



1st TCT workshop

Readout board: DRS, Oscilloscope

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- To measure the TCT signal a scope or DRS evaluation board is required
- Several scopes (LeCroy and Tektronix) and all DRS boards are supported by the Particulars TCT software



- 4 channels (SMA connector; 50 Ω)
- 0.7 GSPS to 5 GSPS with 1024 sampling points each
- 700 MHz analogue bandwidth
- Possible to daisy-chain several boards
- USB 2.0 interface for data readout and powering of the board
- maximum readout rate is about 500 events per second
- <http://www.psi.ch/drs/evaluation-board>

GSPS: Giga Sample per Second



- 4 Ch (BNC connector; 50 Ω / 1M Ω)
- 20 GSa/s max. sample rate
- 2.5Ghz analogue bandwidth
- GPIB connector

Used at CERN



- 4 Ch (BNC connector; 50Ω / 75Ω / 1MΩ)
- 2.5GSPS
- 500MHz bandwidth
- USB / Ethernet port
 - USB for screenshots
- £6,490.00 (farnell)



Oscilloscope

- GPIB, Ethernet, USB, RS232
- $> \approx 5000$ €
- 4channel; BNC connector
- Several GSPS (model dependent)
- MHz to GHz (model dependent)
- Range: $5V_{\text{rms}}$
- Controlled by screen and buttons or PC

DRS4 evaluation board

- USB
- ≈ 1000 €
- 4 channel; SMA connector
- 0.7 GSPS to 5 GSPS
- 700MHz analogue bandwidth
- Range: $\pm 0.5V$ or $+1V / -1V$
- Controlled by LabVIEW



Compare Signals

Laser unfocused, 1kHz

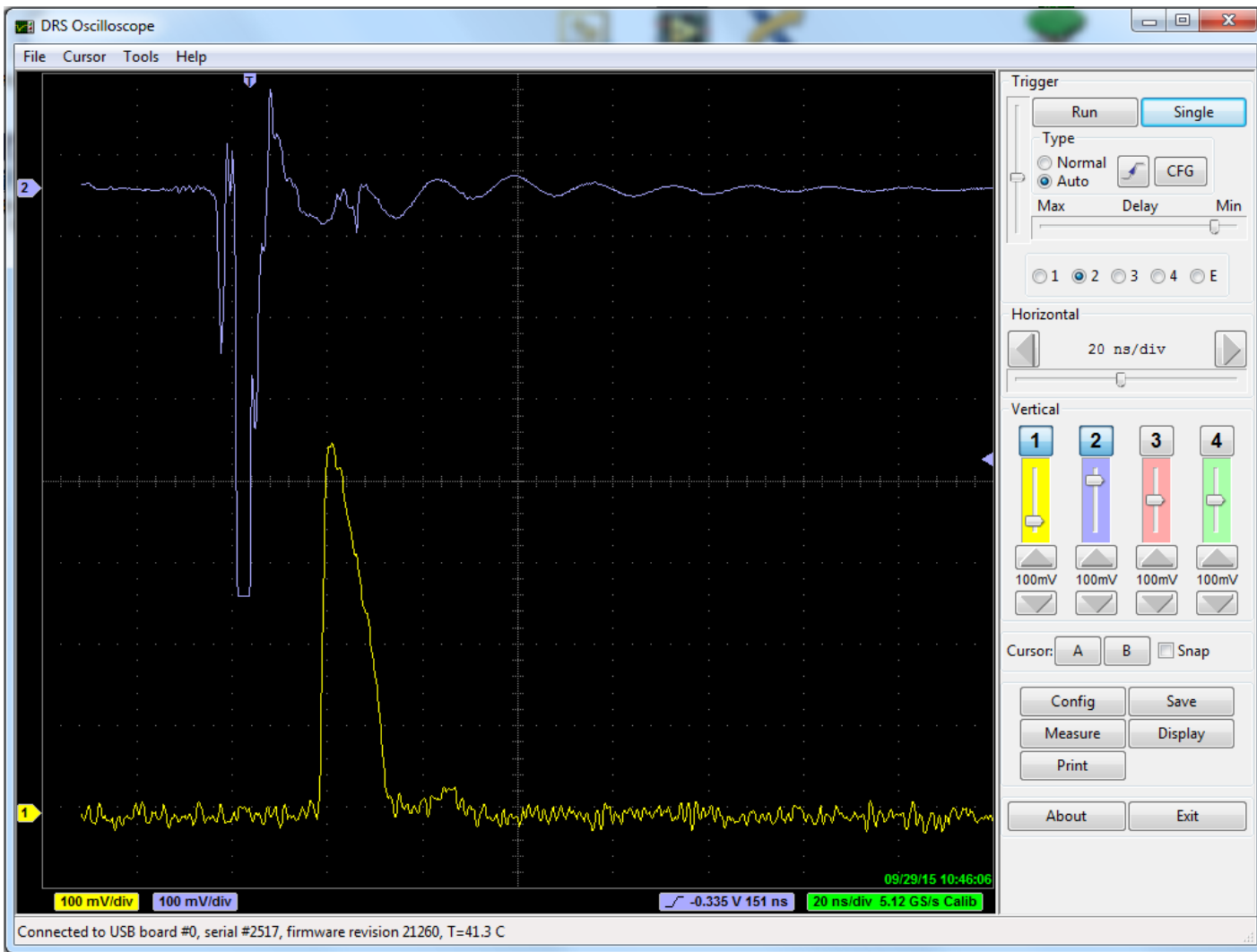
Amplifier: 14.0V (136mA)

HV: 60V

Same cable, no change in Laser settings

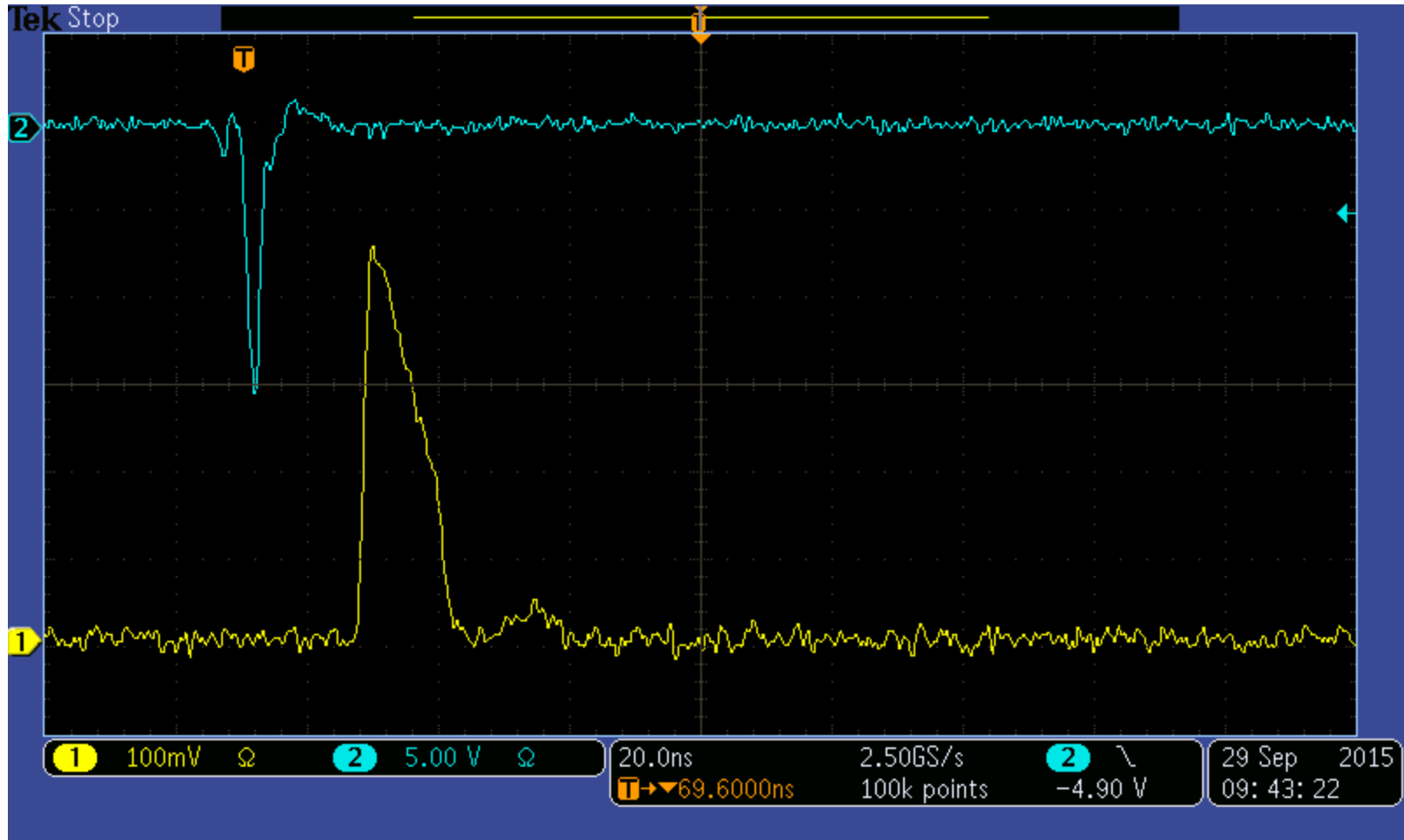


20ns/div, 5.12GS/s; 100mV/div

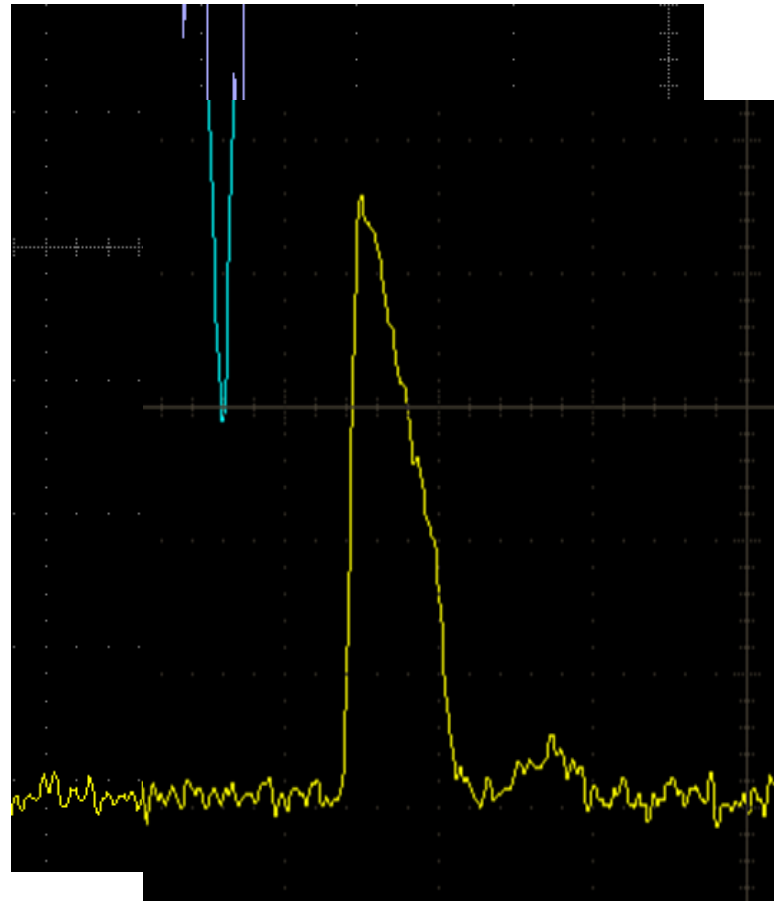




20ns/div, 2.50 GS/s; 100mV/div



Tektronix DPO3054



No significant
difference



Backup



- Bandwidth is specified as the frequency at which a sinusoidal input signal is attenuated to 70.7 percent of its original amplitude