

Update on Chess1 laser scan

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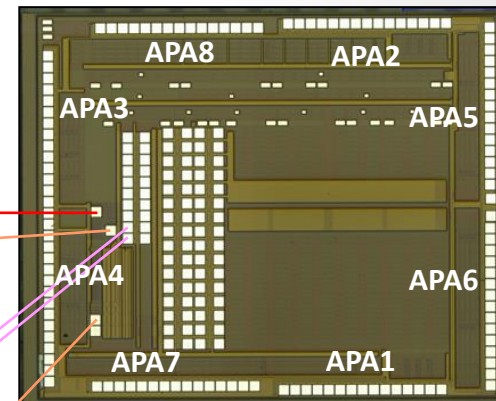
Front TCT

- Performed on almost all the kind of APA on DB11 Chess1
- Infrared laser
- Absorber on laser and power DAC to 69%
 - Still no calibration done yet
- Laser focus kept from last time

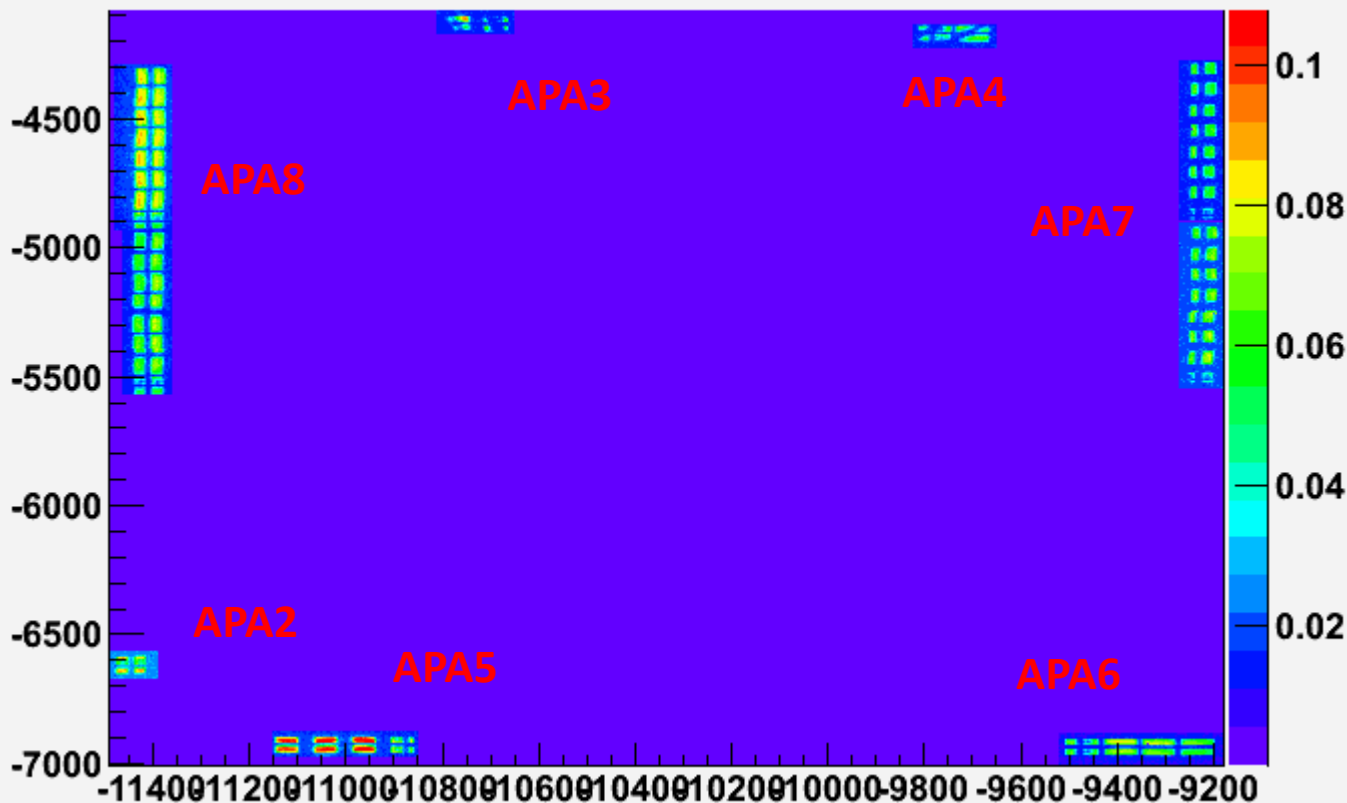
Global map

x and y axes in μm , z axis in V

Original design:
the position
inside the laser
is rotated 90deg
and flipped wrt
this view



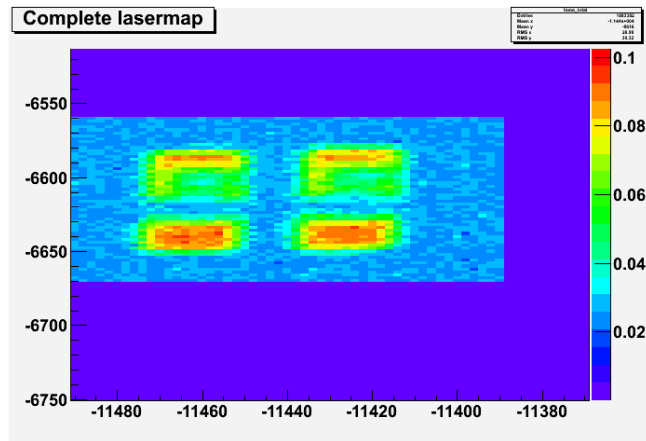
Complete lasermap



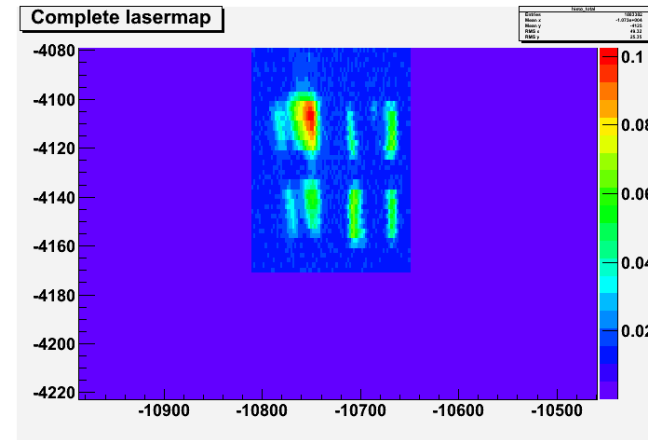
Note: there
are wires
passing over
APA4 and
APA3

Single APAs

APA2

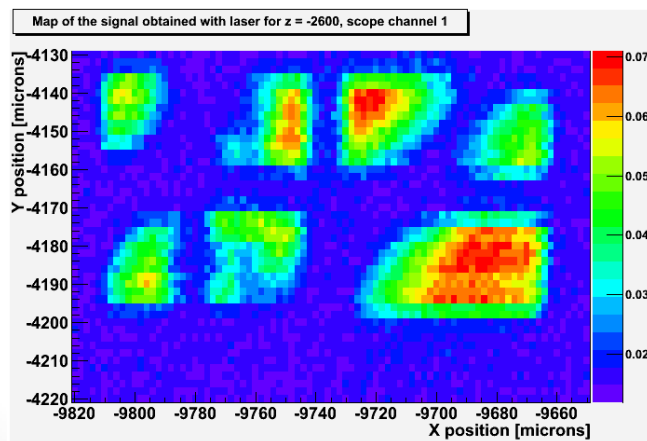


APA3

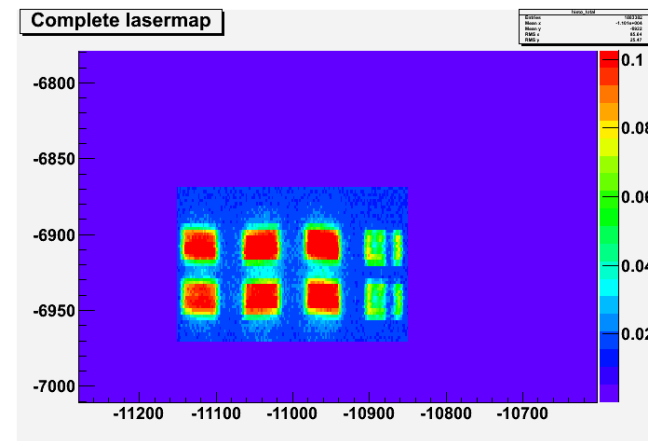


(laser power higher)

APA4



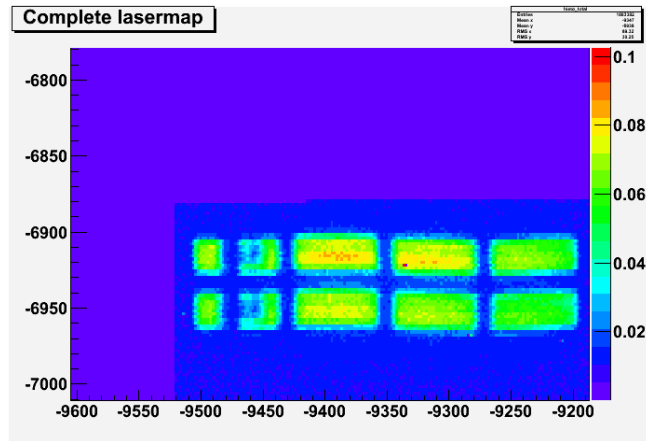
APA5



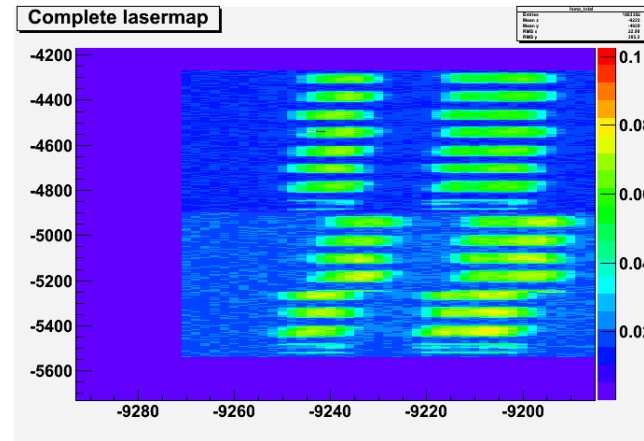
(laser power higher)

Single APAs

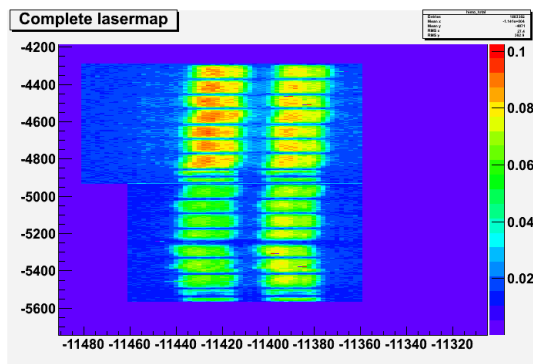
APA6



APA7

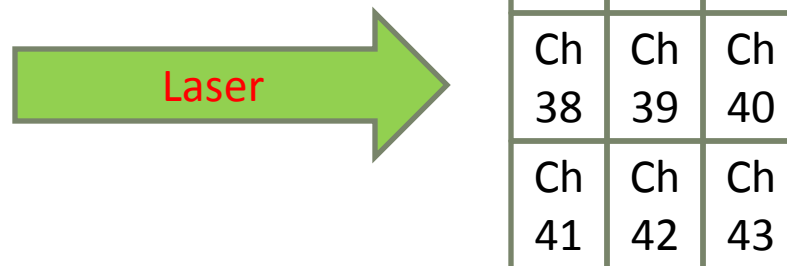


APA8



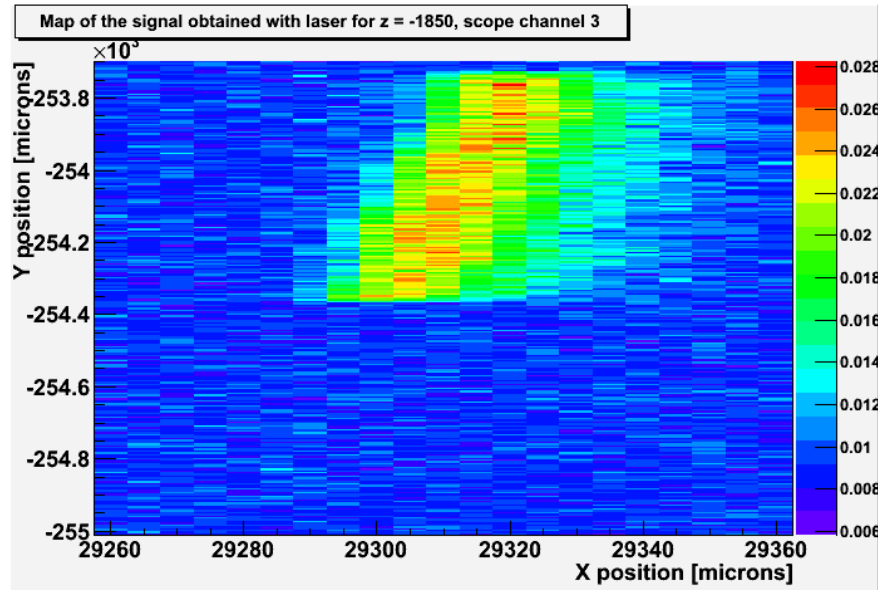
Edge TCT

- Another daughterboard, DB20, borrowed from Jens (thanks!)
- Edge TCT on APA8
 - Warning: not all pixels are on the edge (see global scan)
 - Manual inspection of APA8:



- Channels 35 and 38 inspected now
- Chip DACs as default
- 75V bias
- Laser power to 75% without absorber

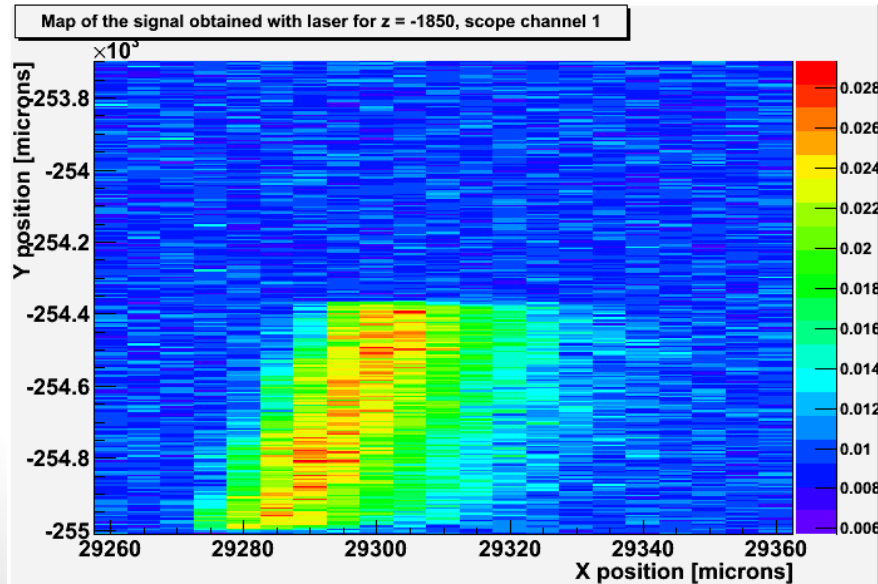
Edge TCT scan



Channel 38

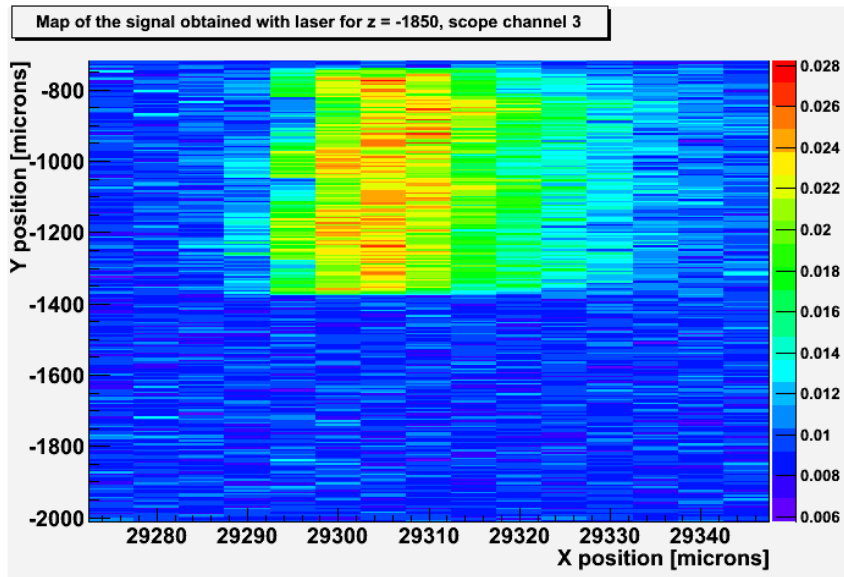
They are
flipped

Channel 35



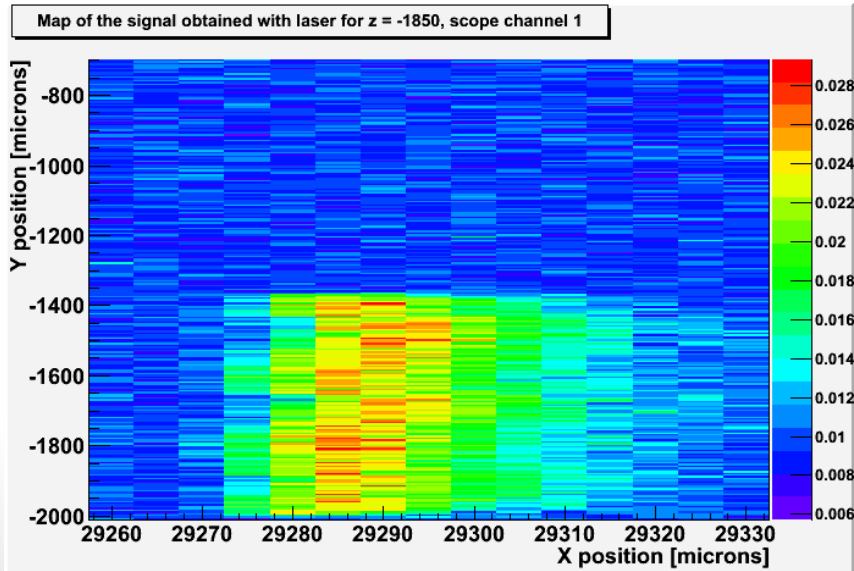
They are rotated
around the laser axis:
off-line correction!

Edge TCT scan corrected



Correction by $\sin(\alpha) = 0.022$
 $\alpha = 1.26$ deg (very small)

Non uniform structure could be
binning problem...



Depletion region seems of
about 20 to 30 μm .
Need some analysis on rise-
time to check eventual
diffusion!

Conclusion

- Front TCT scan understood in its basics
- Edge TCT currently under development

TO DO

- Investigate rise-time
- Calibrate laser
- Investigate different biases

Back-up: binning problem

