Systems ATE report

Substrate - Description	PMP9208
- BOM	E2
	25 deg ambient

Test Notes

CH1 = Vout

CH2 = Vin AC

CH3 = Iout

Vout measurements taken with output cable

All output measurements are taken with 1uF and a 0.1uF MLCC across the DUT output.

Hardware used for Tests

Chroma 8000 ATE
AC source Chroma 61513
DC source Chroma 62012
Timing/Noise Analyser Chroma 80611
Electronic load Chroma 63630-80-60, Chroma 63610-80-20
Short circuit / OVP tester Chroma 80612
DMM Agilent 34970
Power Meter Chroma 66202
Digital Oscilloscope TektronixTDS3014C
Current probe Tektronix TCP202
Current probe Tektronix AM503A Amplifier with A6303 Current probe
Differential probe Tektronix P5205 100 MHz High Voltage Differential Probe

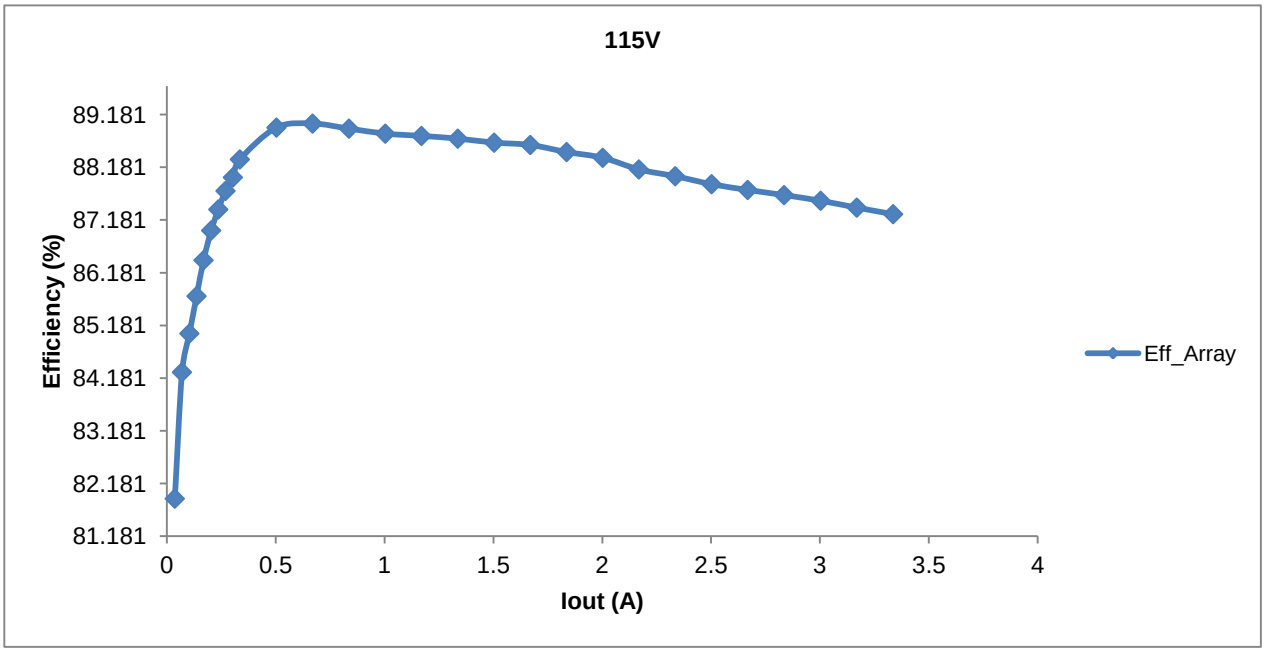
No Load Power

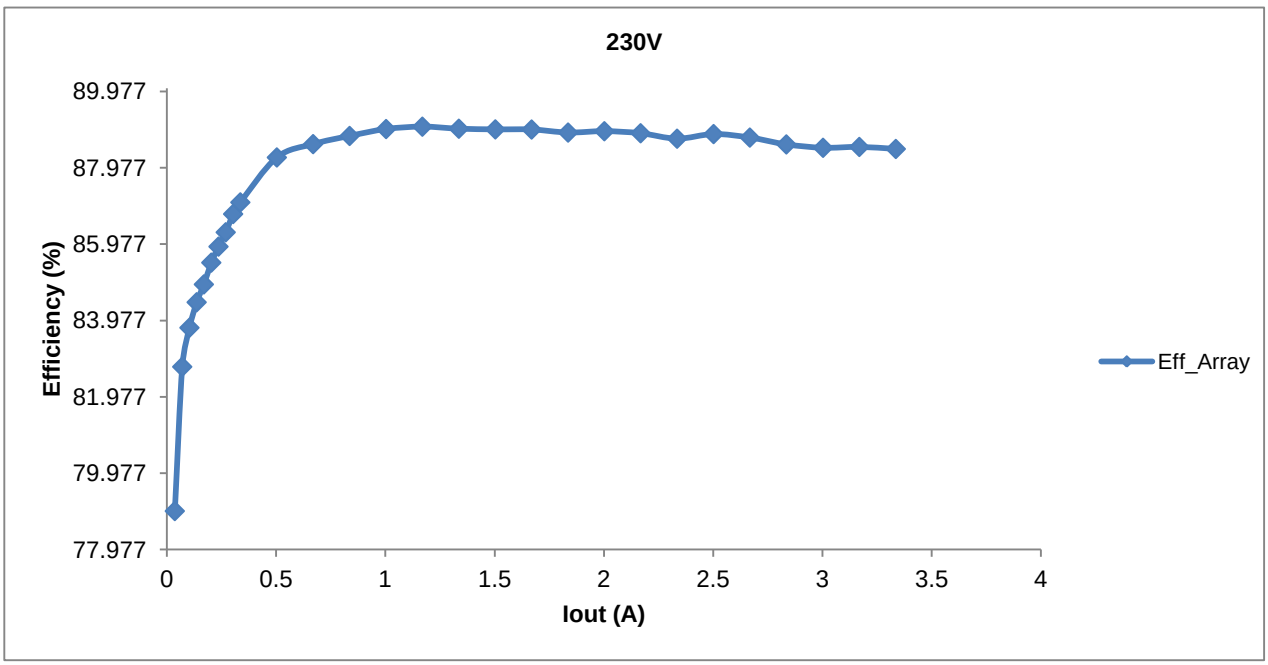
No Load Power					
Vin (V)	F (Hz)	Pin (W) Measured	Pin (W) Max Spec	Vout (V)(Load_1)	Pass?
115	60	0.053	0.070	19.71	PASS
230	50	0.058	0.070	19.85	PASS

Efficiency vs. Load

Vin(V)	Freq (Hz)	Po nom (W)	Vout nom (V)	% Power	Pin (W)	Iout	Pout	Efficiency
115	60	65	19.5	1	0.85	0.036	0.70	81.89
				2	1.60	0.069	1.35	84.29
				3	2.35	0.103	2.00	85.03
				4	3.10	0.136	2.65	85.73
				5	3.80	0.168	3.28	86.42
				6	4.55	0.203	3.96	86.98
				7	5.27	0.236	4.61	87.38
				8	5.98	0.269	5.25	87.73
				9	6.73	0.303	5.93	87.99
				10	7.41	0.335	6.55	88.33
				15	10.95	0.503	9.73	88.93
				20	14.54	0.669	12.94	89.01
				25	18.17	0.836	16.16	88.91
				30	21.80	1.003	19.36	88.82
				35	25.39	1.169	22.54	88.77
				40	29.03	1.336	25.76	88.72
				45	32.67	1.503	28.96	88.65
				50	36.27	1.669	32.14	88.60
				55	39.94	1.836	35.34	88.47
				60	43.58	2.002	38.51	88.36
				65	47.27	2.168	41.66	88.14
				70	50.93	2.335	44.83	88.01
				75	54.64	2.502	48.01	87.86
				80	58.30	2.668	51.15	87.75
				85	61.96	2.835	54.31	87.65
				90	65.68	3.003	57.50	87.55
				95	69.35	3.169	60.62	87.42
				100	73.04	3.336	63.76	87.29
230	50	65	19.5	1	0.90	0.036	0.71	78.98
				2	1.65	0.070	1.36	82.76
				3	2.40	0.103	2.01	83.79
				4	3.15	0.136	2.66	84.45
				5	3.88	0.169	3.29	84.92
				6	4.64	0.203	3.97	85.49
				7	5.37	0.236	4.61	85.91
				8	6.08	0.269	5.25	86.29
				9	6.82	0.303	5.92	86.77
				10	7.51	0.336	6.54	87.07
				15	11.01	0.503	9.71	88.25
				20	14.58	0.669	12.92	88.60
				25	18.15	0.836	16.12	88.81
				30	21.70	1.003	19.31	88.99

				35	25.26	1.169	22.50	89.05
				40	28.85	1.336	25.68	89.00
				45	32.45	1.503	28.87	88.98
				50	36.02	1.669	32.05	88.98
				55	39.62	1.836	35.22	88.90
				60	43.18	2.002	38.40	88.94
				65	46.76	2.168	41.56	88.88
				70	50.40	2.335	44.72	88.74
				75	53.86	2.502	47.86	88.86
				80	57.44	2.668	50.99	88.77
				85	61.14	2.835	54.16	88.59
				90	64.76	3.003	57.31	88.50
				95	68.27	3.169	60.44	88.52
				100	71.87	3.336	63.58	88.47





Single Point Efficiency

Power Efficiency										
Extension	Vin (V)	F (Hz)	Pin (W)	Iout (A)	Vout (V)	Pout (W)	Eff (%)	Pin Max Spec (W)	Eff (%) Min Spec	Pass?
0.25W mode	115	60	0.348	0.013	19.511	0.254	73.03	*	52	PASS
0.5W mode	115	60	0.642	0.026	19.507	0.507	79.03	*	53	PASS
1W mode	115	60	1.206	0.051	19.505	0.995	82.51	*	59	PASS
2W mode	115	60	2.379	0.103	19.504	2.009	84.45	*	65	PASS
0.25W mode	230	50	0.379	0.013	19.528	0.254	67.05	*	52	PASS
0.5W mode	230	50	0.671	0.026	19.524	0.508	75.72	*	53	PASS
1W mode	230	50	1.238	0.051	19.522	0.996	80.43	*	59	PASS
2W mode	230	50	2.418	0.103	19.524	2.011	83.16	*	65	PASS

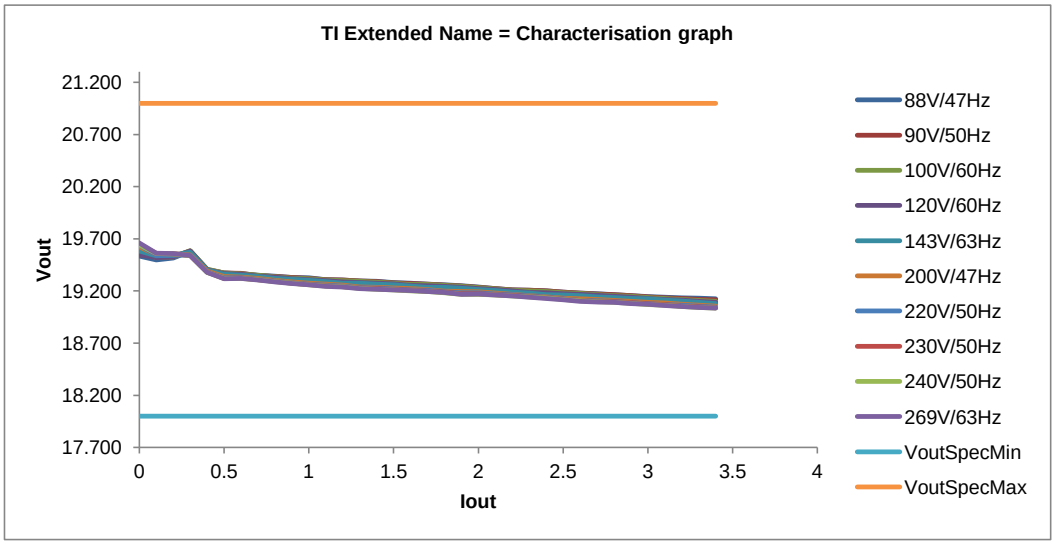
Average Efficiency

Average efficiency data extracted from table in previous section

			Average of 25%, 50%, 75%, 100%				
Vin (V)	Freq (Hz)	Eff @ 10% load	25% load	50% load	75% load	100% load	Average %
115	60	88.33	88.91	88.60	87.86	87.29	88.17
230	50	87.07	88.81	88.98	88.86	88.47	88.78

Data for Characterisation Plot										
All lines	88V/47Hz	90V/50Hz	100V/60Hz	120V/60Hz	143V/63Hz	200V/47Hz	220V/50Hz	230V/50Hz	240V/50Hz	269V/63Hz
Io set	Vo	Vo	Vo	Vo	Vo	Vo	Vo	Vo	Vo	Vo
0.000	19.534	19.548	19.574	19.549	19.582	19.623	19.641	19.649	19.641	19.659
0.100	19.498	19.538	19.520	19.520	19.539	19.548	19.541	19.558	19.559	19.562
0.200	19.516	19.530	19.526	19.526	19.545	19.555	19.545	19.557	19.557	19.558
0.300	19.579	19.582	19.587	19.582	19.570	19.548	19.543	19.541	19.542	19.542
0.400	19.403	19.407	19.408	19.404	19.401	19.391	19.383	19.382	19.378	19.379
0.500	19.371	19.373	19.372	19.365	19.360	19.340	19.326	19.321	19.321	19.317
0.600	19.367	19.368	19.364	19.359	19.352	19.333	19.328	19.325	19.321	19.322
0.700	19.351	19.349	19.350	19.341	19.338	19.320	19.311	19.307	19.307	19.305
0.800	19.341	19.339	19.337	19.332	19.320	19.301	19.297	19.292	19.291	19.288
0.900	19.329	19.330	19.324	19.319	19.311	19.288	19.279	19.276	19.274	19.272
1.000	19.327	19.322	19.319	19.308	19.302	19.274	19.265	19.261	19.260	19.258
1.100	19.309	19.307	19.305	19.300	19.291	19.266	19.255	19.251	19.247	19.244
1.200	19.304	19.306	19.299	19.287	19.275	19.257	19.248	19.241	19.240	19.238
1.300	19.297	19.297	19.292	19.282	19.274	19.237	19.231	19.229	19.226	19.224
1.400	19.293	19.291	19.284	19.276	19.267	19.236	19.229	19.223	19.216	19.216
1.500	19.280	19.278	19.274	19.268	19.259	19.230	19.221	19.215	19.211	19.211
1.600	19.275	19.271	19.262	19.254	19.248	19.224	19.212	19.206	19.202	19.203
1.700	19.265	19.265	19.262	19.250	19.234	19.213	19.206	19.198	19.195	19.194
1.800	19.259	19.257	19.253	19.244	19.235	19.199	19.191	19.189	19.184	19.186
1.900	19.249	19.247	19.243	19.236	19.226	19.195	19.183	19.174	19.168	19.169
2.000	19.238	19.236	19.231	19.224	19.214	19.192	19.182	19.173	19.167	19.170
2.100	19.222	19.222	19.219	19.214	19.203	19.180	19.171	19.166	19.161	19.162
2.200	19.212	19.210	19.206	19.201	19.190	19.168	19.165	19.158	19.153	19.152
2.300	19.208	19.208	19.200	19.187	19.179	19.156	19.152	19.147	19.143	19.141
2.4	19.201	19.201	19.195	19.182	19.166	19.143	19.139	19.137	19.134	19.129

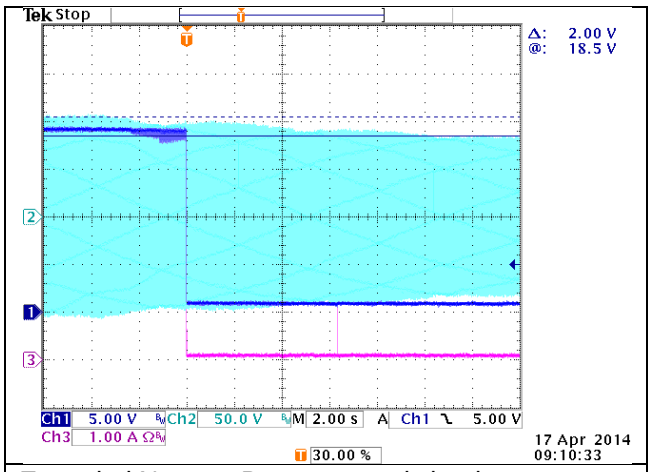
00										
2.500	19.190	19.188	19.184	19.175	19.161	19.130	19.125	19.123	19.119	19.117
2.600	19.180	19.180	19.176	19.167	19.154	19.124	19.109	19.110	19.106	19.101
2.700	19.173	19.172	19.166	19.158	19.144	19.118	19.106	19.102	19.098	19.093
2.800	19.164	19.164	19.157	19.148	19.137	19.111	19.099	19.097	19.092	19.090
2.900	19.154	19.156	19.149	19.140	19.127	19.101	19.088	19.088	19.083	19.079
3.000	19.147	19.142	19.138	19.129	19.124	19.090	19.080	19.076	19.071	19.073
3.100	19.140	19.134	19.128	19.120	19.113	19.084	19.070	19.069	19.064	19.060
3.200	19.133	19.128	19.118	19.112	19.103	19.073	19.063	19.056	19.052	19.052
3.300	19.131	19.120	19.109	19.101	19.090	19.065	19.054	19.048	19.043	19.043
3.400	19.125	19.117	19.100	19.091	19.078	19.056	19.044	19.039	19.035	19.035



Brownout and Recovery Tests

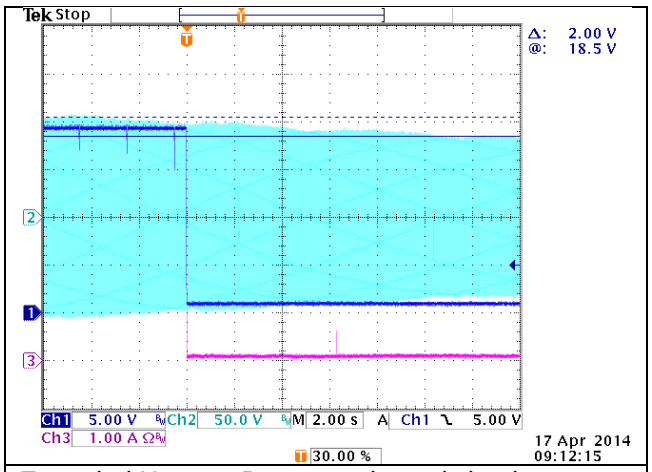
Note: the "Pass?" column in the Brownout and Recovery tables indicates "Vout in regulation". An inspection of the scope plots is required to evaluate other Pass/Fail criteria.

Brownout Static						
Vin_start (V)	F (Hz)	Vin_step (V)	Delay (ms)	Load (A)	Vin_off (V)	Pass?
90	50	1	1000	3.340	70	PASS



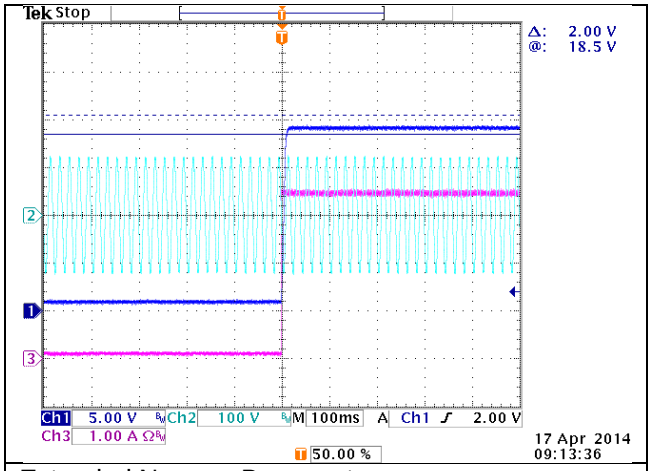
Extended Name = Brownout static load

Brownout under dynamic load									
Vin_start (V)	F (Hz)	Vin_step (V)	Delay (ms)	Load_1 (A)	Time_1 (ms)	Load_2 (ms)	Time_2 (ms)	Vin_off (V)	Pass?
90	50	1.0	1000	1.026	1960	4.350	40	70	PASS



Extended Name = Brownout dynamic load
Brownout under dynamic load

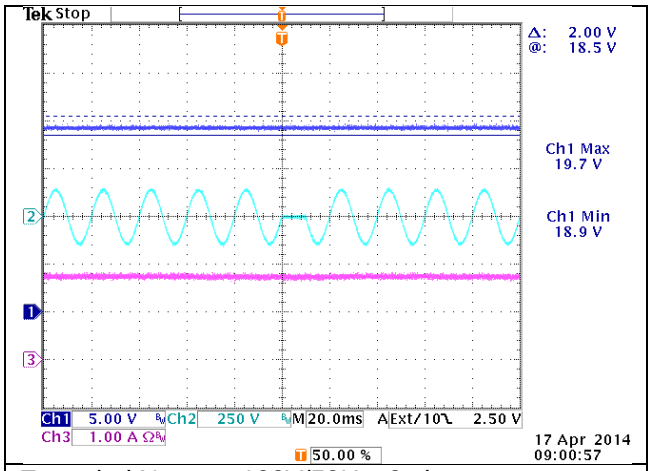
Recovery							
Vin_start (V)	F (Hz)	Vin_step (V)	Delay (ms)	Load (A)	Vout_trigger (V)	Vin_startup (V)	Pass?
20.0	50	1.0	1000.0	3.340	18	85	PASS



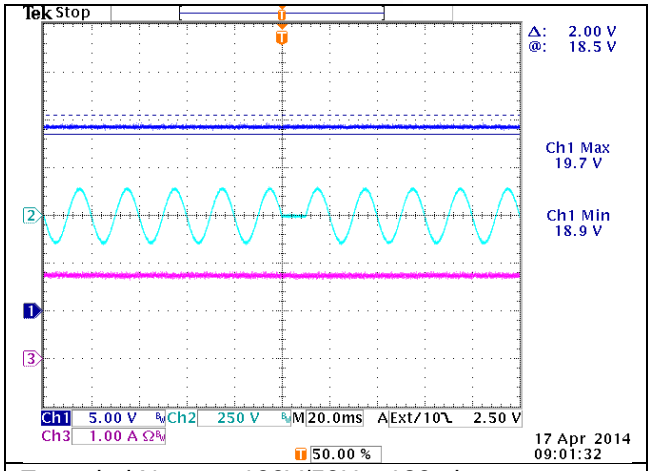
Extended Name = Brownout recovery
Recovery under static load

Power Line Disturbances

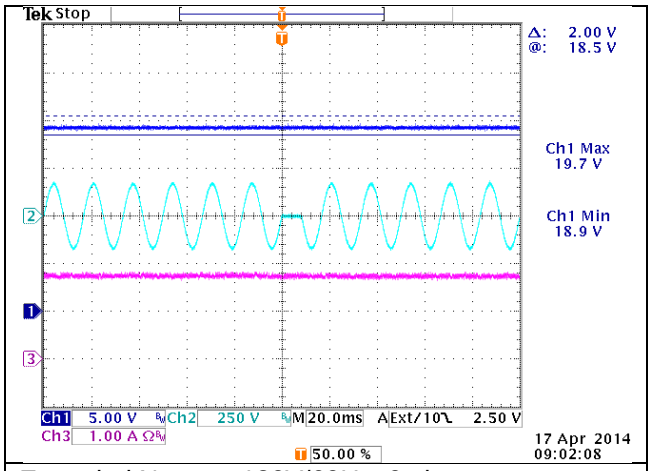
Dip Interrupt							
Description	Vin	Load (A)	Vpk Min (V) Measured	Vpk Min (V) Spec'd	Vpk Max (V) Measured	Vpk Max (V) Spec'd	Pass?
100V/50Hz, 0 phase	100	1.670	> 18	18	< 21	21	PASS
100V/50Hz, 180 phase	100	1.670	> 18	18	< 21	21	PASS
120V/60Hz, 0 phase	120	1.670	> 18	18	< 21	21	PASS
120V/60Hz, 180 phase	120	1.670	> 18	18	< 21	21	PASS
200V/50Hz, 0 phase	200	3.340	> 18	18	< 21	21	PASS
200V/50Hz, 180 phase	200	3.340	> 18	18	< 21	21	PASS
240V/50Hz, 0 phase	240	3.340	> 18	18	< 21	21	PASS
240V/50Hz, 180 phase	240	3.340	> 18	18	< 21	21	PASS



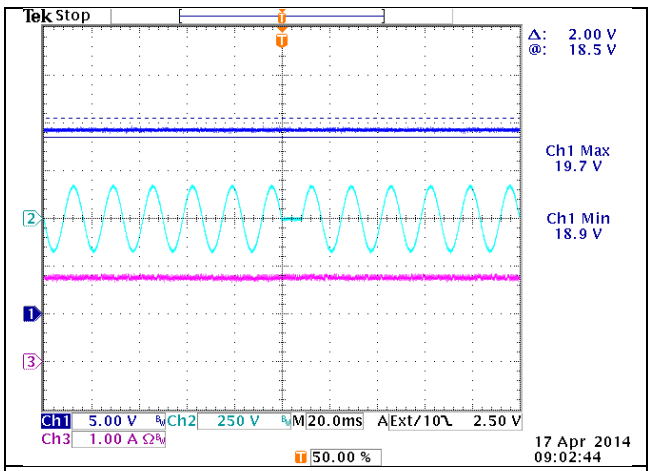
Extended Name = 100V/50Hz, 0 phase



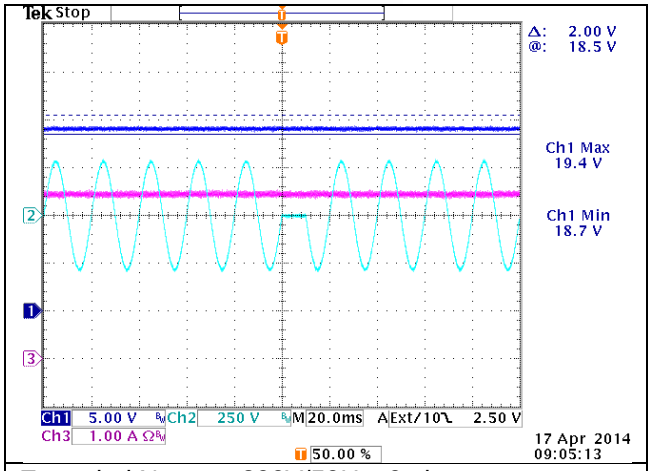
Extended Name = 100V/50Hz, 180 phase



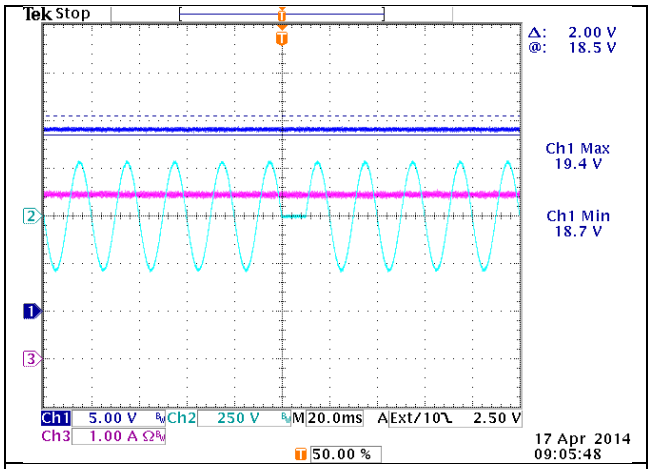
Extended Name = 120V/60Hz, 0 phase



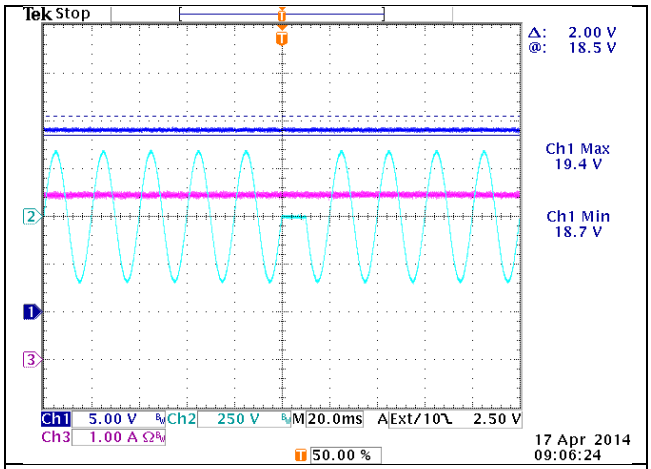
Extended Name = 120V/60Hz, 180 phase



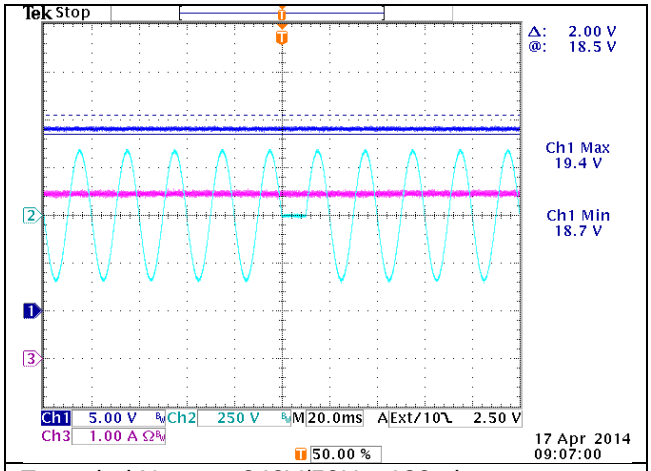
Extended Name = 200V/50Hz, 0 phase



Extended Name = 200V/50Hz, 180 phase



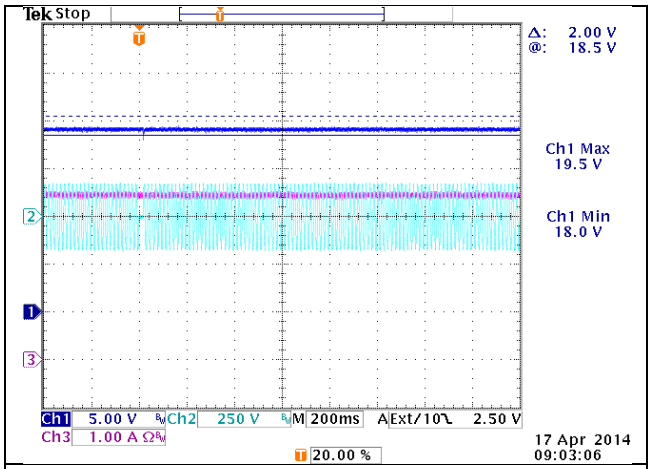
Extended Name = 240V/50Hz, 0 phase



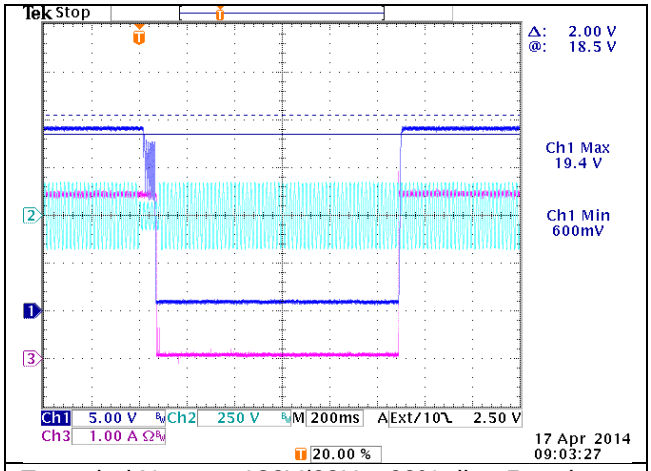
Extended Name = 240V/50Hz, 180 phase

During the dip interrupt recovery tests, there is a short delay after the disturbance before Vout is measured

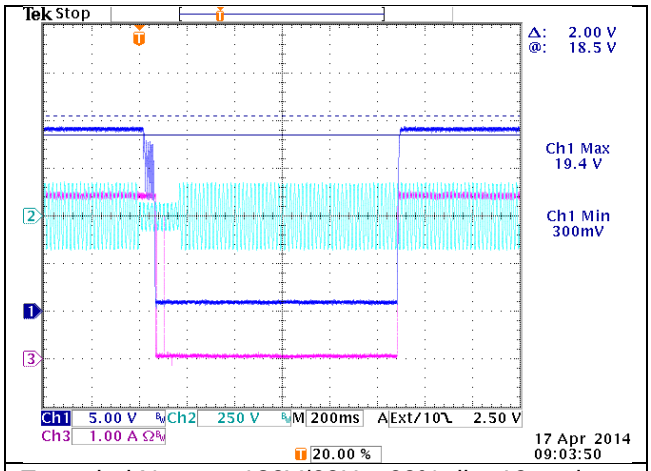
Dip Interrupt Recovery							
Description	Vin	Load (A)	Time before Vout measurement (ms)	Vout; measured (V)	Vout spec min (V)	Vout spec max(V)	Pass?
120V/60Hz, 100% dip, 1 cycle	120	3.340	3000	19.099	18.000	21.000	PASS
120V/60Hz, 60% dip, 5 cycles	120	3.340	3000	19.101	18.000	21.000	PASS
120V/60Hz, 60% dip, 10 cycles	120	3.340	3000	19.100	18.000	21.000	PASS
120V/60Hz, 30% dip, 25 cycles	120	3.340	3000	19.100	18.000	21.000	PASS
120V/60Hz, 30% dip, 50 cycles	120	3.340	3000	19.101	18.000	21.000	PASS
240V/50Hz, 100% dip, 1 cycle	240	3.340	3000	19.051	18.000	21.000	PASS
240V/50Hz, 60% dip, 5 cycles	240	3.340	3000	19.051	18.000	21.000	PASS
240V/50Hz, 60% dip, 10 cycles	240	3.340	3000	19.050	18.000	21.000	PASS
240V/50Hz, 30% dip, 25 cycles	240	3.340	3000	19.050	18.000	21.000	PASS
240V/50Hz, 30% dip, 50 cycles	240	3.340	3000	19.050	18.000	21.000	PASS



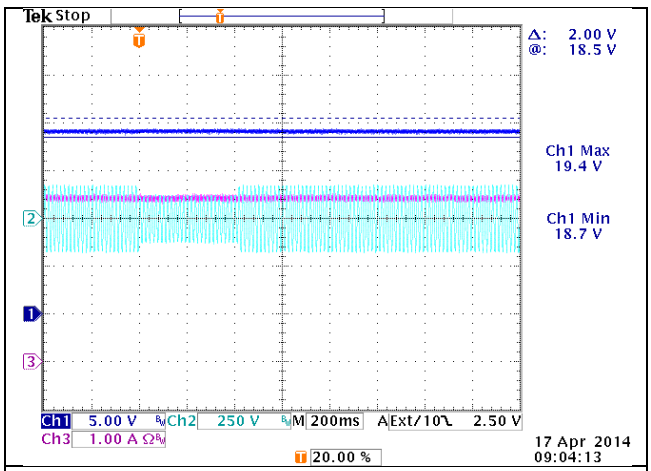
Extended Name = 120V/60Hz, 100% dip, 1 cycle



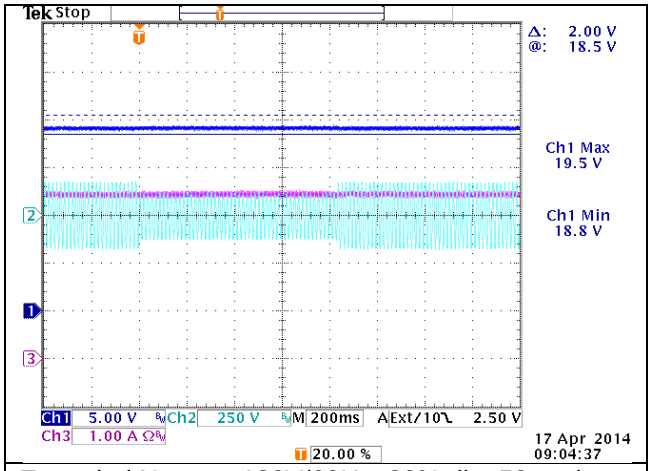
Extended Name = 120V/60Hz, 60% dip, 5 cycles



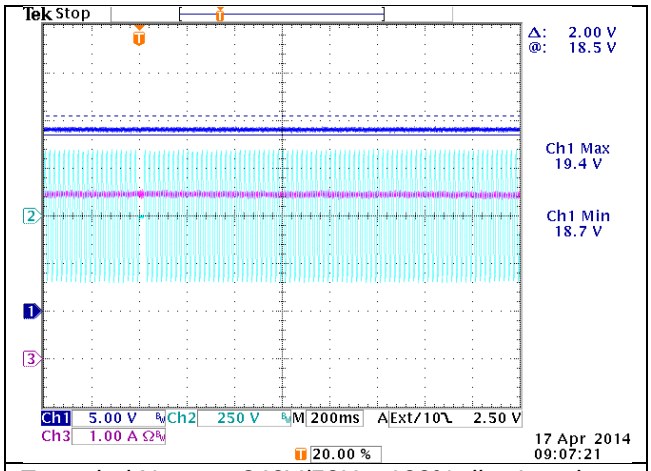
Extended Name = 120V/60Hz, 60% dip, 10 cycles



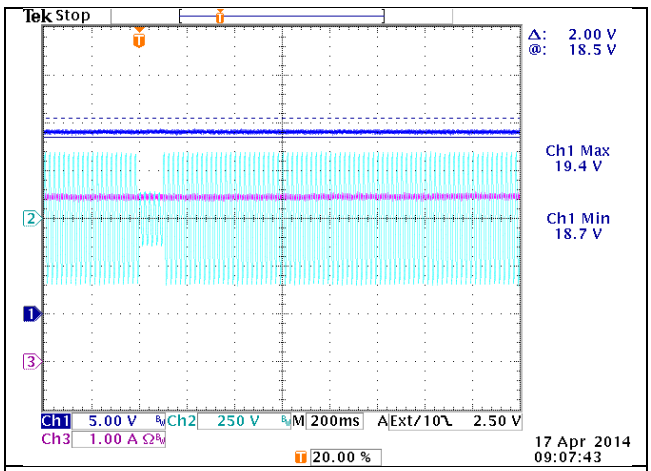
Extended Name = 120V/60Hz, 30% dip, 25 cycles



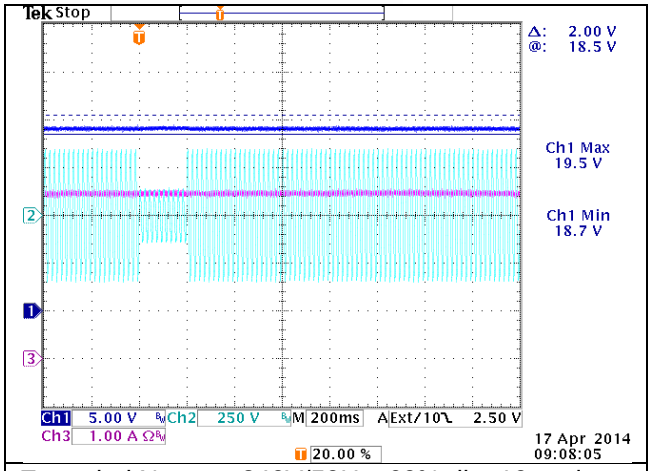
Extended Name = 120V/60Hz, 30% dip, 50 cycles



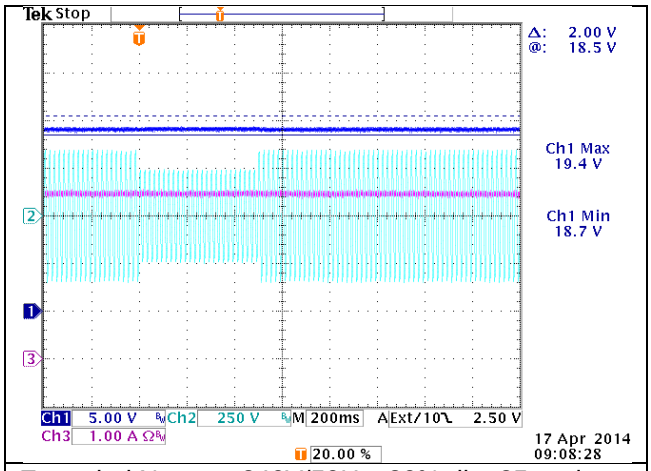
Extended Name = 240V/50Hz, 100% dip, 1 cycle



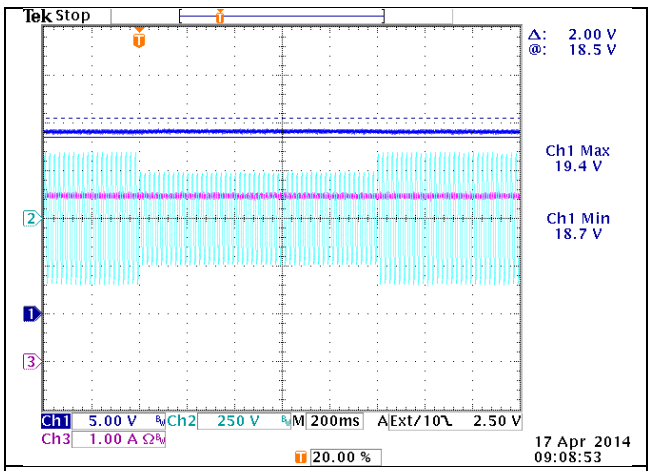
Extended Name = 240V/50Hz, 60% dip, 5 cycles



Extended Name = 240V/50Hz, 60% dip, 10 cycles



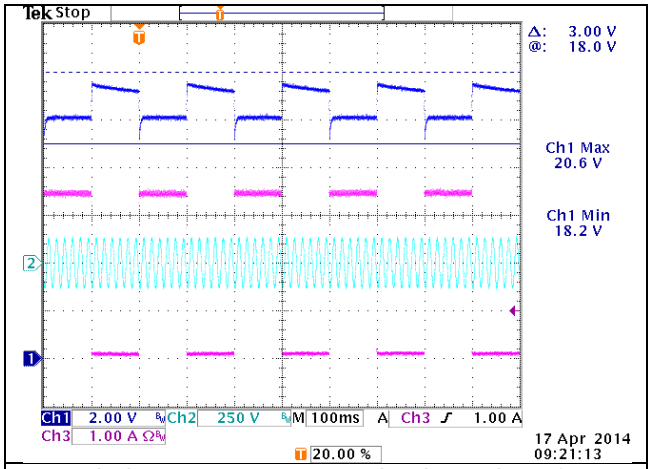
Extended Name = 240V/50Hz, 30% dip, 25 cycles



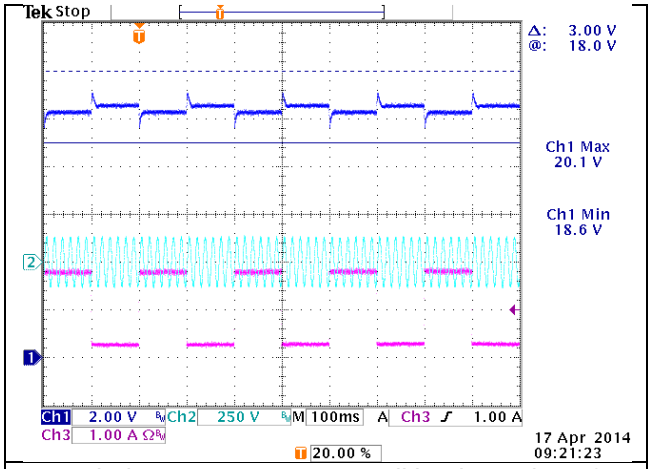
Extended Name = 240V/50Hz, 30% dip, 50 cycles

Step Load

Dynamic test										
Vin (V)	Load_1 (A)	Time_1 (ms)	Load_2 (A)	Time_2 (ms)	Slew rate (A/us)	Vpk min meas'd (V)	Vpk min spec'd (V)	Vpk max meas'd (V)	Vpk max spec'd (V)	Pass?
90	0.000	100	3.340	100	0.200	18.16	18.000	20.560	21.000	PASS
90	0.167	100	1.670	100	0.200	18.60	18.000	20.120	21.000	PASS
90	0.334	100	3.051	100	0.200	18.20	18.000	20.240	21.000	PASS
115	0.000	100	3.340	100	0.200	18.16	18.000	20.600	21.000	PASS
115	0.167	100	1.670	100	0.200	18.56	18.000	20.080	21.000	PASS
115	0.334	100	3.051	100	0.200	18.20	18.000	20.200	21.000	PASS
230	0.000	100	3.340	100	0.200	18.12	18.000	20.520	21.000	PASS
230	0.167	100	1.670	100	0.200	18.48	18.000	20.040	21.000	PASS
230	0.334	100	3.051	100	0.200	18.16	18.000	20.160	21.000	PASS
90	1.670	100	3.340	100	0.200	18.64	18.000	19.720	21.000	PASS
115	1.670	100	3.340	100	0.200	18.60	18.000	19.760	21.000	PASS
230	1.670	100	3.340	100	0.200	18.56	18.000	19.680	21.000	PASS

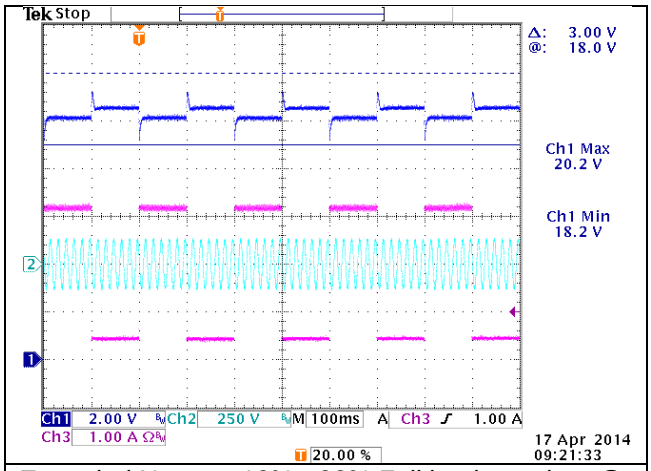


Extended Name = 0% - 100% load transient @ 90Vac
Ch1 offset = 9V

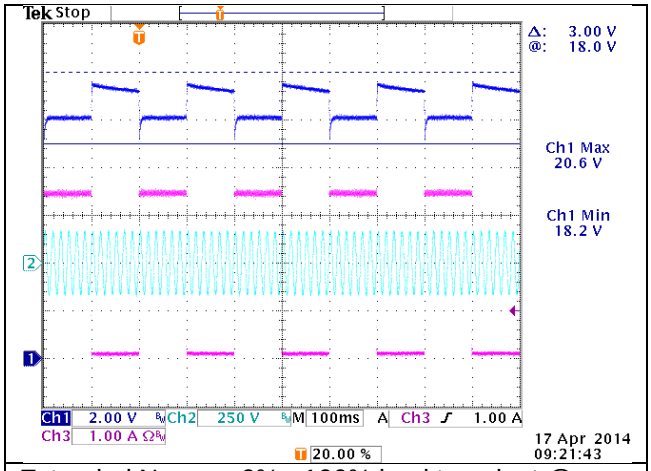


Extended Name = 5% - 50% Full load transient @

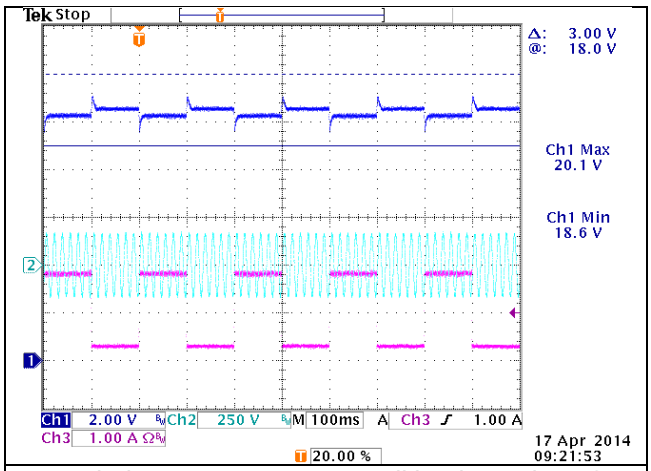
90Vac
Ch1 offset = 9V



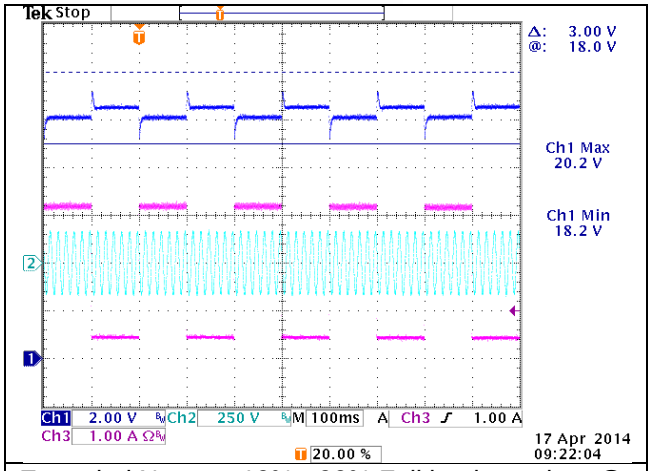
Extended Name = 10% - 90% Full load transient @ 90Vac
Ch1 offset = 9V



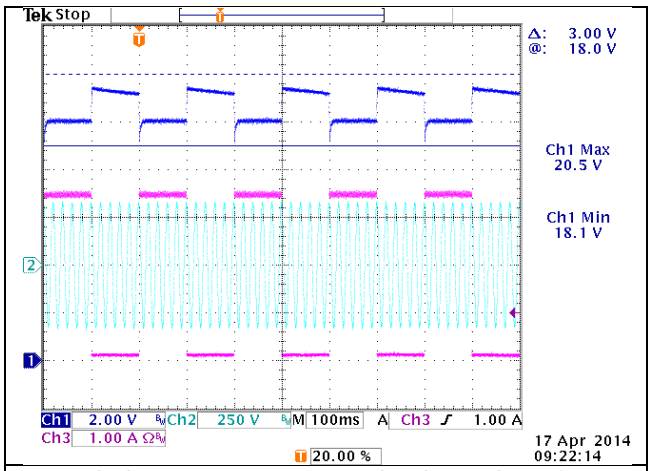
Extended Name = 0% - 100% load transient @ 115Vac
Ch1 offset = 9V



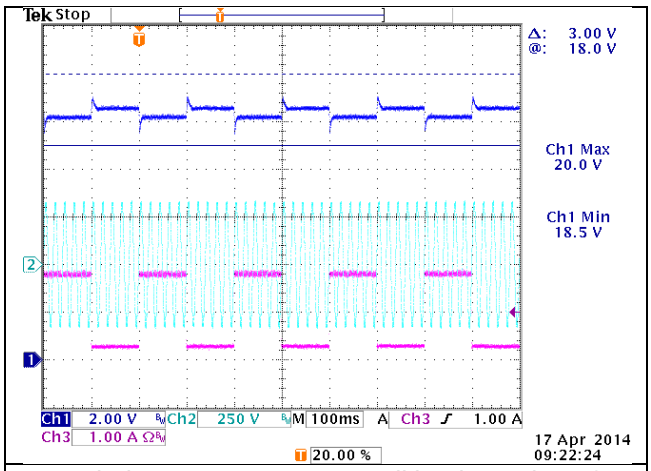
Extended Name = 5% - 50% Full load transient @ 115Vac
Ch1 offset = 9V



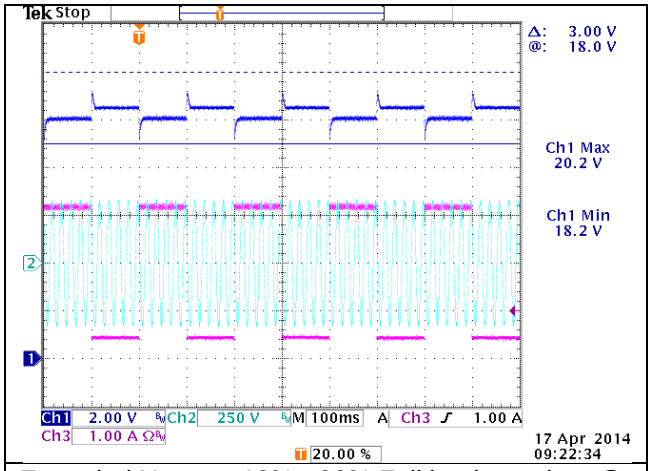
Extended Name = 10% - 90% Full load transient @ 115Vac
Ch1 offset = 9V



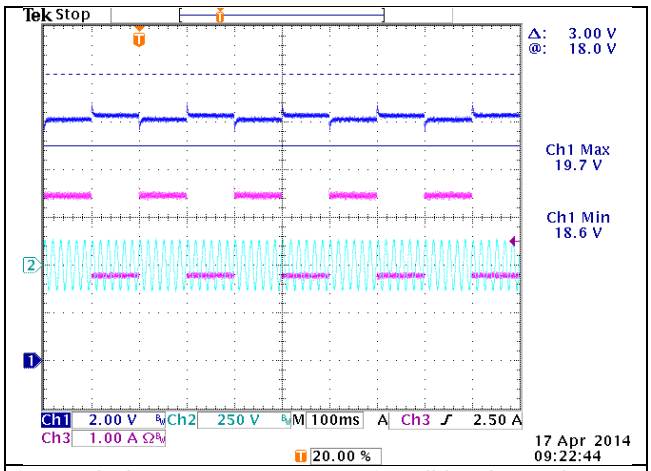
Extended Name = 0% - 100% load transient @ 230Vac
Ch1 offset = 9V



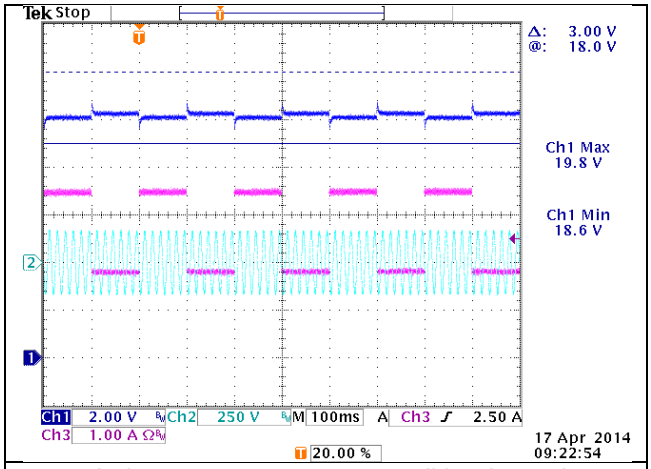
Extended Name = 5% - 50% Full load transient @ 230Vac
Ch1 offset = 9V



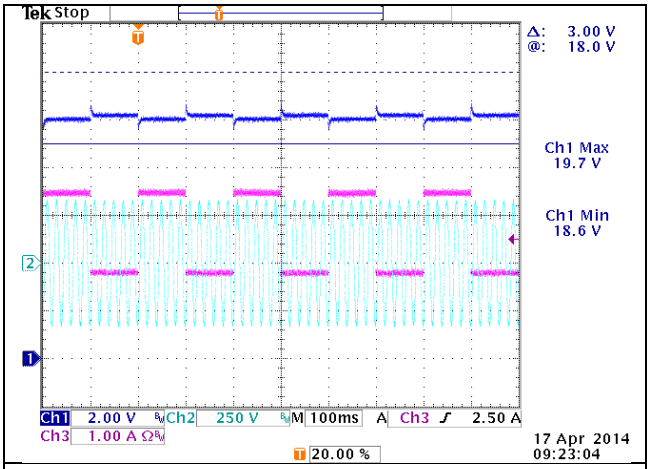
Extended Name = 10% - 90% Full load transient @ 230Vac
Ch1 offset = 9V



Extended Name = 50% - 100% Full load transient @ 90Vac
Ch1 offset = 9V



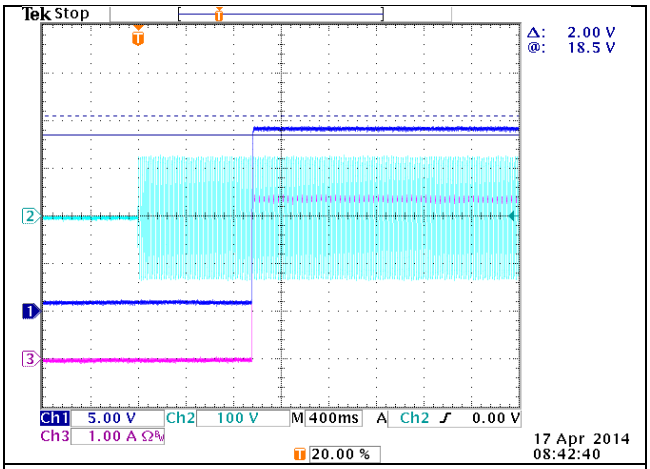
Extended Name = 50% - 100% Full load transient @ 115Vac
Ch1 offset = 9V



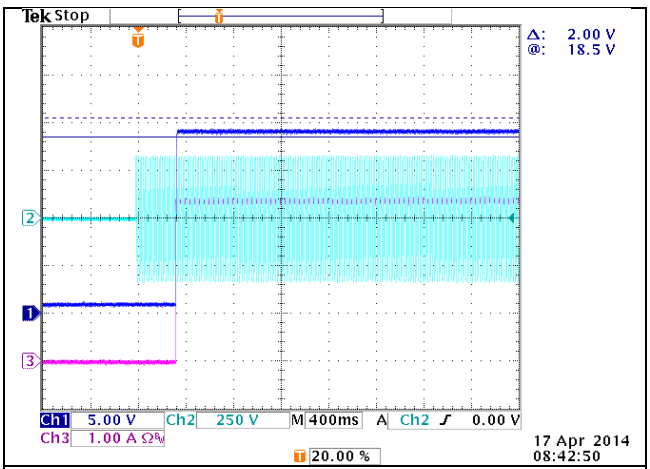
Extended Name = 50% - 100% Full load transient @ 230Vac
Ch1 offset = 9V

Startup and Risetime

Startup time					
Vin (V)	F (Hz)	Load (A)	Startup time (ms); measured	Startup time (ms); spec max	Pass?
90	50	3.340	1003	4000	PASS
230	50	3.340	340	4000	PASS

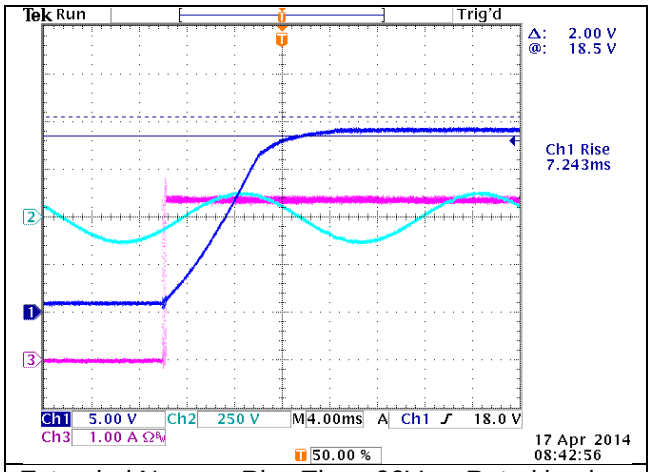


Extended Name = Start Up Time, 90Vac, Rated load
Startup

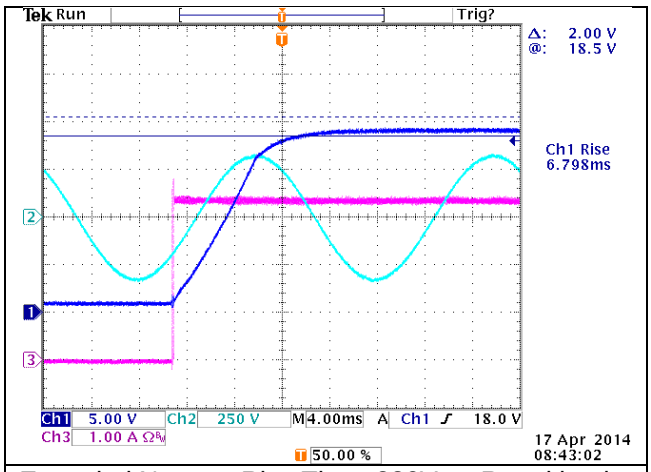


Extended Name = Start Up Time, 230Vac, Rated load
Startup

Risetime 10% - 90%					
Vin (V)	F (Hz)	Load (A)	Risetime 10%-90% (ms)	Risetime (ms) max; Spec	Pass?
90	50	3.340	7	100	PASS
230	50	3.340	7	100	PASS



Extended Name = Rise Time, 90Vac, Rated load



Extended Name = Rise Time, 230Vac, Rated load

On/off cycling

UUT is power cycled with 0.5, 1, 2, 4, 8, 16, 32, 64 and 128 second On/Off times, repeating each cycle four times. Output must be in regulation for On-time greater than four (4) seconds. If it is not in regulation, the On/Off time and cycle is recorded (see "Failed on cycle?" in table below). A zero indicates no-fail.

Vin (V)	F (Hz)	Load (A)	Cycle Period (s)	Failed On Cycle?	Result
90	50	0.000	0.50	0	PASS
		---	1.00	0	
		---	2.00	0	
		---	4.00	0	
		---	8.00	0	
		---	16.00	0	
		---	0.00	0	
		---	0.00	0	
		---	0.00	0	
90	50	3.340	0.50	0	PASS
		---	1.00	0	
		---	2.00	0	
		---	4.00	0	
		---	8.00	0	
		---	16.00	0	
		---	0.00	0	
		---	0.00	0	
		---	0.00	0	
230	50	0.000	0.50	0	PASS
		---	1.00	0	
		---	2.00	0	
		---	4.00	0	
		---	8.00	0	
		---	16.00	0	
		---	0.00	0	
		---	0.00	0	
		---	0.00	0	
230	50	3.340	0.50	0	PASS
		---	1.00	0	
		---	2.00	0	
		---	4.00	0	
		---	8.00	0	
		---	16.00	0	
		---	0.00	0	
		---	0.00	0	
		---	0.00	0	

Over Current Protection Test

Short Circuit Test

Vin (V)	F (Hz)	Vout before short (V)	Vout after short (V)	Pass?
115	60	19.10	0.02	PASS

Output Current Characteristics

Load in CR mode. Apply a low load resistance for 200ms, measure Vout, Iout. Apply a background load resistance (e.g. 200R) for 1000ms. Decrease the low load resistance and repeat the cycle until load resistance < 1.5R.

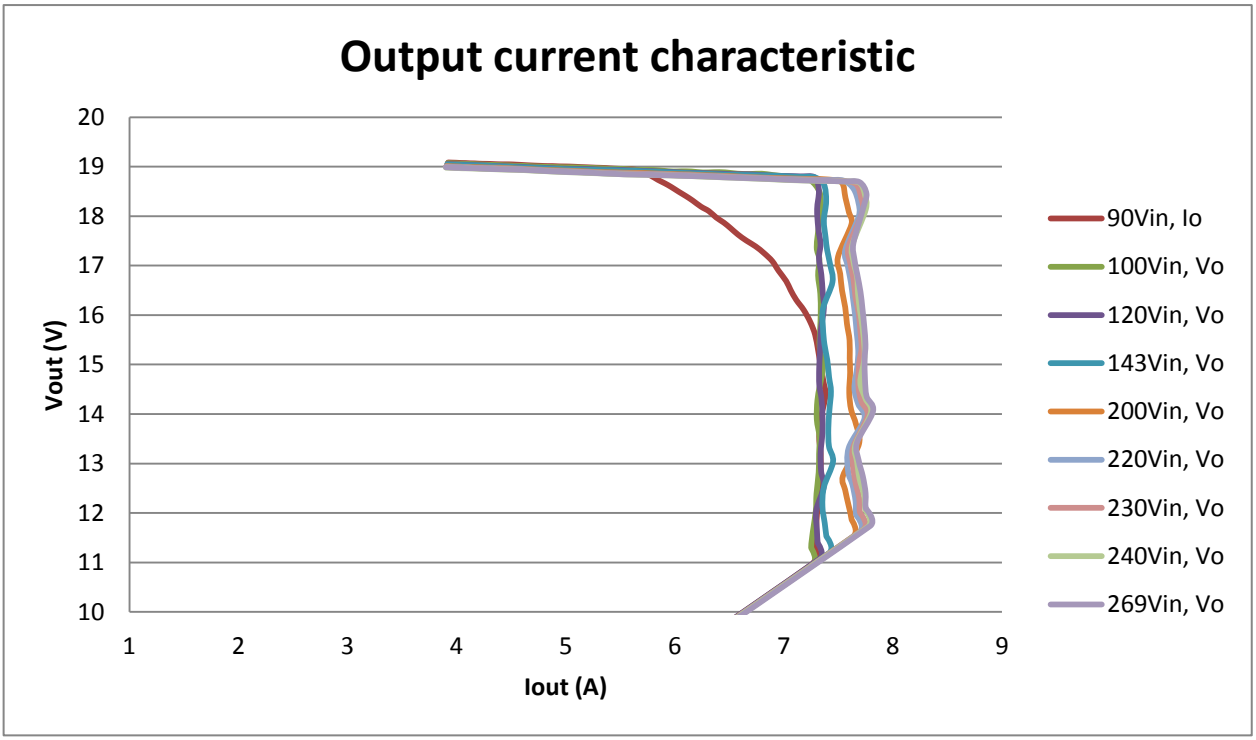
88Vin, Io	88Vin, Vo	90Vin, Io	90Vin, Vo	100Vin, Io	100Vin, Vo	120Vin, Io	120Vin, Vo	143Vin, Io	143Vin, Vo	200Vin, Io	200Vin, Vo	220Vin, Io	220Vin, Vo	230Vin, Io	230Vin, Vo	240Vin, Io	240Vin, Vo	269Vin, Io	269Vin, Vo
3.923	19.095	3.921	19.088	3.918	19.070	3.915	19.056	3.912	19.044	3.906	19.014	3.904	18.999	3.902	18.994	3.901	18.985	3.901	18.986
3.962	19.089	3.962	19.085	3.957	19.064	3.955	19.052	3.952	19.037	3.946	19.008	3.943	18.997	3.942	18.987	3.941	18.982	3.940	18.981
4.004	19.088	4.002	19.082	3.999	19.063	3.996	19.050	3.992	19.035	3.986	19.005	3.984	18.991	3.982	18.983	3.981	18.979	3.980	18.976
4.044	19.085	4.044	19.077	4.040	19.058	4.038	19.046	4.034	19.033	4.028	19.001	4.025	18.989	4.023	18.981	4.022	18.974	4.023	18.974
4.080	19.083	4.078	19.076	4.073	19.057	4.071	19.044	4.068	19.030	4.061	18.996	4.059	18.987	4.058	18.979	4.056	18.971	4.057	18.972
4.123	19.082	4.121	19.071	4.116	19.052	4.114	19.042	4.111	19.028	4.104	18.995	4.103	18.986	4.100	18.976	4.099	18.971	4.099	18.967
4.167	19.078	4.165	19.069	4.161	19.048	4.158	19.037	4.157	19.027	4.149	18.991	4.146	18.977	4.144	18.973	4.143	18.967	4.143	18.967
4.211	19.071	4.210	19.063	4.206	19.043	4.203	19.032	4.201	19.023	4.194	18.989	4.191	18.974	4.189	18.969	4.188	18.963	4.188	18.964
4.259	19.070	4.257	19.061	4.252	19.039	4.249	19.029	4.247	19.019	4.240	18.986	4.237	18.971	4.235	18.966	4.235	18.960	4.234	18.958
4.307	19.068	4.304	19.059	4.299	19.035	4.296	19.023	4.294	19.015	4.287	18.982	4.284	18.968	4.282	18.963	4.281	18.955	4.281	18.955
4.354	19.063	4.353	19.054	4.347	19.031	4.344	19.017	4.343	19.009	4.335	18.979	4.332	18.968	4.330	18.960	4.330	18.953	4.328	18.950

4.404	19.059	4.402	19.051	4.396	19.029	4.393	19.015	4.391	19.006	4.385	18.980	4.381	18.963	4.380	18.955	4.378	18.949	4.378	18.948
4.443	19.051	4.442	19.050	4.437	19.024	4.433	19.011	4.432	19.001	4.425	18.974	4.422	18.961	4.420	18.953	4.418	18.946	4.418	18.946
4.495	19.051	4.494	19.049	4.488	19.022	4.485	19.006	4.482	18.997	4.477	18.969	4.473	18.960	4.472	18.949	4.470	18.943	4.469	18.942
4.548	19.051	4.546	19.044	4.540	19.015	4.538	19.004	4.535	18.991	4.528	18.964	4.526	18.954	4.525	18.946	4.522	18.941	4.521	18.939
4.601	19.036	4.600	19.038	4.595	19.015	4.591	19.000	4.587	18.985	4.581	18.959	4.579	18.950	4.578	18.943	4.576	18.937	4.577	18.935
4.657	19.036	4.655	19.031	4.649	19.010	4.646	18.992	4.643	18.982	4.635	18.953	4.634	18.942	4.632	18.936	4.631	18.932	4.631	18.932
4.710	19.025	4.712	19.025	4.706	19.003	4.702	18.987	4.699	18.976	4.691	18.947	4.690	18.936	4.688	18.931	4.687	18.925	4.687	18.925
4.770	19.029	4.770	19.020	4.765	18.999	4.760	18.982	4.756	18.971	4.750	18.940	4.747	18.931	4.745	18.925	4.744	18.919	4.744	18.919
4.828	19.018	4.829	19.015	4.823	18.994	4.818	18.977	4.815	18.964	4.809	18.934	4.805	18.922	4.804	18.919	4.802	18.914	4.802	18.911
4.879	19.017	4.877	19.015	4.871	18.992	4.866	18.973	4.864	18.961	4.857	18.930	4.852	18.918	4.851	18.914	4.851	18.908	4.850	18.906
4.938	19.004	4.940	19.009	4.934	18.988	4.929	18.965	4.926	18.957	4.918	18.927	4.914	18.913	4.913	18.909	4.912	18.902	4.911	18.900
5.003	19.008	5.003	19.007	4.998	18.984	4.992	18.963	4.989	18.948	4.982	18.920	4.978	18.908	4.976	18.904	4.975	18.896	4.974	18.894
5.072	19.016	5.068	19.003	5.063	18.983	5.057	18.958	5.054	18.945	5.046	18.917	5.042	18.903	5.042	18.897	5.040	18.890	5.039	18.888
5.122	18.942	5.136	18.995	5.131	18.979	5.125	18.957	5.122	18.941	5.112	18.910	5.108	18.897	5.109	18.893	5.106	18.887	5.105	18.884
5.173	18.873	5.205	18.990	5.201	18.974	5.195	18.956	5.189	18.938	5.181	18.905	5.178	18.891	5.176	18.886	5.175	18.879	5.174	18.878
5.223	18.811	5.275	18.983	5.271	18.969	5.266	18.950	5.262	18.933	5.251	18.896	5.248	18.883	5.247	18.880	5.245	18.873	5.244	18.873
5.273	18.726	5.348	18.978	5.343	18.962	5.339	18.943	5.334	18.929	5.323	18.890	5.320	18.878	5.318	18.873	5.317	18.868	5.316	18.864
5.329	18.707	5.405	18.969	5.404	18.955	5.399	18.942	5.394	18.928	5.383	18.886	5.379	18.872	5.377	18.869	5.376	18.860	5.376	18.858
5.37	18.5	5.48	18.9	5.479	18.95	5.474	18.94	5.471	18.92	5.459	18.88	5.456	18.86	5.453	18.86	5.451	18.85	5.451	18.85

3	78	2	60		4		0		3		5		6		0		6		2
5.426	18.489	5.559	18.956	5.558	18.948	5.553	18.933	5.549	18.917	5.538	18.879	5.534	18.862	5.531	18.854	5.528	18.849	5.529	18.843
5.477	18.420	5.637	18.942	5.639	18.934	5.634	18.925	5.630	18.914	5.621	18.876	5.615	18.859	5.613	18.853	5.610	18.844	5.610	18.840
5.554	18.387	5.707	18.886	5.722	18.931	5.718	18.917	5.713	18.904	5.704	18.872	5.699	18.855	5.696	18.849	5.694	18.839	5.693	18.836
5.596	18.236	5.778	18.822	5.805	18.931	5.803	18.911	5.799	18.898	5.788	18.865	5.785	18.847	5.782	18.841	5.781	18.836	5.779	18.833
5.672	18.159	5.843	18.738	5.893	18.915	5.890	18.901	5.887	18.890	5.877	18.857	5.873	18.845	5.871	18.840	5.869	18.831	5.867	18.826
5.721	18.092	5.908	18.665	5.986	18.900	5.980	18.895	5.978	18.880	5.967	18.853	5.963	18.839	5.961	18.831	5.960	18.826	5.958	18.822
5.762	17.986	5.965	18.594	6.059	18.904	6.055	18.886	6.052	18.874	6.042	18.845	6.037	18.831	6.036	18.825	6.033	18.819	6.032	18.816
5.860	17.999	6.032	18.500	6.154	18.900	6.151	18.878	6.148	18.866	6.138	18.842	6.134	18.825	6.133	18.820	6.129	18.815	6.128	18.809
5.900	17.799	6.100	18.409	6.257	18.880	6.250	18.873	6.246	18.859	6.237	18.829	6.233	18.818	6.232	18.811	6.229	18.805	6.227	18.804
5.981	17.720	6.164	18.316	6.360	18.886	6.353	18.867	6.348	18.849	6.339	18.824	6.334	18.807	6.333	18.800	6.331	18.797	6.329	18.796
6.045	17.655	6.238	18.196	6.461	18.883	6.461	18.858	6.453	18.838	6.444	18.814	6.441	18.802	6.438	18.795	6.436	18.788	6.436	18.784
6.097	17.498	6.312	18.103	6.575	18.856	6.571	18.850	6.563	18.833	6.553	18.804	6.550	18.791	6.547	18.787	6.545	18.780	6.545	18.775
6.226	17.584	6.378	17.976	6.692	18.850	6.683	18.849	6.677	18.827	6.665	18.791	6.663	18.782	6.660	18.775	6.658	18.769	6.658	18.767
6.323	17.506	6.448	17.872	6.798	18.856	6.801	18.833	6.796	18.822	6.783	18.780	6.778	18.772	6.776	18.766	6.775	18.760	6.774	18.758
6.316	17.230	6.509	17.762	6.897	18.829	6.899	18.821	6.894	18.816	6.881	18.774	6.874	18.761	6.873	18.757	6.870	18.751	6.871	18.751
6.388	17.112	6.577	17.632	7.024	18.801	7.022	18.815	7.018	18.805	7.004	18.766	7.000	18.752	6.996	18.747	6.995	18.737	6.993	18.738
6.498	17.083	6.656	17.507	7.134	18.776	7.149	18.807	7.148	18.792	7.135	18.757	7.128	18.744	7.125	18.736	7.123	18.728	7.122	18.726
6.548	16.849	6.740	17.391	7.245	18.720	7.285	18.785	7.282	18.783	7.269	18.750	7.263	18.736	7.260	18.726	7.259	18.720	7.256	18.717
6.	16	6.	17	7.3	18.	7.3	18.	7.3	18.	7.4	18.	7.4	18.	7.4	18.	7.3	18.	7.3	18.

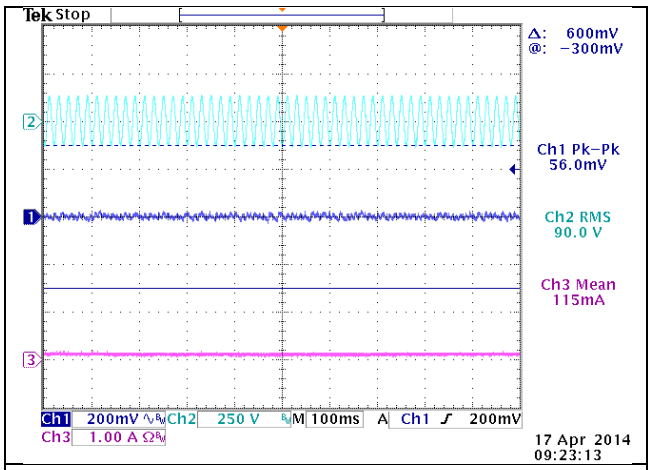
704	.949	819	.251	26	491	21	514	67	636	08	740	03	729	01	718	99	713	97	711
6.683	16.578	6.893	17.092	7.339	18.182	7.305	18.144	7.387	18.296	7.530	18.677	7.549	18.716	7.548	18.711	7.543	18.706	7.542	18.699
6.758	16.378	6.950	16.900	7.323	17.851	7.315	17.770	7.366	17.910	7.563	18.372	7.640	18.551	7.666	18.640	7.691	18.679	7.692	18.686
6.821	16.256	7.020	16.690	7.301	17.374	7.336	17.440	7.382	17.562	7.595	18.077	7.685	18.269	7.710	18.360	7.743	18.432	7.756	18.451
6.855	16.015	7.061	16.507	7.326	17.122	7.322	17.158	7.396	17.314	7.619	17.840	7.688	17.997	7.722	18.083	7.751	18.145	7.728	18.177
6.980	15.943	7.112	16.311	7.314	16.800	7.344	16.816	7.424	17.016	7.495	17.178	7.564	17.314	7.593	17.375	7.626	17.415	7.636	17.448
6.958	15.621	7.182	16.102	7.334	16.433	7.356	16.469	7.445	16.667	7.515	16.832	7.587	16.990	7.609	17.053	7.636	17.101	7.645	17.136
7.041	15.429	7.242	15.858	7.338	16.044	7.367	16.139	7.359	16.136	7.532	16.495	7.616	16.658	7.639	16.728	7.671	16.769	7.672	16.814
7.098	15.166	7.285	15.608	7.332	15.704	7.339	15.698	7.358	15.740	7.561	16.157	7.635	16.329	7.657	16.375	7.679	16.437	7.701	16.469
7.170	15.046	7.313	15.289	7.328	15.347	7.332	15.299	7.371	15.408	7.577	15.825	7.655	15.983	7.686	16.047	7.697	16.099	7.719	16.128
7.201	14.713	7.336	14.982	7.359	14.961	7.324	14.929	7.397	15.094	7.601	15.491	7.668	15.660	7.702	15.690	7.721	15.744	7.735	15.784
7.283	14.494	7.363	14.644	7.329	14.564	7.325	14.591	7.414	14.743	7.602	15.126	7.683	15.282	7.713	15.332	7.738	15.353	7.747	15.402
7.295	14.217	7.381	14.383	7.307	14.268	7.345	14.311	7.431	14.455	7.606	14.840	7.674	14.956	7.691	15.022	7.735	15.075	7.739	15.110
7.340	13.882	7.342	13.954	7.302	13.889	7.354	13.961	7.417	14.080	7.598	14.430	7.648	14.523	7.684	14.577	7.700	14.639	7.742	14.705
7.341	13.646	7.323	13.548	7.327	13.532	7.353	13.613	7.407	13.712	7.615	14.090	7.682	14.204	7.710	14.259	7.747	14.318	7.757	14.356
7.315	13.159	7.336	13.205	7.323	13.193	7.337	13.208	7.413	13.346	7.660	13.791	7.740	13.906	7.767	13.964	7.798	14.030	7.816	14.055
7.341	12.855	7.335	12.822	7.319	12.818	7.342	12.839	7.450	13.033	7.687	13.393	7.596	13.316	7.638	13.335	7.655	13.382	7.669	13.420
7.305	12.420	7.330	12.440	7.299	12.386	7.366	12.534	7.367	12.527	7.540	12.747	7.590	12.838	7.635	12.968	7.671	13.033	7.685	13.057
7.302	12.045	7.304	12.042	7.293	12.045	7.297	12.058	7.353	12.129	7.560	12.469	7.629	12.577	7.656	12.637	7.692	12.704	7.723	12.735

7.297	11.684	7.295	11.674	7.266	11.628	7.303	11.665	7.374	11.792	7.591	12.161	7.658	12.244	7.691	12.299	7.735	12.358	7.748	12.399
7.298	11.379	7.282	11.370	7.250	11.294	7.310	11.398	7.389	11.527	7.620	11.863	7.663	11.962	7.697	12.011	7.745	12.070	7.749	12.094
7.249	10.935	7.252	10.959	7.260	10.947	7.325	11.071	7.412	11.185	7.632	11.522	7.693	11.610	7.728	11.660	7.768	11.718	7.788	11.733
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

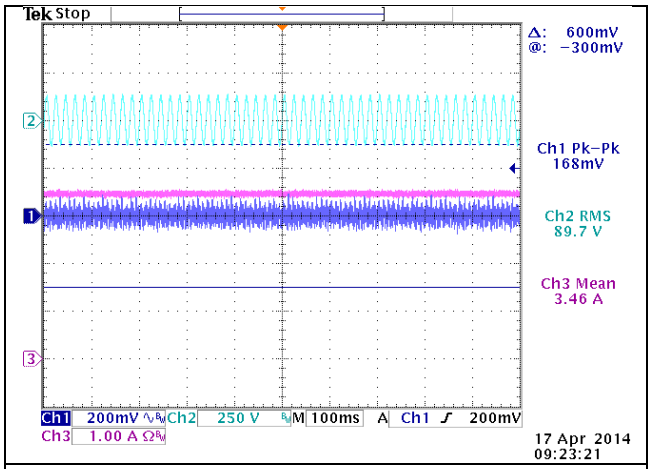


Ripple and Noise Test

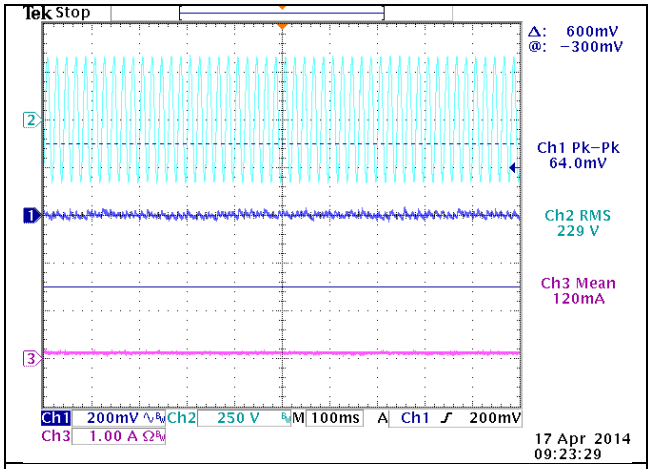
		PARD		
Vin (V)	Load (A)	meas. (V)	max (V)	Pass ?
90	0.00	0.056	0.450	PASS
90	3.34	0.168	0.450	PASS
230	0.00	0.064	0.450	PASS
230	3.34	0.140	0.450	PASS



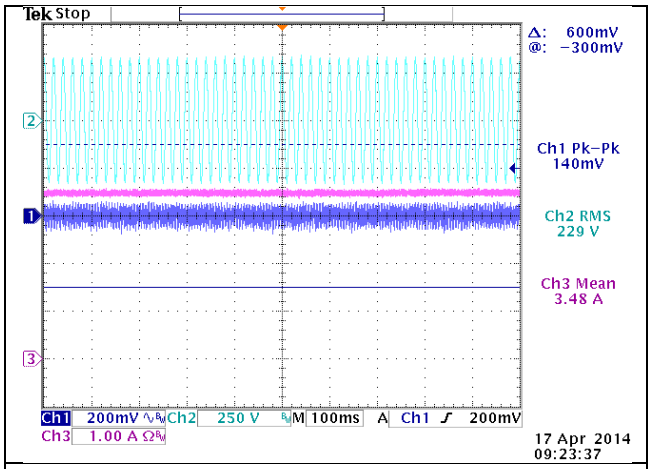
Extended Name = 90V/50Hz, Load = 0W



Extended Name = 90V/50Hz, Load = 65W



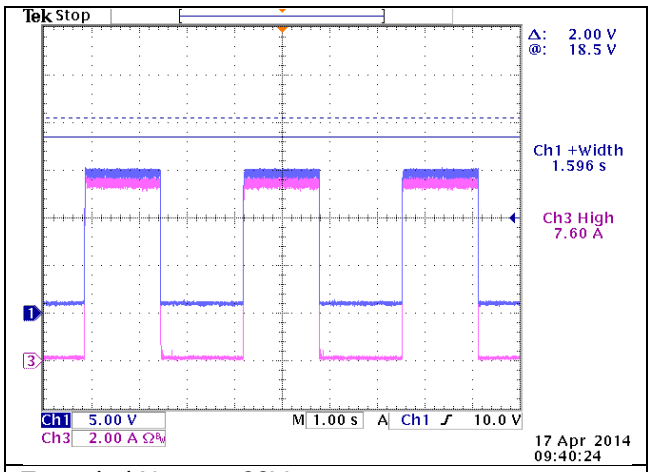
Extended Name = 230V/50Hz, Load = 0W



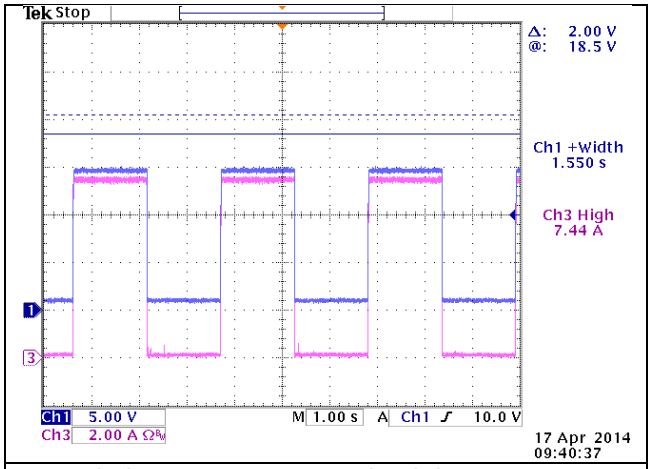
Extended Name = 230V/50Hz, Load = 65W

Overload timer

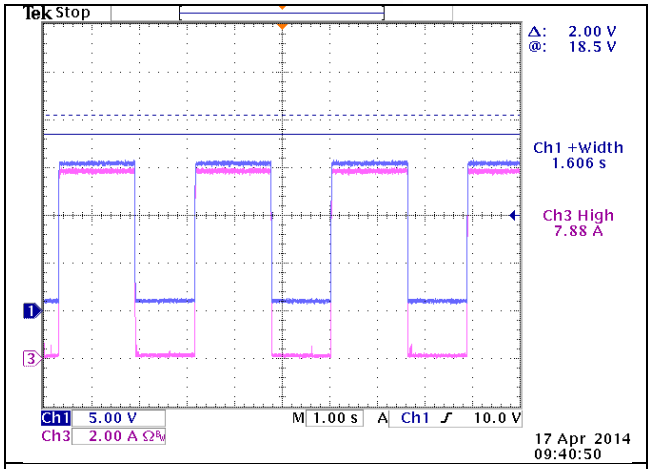
Line		Load		On time			
Vin (V)	Freq (Hz)	(Ohm)	(A)	Min (s)	Max (s)	Meas (s)	Pass ?
90	60	2.0	7.60	1.35	1.75	1.60	PASS
115	60	2.0	7.44	1.35	1.75	1.55	PASS
230	50	2.0	7.88	1.35	1.75	1.61	PASS



Extended Name = 90V

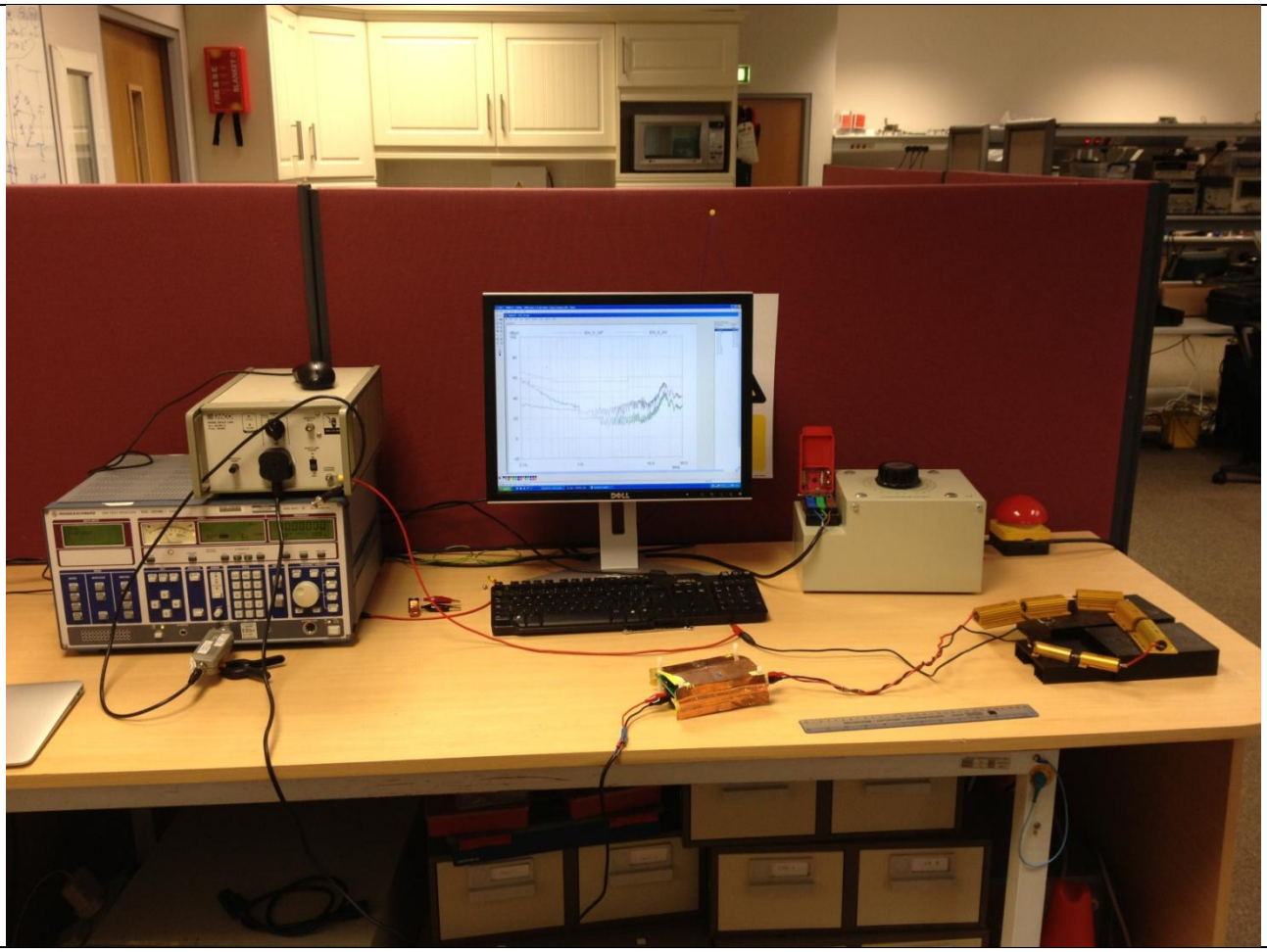


Extended Name = 115V OverloadTimer

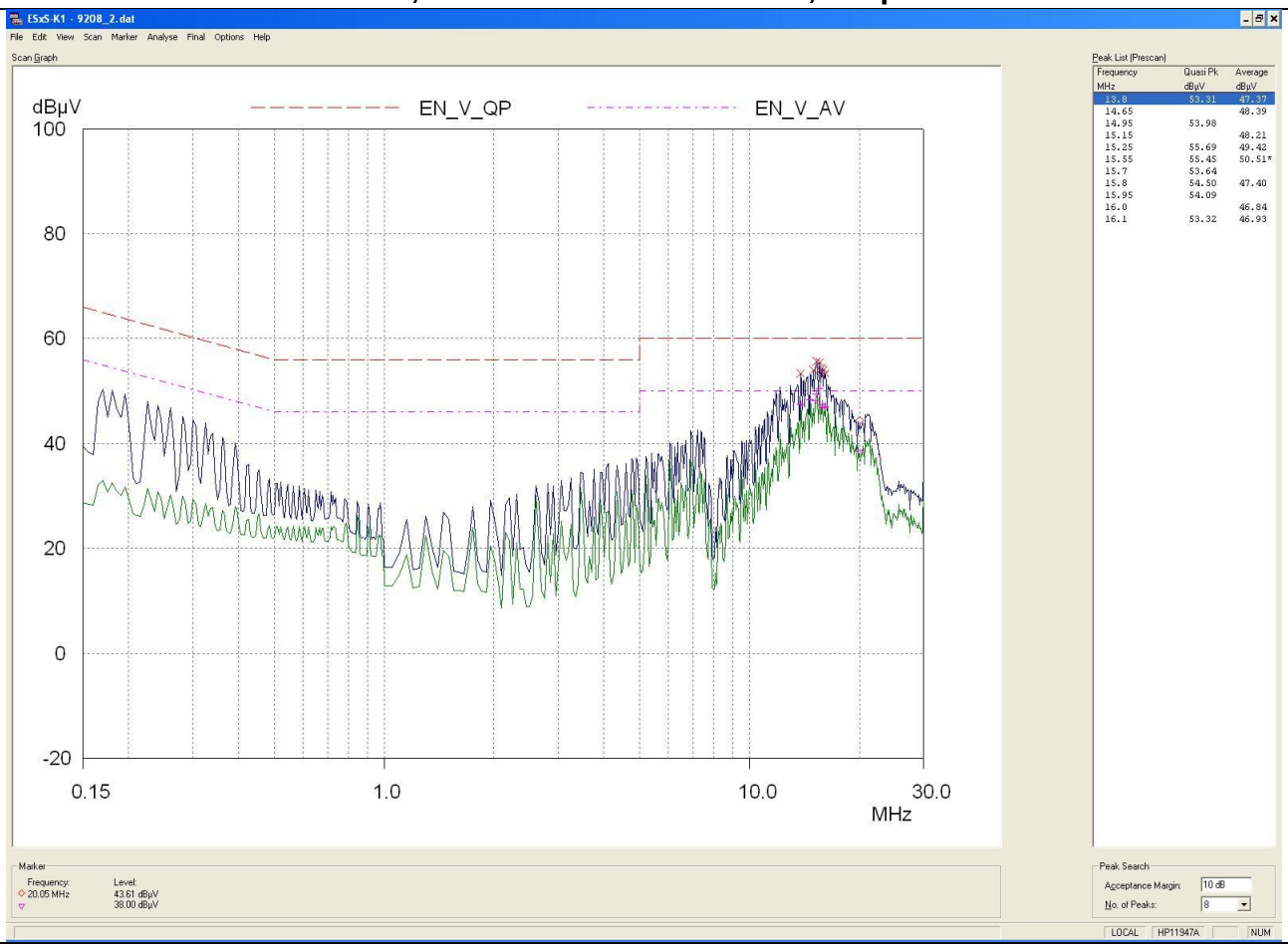


Extended Name = 230V OverloadTimer

EMC Testing



230Vac 65W, Unit Tested in Clam shell, Output Earthed



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