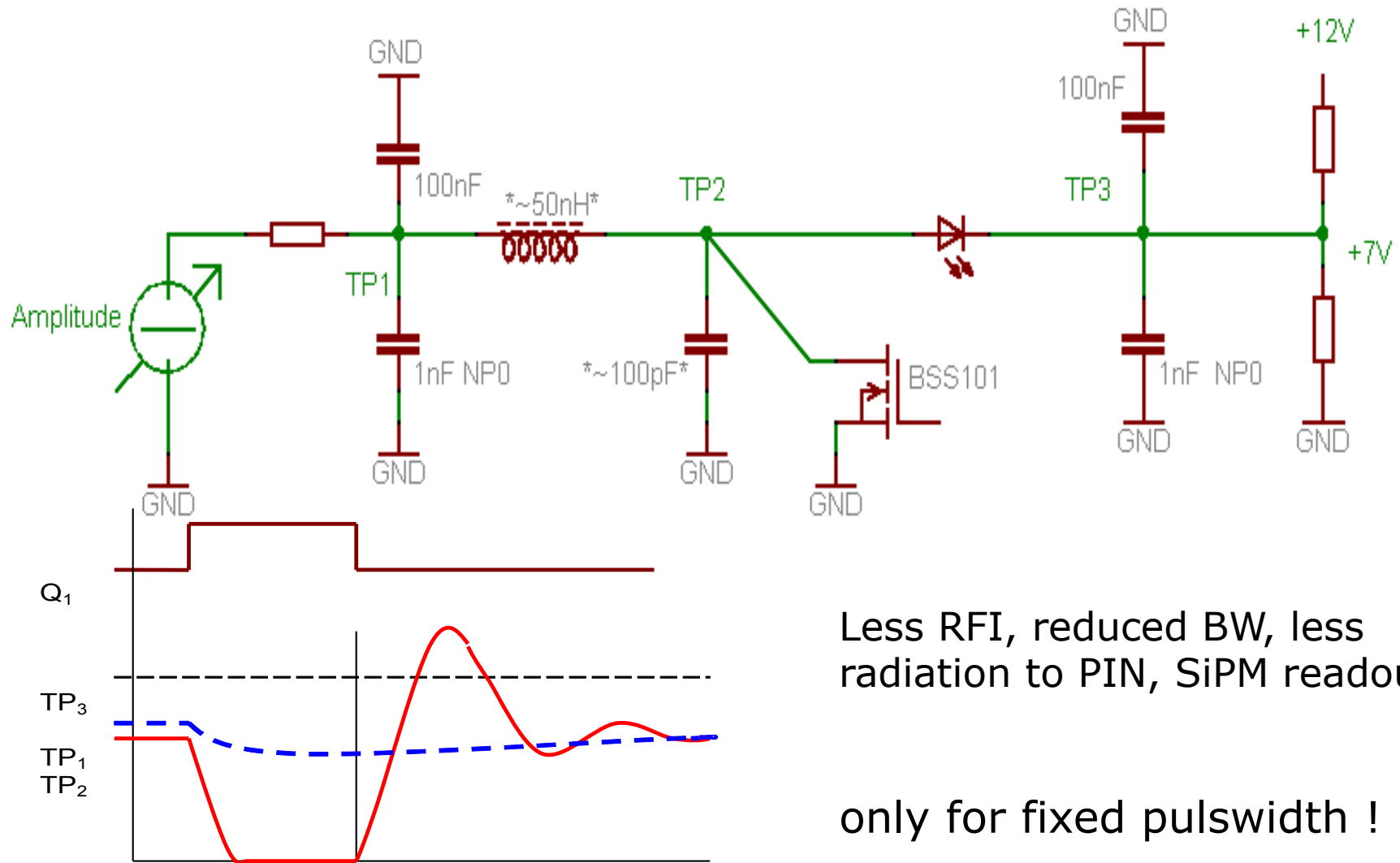


More tests with **CMB** and LEDdriver

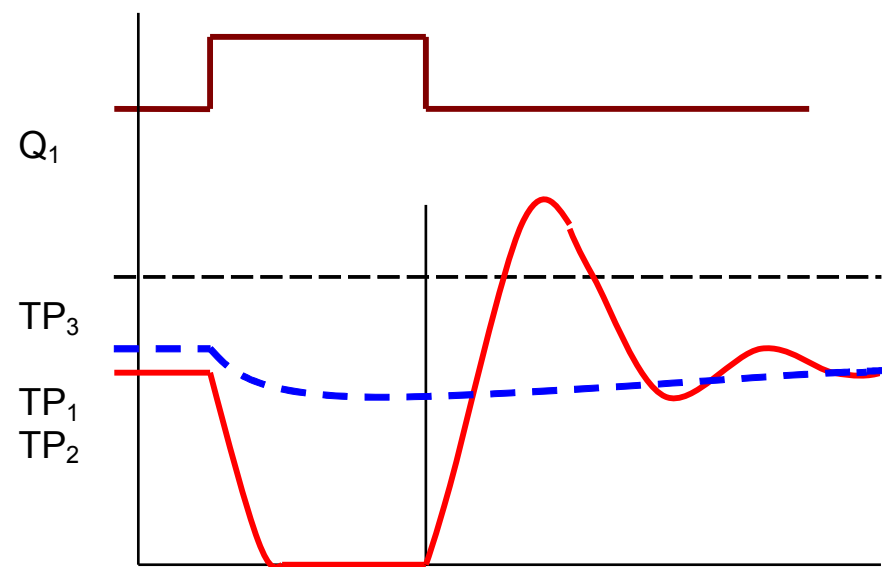
Ivo Polák
Institute of Physics, Prague

Quasi-resonant LED driver, an idea



Less RFI, reduced BW, less radiation to PIN, SiPM readout

only for fixed pulswidth !



Original April plot abt 80ns pulswidth



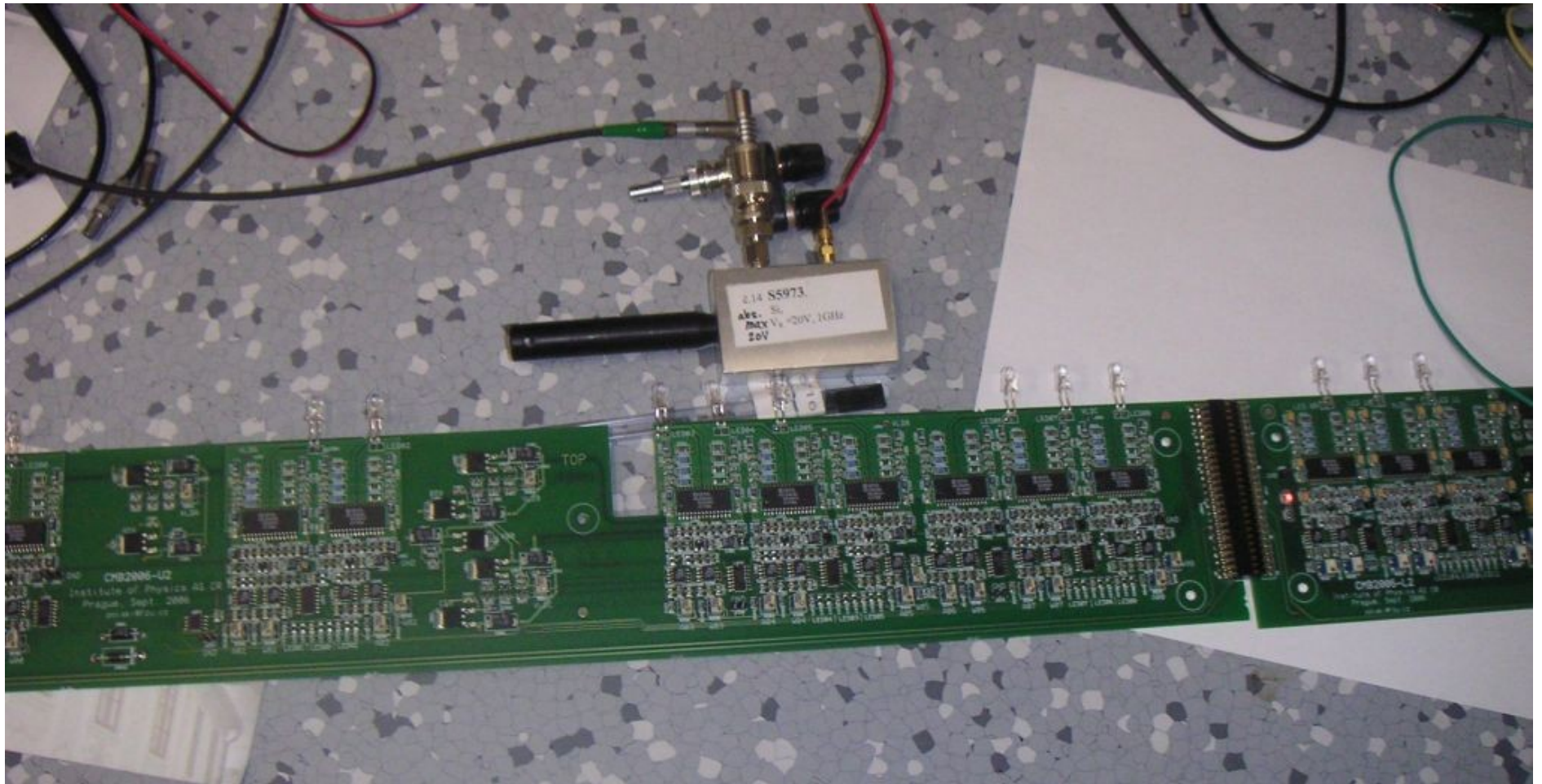
LED to PIN **waveform** test

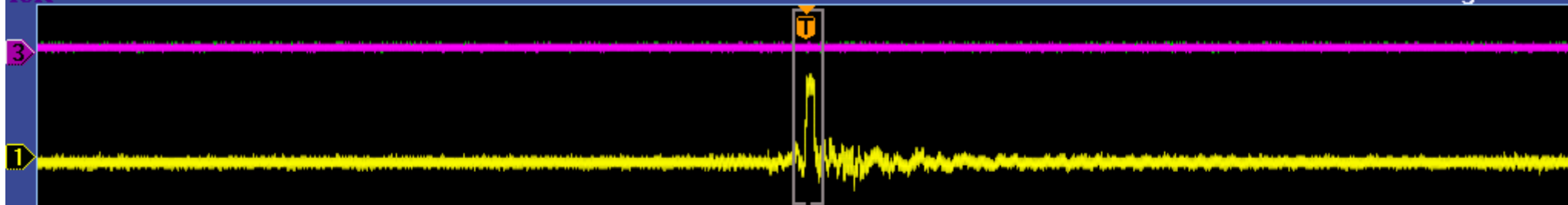
- Non uniform response from different UV LED
- 9 LEDs measured at one CMB
- Significant errors
 - scattering of the light at Alu-box (air-gap coupling)
 - **E**lectro **M**agnetic **I**nterference from LEDdrv to PIN-PD

LED to PIN waveform

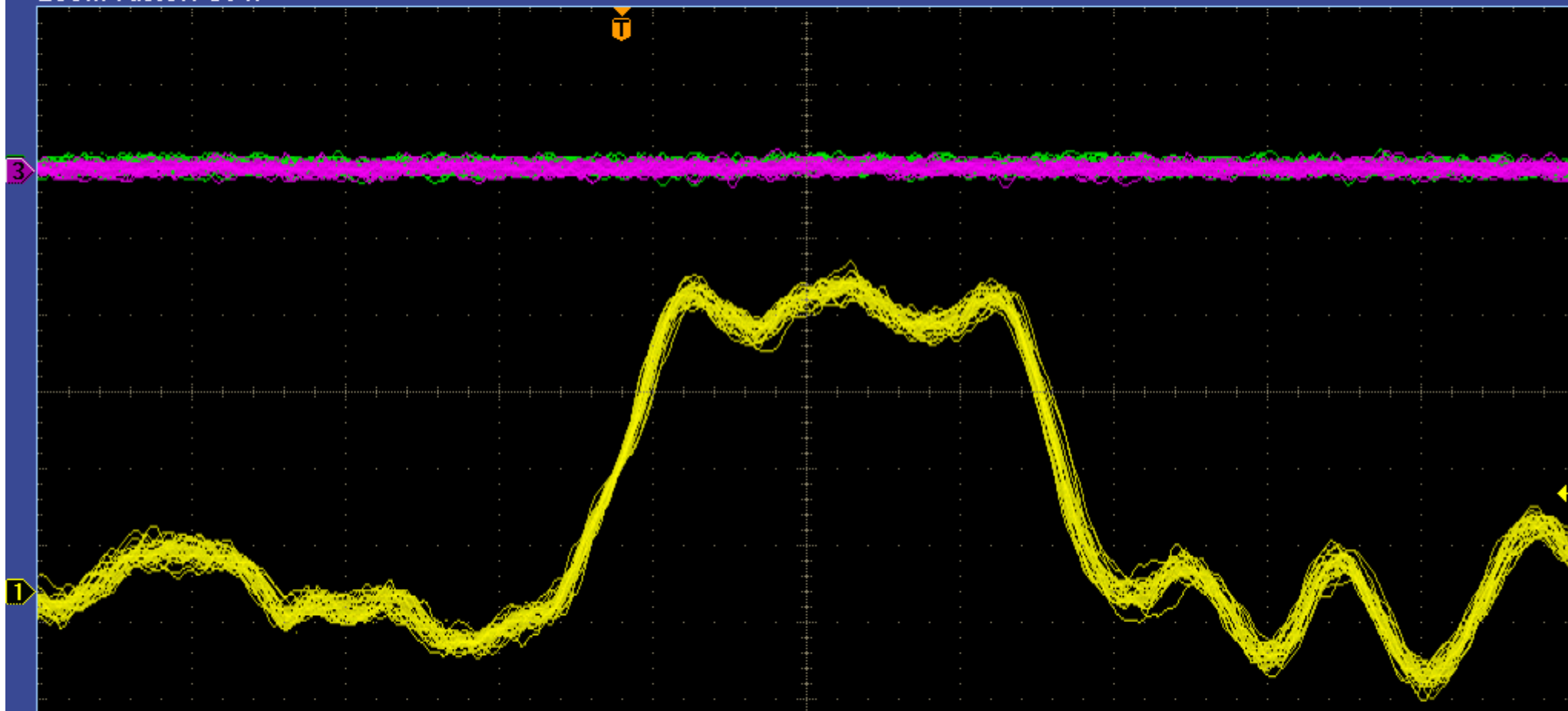
PIN PD Hamamatsu S5973

10V bias, 50Ohm input 1GHz Oscilloscope





Zoom Factor: 50 X

1 1.00mV Ω

3 2.00 V

4 2.00 V

Saving to E:/tek00004.png

	Value	Mean	Min	Max	Std Dev
4 Rise	4.200ns	Low signal amplitude			
4 Fall	3.133ns	Low signal amplitude			

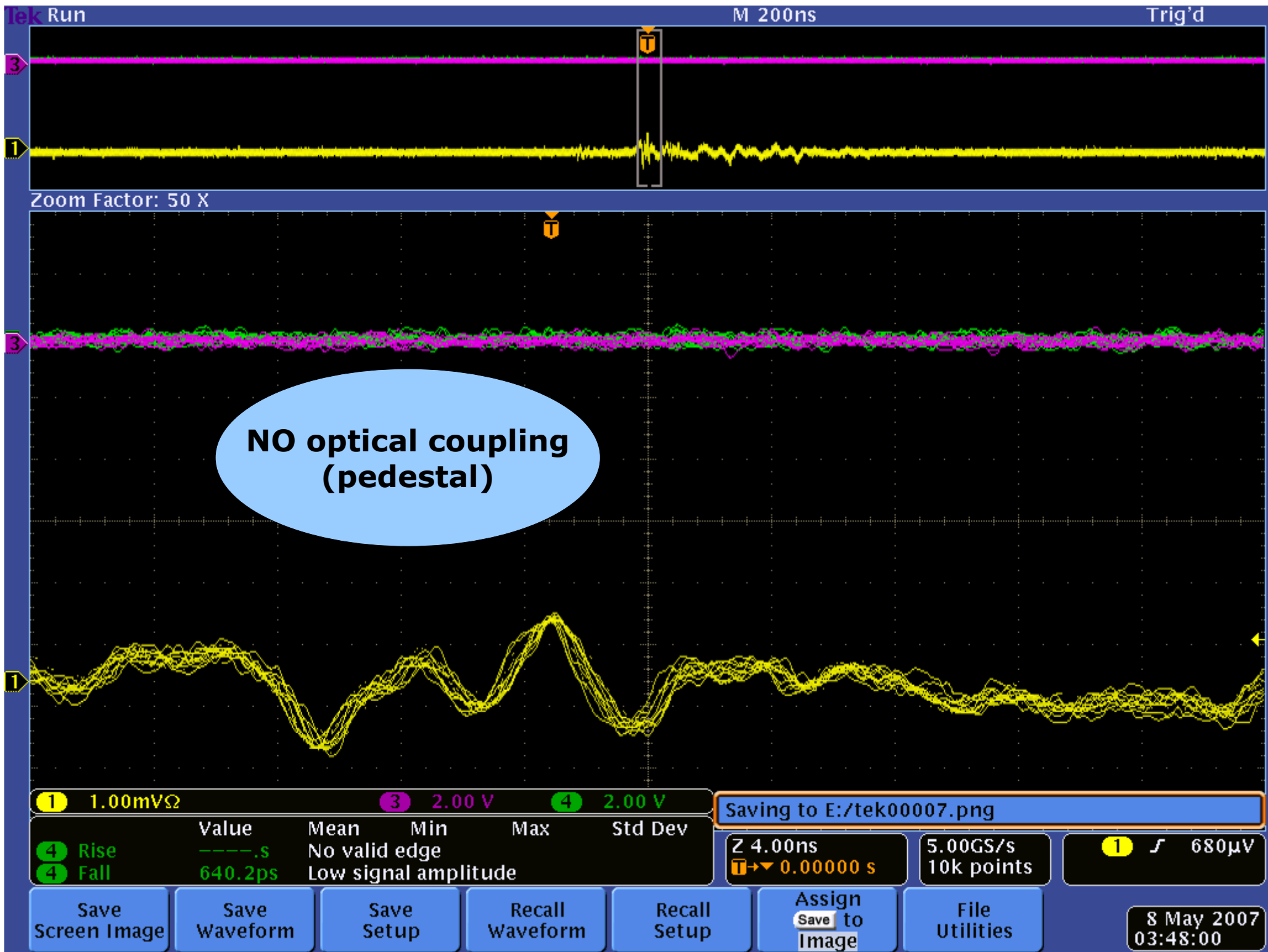
Z 4.00ns

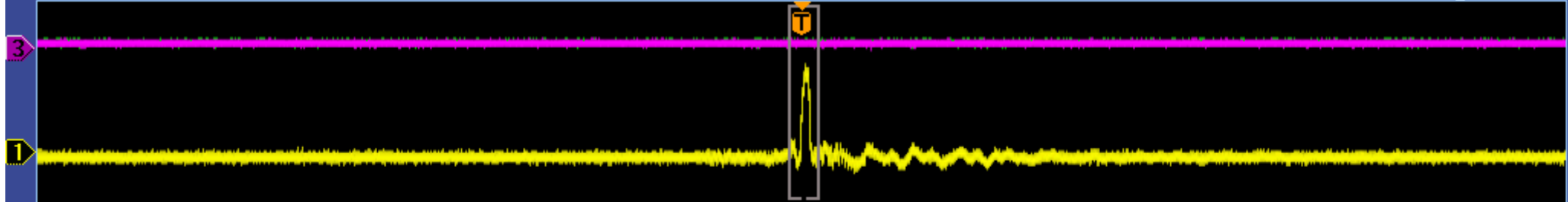
0.00000 s

5.00GS/s
10k points

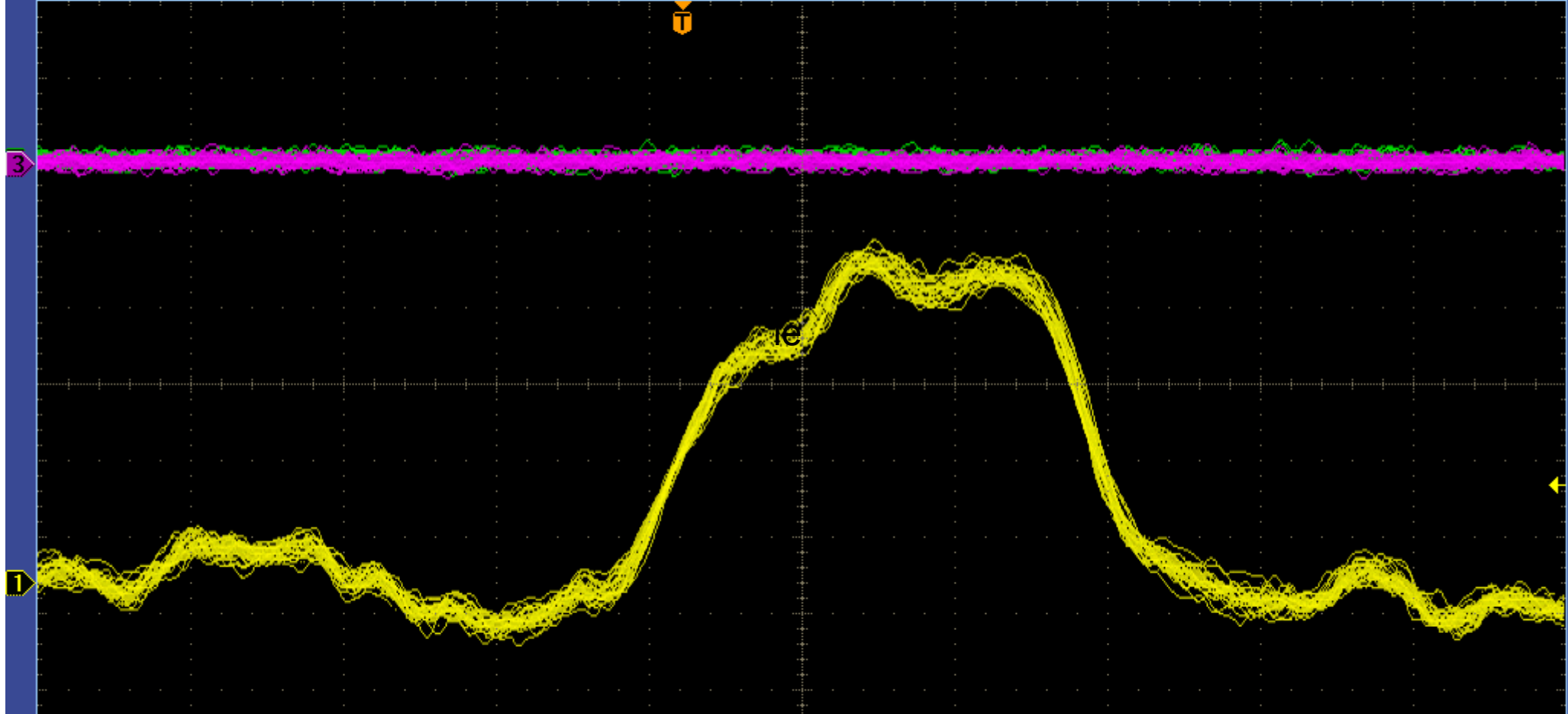
1 1.28mV

Save
Screen ImageSave
WaveformSave
SetupRecall
WaveformRecall
SetupAssign
Save to
ImageFile
Utilities8 May 2007
03:43:08





Zoom Factor: 50 X



1 1.00mVΩ

3 2.00 V

4 2.00 V

4 Rise 11.13ns

4 Fall 7.640ns

Value

Mean

Min

Max

Std Dev

Low signal amplitude

Low signal amplitude

Saving to E:/tek00006.png

Z 4.00ns

0.00000 s

5.00GS/s

10k points

1 1.28mV

Save Screen Image

Save Waveform

Save Setup

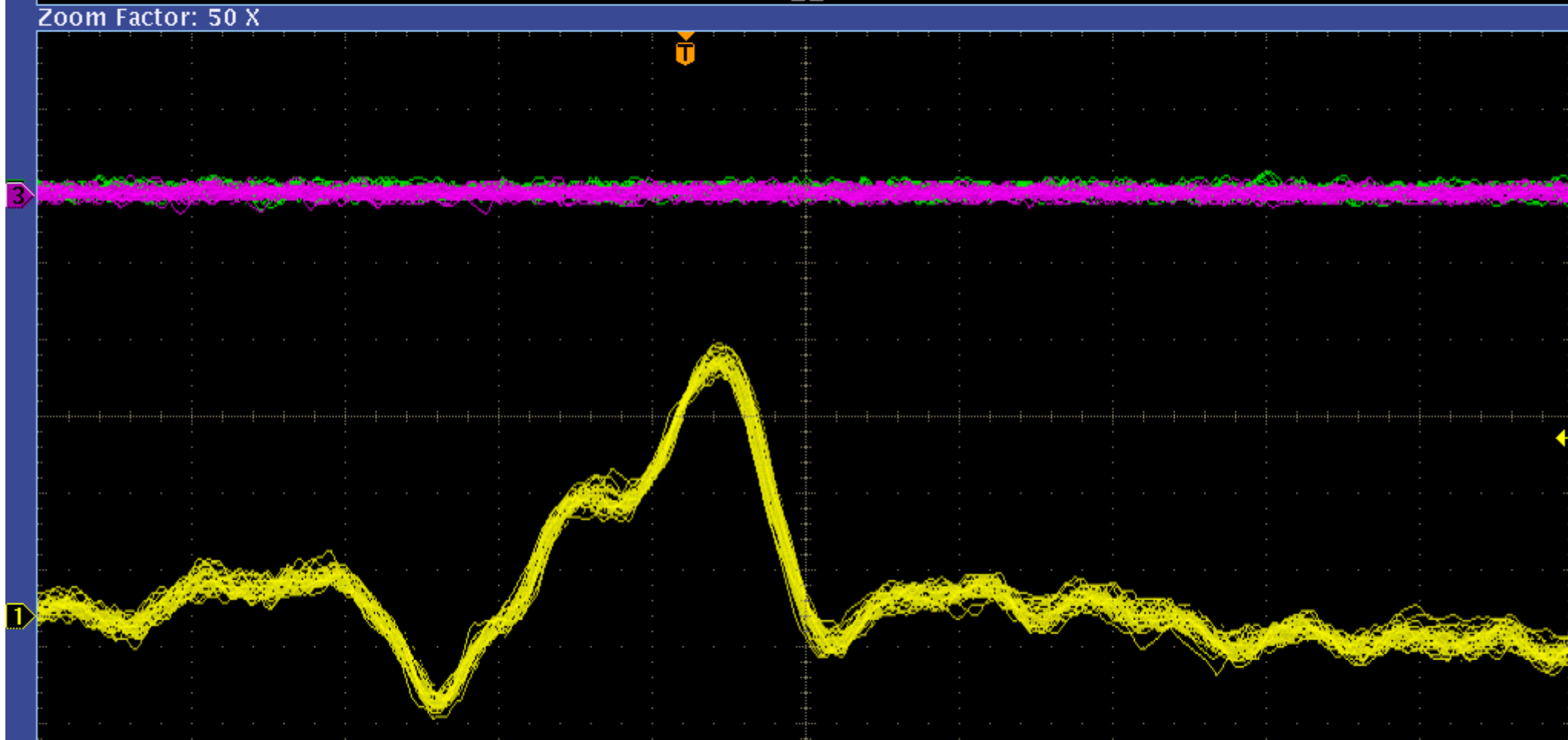
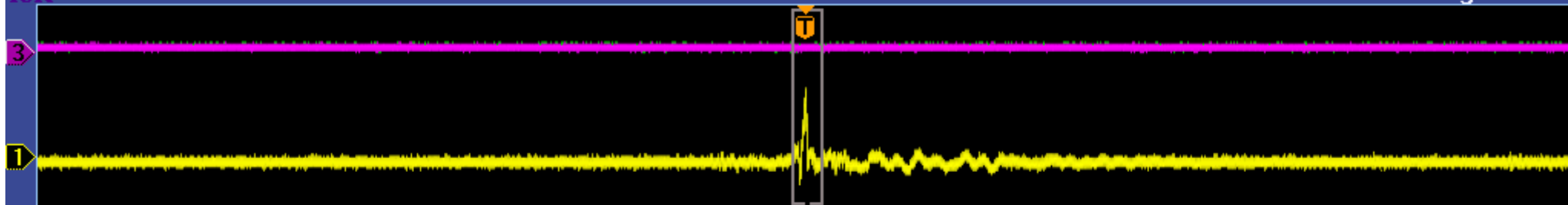
Recall Waveform

Recall Setup

Assign Save to Image

File Utilities

8 May 2007 03:46:56



1 1.00mVΩ 3 2.00 V 4 2.00 V

	Value	Mean	Min	Max	Std Dev
4 Rise	-----s	No valid edge			
4 Fall	5.640ns	Low signal amplitude			

Saving to E:/tek00008.png

Z 4.00ns

0.00000 s

5.00GS/s
10k points

1 2.30mV

Save
Screen Image

Save
Waveform

Save
Setup

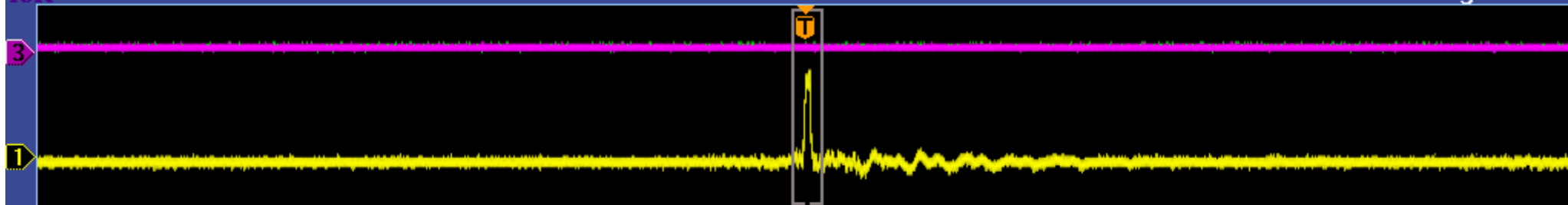
Recall
Waveform

Recall
Setup

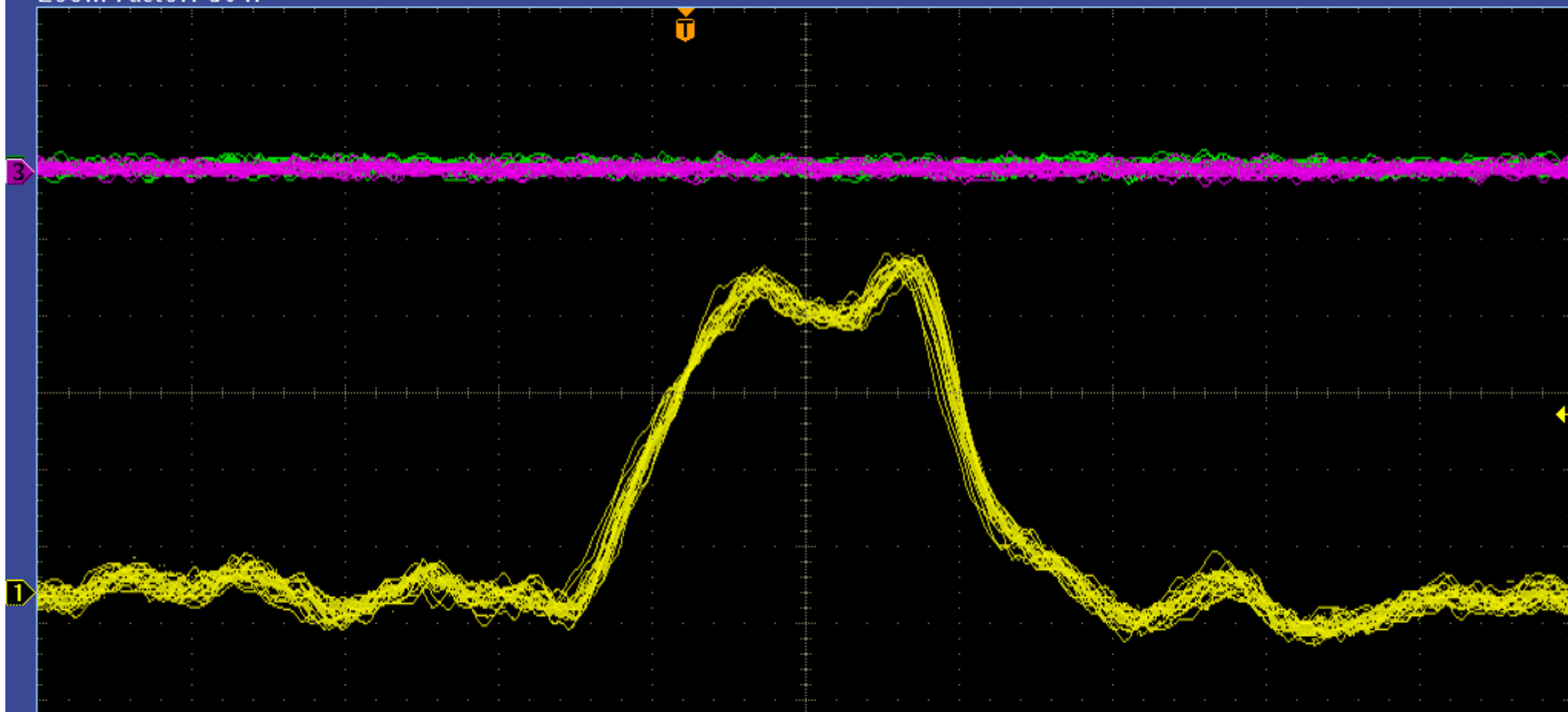
Assign
Save to
Image

File
Utilities

8 May 2007
03:48:35



Zoom Factor: 50 X

1 1.00mV Ω

3 2.00 V

4 2.00 V

Saving to E:/tek00009.png

	Value	Mean	Min	Max	Std Dev
4 Rise	960.5ps	Low signal amplitude			
4 Fall	-----s	No valid edge			

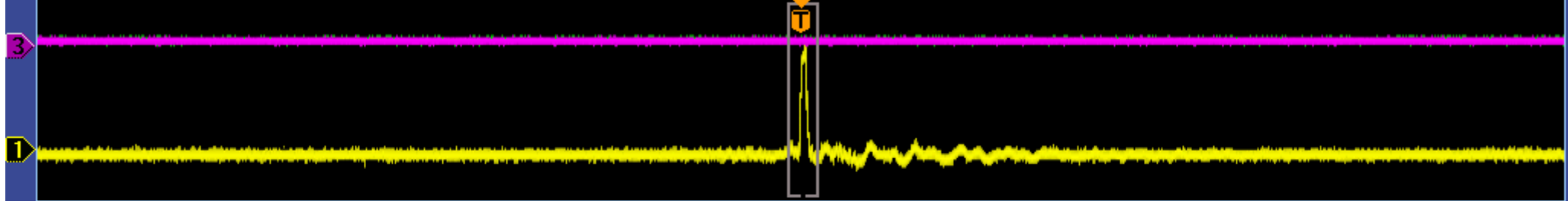
Z 4.00ns

0.00000 s

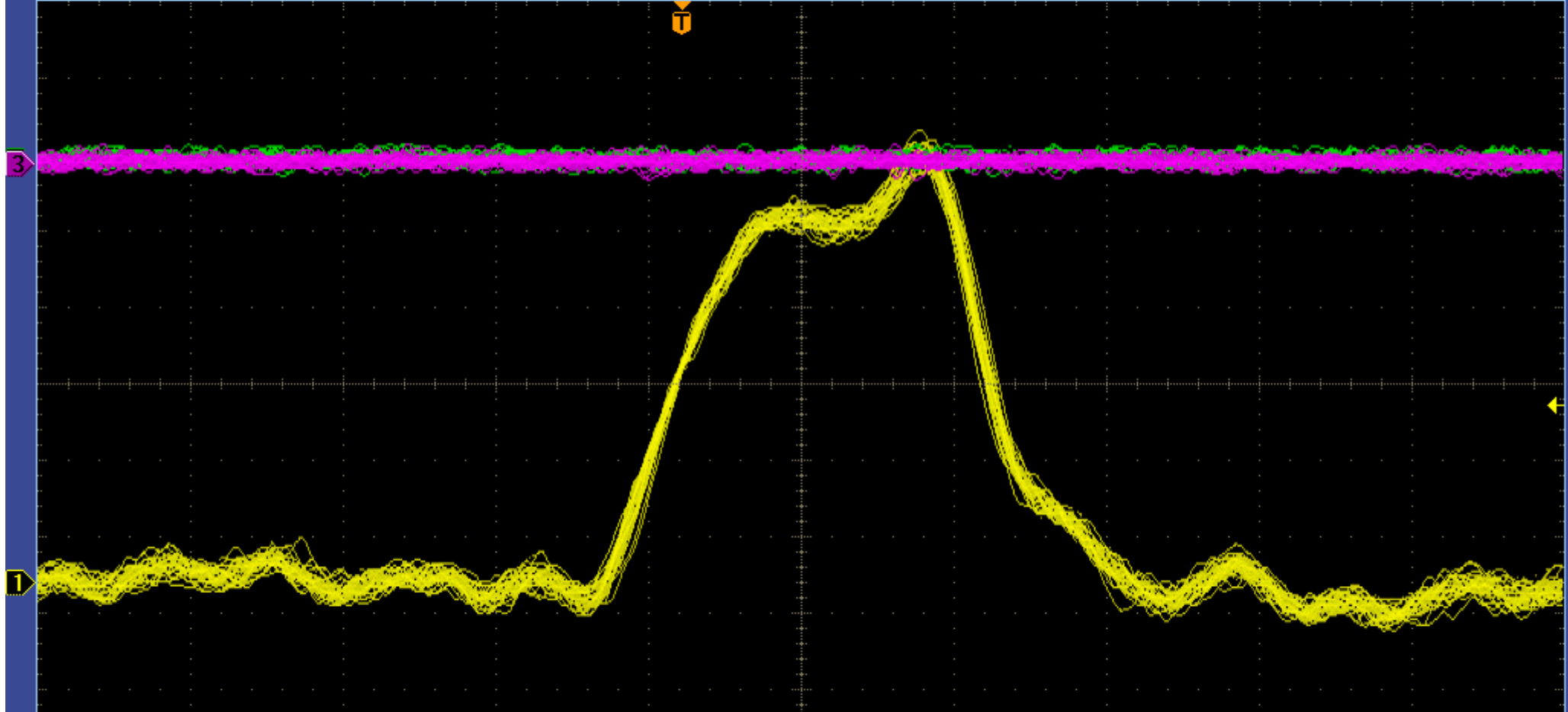
5.00GS/s
10k points

1 2.30mV

Save
Screen ImageSave
WaveformSave
SetupRecall
WaveformRecall
SetupAssign
Save to
ImageFile
Utilities8 May 2007
03:48:59



Zoom Factor: 50 X



1 1.00mVΩ

3 2.00 V

4 2.00 V

4 Rise

4 Fall

Value

Mean

Min

Max

Std Dev

-----s

4.601ns

No valid edge

Low signal amplitude

Z 4.00ns

0.00000 s

5.00GS/s

10k points

1 2.30mV

Save Screen Image

Save Waveform

Save Setup

Recall Waveform

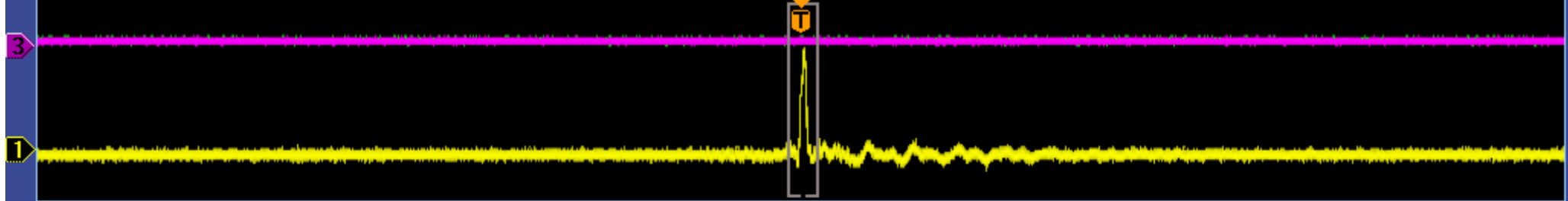
Recall Setup

Assign Save to Image

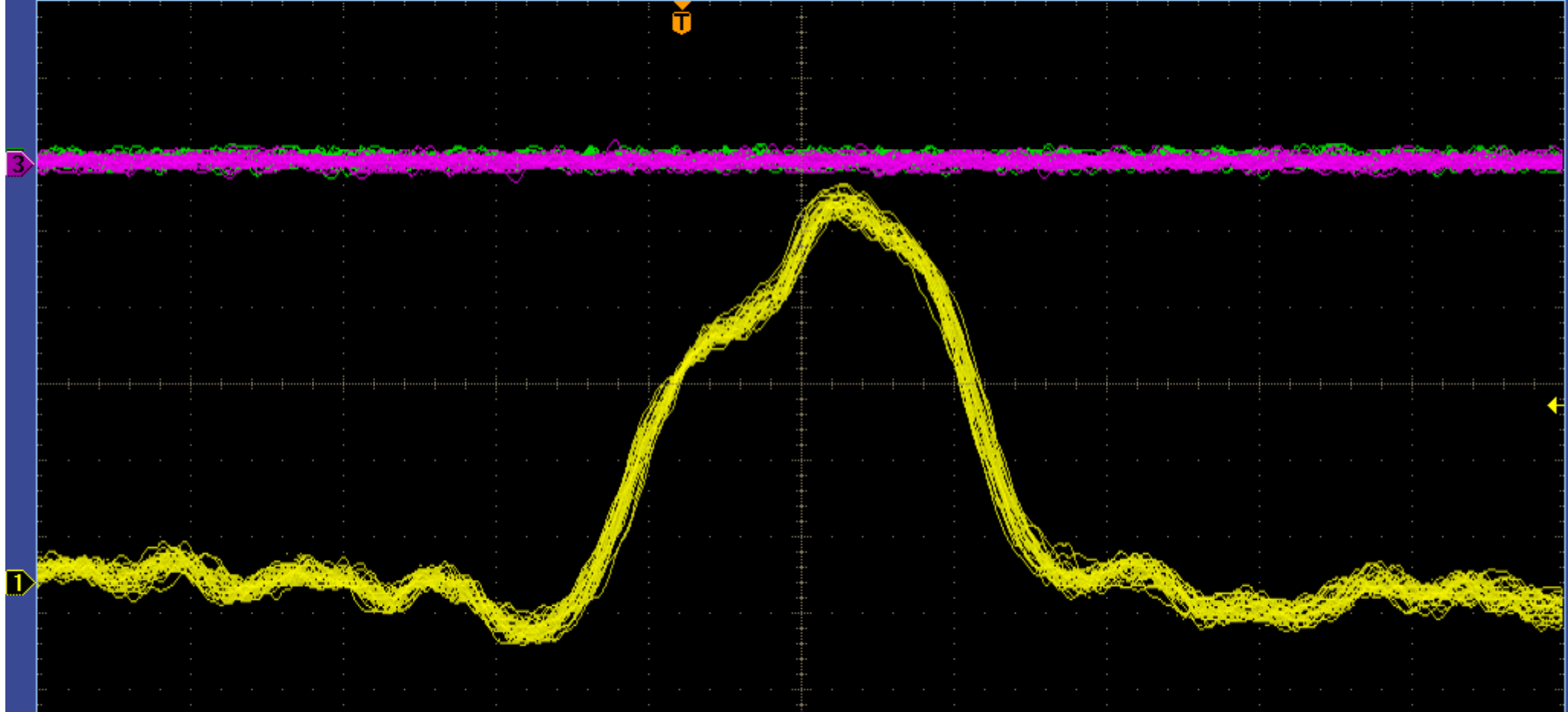
File Utilities

8 May 2007

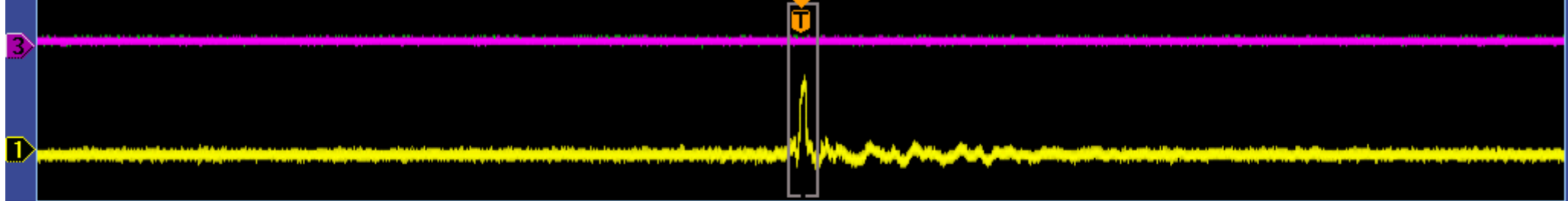
03:49:16



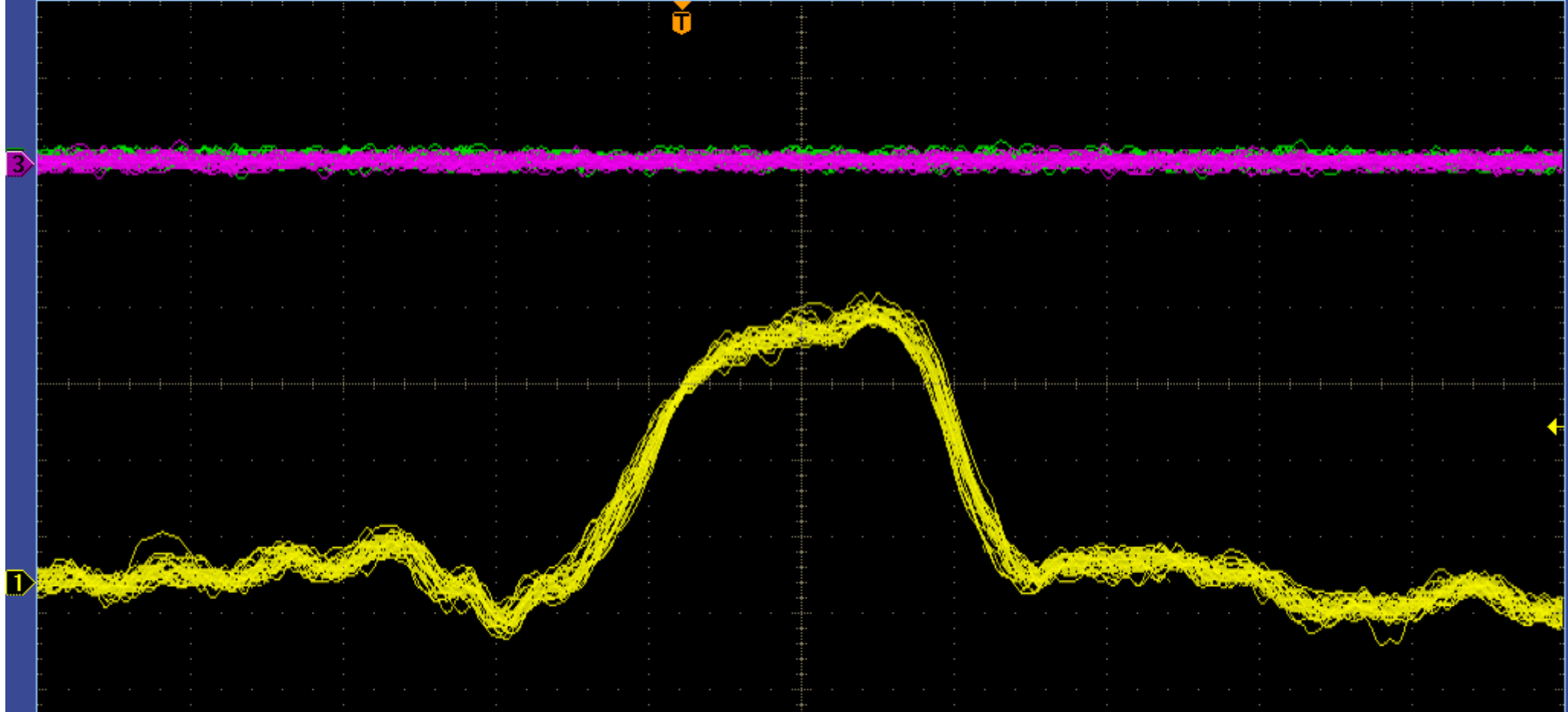
Zoom Factor: 50 X



1	1.00mVΩ	3	2.00 V	4	2.00 V	Saving to E:/tek00011.png	
4	Rise	Value	Mean	Min	Max	Std Dev	Z 4.00ns
4	Fall	17.02ns	Low signal amplitude				5.00GS/s
		-----s	No valid edge				10k points
							1 2.30mV



Zoom Factor: 50 X



1 1.00mVΩ

3 2.00 V

4 2.00 V

4 Rise 5.360ns

4 Fall 360.2ps

Value Mean Min Max Std Dev

Low signal amplitude

Low signal amplitude

Saving to E:/tek00012.png

Z 4.00ns

5.00GS/s

10k points

1 2.04mV

Save Screen Image

Save Waveform

Save Setup

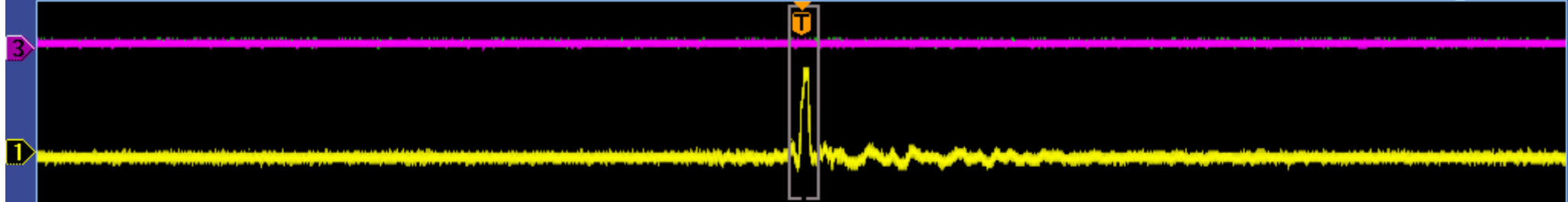
Recall Waveform

Recall Setup

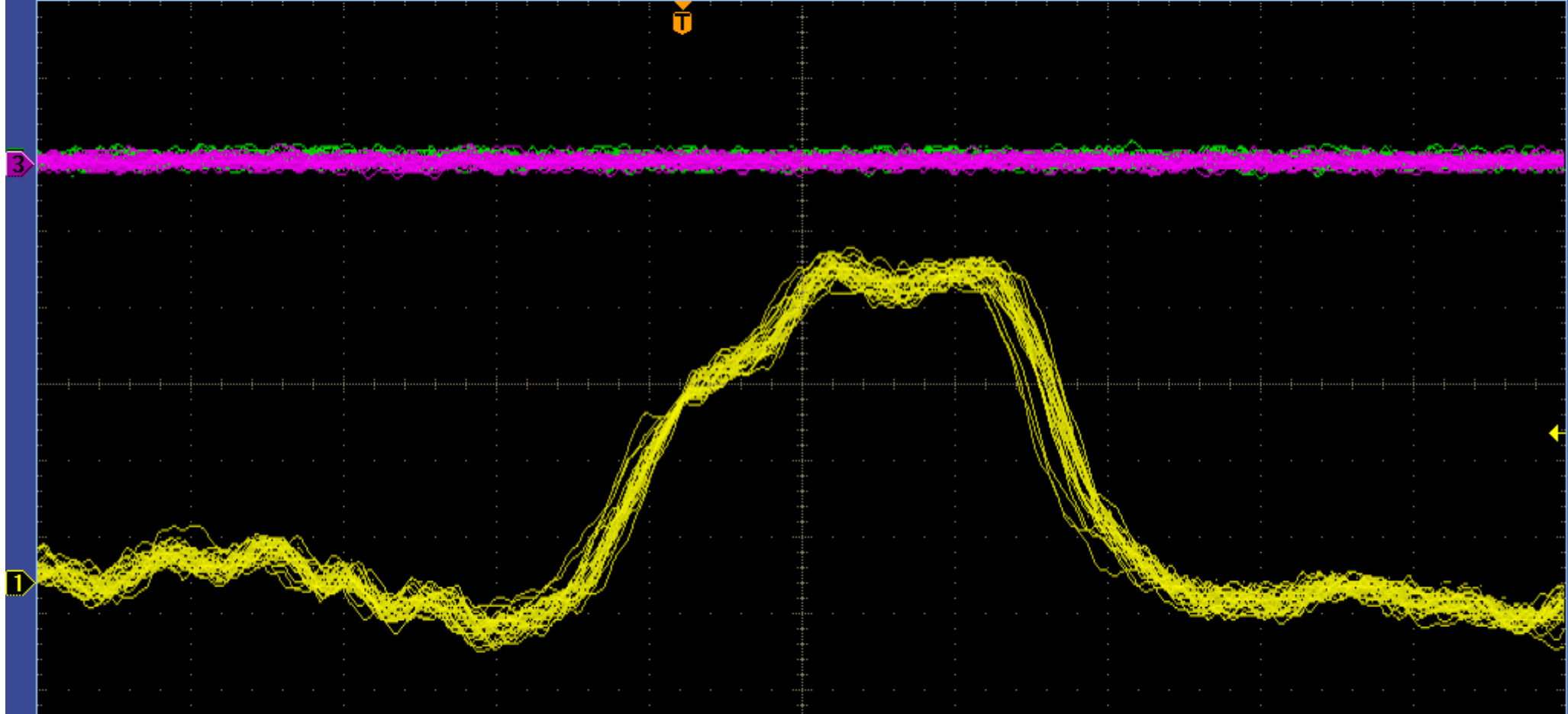
Assign Save to Image

File Utilities

8 May 2007 03:49:53



Zoom Factor: 50 X



1

1.00mVΩ

3

2.00 V

4

2.00 V

4

Rise

1.265ns

4

Fall

13.13ns

Value

Mean

Min

Max

Std Dev

Low signal amplitude

Low signal amplitude

Z 4.00ns

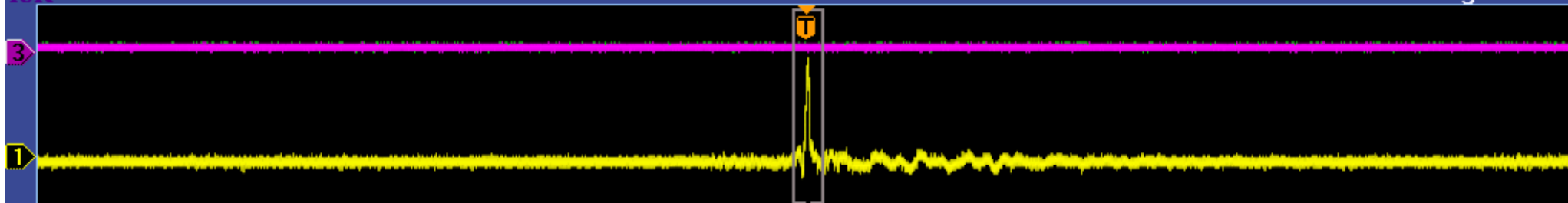
0.00000 s

5.00GS/s

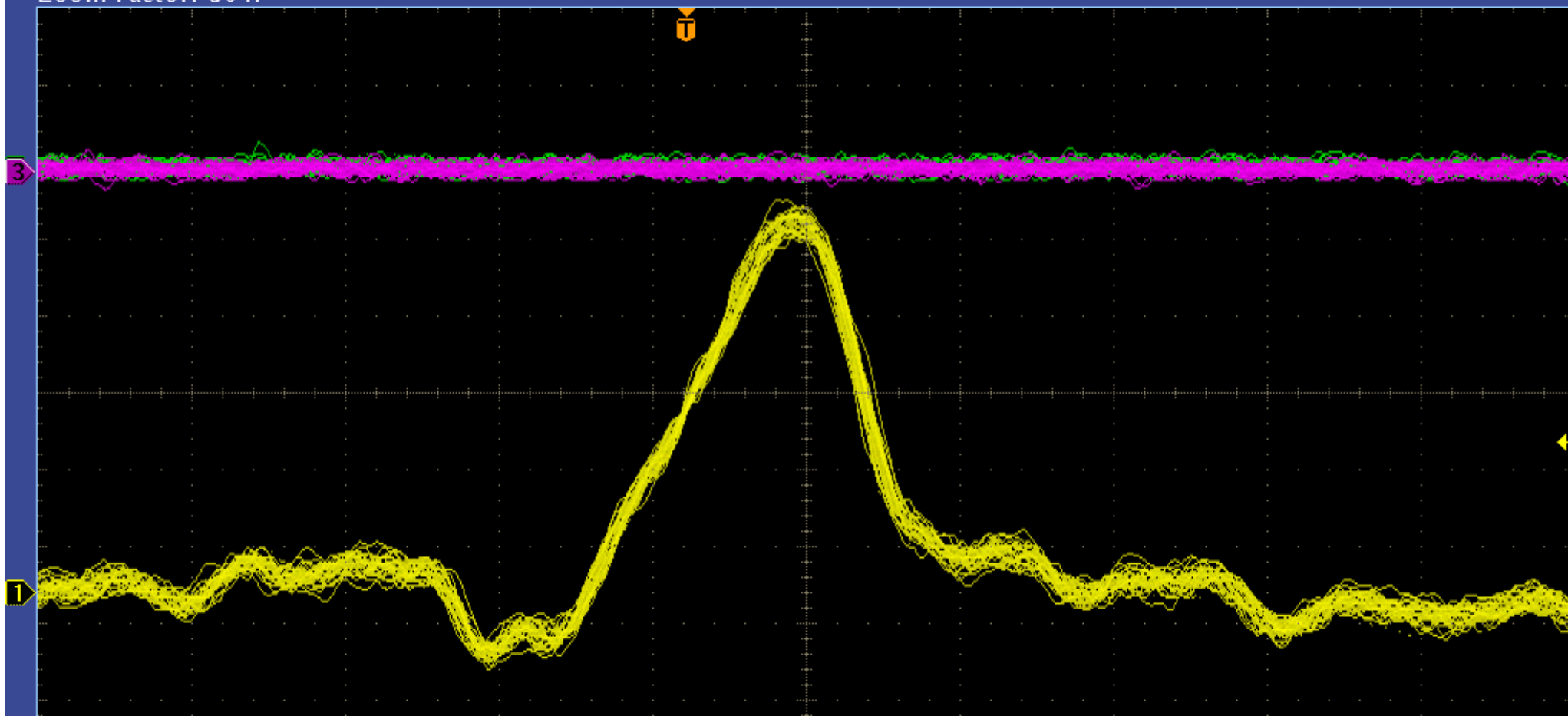
10k points

1

1.94mV



Zoom Factor: 50 X



1 1.00mVΩ

3 2.00 V

4 2.00 V

Saving to E:/tek00015.png

	Value	Mean	Min	Max	Std Dev
4 Rise	12.82ns	Low signal amplitude			
4 Fall	2.480ns	Low signal amplitude			

Z 4.00ns

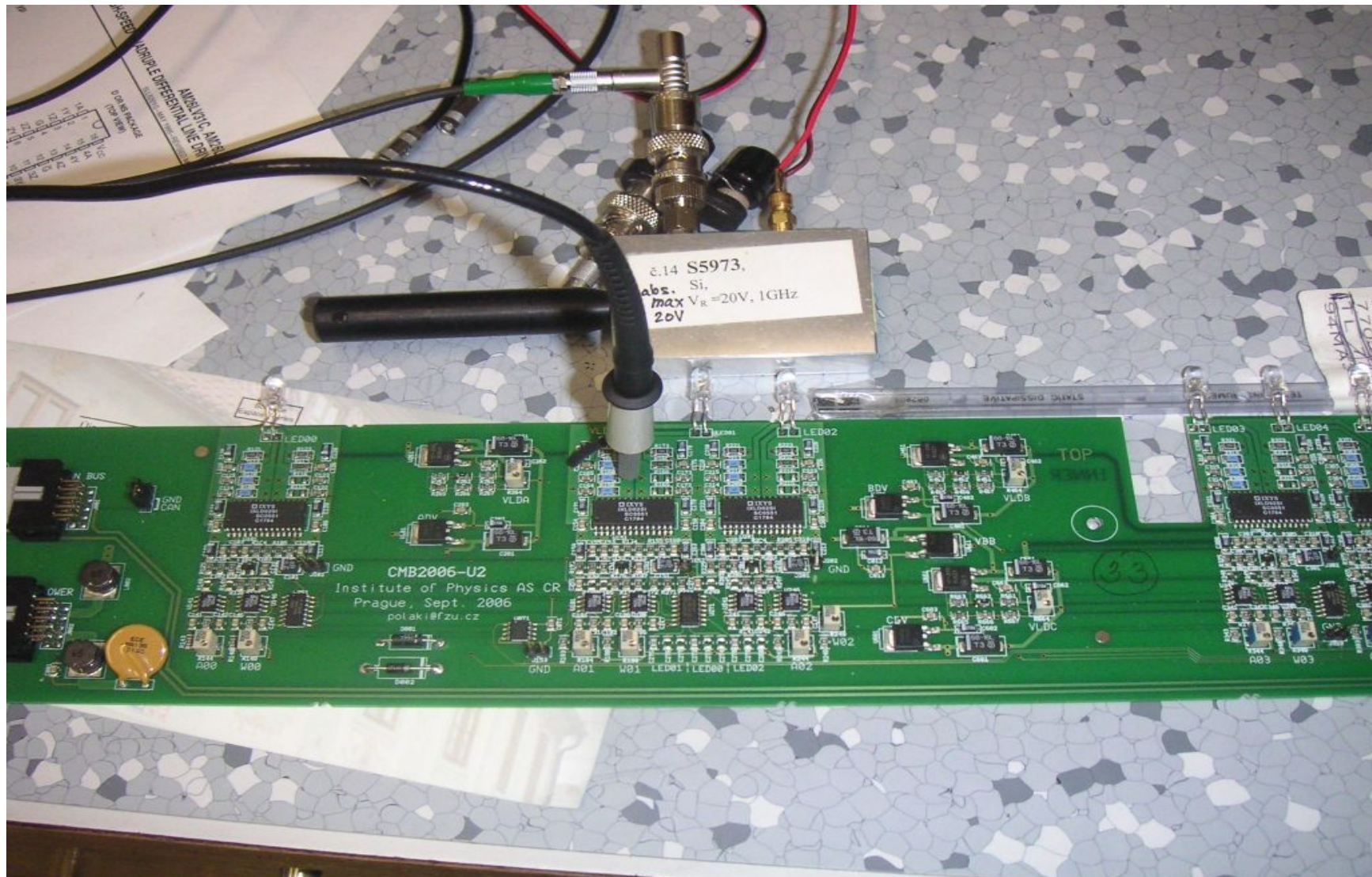
0.00000 s

5.00GS/s
10k points

1 1.94mV

Save
Screen ImageSave
WaveformSave
SetupRecall
WaveformRecall
SetupAssign
Save to
ImageFile
Utilities8 May 2007
03:51:14

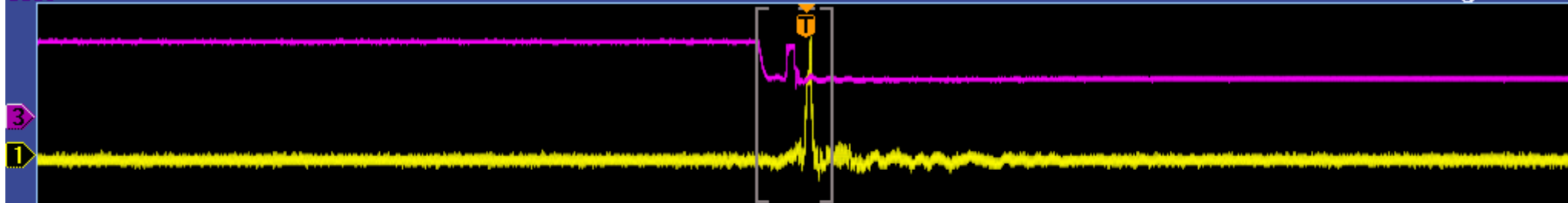
Test setup LED -> PIN now with scope probe



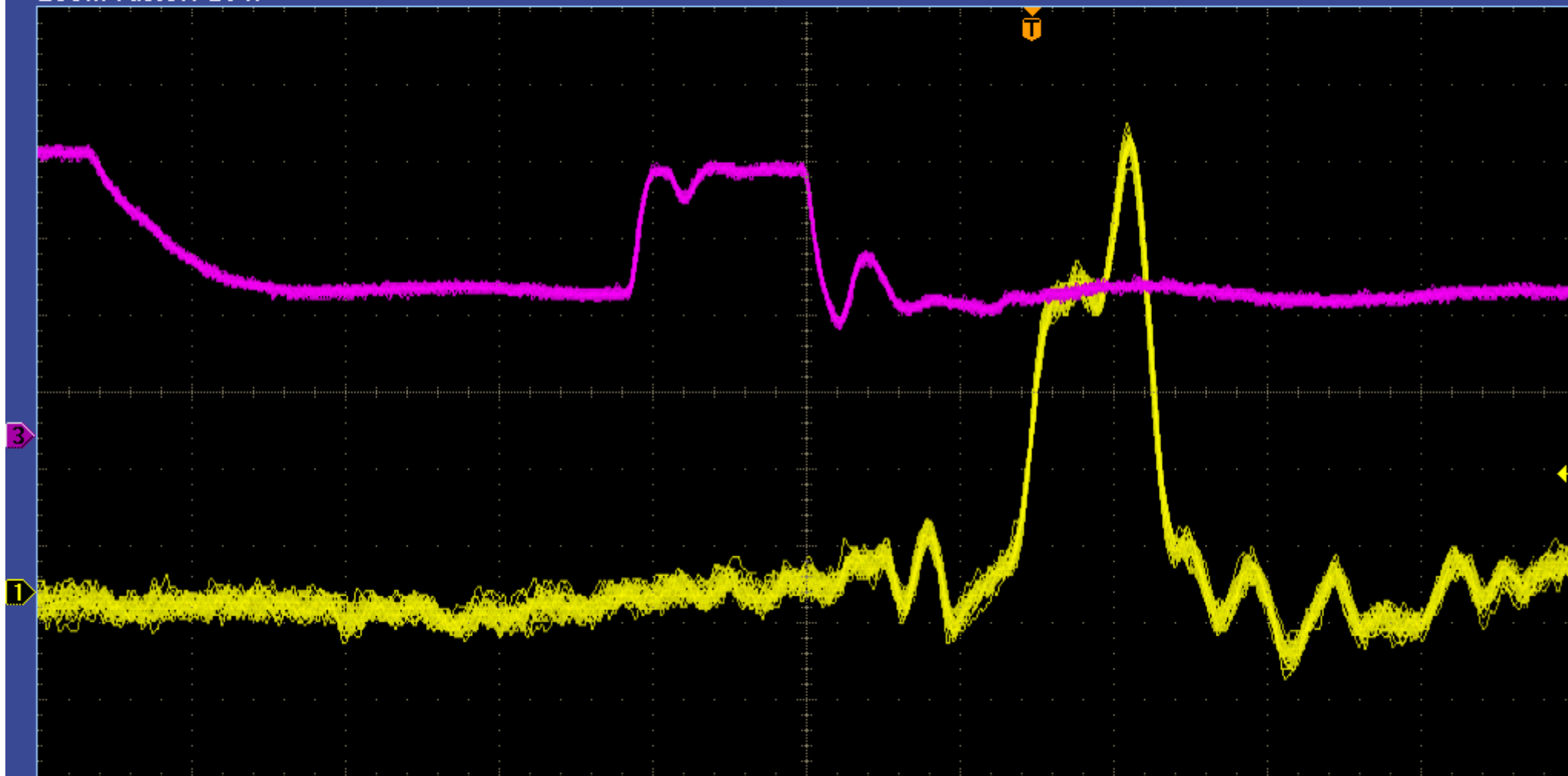
Tek Run

M 200ns

Trig'd



Zoom Factor: 20 X



1 1.00mVΩ

3 2.00 V Ω

Z 10.0ns

0.00000 s

5.00GS/s
10k points

1 1.54mV

8 May 2007
03:55:14

3

1

Zoom Factor: 20 X

3

1

1 1.00mV Ω 3 1.00 V Ω

Saving to E:/tek00027.png

Z 10.0ns

0.00000 s

5.00GS/s
10k points

3 6.56 V

Save
Screen ImageSave
WaveformSave
SetupRecall
WaveformRecall
SetupAssign
Save to
ImageFile
Utilities8 May 2007
04:01:29

3

1

Zoom Factor: 50 X

3

1

1 1.00mV Ω 3 1.00 V Ω

Saving to E:/tek00028.png

Z 4.00ns

0.00000 s

5.00GS/s
10k points

3 6.56 V

Save
Screen ImageSave
WaveformSave
SetupRecall
WaveformRecall
SetupAssign
Save to
ImageFile
Utilities8 May 2007
04:01:46

3

1

Zoom Factor: 50 X

3

1

1 1.00mV Ω 3 1.00 V Ω

Saving to E:/tek00030.png

Z 4.00ns

0.00000 s

5.00GS/s
10k points

3 6.56 V

Save
Screen ImageSave
WaveformSave
SetupRecall
WaveformRecall
SetupAssign
Save to
ImageFile
Utilities8 May 2007
04:02:36

April rebirth of LEDdriver :)

- Visiting to La Spezzia Roma uni1, INFN
- At lab of Carlo Bosio, Simonetta Gentile
- Yet another laboratory start game with SiPM, MPPC

Setup LEDdrv, clear fibre, SiPM + preamp

Roma uni Apr 07



SiPM: ITEP 36V piece

2CH LEDdriver, model 2005

2 bipolar transistors
preamp

DAQ: VME V792 ADC
LabVIEW 8

Fitted single p.e. Spectra made in Roma1 uni, 2CH-LEDdrv SiPM low gain preamp, V792N ADC

