

Digital Storage Oscilloscope auto-measurements test

v1.1VERTICAL

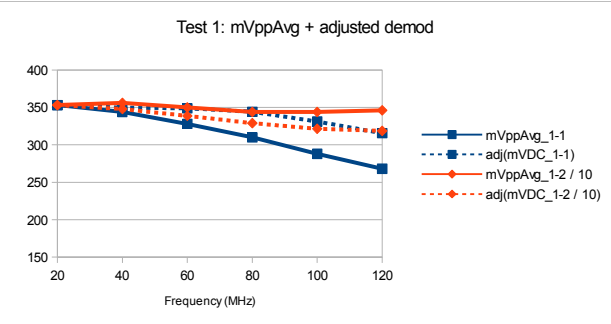
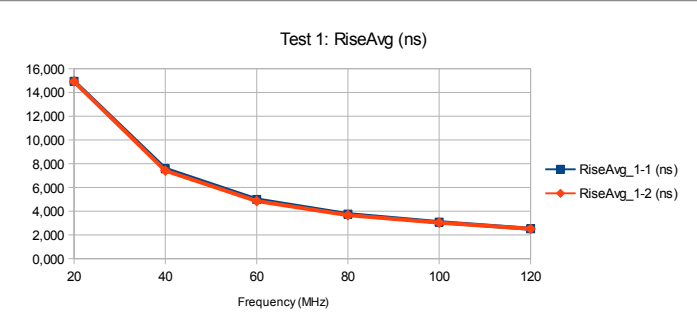
Test conducted by: MrWolf@EEVBlog forum
Date: 12/23/2016

Oscilloscope under test:	Rigol DS1000Z
Production year:	2016
Calibration date:	self-cal after firmware update
Hardware version:	0.1.4
Firmware version etc:	00.04.04.SP1
Horizontal setting:	5 ns/div
Channels in use:	1-3
Channel coupling:	AC
Comments:	1024x averaging used, waited for wfm to stabilize after changes, pressed [CLEAR] for stats, took stats at Cnt>100. Testec TT-DE 112 950MHz demod & Agilent U1272A used to check voltages between gen and scope (BNC T after 50ohm pass-thru).

Test waveform:	AC sine
Frequency:	20; 40; 60; 80; 100; 120 MHz
Risetime:	~0.3 * Period
Jitter:	150ps rms
Amplitude:	350; 3500 mV
Signal generator:	Siglent SDG2000X
Comments:	50ohm system

Test 1-1: 50mV/div; 1000MSa/s; Sin(x)/x ON						
reported by gen	reported by DSO hw count	reported by gen	reported by DSO	90%/10%		demod on DSO CH1
frequency (MHz)	frequency (MHz)	mVpp	mVppAvg_1-1	RiseAvg_1-1 (ns)	Dev (ns)	mVDC_1-1
20	20,0002	350	353	14,940	0,089	217,1
40	40,0005	350	344	7,560	0,056	213,8
60	60,0007	350	328	4,992	0,071	212,9
80	80,0009	350	310	3,741	0,077	208,3
100	100,0010	350	288	3,077	0,045	195,2
120	n/a	350	268	2,512	0,062	179,6

demod on DSO CH1 adj	demod on gen CH1
adj(mVDC_1-1)	mVDC
353,00	218,0
349,70	218,0
348,80	220,6
344,20	225,0
331,10	228,1
315,50	229,2

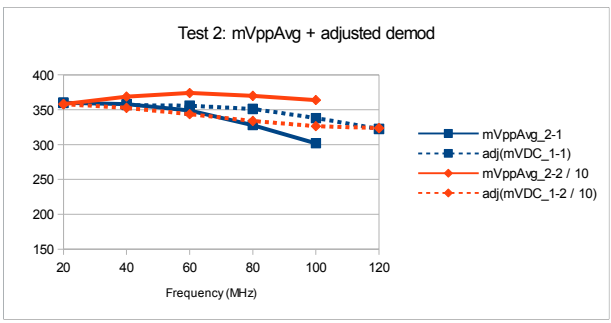
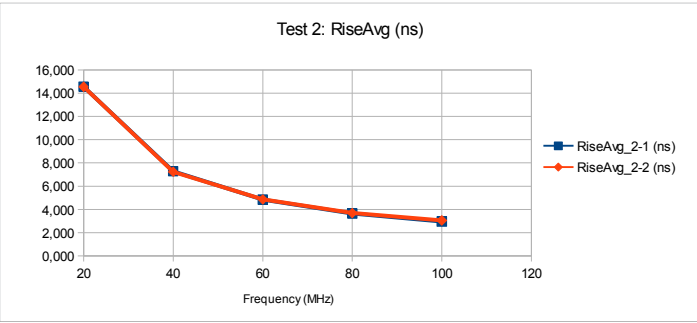


Test 1-2: 500mV/div; 1000MSa/s; Sin(x)/x ON						
reported by gen	reported by DSO hw count	reported by gen	reported by DSO	90%/10%		demod on DSO CH1
frequency (MHz)	frequency (MHz)	mVpp	mVppAvg_1-2	RiseAvg_1-2 (ns)	Dev (ns)	mVDC_1-2
20	20,0002	3 500	3 530	14,920	0,087	3 156,5
40	40,0005	3 500	3 560	7,411	0,050	3 103,7
60	60,0007	3 500	3 500	4,844	0,082	3 013,8
80	80,0009	3 500	3 440	3,661	0,100	2 915,8
100	100,0010	3 500	3 440	3,030	0,058	2 840,7
120	n/a	3 500	3 460	2,507	0,026	2 813,4

demod on DSO CH1 adj	demod on gen CH1
adj(mVDC_1-2 / 10)	mVDC
353	3 170,1
356	3 160,2
350	3 140,5
344	3 121,4
344	3 147,0
346	3 222,8

Test 2-1: 50mV/div; 250MSa/s; Sin(x)/x ON						
reported by gen	reported by DSO hw count	reported by gen	reported by DSO	90%/10%		
frequency (MHz)	frequency (MHz)	mVpp	mVppAvg_2-1	RiseAvg_2-1 (ns)	Dev (ns)	
20	20,0002	350	360	14,560	0,145	
40	40,0005	350	358	7,282	0,080	
60	60,0007	350	349	4,842	0,086	
80	80,0009	350	328	3,651	0,072	
100	100,0010	350	302	2,960	0,076	
120	n/a	350	n/a	n/a	n/a	

demod on DSO CH1 adj
adj(mVDC_1-1)
360,00
356,70
355,80
351,20
338,10
322,50

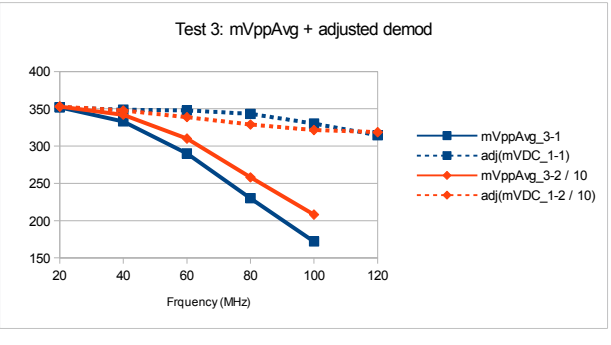
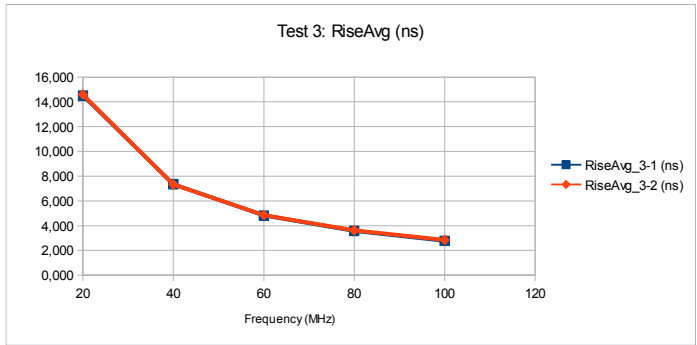


Test 2-2: 500mV/div; 250MSa/s; Sin(x)/x ON						
reported by gen	reported by DSO hw count	reported by gen	reported by DSO	90%/10%		
frequency (MHz)	frequency (MHz)	mVpp	mVppAvg_2-2	RiseAvg_2-2 (ns)	Dev (ns)	
20	20,0002	3 500	3 580	14,550	0,173	
40	40,0005	3 500	3 690	7,235	0,107	
60	60,0007	3 500	3 740	4,856	0,070	
80	80,0009	3 500	3 700	3,687	0,087	
100	100,0010	3 500	3 640	3,049	0,064	
120	n/a	3 500	n/a	n/a	n/a	

demod on DSO CH1 adj
adj(mVDC_1-2 / 10)
358
369
374
370
364
323,690

Test 3-1: 50mV/div; 250MSa/s; Sin(x)/x OFF						
reported by gen	reported by DSO hw count	reported by gen	reported by DSO	90%/10%		
frequency (MHz)	frequency (MHz)	mVpp	mVppAvg_3-1	RiseAvg_3-1 (ns)	Dev (ns)	
20	20,0002	350	352	14,520	0,113	
40	40,0005	350	333	7,348	0,070	
60	60,0007	350	290	4,822	0,096	
80	80,0009	350	230	3,587	0,085	
100	100,0010	350	172	2,777	0,091	
120	n/a	350	n/a	n/a	n/a	

demod on DSO CH1 adj
adj(mVDC_1-1)
352,00
348,70
347,80
343,20
330,10
314,50



Test 3-2: 500mV/div; 250MSa/s; Sin(x)/x OFF						
reported by gen	reported by DSO hw count	reported by gen	reported by DSO	90%/10%		
frequency (MHz)	frequency (MHz)	mVpp	mVppAvg_3-2	RiseAvg_3-2 (ns)	Dev (ns)	
20	20,0002	3 500	3530	14,600	0,168	
40	40,0005	3 500	3420	7,324	0,058	
60	60,0007	3 500	3100	4,862	0,095	
80	80,0009	3 500	2580	3,623	0,070	
100	100,0010	3 500	2080	2,852	0,078	
120	n/a	3 500	n/a	n/a	n/a	

demod on DSO CH1 adj
adj(mVDC_1-2 / 10)
353
342
310
258
208
318,690