

Digital Storage Oscilloscope auto-measurements test

v1.1

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:
Date:

Oscilloscope under test:
Production year:
Calibration date:
Hardware version:
Firmware version etc:
Vertical setting (V/div):
Channels in use:
Channel coupling:
Comments:

*choose according to your signal source, for example 200mV/div = 0.2V/div
on some scopes switching on multiple channels can affect sampling rates*

Test waveform:
Frequency:
Risetime:
Jitter:
Amplitude:
Signal generator:
Comments:

may be larger, but test accuracy will suffer

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signal amplitude should be at least 50% of the range tested, for example 1Vpp

| <i>horizontal setting</i> | <i>as reported by DSO</i> | <i>90%/10%</i> | <i>90%/10%</i> | <i>90%/10%</i> | | | |
|---------------------------|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Timebase (ns/div) | Sampling rate (MSa/s) | RiseMin (ns) | RiseAvg (ns) | RiseMax (ns) | PeriodMin (us) | PeriodAvg (us) | PeriodMax (us) |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 5 | | | | | | | |
| 10 | | | | | | | |
| 20 | | | | | | | |
| 50 | | | | | | | |
| 100 | | | | | | | |
| 200 | | | | | | | |
| 500 | | | | | | | |
| 1,000 | | | | | | | |
| 2,000 | | | | | | | |
| 5,000 | | | | | | | |
| 10,000 | | | | | | | |
| 20,000 | | | | | | | |
| 50,000 | | | | | | | |
| 100,000 | | | | | | | |
| 200,000 | | | | | | | |
| 500,000 | | | | | | | |
| 1,000,000 | | | | | | | |
| 2,000,000 | | | | | | | |
| 5,000,000 | | | | | | | |