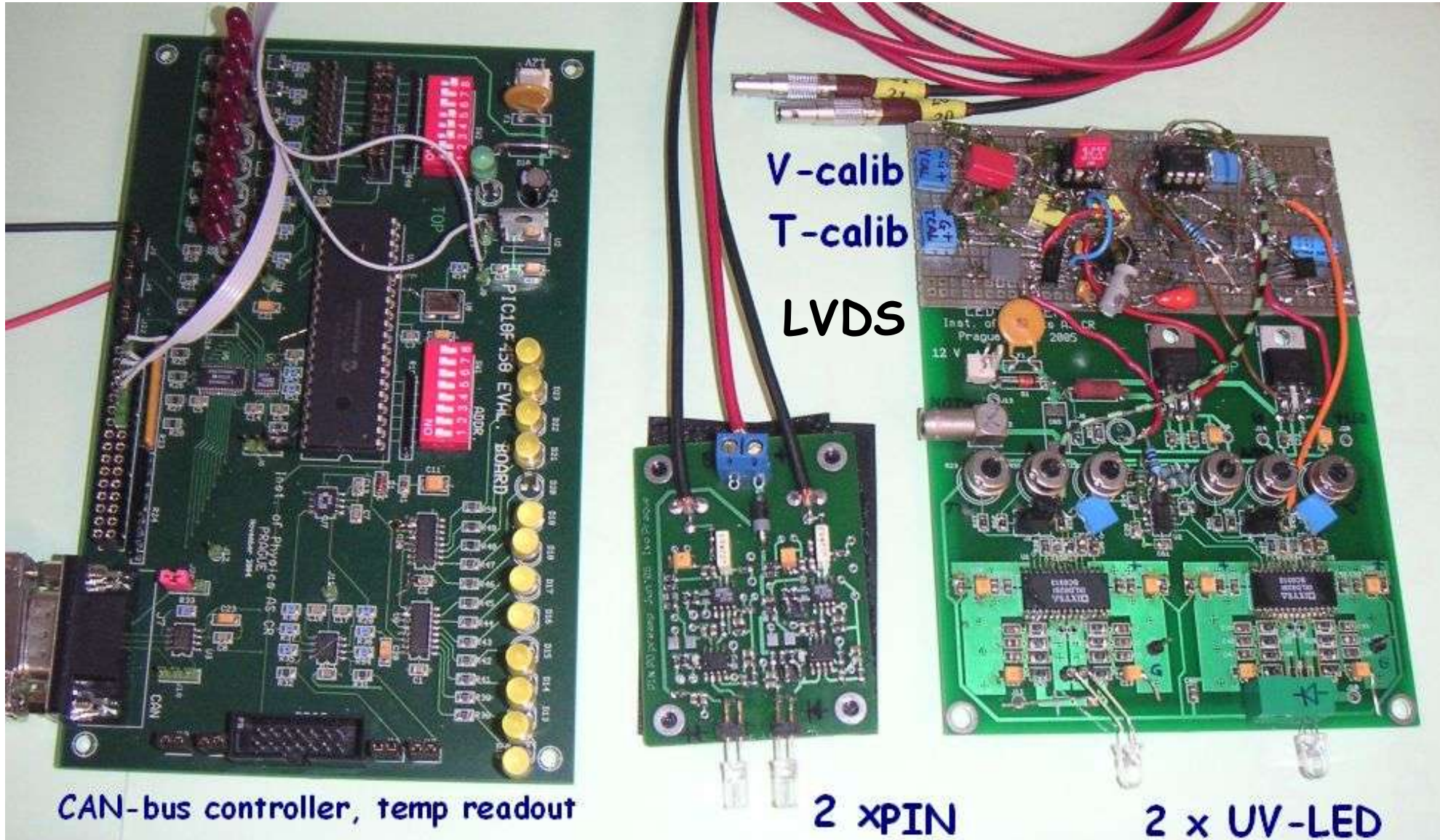


CMB

CMB prototype, LEDdrv test

CMB = LEDdrv, PINdiode preamp, CAN-bus, temp readout



AII TESTED

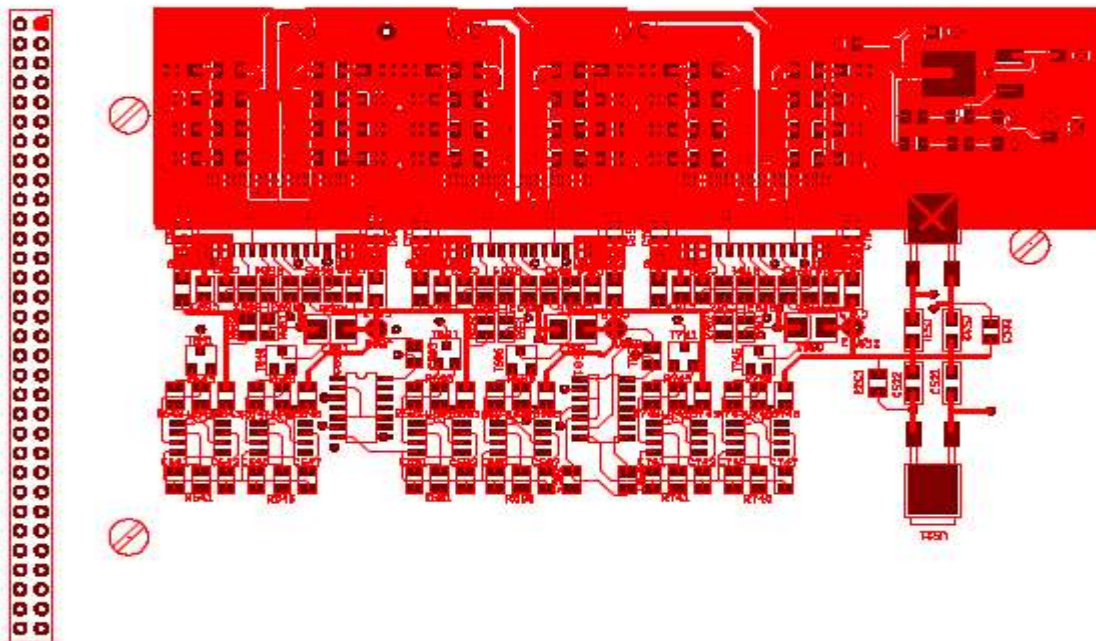
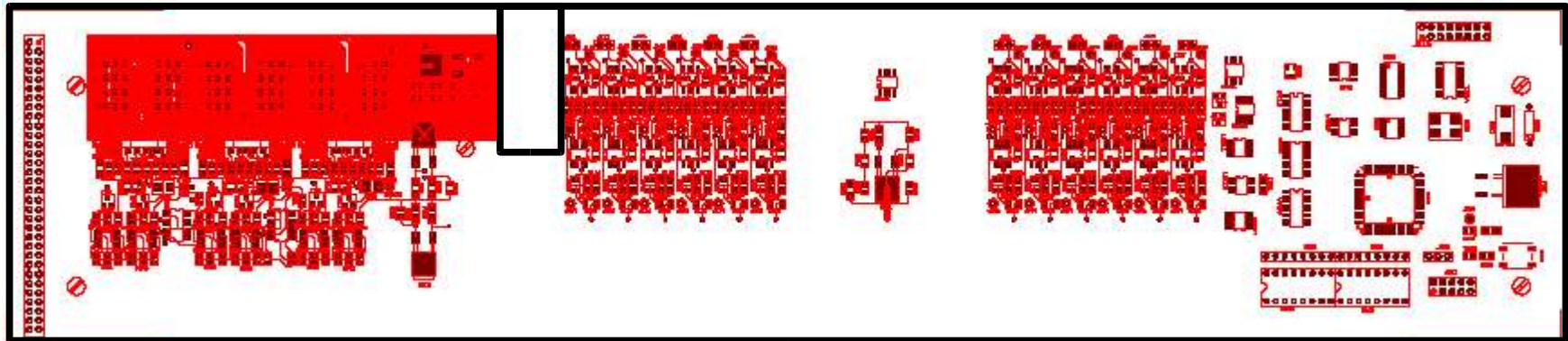
CMB-L TOP layer not finished

3 LEDdrv

6 PINpreamps

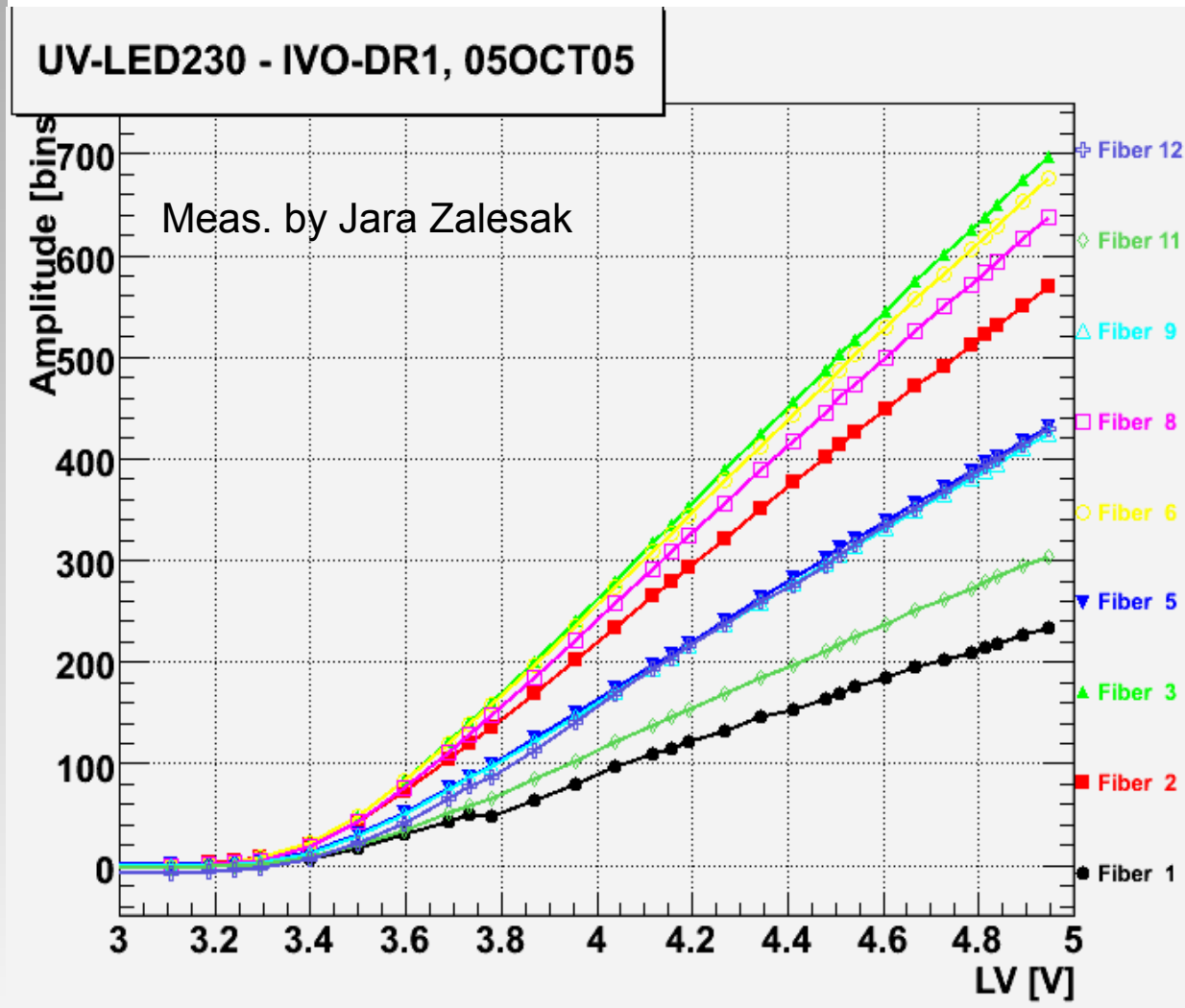
6 PINpreamps

Temp readout,
CPU, CANbus



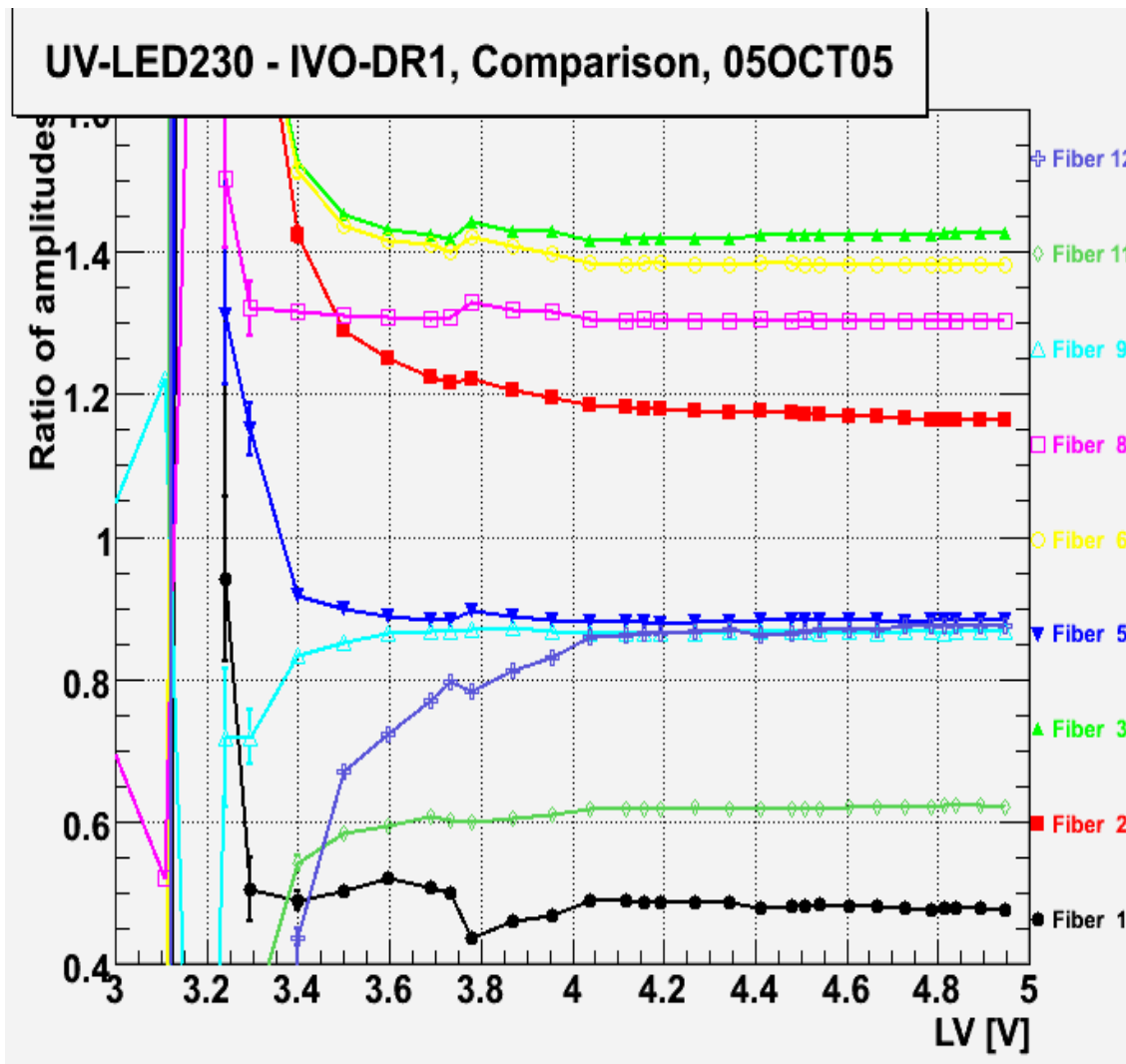
Zoom
of LEDdrvs motive

LEDdrv test at Prague



- ◆ Single UV-LED response to LEDdrv "linearity test"
- ◆ 9 of 12 fibres measured by very low gain APD @190V $M \sim 2$ to 3
- ◆ Preamp + DAQ 10bit ADC Camac
- ◆ LV[V] is a recent controlling voltage

LEDdrv test at Prague



Meas. by Jara Zalesak

- ◆ "linearity test"
- ◆ Ratio single fiber response to normalised overall light-yield
- ◆ Above 3.8V we like it, the linear response
- ◆ Below 3.6V signal is affected by noise



LEDdrv temp test

- ◆ An ice on plastic house of LEDdrv chip
- ◆ Cooled by KALTE spray upto -40deg.C
- ◆ Warmed by solder tip to different components GND pins
- ◆ Uncalibrated, but know a scale ~200deg.C



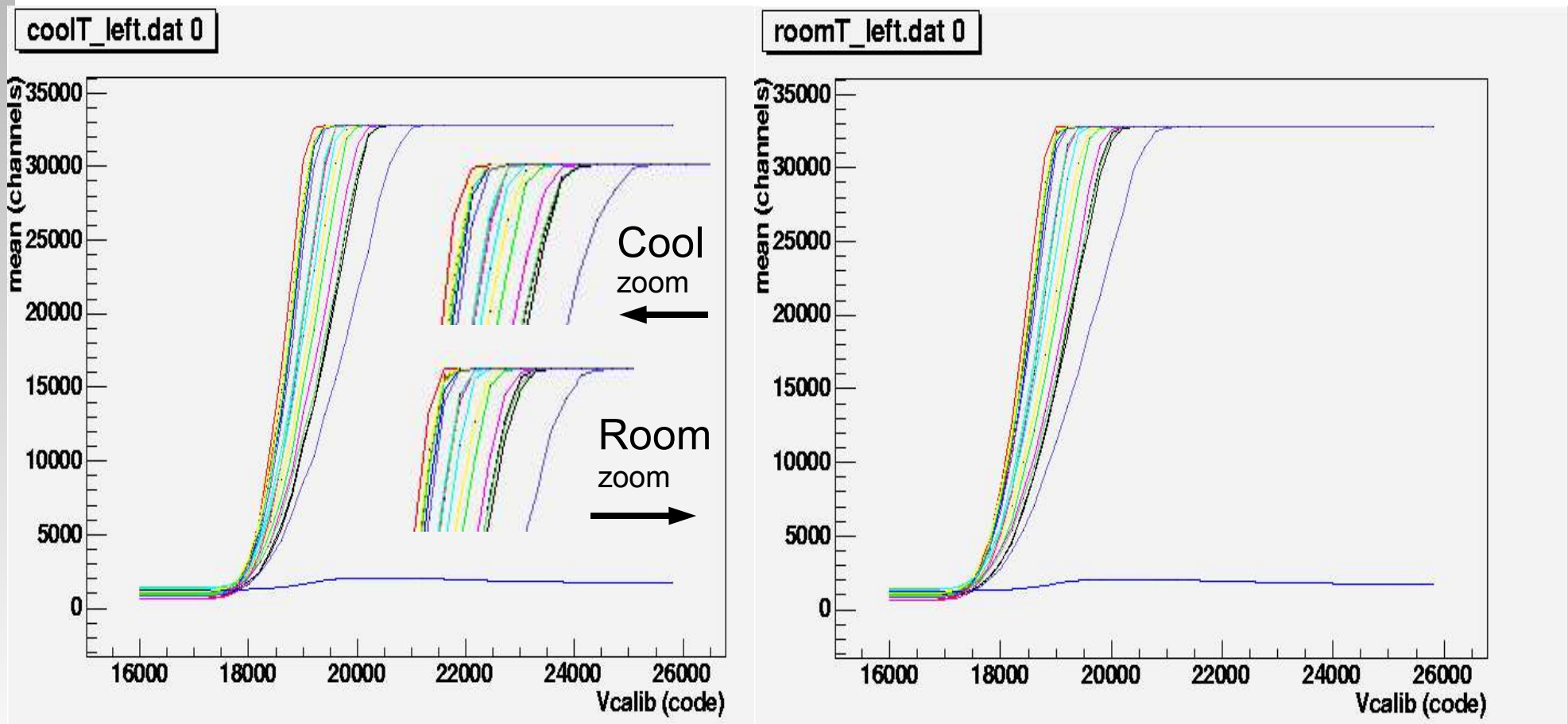
LEDdrv temp test

- ◆ Measured different components in Tcalib signal way:
 - LVDS to TTL conv.
 - Delay generator
 - LEDdriver
 - ◆ Total delay is in range of -1ns to +1ns for estimated temp. range 200deg.C
 - ◆ **LEDdrv system is temperature pretty stable** for our purposes.
 - ◆ Measured by oscilloscope TDS3054
- Cooled each one add -300ps delay, heated some +300ps each

TEMPERATURE sensitivity

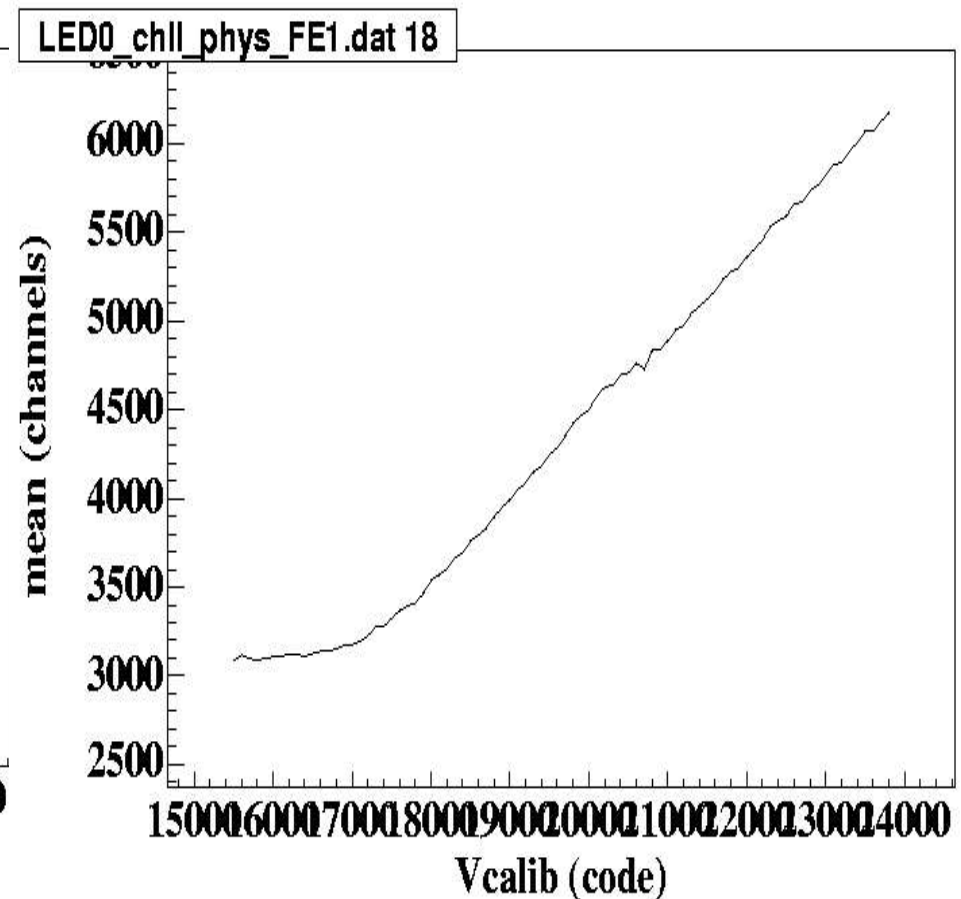
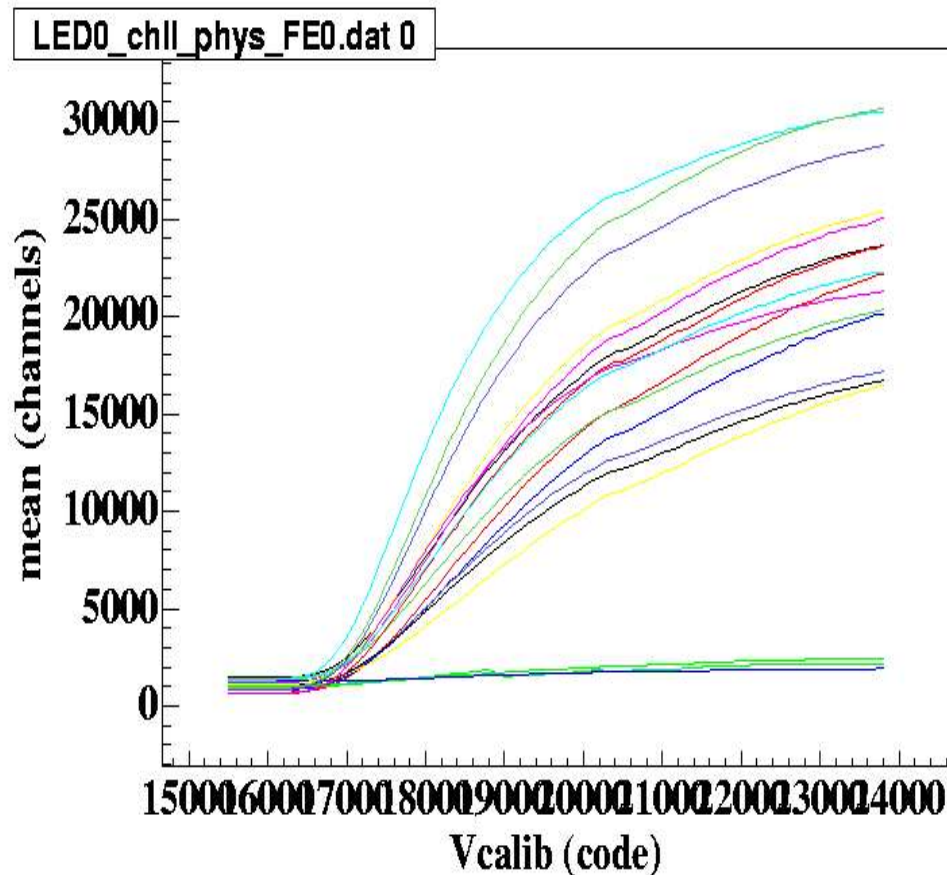
One CH LEDdrv, SiPM, linearity

- ◆ Calibration mode (high gain), ADC is saturated
- ◆ Small effect on temperature, will be estimated



CMB SiPM linearity with LEDdrv

- ◆ Saturation curve of SiPM
- ◆ PINphoto-diode response measured by Nanda Wattimena



CMB conclusion

- ◆ CMB is fully tested in parts LEDdrv, PINchain, CANbus
- ◆ Temperature stability is very good, well below 1ns @ normal range (40degC)
- ◆ 1hr Jitter is in range 300ps
- ◆ 12CH prototype with CANbus is expected around nov/dec
- ◆ Full production after final test with prototype