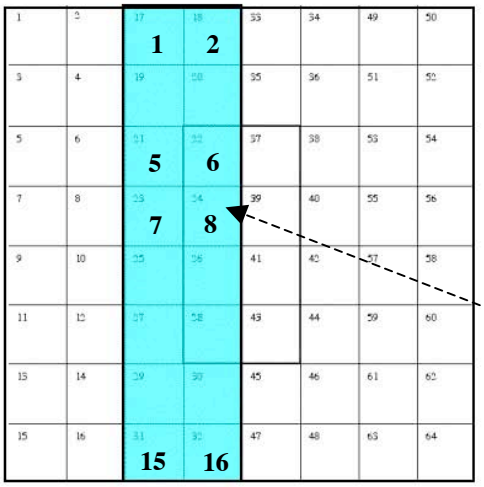
Burle MCP-PMT in the scanning setup during the ADC test: 1.19.2007

- Populate two columns of the tube, the rest is the pads are shorted to ground or amplifiers loaded by 50 Ohms.
- Burle MCP-PMT #11, serial number 09130301
- Increase voltage to 2.5kV to offset a pulse height loss due to splitter
- Have only 1 amplifier card available (the 2-nd one does not work), 1 CFD, 1 TDC and 1 ADC
- Split the amplifier signal to CFD & Phillips TDC branch, and to Phillips ADC branch
- Phillips TDC 7186 is CAMAC slot 11, Phillips ADC 7166 is in slot 12.



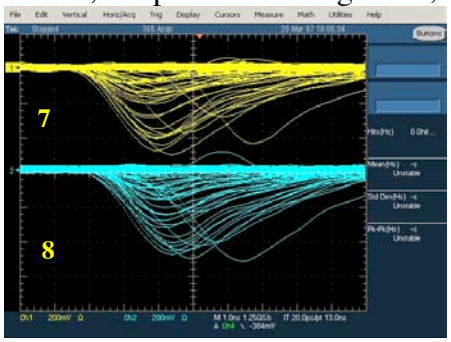
Connections:
Pad 17 -> TDC ch. 1, ADC ch. 1
Pad 18 -> TDC ch. 2, ADC ch. 2
…
Pad 31 -> TDC ch. 15, ADC ch. 15
Pad 32 -> TDC ch. 16, ADC ch. 16

Amplifier channel numbers on a card

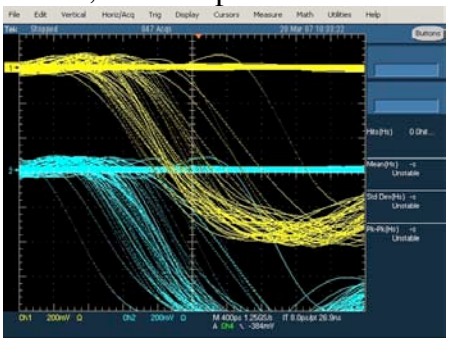
Look at the charge sharing with a splitter for ADC: 3.20.2007

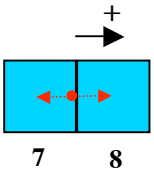
- MCP-PMT at **–2.5kV**; the early design of the MCP-PMT.
- Use a passive splitter to provide an input to CFD & ADC.
- Top trace: pad 23, bottom trace: pad 24.
- CFD at a nominal threshold of **–100mV**.

Center, Amplifier/ADC signals 7,8



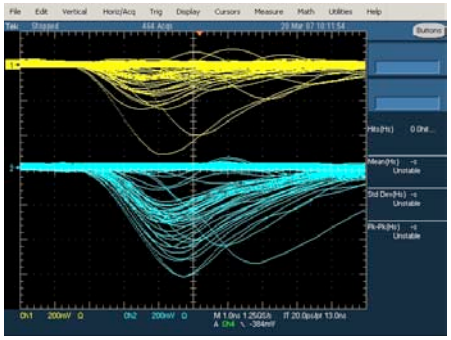
Center, CFD outputs



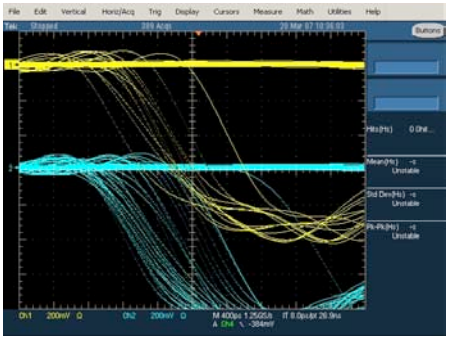


(x,y): 39.5, 12.0

+1mm

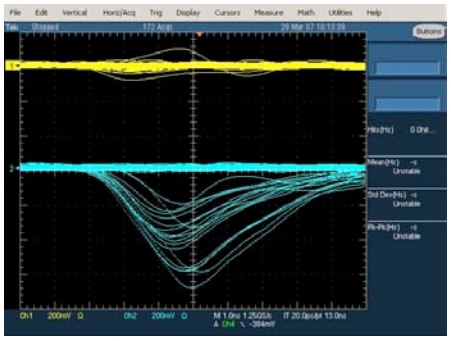


+1mm

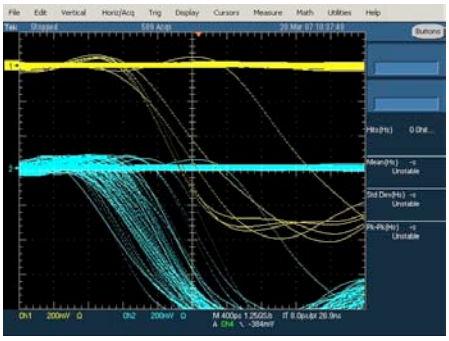


(x,y): 38.5, 12.0

+2mm

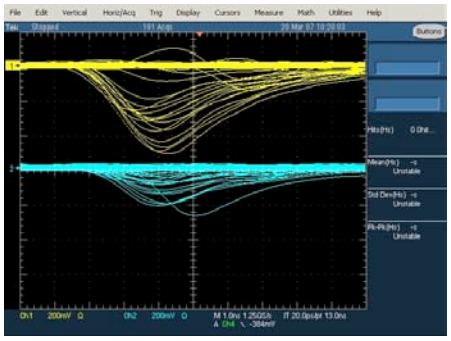


+2mm

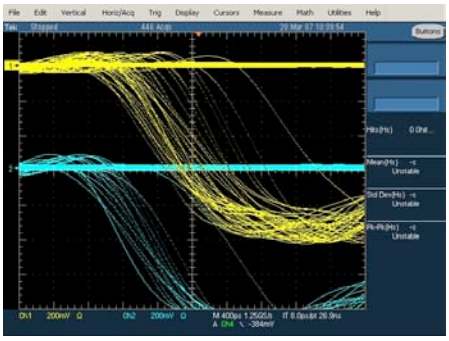


(x,y): 37.5, 12.0

-1mm

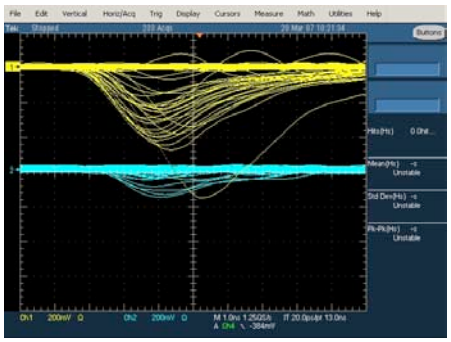


-1mm

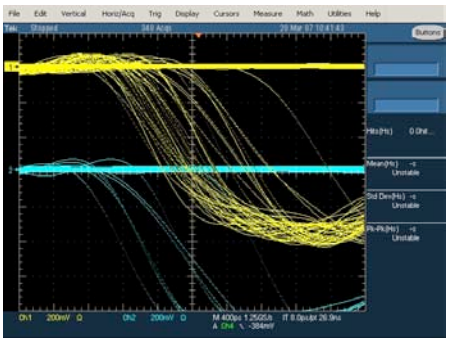


(x,y): 40.5, 12.0

-2mm



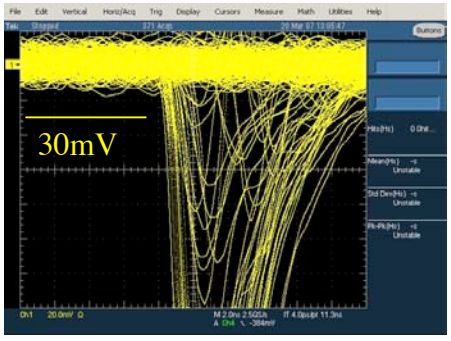
-2mm



(x,y): 41.5, 12.0

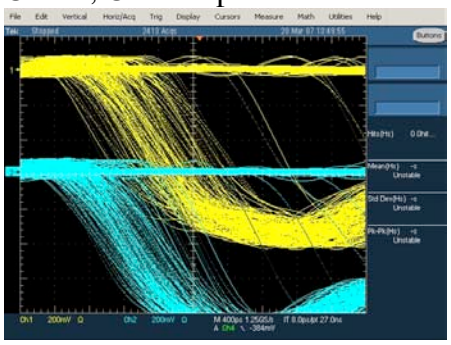
- Change CFD threshold to **–30mV**.

Is a 30mV threshold safe ? It looks OK in the scanning setup:

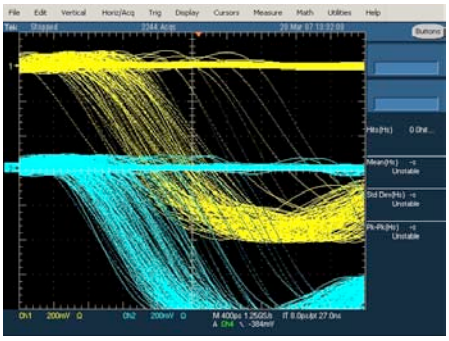


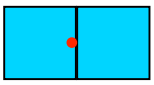
(x,y): 39.5, 12.0

Center, CFD outputs



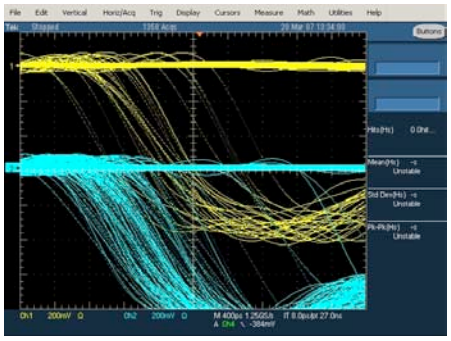
+1mm



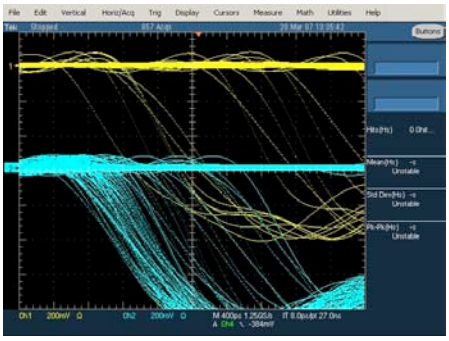


7 8

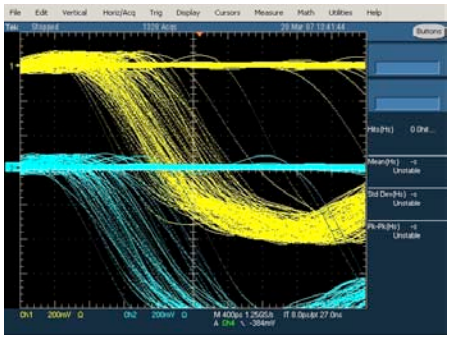
+2mm



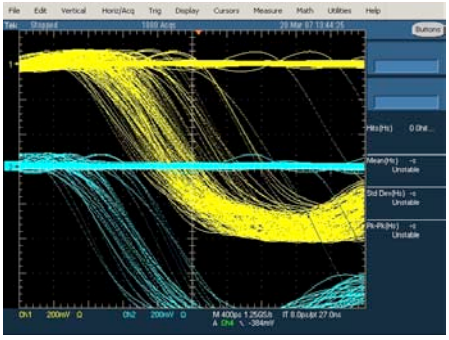
+3mm



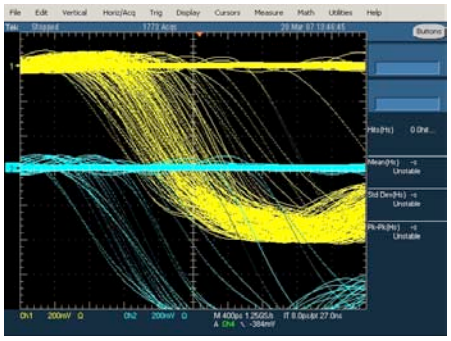
-1mm



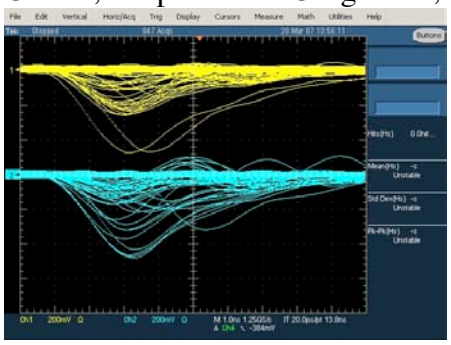
-2mm



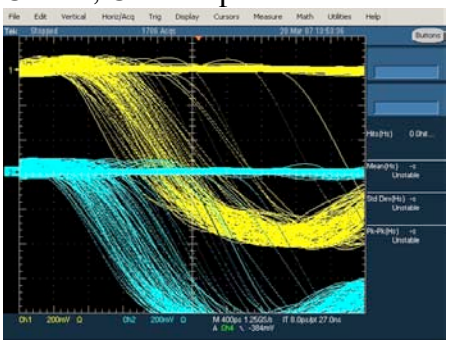
-3mm

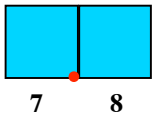


Corner, Amplifier/ADC signals 7,8

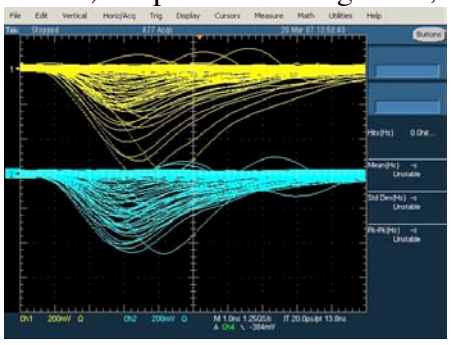


Corner, CFD outputs

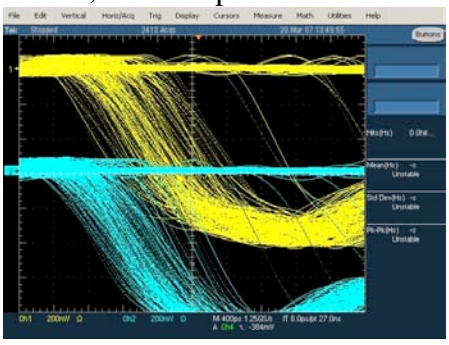


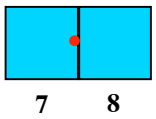


Center, Amplifier/ADC signals 7,8



Center, CFD outputs

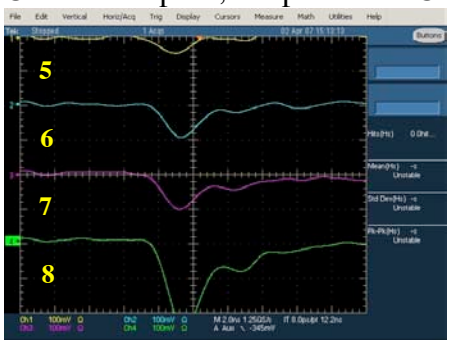


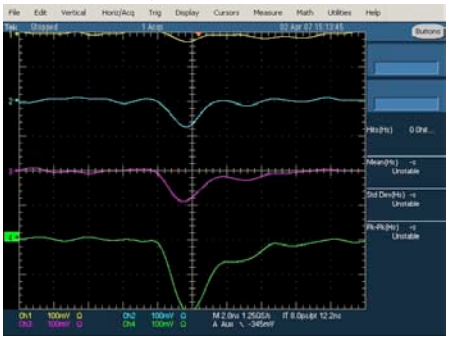


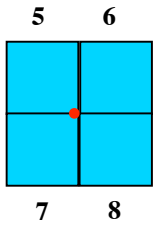
Seems to fire in the corner with similar frequency.

****
From: Joe Schwiening <Jochen.Schwiening@slac.stanford.edu>
To: "Jaroslav Va'Vra" <jjv@slac.stanford.edu>
Subject: placing the laser in a specific position in X and Y
this is a comment, don't type it
the computer in the scanning setup is called DIRCQC
log into the console (you may have to switch the screen on)
or ssh to DIRCQC from your laptop with
ssh -X jjv@dircqc
go to the directory with the script
cd /u2/DAQ/CosmicRayTelescope/ScanTests/special_cases
the middle (start) position between pad 23 and 24 we used today was
the first value is X, the second value is Y (mm unit)
./set_to_position.pl 39.5 12.0
if you want to move to your right (looking at the back of the PMT)
towards pad 24 use a smaller value for the first value
./set_to_position.pl 38.5 12.0
if you want to move to your left (looking at the back of the PMT)
towards pad 23 use a larger value for the first value
./set_to_position.pl 40.5 12.0
****
To place it to the corner I used:
./set_to_position.pl 39.5 9.0
****

Corner of 4 pads, Amplifier/ADC sig. 100mV/div, 2ns/div 4.2.2007

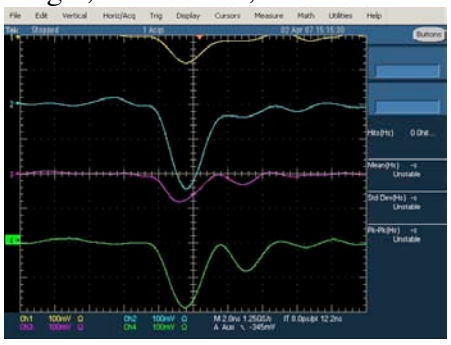




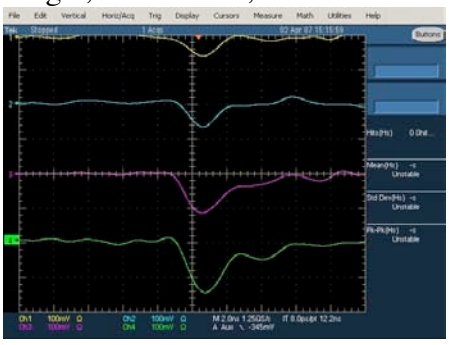


(x,y): 39.5, 9.0

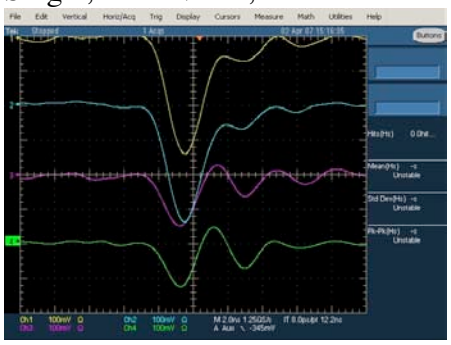
Single, 100mV/div, 2ns/div



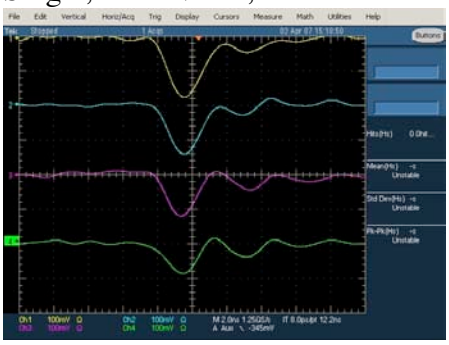
Single, 100mV/div, 2ns/div



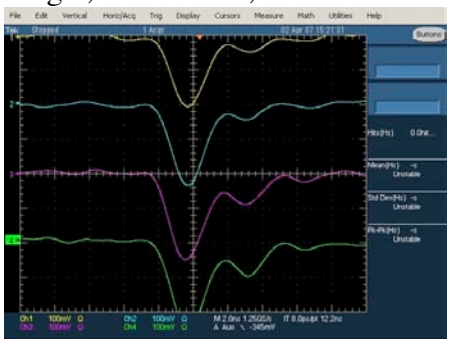
Single, 100mV/div, 2ns/div



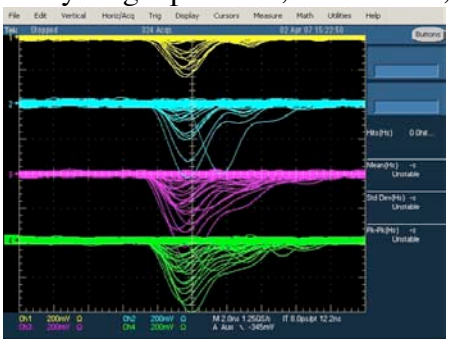
Single, 100mV/div, 2ns/div



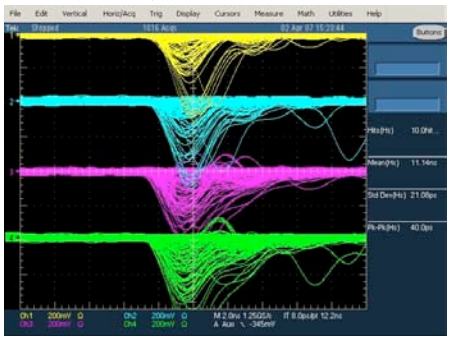
Single, 100mV/div, 2ns/div



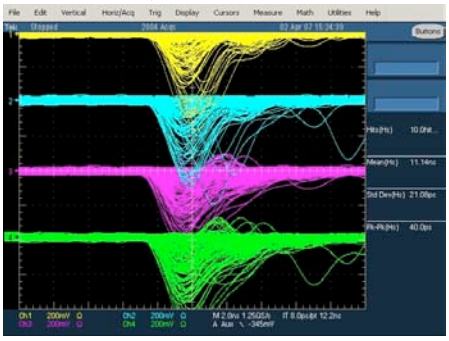
Many single pe$^-$ shots, 200mV/div, 2ns/div

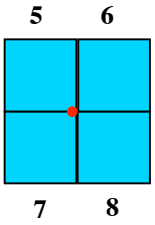


200mV/div, 2ns/div



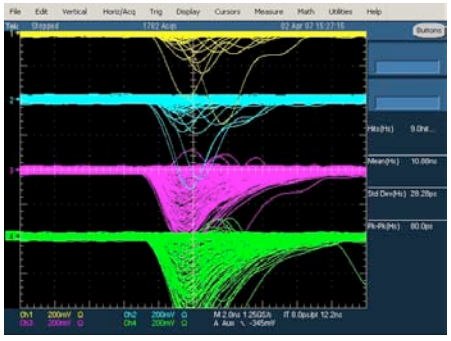
200mV/div, 2ns/div



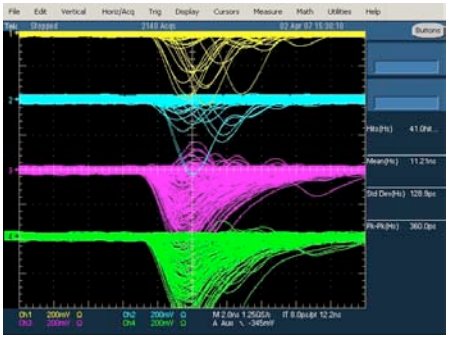


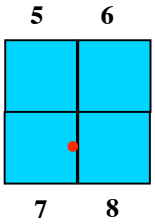
(x,y): 39.5, 9.0

200mV/div, 2ns/div



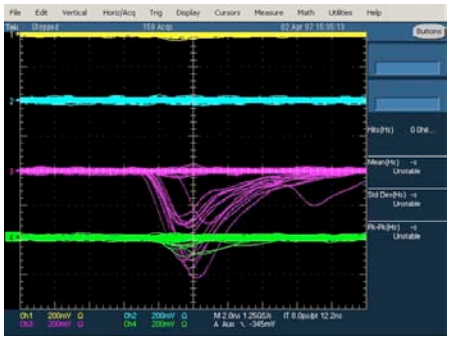
200mV/div, 2ns/div

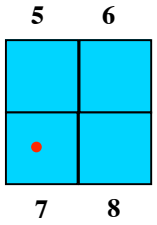




(x,y): 39.5, 12.0

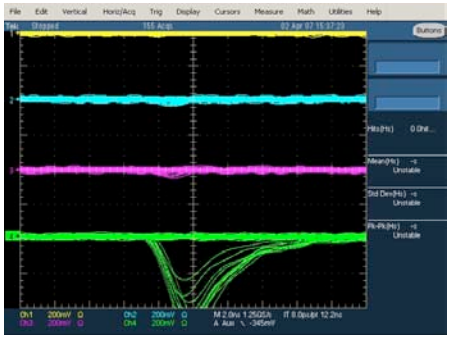
200mV/div, 2ns/div

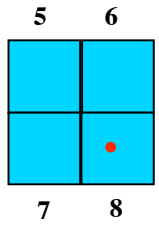




(x,y): 42.5, 12.0

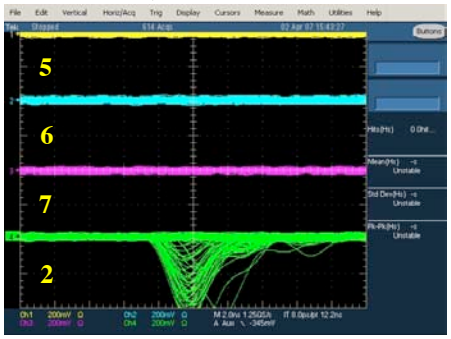
200mV/div, 2ns/div



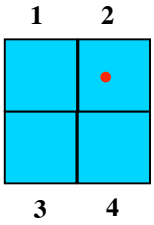


(x,y): 36.5, 12.0

200mV/div, 2ns/div



Edge pad



(x,y): 36.5, -6.0

Worse pulse height spectrum near the MCP-PMT edge ? Smaller gain very likely.