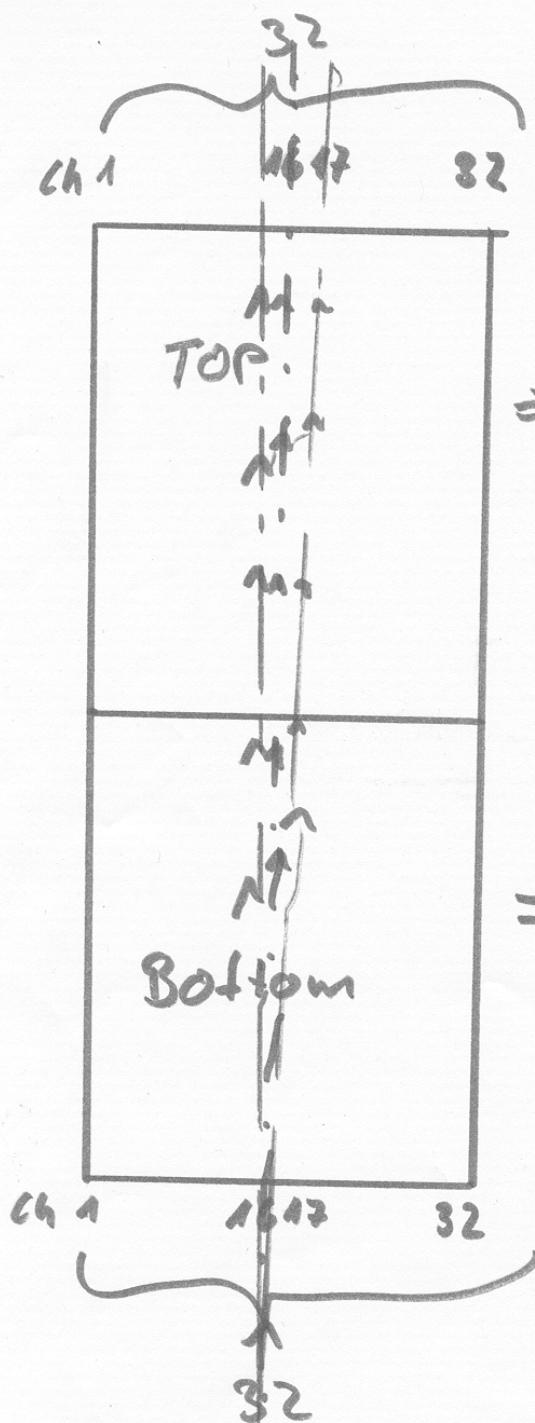


FTPC - TEST Configuration

FEE CARD #12

①



⇒ FTPC Resistor Configuration

$$I-BiasP = 237 K\Omega$$

$$I-BiasS = 511 K\Omega$$

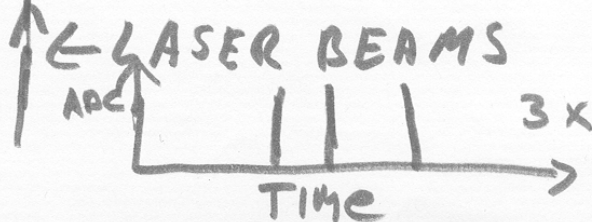
$$I-BiasB = 261 K\Omega$$

⇒ TPC Resistor Configuration

$$I-BiasP = 56.2 K\Omega$$

$$I-BiasS = 56.2 K\Omega$$

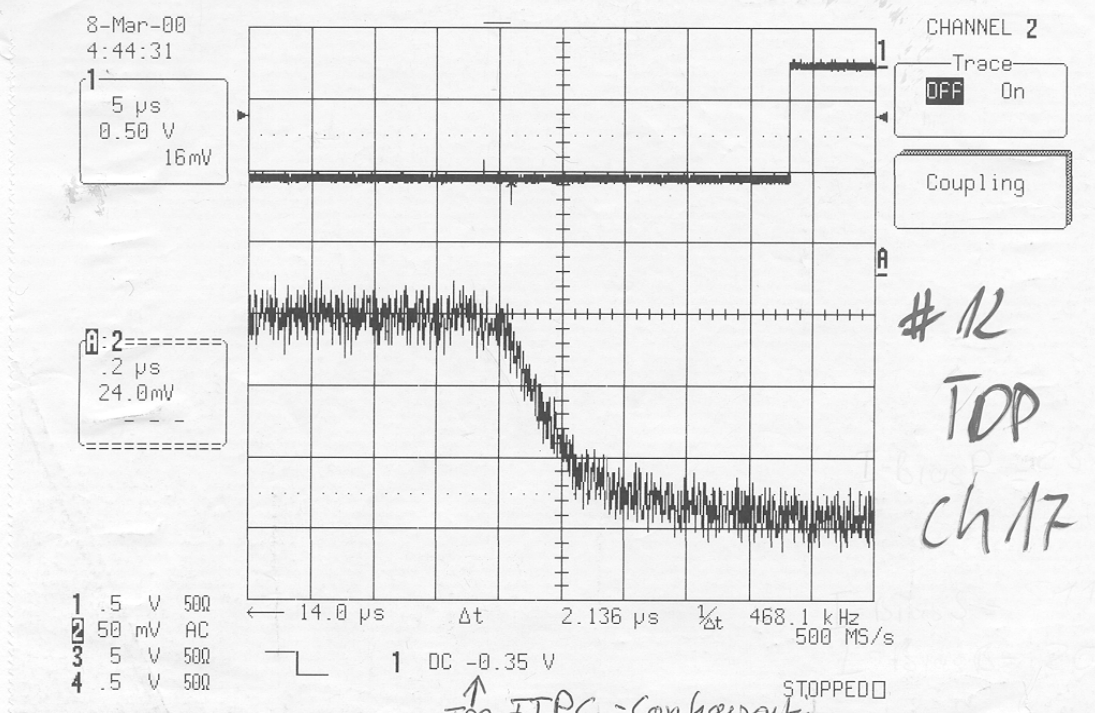
$$I-BiasB = 75 K\Omega$$



Analog Chamber + Preamp Response

(2a)

①



CARD #12

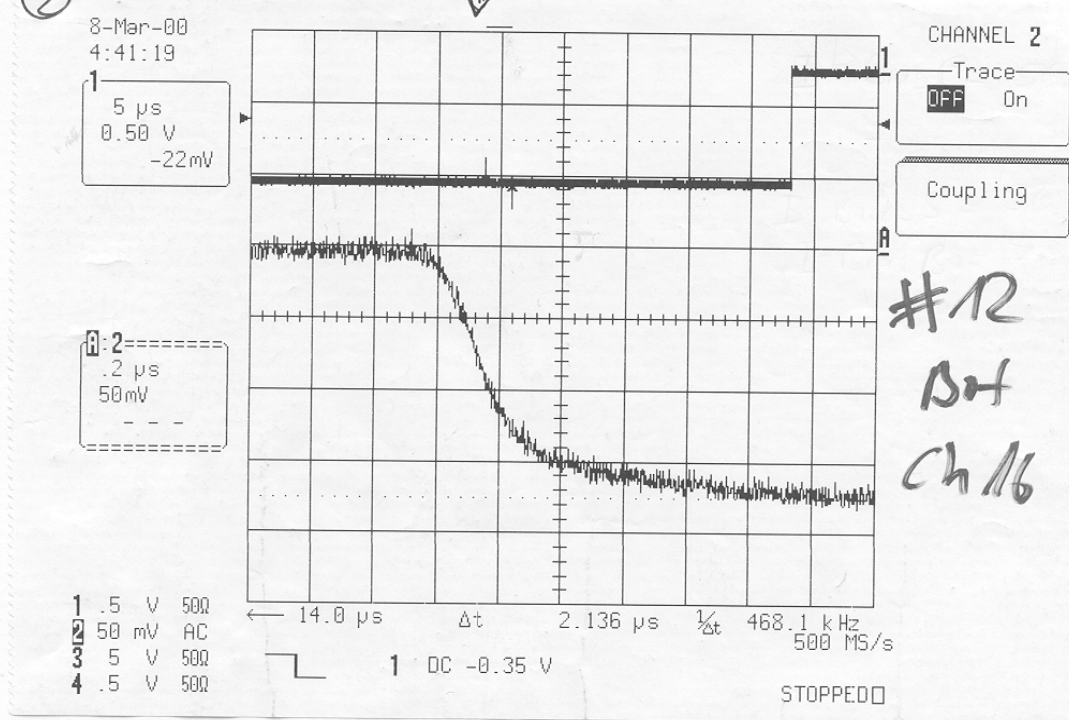
↑ TOP FTPC - Configuration

$$(P1) = SAS - VRF = 3.3[V]$$

$$(P2) = SAS - VRP = 3.8[V]$$

Bottom TPC - Configuration

②



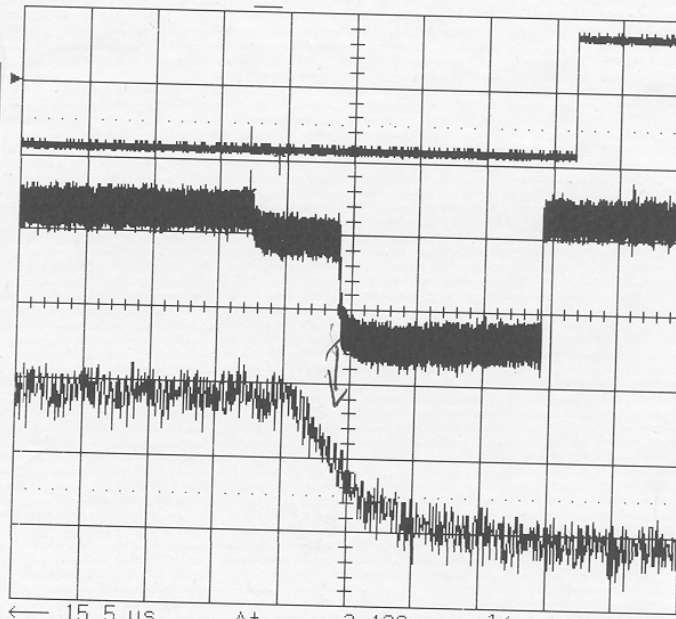
③

8-Mar-00
8:46:04

1
5 μ s
0.50 V
16mV

2
5 μ s
50mV
-20.3mV

3:2
.2 μ s
33.5mV



CHANNEL 2
Trace OFF ☒ On
Coupling
ZOOM
FIND
Gain Fixed variable
Grids Single Dual Quad Octal

1 .5 V 50 Ω
2 50 mV AC
3 5 V 50 Ω
4 .5 V 50 Ω

15.5 μ s Δt 2.136 μ s $1/\Delta t$ 468.1 kHz
500 MS/s
1 DC -0.35 V

STOPPED

Top \uparrow

CARD#12

P1 = 3.3 V
P2 = 3.8 V

Bot \downarrow

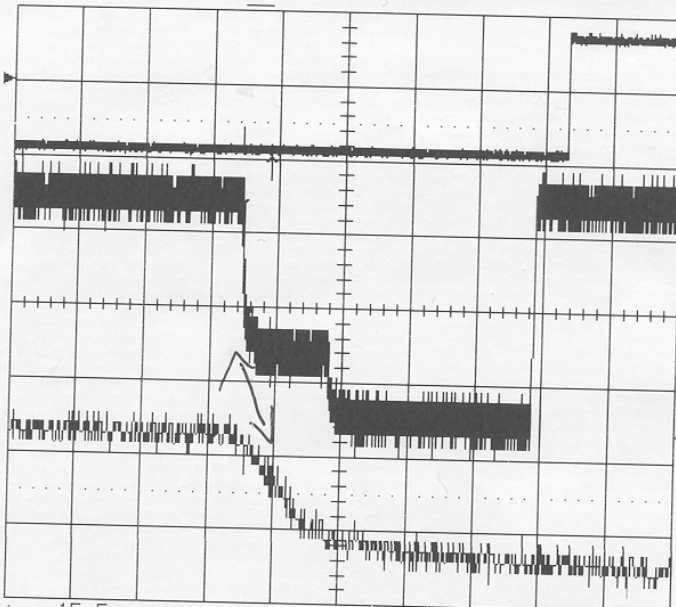
④

8-Mar-00
8:43:53

1
5 μ s
0.50 V
-21mV

2
5 μ s
100mV
-182mV

3:2
.2 μ s
112mV



TRACE A
Trace OFF ☒ On
SETUP
MULTI ZOOM & AUTO SCROLL

1 .5 V 50 Ω
2 .1 V AC
3 5 V 50 Ω
4 .5 V 50 Ω

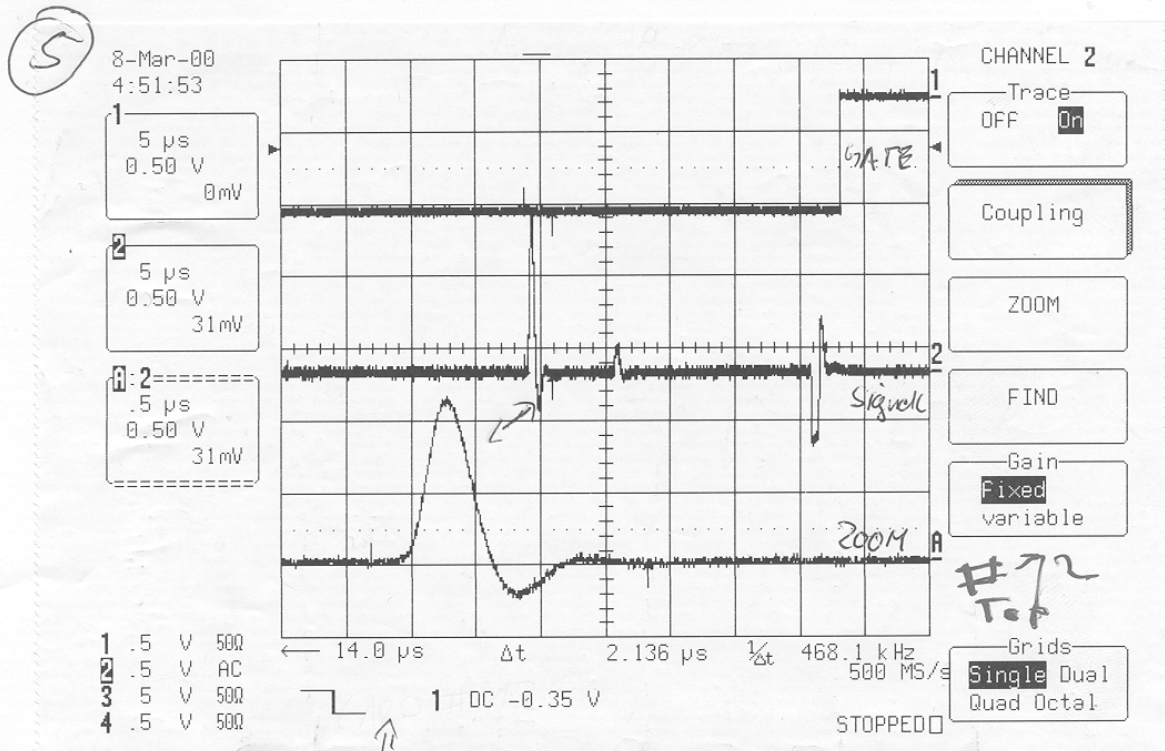
15.5 μ s Δt 2.136 μ s $1/\Delta t$ 468.1 kHz
500 MS/s
1 DC -0.35 V

STOPPED

For Math use
max points
500

Analog LASER Signals

3

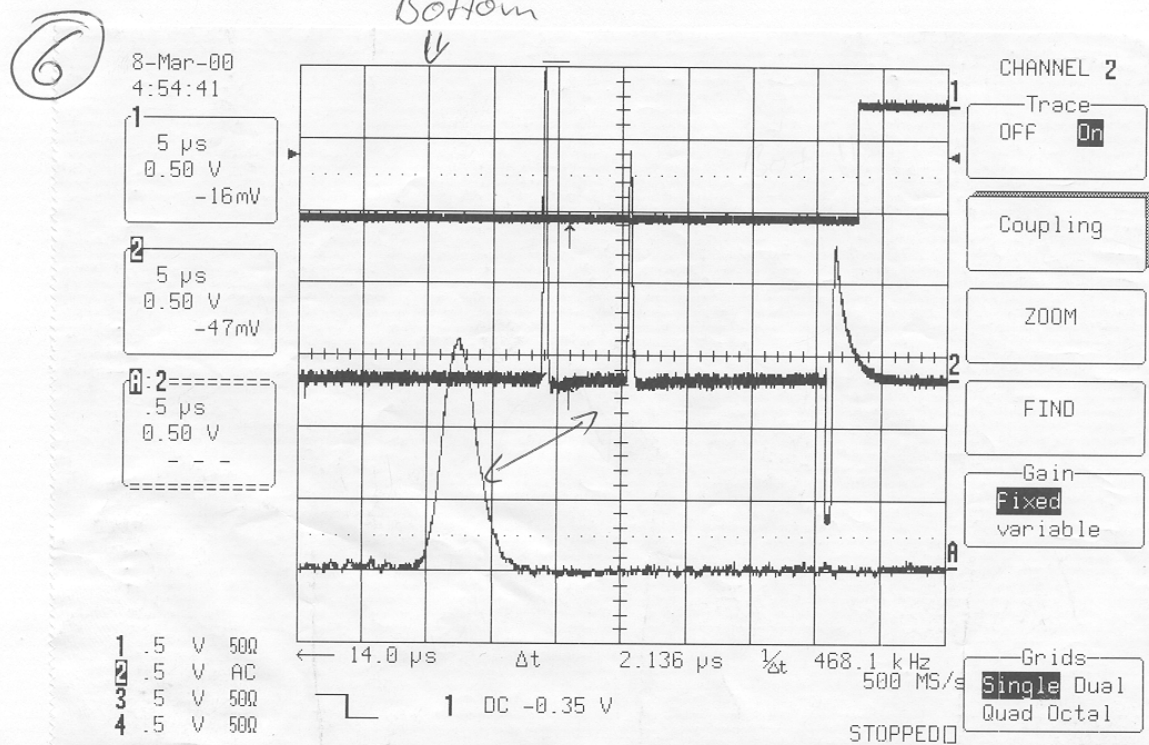


TOP

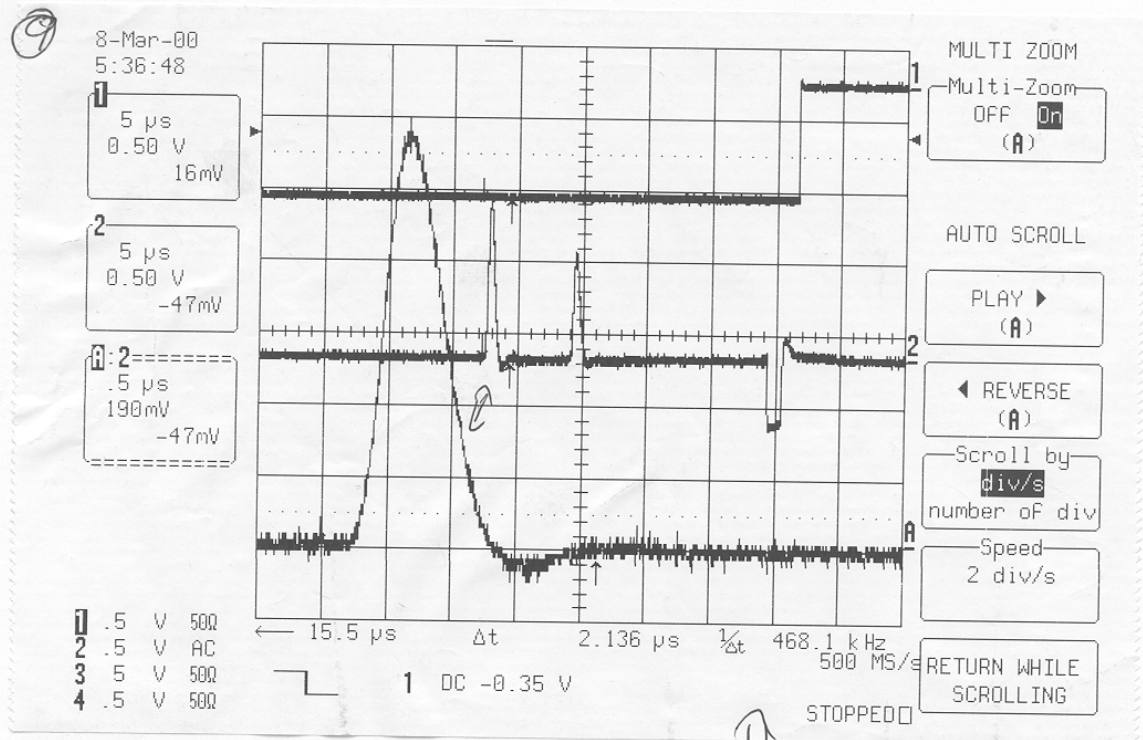
CARD #12

$P1 = 3.3 \text{ nV}$
 $P2 = 3.8 \text{ nV}$ } orig. TPC config.

Bottom



Analog Response to changed Ref. Voltage ⑤

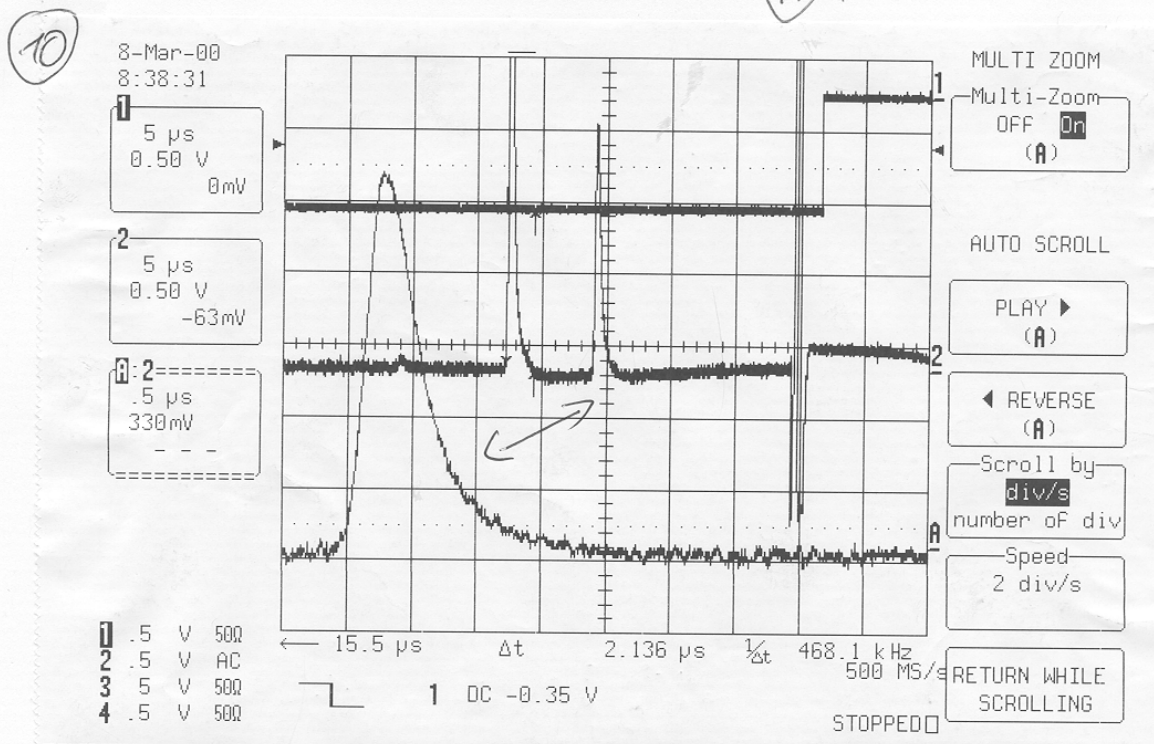


$P1 = 0.04V$ TOP

$P2 = 0.02V$

CARD #12

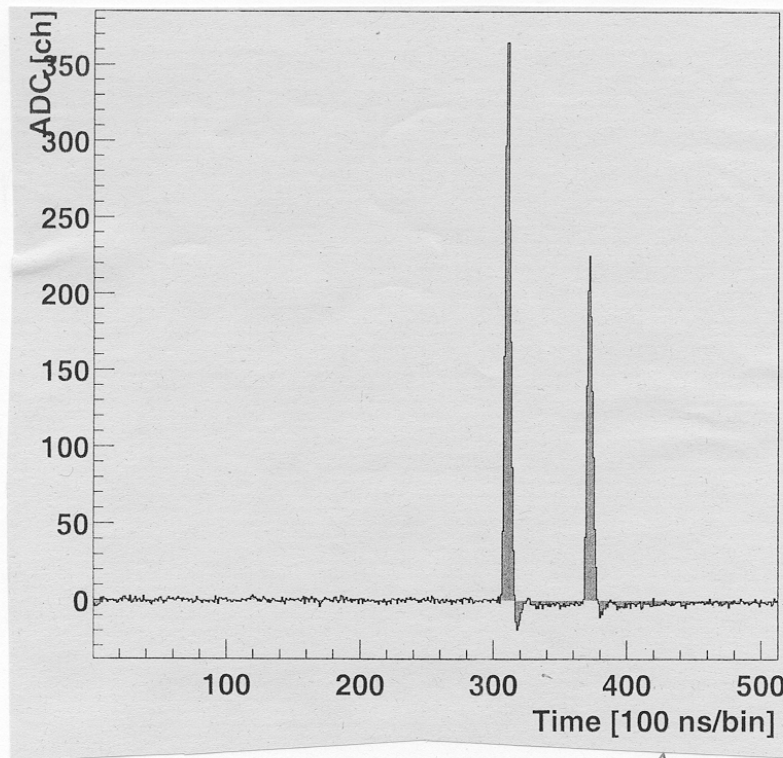
Bottom



Digital Signals after Microscopy + Analysis.

⑥

⑪



ADC = Max 1024
10 bit
100ns/bin

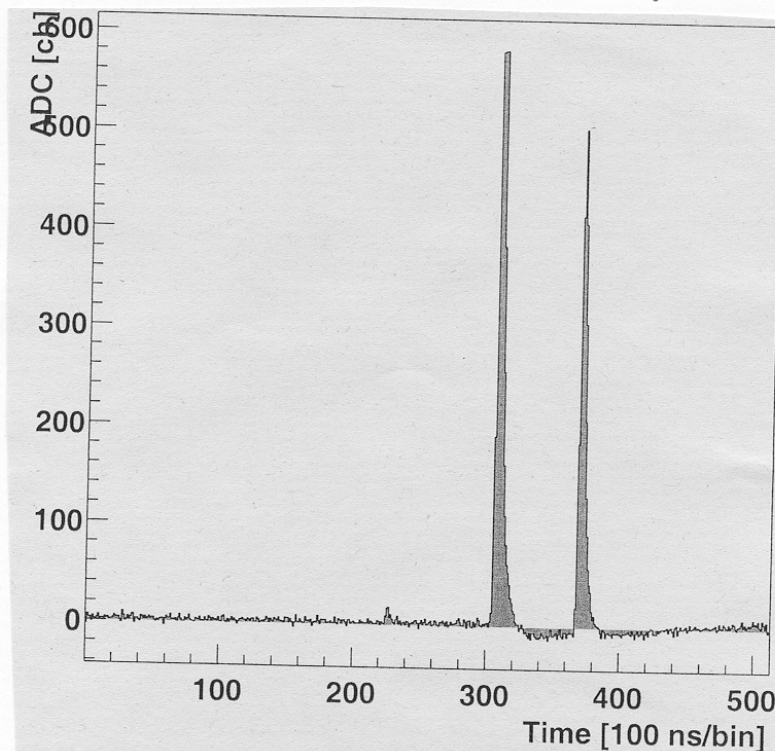
CARD #12

$p1 = 0.01 \text{ V}$
 $p2 = 0.02 \text{ V}$

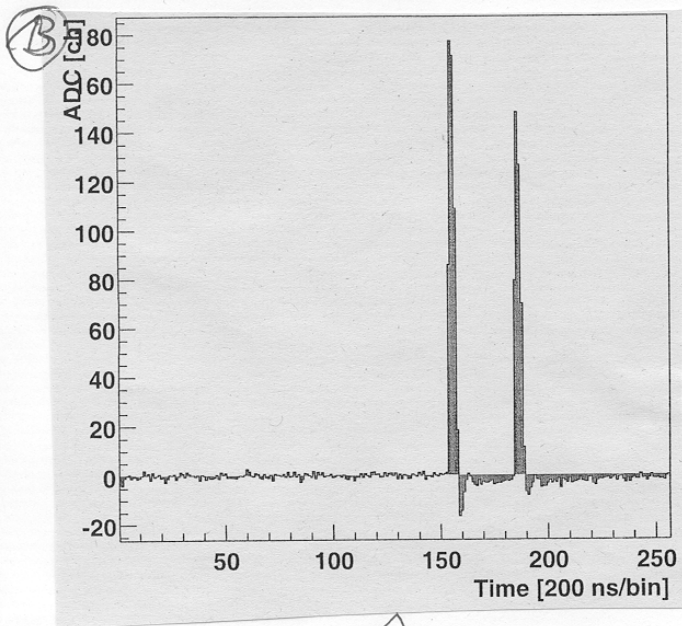
↑↑ TOP

↓↓ Bottom

⑫



Digital Rebinned + compressed signal (7)



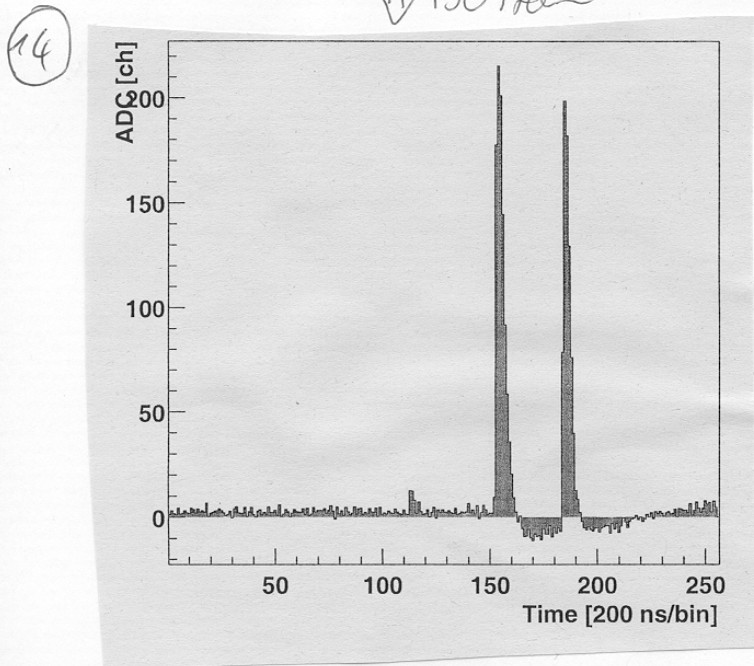
↑↑
TOP

$$p1 = 0.01 [V]$$

$$p2 = 0.02 [V]$$

CARD #12

↓↓ Bottom



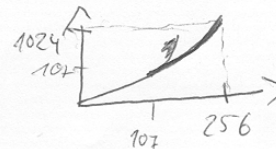
$$\text{Rebinned} = \frac{t_{11} + t_{21}}{2} = t_{12}$$

$$t_{11} = \text{time bin } 100\text{ns}$$

$$t_{21} = \text{next time bin } 100\text{ns}$$

$$t_{12} = \text{Mean ADC Value for } 200\text{ns clocking}$$

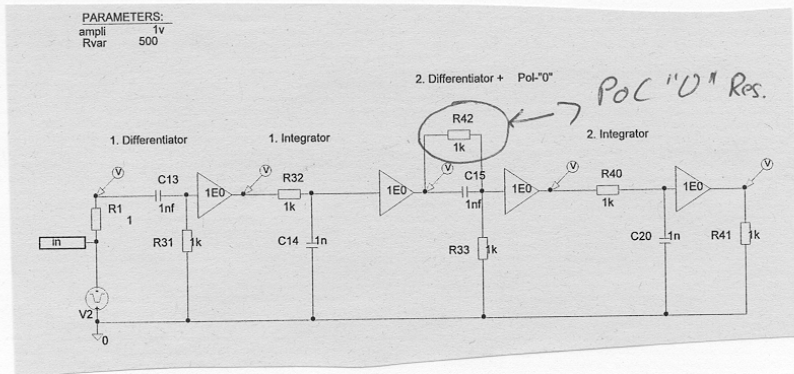
$$\text{Compressed} = \text{Max ADC} = 8\text{bit}$$



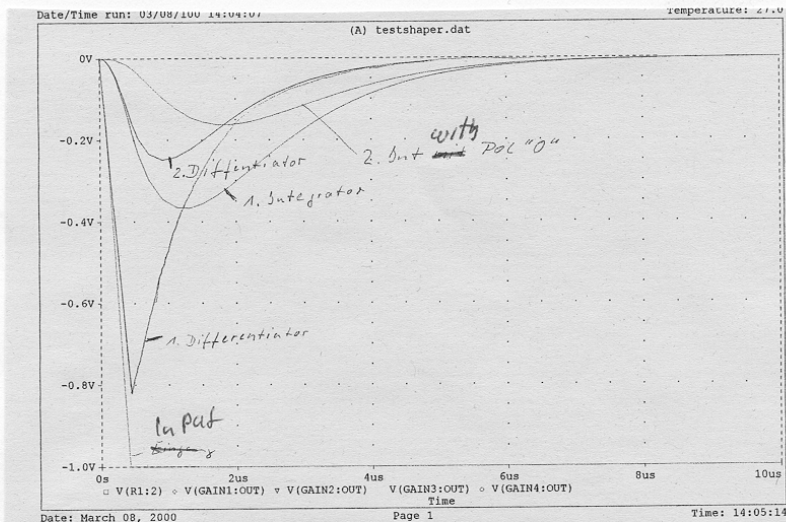
PRINCIPLE OF SHAPER ???

8

15



16



17

