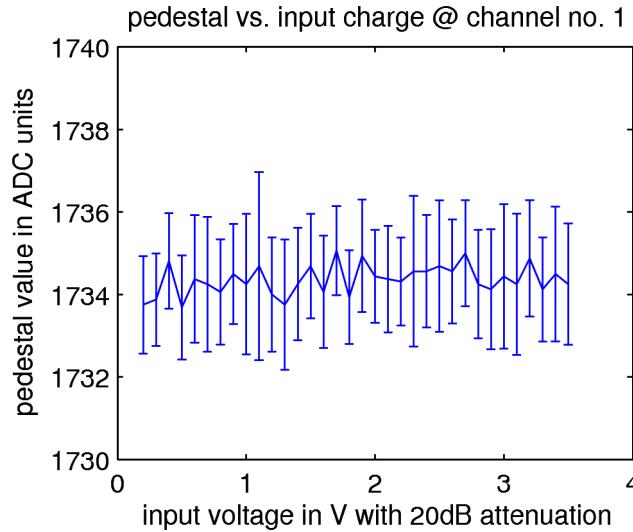
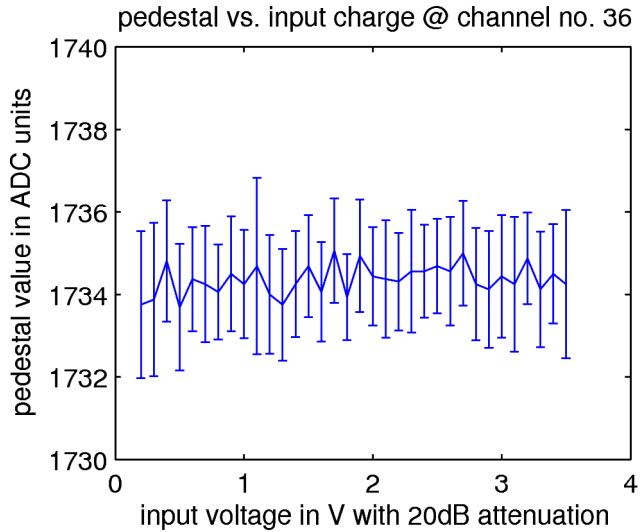


ADC is working

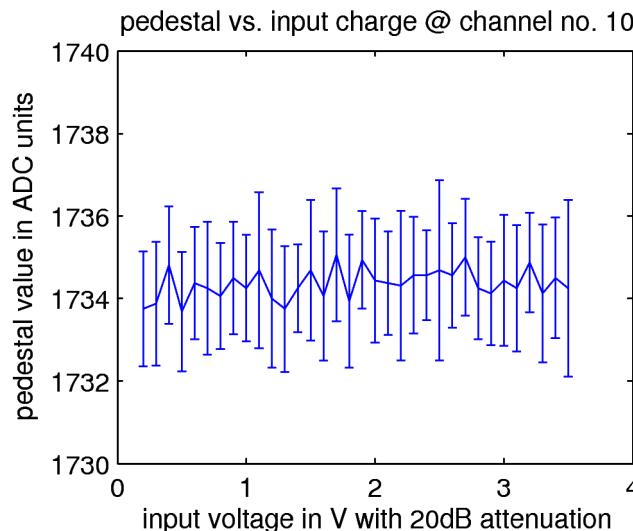
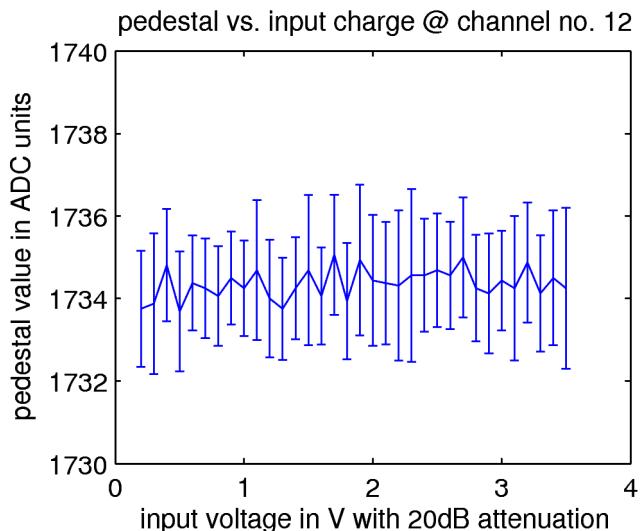


linearity :
the same pattern as previous
external ADC measurements

pedestal pattern & crosstalk measurement

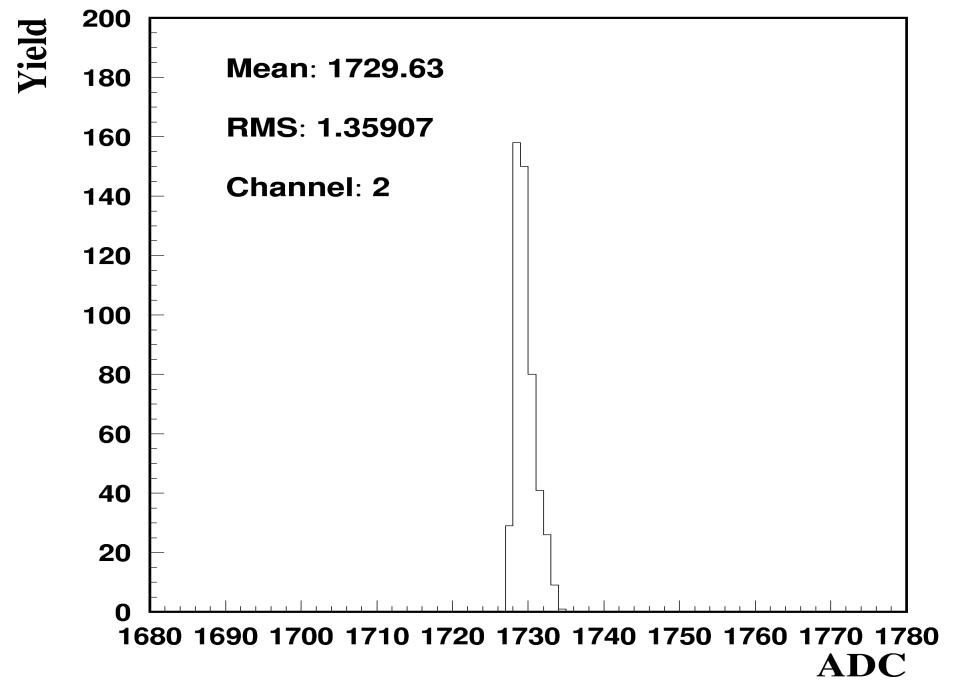
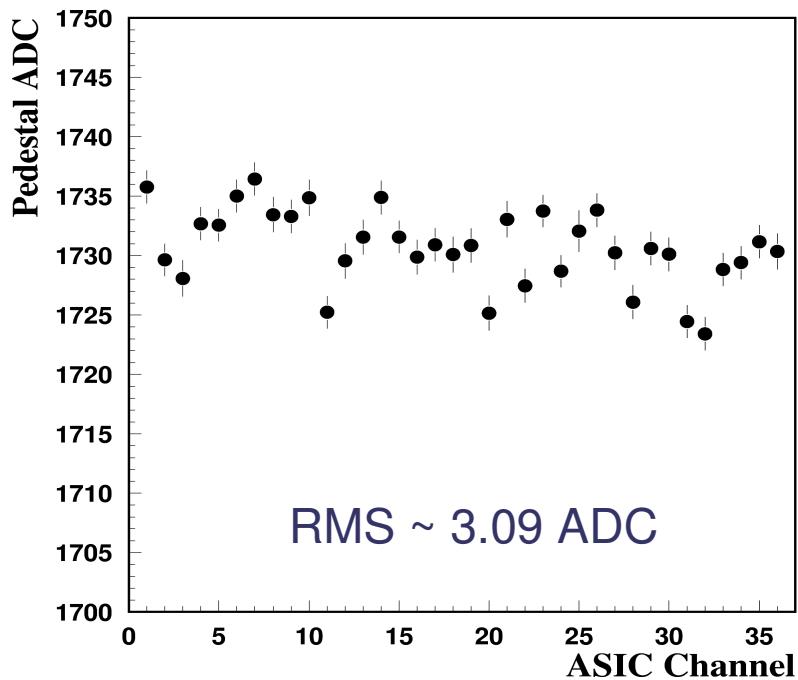


pedestal change within
systematic uncertainty



crosstalk neglegible
(simulation : 0.4%)

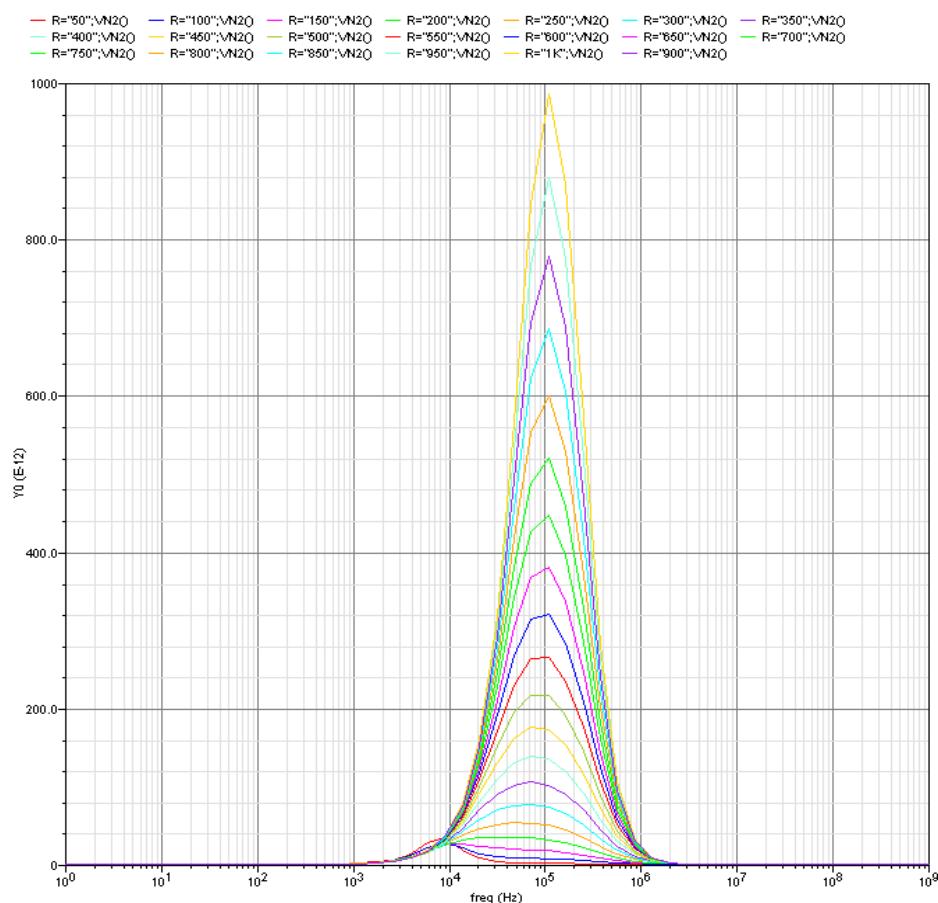
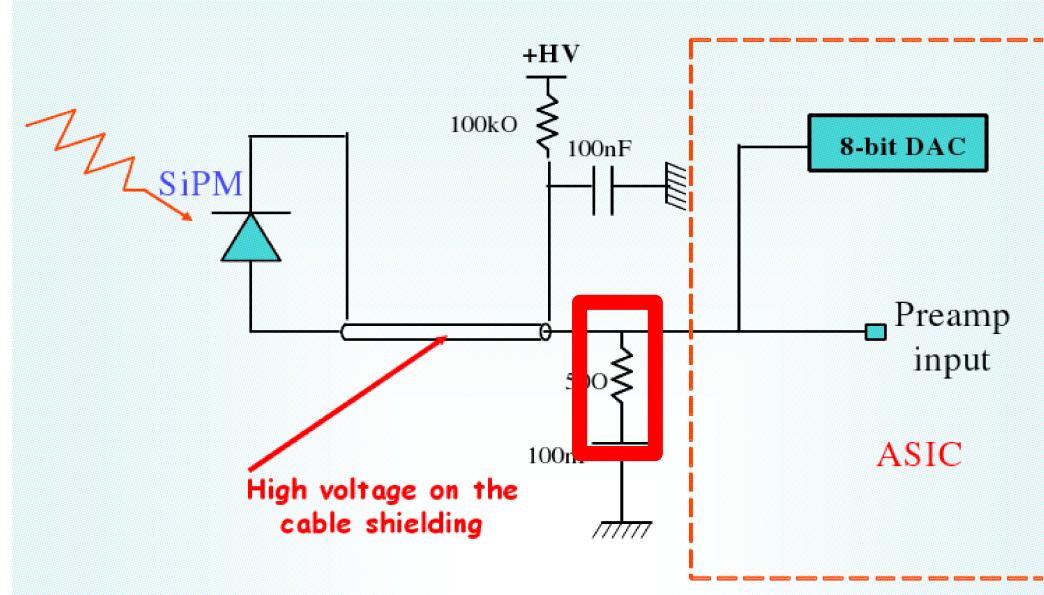
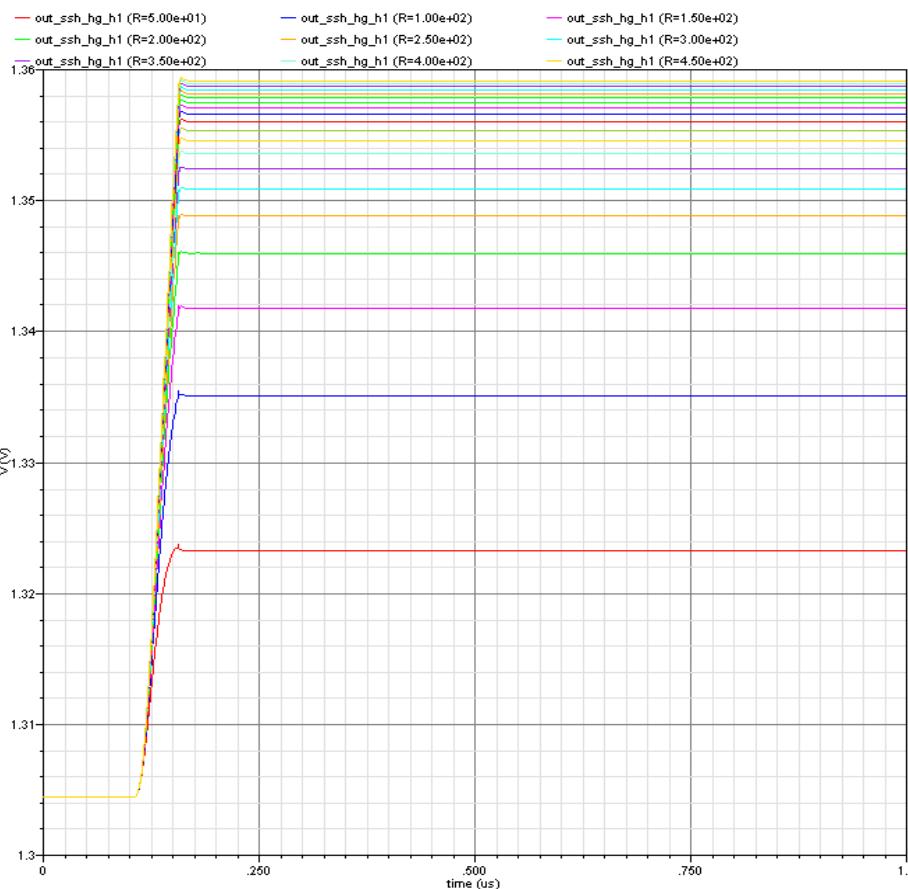
pedestal distributions of all the channels



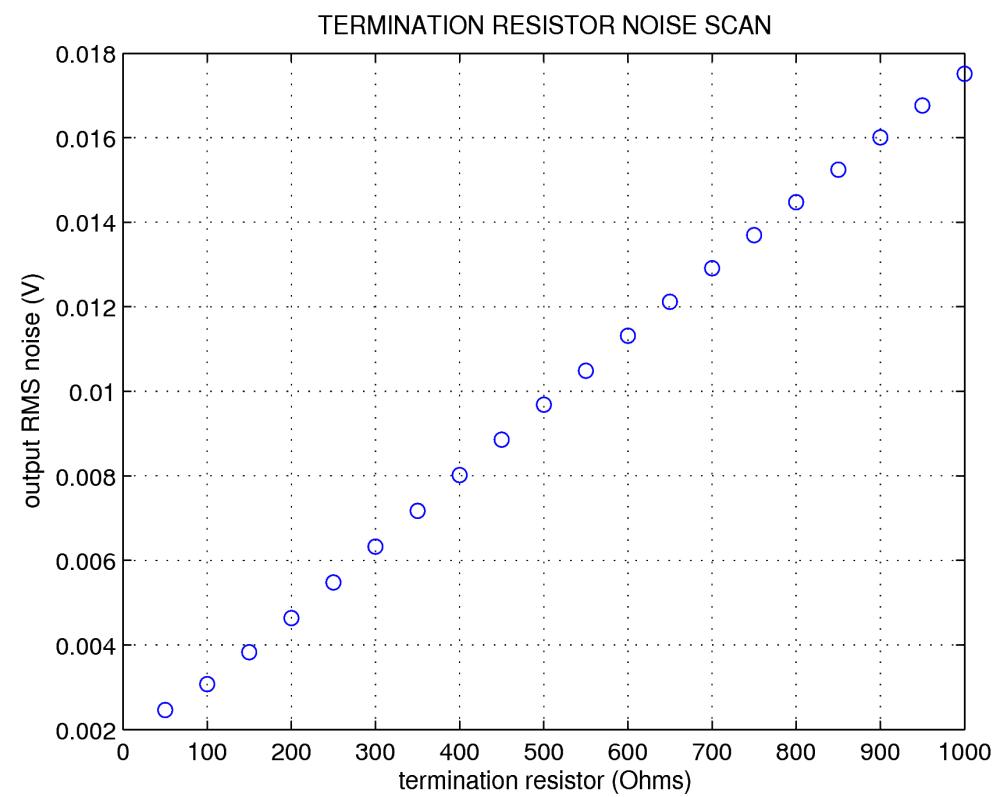
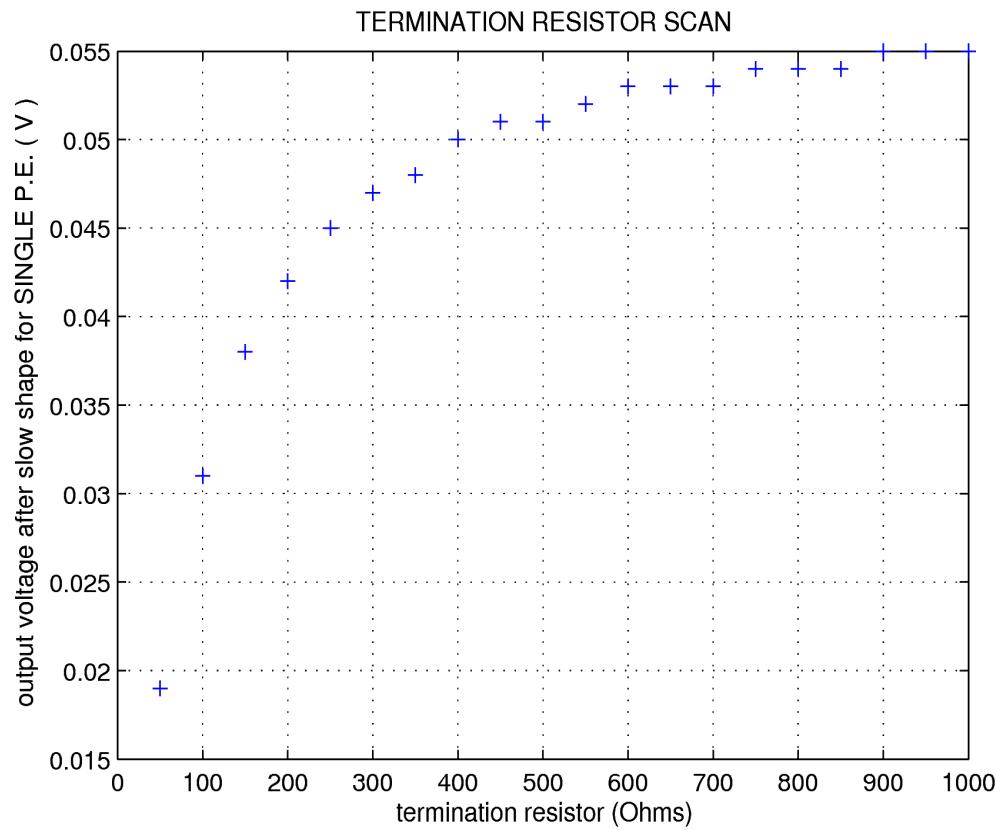
$$\text{ADC} = 3.3 \text{ V} / 4096 \sim 0.8 \text{ mV}$$

note : 1 photon electron output at highest gain $\sim 8 \text{ mV}$

TERMINATION resistor scan from 50 ohms to 1 K ohms

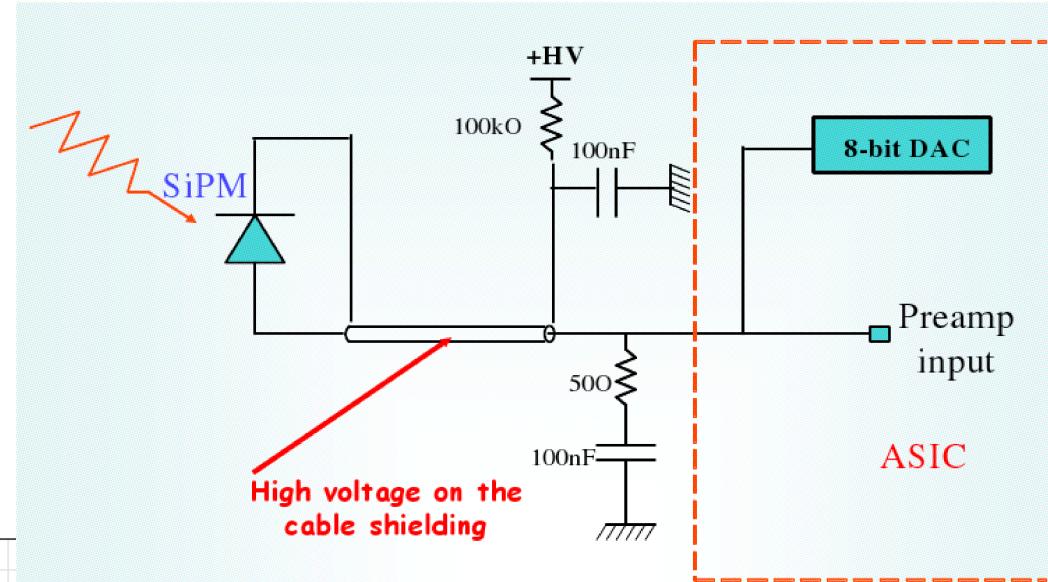
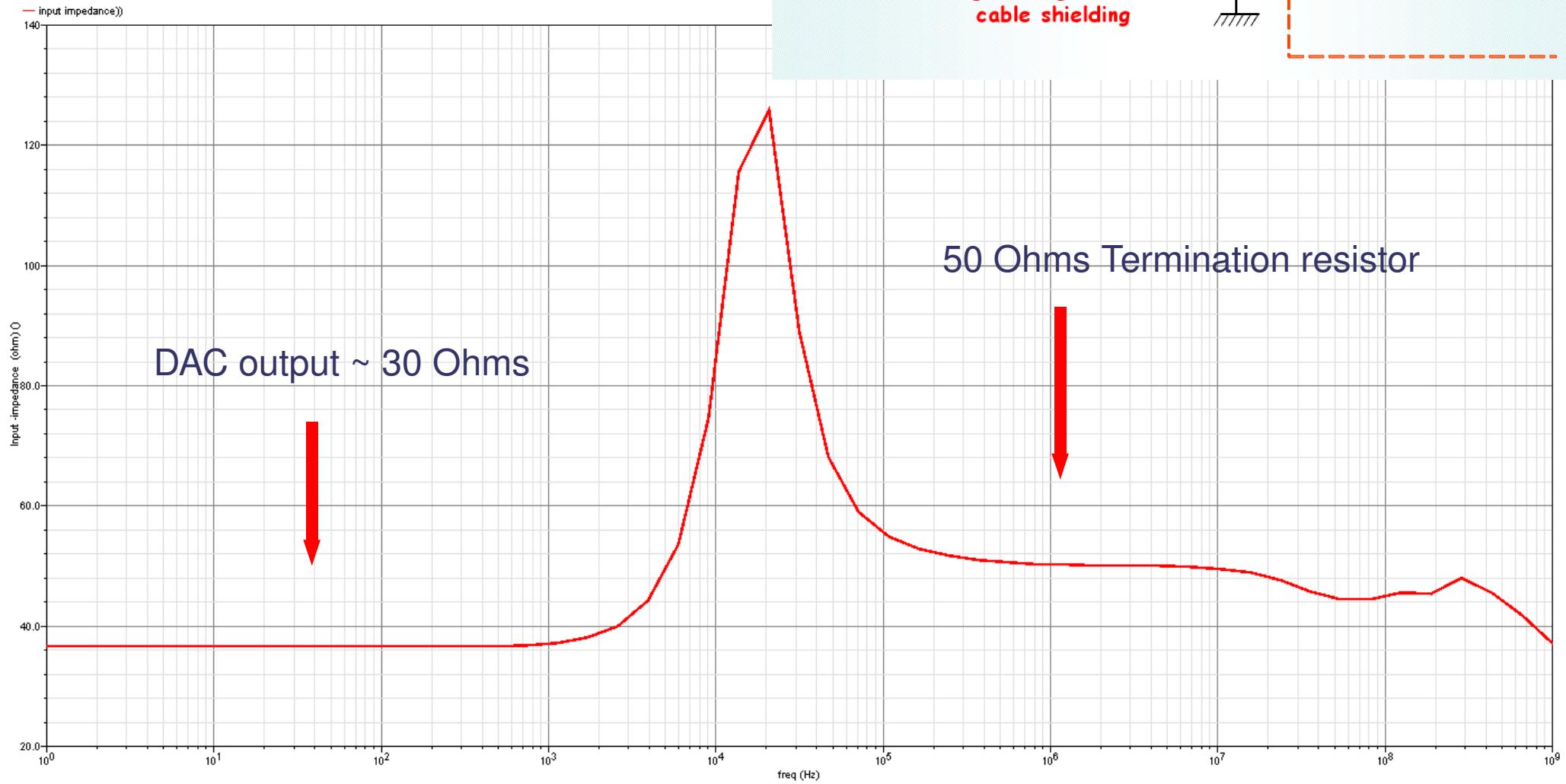


termination resistor scan



DAC noise linearly increase

SPIROC input impedance



summary

- Wilkinson ADC is working
- crosstalk small
- pedestals uniform

Thank you for your attention!