

## Digital Storage Oscilloscope auto-measurements test

Determines if scope makes auto-measurements based on main sample memory or secondary buffer.

Buffer size and auto-measurements accuracy across timebases can be deduced from test data. Test idea by MrWolf@EEVblog forum.

Equipment must be warmed up (30 min). Stats must be reset when changing ranges. Averaging (if applied) must not affect Min/Max.

Test conducted by: MrWolf@EEVblog forum  
Date: 12/14/2016

Oscilloscope under test: Picoscope 2205  
Production year: 2010  
Calibration date: 08/23/2010  
Hardware version: 16  
Driver version: 2.2.0.16  
Range tested: 0.1V/div (2Vpp)  
Channels in use: 1  
CH coupling: AC  
Comments: 512x averaging, ETS used

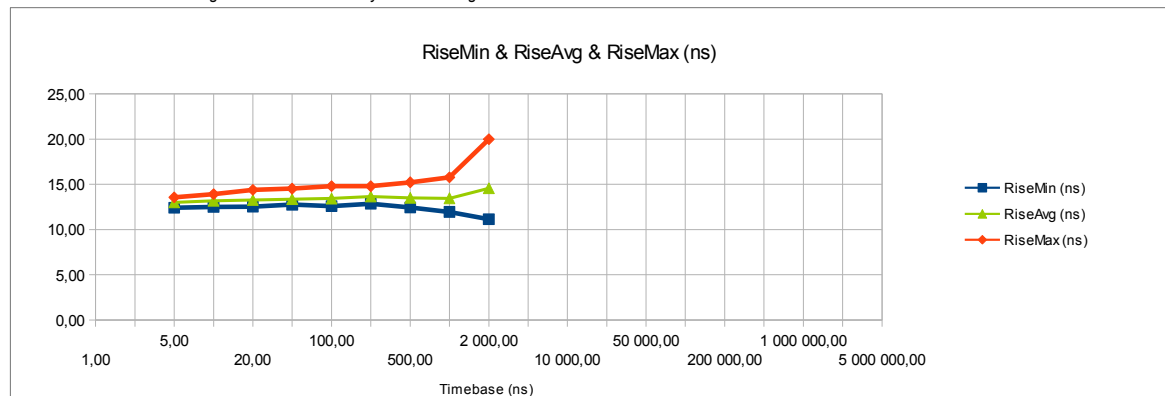
on some scopes switching on multiple channels can affect sampling rates

Test waveform: square wave, 50% duty  
Frequency: 32768Hz  
Risetime: <= 10ns  
Jitter: <= 1ns  
Amplitude: 1Vpp  
Signal generator: Siglent SDG2000X  
Comments: 50ohm system

signal amplitude should be at least 50% of the range tested

| Timebase (ns) | Memory MS/s | 90%/10%      |              |              | PeriodMin (us) | PeriodAvg (us) | PeriodMax (us) |
|---------------|-------------|--------------|--------------|--------------|----------------|----------------|----------------|
|               |             | RiseMin (ns) | RiseAvg (ns) | RiseMax (ns) |                |                |                |
| 1,00          |             |              |              |              |                |                |                |
| 2,00          |             |              |              |              |                |                |                |
| 5,00          | 4000,0000   | 12,41        | 13,00        | 13,55        |                |                |                |
| 10,00         | 4000,0000   | 12,50        | 13,17        | 13,91        |                |                |                |
| 20,00         | 4000,0000   | 12,52        | 13,27        | 14,38        |                |                |                |
| 50,00         | 4000,0000   | 12,75        | 13,36        | 14,52        |                |                |                |
| 100,00        | 4000,0000   | 12,58        | 13,43        | 14,80        |                |                |                |
| 200,00        | 4000,0000   | 12,85        | 13,65        | 14,78        |                |                |                |
| 500,00        | 1900,0000   | 12,44        | 13,50        | 15,22        |                |                |                |
| 1 000,00      | 900,0000    | 11,95        | 13,45        | 15,78        |                |                |                |
| 2 000,00      | 400,0000    | 11,14        | 14,57        | 20,00        |                |                |                |
| 5 000,00      | 100,0000    |              |              |              | 30,51          | 30,52          | 30,52          |
| 10 000,00     | 50,0000     |              |              |              | 30,51          | 30,52          | 30,52          |
| 20 000,00     | 25,0000     |              |              |              | 30,51          | 30,52          | 30,52          |
| 50 000,00     | 12,5000     |              |              |              | 30,52          | 30,52          | 30,52          |
| 100 000,00    | 6,2500      |              |              |              | 30,52          | 30,52          | 30,52          |
| 200 000,00    | 3,1250      |              |              |              | 30,52          | 30,52          | 30,52          |
| 500 000,00    | 1,5630      |              |              |              | 30,51          | 30,52          | 30,52          |
| 1 000 000,00  | 0,7813      |              |              |              | 30,52          | 30,52          | 30,52          |
| 2 000 000,00  | 0,3906      |              |              |              | 30,52          | 30,52          | 30,52          |
| 5 000 000,00  | 0,1953      |              |              |              | 30,52          | 30,52          | 30,52          |

Switch chart vertical axis to log scale if values differ by orders of magnitude



Switch chart vertical axis to log scale if values differ by orders of magnitude

