



European Standards Laboratory
Yokogawa Europe
Amersfoort, The Netherlands

CALIBRATION-CERTIFICATE

Certificate number
Page 1

Applicant	<i>Applicant</i>
Instrument	Digital Power Analyzer Module 253752 Manufacturer Yokogawa Type 253752 Serial number <i>Serial number</i> Inventory number <i>Inventory number</i> ID numbers used standards CSE820 CSE976 Procedure CALPZ4000_20A_5A Version: 1 of 02-02-2012
Calibration method	The Powermeter was compared to the Yokogawa Power Calibration System via a phantom technique. During the calibration the distortion of the applied voltage and current were below 0.1 %. Before calibration the device was powered on for at least 24 hours.
Environmental conditions	Temperature 22.3°C ±1°C Relative Humidity 41% ±4%
Date of Calibration	13-Mar-12
Result	The results of the calibration are shown on the next pages
Traceability	The results of the calibration services of Yokogawa European Standards Laboratory are traceable to primary and/or (inter)nationally accepted measurement standards.
Date	13-Mar-12
Name Function	N. el Morabit Calibration Engineer

E L E M E N T 1

Voltage Calibration DC 500 Hz Filter On

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk	15.0000	14.9400	14.9914	15.0600	V DC	-0.057	Pass
60Vpk	30.0000	29.8800	29.9805	30.1200	V DC	-0.065	Pass
120Vpk	60.000	59.760	59.962	60.240	V DC	-0.063	Pass
200Vpk	100.000	99.600	99.929	100.400	V DC	-0.071	Pass
300Vpk	150.000	149.400	149.897	150.600	V DC	-0.069	Pass
600Vpk	300.000	298.800	299.807	301.200	V DC	-0.064	Pass
1200Vpk	0.60000	0.59760	0.59970	0.60240	kV DC	-0.050	Pass
2000Vpk	1.00000	0.99600	0.99957	1.00400	kV DC	-0.043	Pass

Voltage Calibration AC 10 Hz

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk	15.0000	14.9400	14.9940	15.0600	V AC	-0.040	Pass
60Vpk	30.0000	29.8800	29.9851	30.1200	V AC	-0.050	Pass
120Vpk	60.000	59.760	59.964	60.240	V AC	-0.060	Pass
200Vpk	100.000	99.600	99.932	100.400	V AC	-0.068	Pass

Voltage Calibration AC 60 Hz

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk	15.0000	14.9700	14.9913	15.0300	V AC	-0.058	Pass
60Vpk	30.0000	29.9400	29.9810	30.0600	V AC	-0.063	Pass
120Vpk	60.000	59.880	59.960	60.120	V AC	-0.066	Pass
200Vpk	100.000	99.800	99.926	100.200	V AC	-0.074	Pass
300Vpk	150.000	149.700	149.903	150.300	V AC	-0.065	Pass
600Vpk	300.000	299.400	299.815	300.600	V AC	-0.062	Pass
1200Vpk	0.60000	0.59880	0.59970	0.60120	kV AC	-0.050	Pass
2000Vpk	1.00000	0.99800	0.99959	1.00200	kV AC	-0.041	Pass

Voltage Calibration AC 1 kHz

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk	15.0000	14.9700	14.9955	15.0300	V AC	-0.030	Pass
60Vpk	30.0000	29.9400	29.9866	30.0600	V AC	-0.045	Pass
120Vpk	60.000	59.880	59.968	60.120	V AC	-0.054	Pass
200Vpk	100.000	99.800	99.938	100.200	V AC	-0.062	Pass
300Vpk	150.000	149.700	149.918	150.300	V AC	-0.055	Pass
600Vpk	300.000	299.400	299.836	300.600	V AC	-0.055	Pass
1200Vpk	0.60000	0.59880	0.59975	0.60120	kV AC	-0.042	Pass
2000Vpk	1.00000	0.99800	0.99966	1.00200	kV AC	-0.034	Pass

See Next Page: 3

Voltage Calibration AC 10 kHz

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk	15.0000	14.9700	14.9942	15.0300	V AC	-0.039	Pass
60Vpk	30.0000	29.9400	29.9839	30.0600	V AC	-0.054	Pass
120Vpk	60.000	59.880	59.962	60.120	V AC	-0.063	Pass
200Vpk	100.000	99.800	99.927	100.200	V AC	-0.073	Pass
300Vpk	150.000	149.700	149.907	150.300	V AC	-0.062	Pass
600Vpk	300.000	299.400	299.821	300.600	V AC	-0.060	Pass
1200Vpk	0.60000	0.59880	0.59973	0.60120	kV AC	-0.046	Pass
2000Vpk	0.80000	0.79820	0.79945	0.80180	kV AC	-0.068	Pass

Voltage Calibration AC 100 kHz

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk	15.0000	14.8500	14.9886	15.1500	V AC	-0.076	Pass
60Vpk	30.0000	29.7000	29.9748	30.3000	V AC	-0.084	Pass
120Vpk	60.000	59.400	59.944	60.600	V AC	-0.093	Pass
200Vpk	100.000	99.000	99.600	101.000	V AC	-0.400	Pass

Voltage Linearity Calibration DC 500 Hz Filter On

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk	10.000	9.890	9.975	10.110	V AC	-0.255	Pass
200Vpk	50.000	49.850	49.988	50.150	V AC	-0.024	Pass
200Vpk	140.000	139.620	139.900	140.380	V AC	-0.072	Pass

Voltage Linearity Calibration AC 60Hz

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk	10.000	9.890	9.985	10.110	V AC	-0.147	Pass
200Vpk	50.000	49.850	49.966	50.150	V AC	-0.067	Pass
200Vpk	140.000	139.620	139.911	140.380	V AC	-0.064	Pass

Current Calibration DC 500 Hz Filter On 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
1Apk	0.50000	0.49800	0.50160	0.50200	A DC	0.321	Pass
2Apk	1.00000	0.99600	1.00164	1.00400	A DC	0.164	Pass
4Apk	2.00000	1.99200	2.00132	2.00800	A DC	0.066	Pass
10Apk	5.0000	4.9800	5.0017	5.0200	A DC	0.035	Pass
20Apk	10.0000	9.9600	10.0024	10.0400	A DC	0.024	Pass
40Apk	20.0000	19.9200	20.0029	20.0800	A DC	0.014	Pass



Current Calibration AC 10 Hz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
1Apk	0.50000	0.49800	0.49993	0.50200	A AC	-0.014	Pass
2Apk	1.00000	0.99600	0.99995	1.00400	A AC	-0.005	Pass
4Apk	2.00000	1.99200	1.99980	2.00800	A AC	-0.010	Pass

Current Calibration AC 60 Hz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
1Apk	0.50000	0.49900	0.49989	0.50100	A AC	-0.022	Pass
2Apk	1.00000	0.99800	0.99991	1.00200	A AC	-0.009	Pass
4Apk	2.00000	1.99600	1.99964	2.00400	A AC	-0.018	Pass
10Apk	5.0000	4.9900	4.9986	5.0100	A AC	-0.028	Pass
20Apk	10.0000	9.9800	9.9987	10.0200	A AC	-0.013	Pass
40Apk	20.0000	19.9600	19.9958	20.0400	A AC	-0.021	Pass

Current Calibration AC 1 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
1Apk	0.50000	0.49900	0.49994	0.50100	A AC	-0.013	Pass
2Apk	1.00000	0.99800	0.99997	1.00200	A AC	-0.003	Pass
4Apk	2.00000	1.99600	1.99979	2.00400	A AC	-0.011	Pass
10Apk	5.0000	4.9900	4.9992	5.0100	A AC	-0.016	Pass

Current Calibration AC 10 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
1Apk	0.50000	0.49900	0.49971	0.50100	A AC	-0.057	Pass
2Apk	1.00000	0.99800	0.99954	1.00200	A AC	-0.046	Pass

See Next Page: 5

Current Calibration AC 100 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
1Apk	0.50000	0.49500	0.49920	0.50500	A AC	-0.161	Pass
2Apk	1.00000	0.99000	0.99814	1.01000	A AC	-0.186	Pass

Power Calibration DC 500 Hz Filter On 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9100	15.0168	15.0900	W	0.112	Pass
60Vpk 2Apk	30.000	29.820	30.037	30.180	W	0.123	Pass
120Vpk 2Apk	60.000	59.640	60.074	60.360	W	0.124	Pass
200Vpk 2Apk	100.000	99.400	100.108	100.600	W	0.108	Pass
300Vpk 2Apk	150.000	149.100	150.157	150.900	W	0.104	Pass
600Vpk 2Apk	0.30000	0.29820	0.30031	0.30180	kW	0.105	Pass
1200Vpk 2Apk	0.60000	0.59640	0.60080	0.60360	kW	0.133	Pass
2000Vpk 2Apk	1.00000	0.99400	1.00140	1.00600	kW	0.140	Pass
200Vpk 1Apk	50.000	49.700	50.153	50.300	W	0.307	Pass
200Vpk 4Apk	200.000	198.800	200.054	201.200	W	0.027	Pass
200Vpk 10Apk	0.50000	0.49700	0.49994	0.50300	kW	-0.013	Pass
200Vpk 20Apk	200.000	194.000	200.050	206.000	W	0.025	Pass
200Vpk 40Apk	0.50000	0.48800	0.49984	0.51200	kW	-0.032	Pass

Power Calibration AC 10 Hz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9400	14.9916	15.0600	W	-0.056	Pass
60Vpk 2Apk	30.000	29.880	29.981	30.120	W	-0.065	Pass
120Vpk 2Apk	60.000	59.760	59.957	60.240	W	-0.072	Pass
200Vpk 2Apk	100.000	99.600	99.927	100.400	W	-0.073	Pass
200Vpk 1Apk	50.000	49.800	49.957	50.200	W	-0.086	Pass
200Vpk 4Apk	200.000	199.200	199.853	200.800	W	-0.073	Pass
200Vpk 10Apk	0.50000	0.49800	0.49956	0.50200	kW	-0.088	Pass

See Next Page: 6

Power Calibration AC 60 Hz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9700	14.9898	15.0300	W	-0.068	Pass
60Vpk 2Apk	30.000	29.940	29.979	30.060	W	-0.071	Pass
120Vpk 2Apk	60.000	59.880	59.956	60.120	W	-0.074	Pass
200Vpk 2Apk	100.000	99.800	99.921	100.200	W	-0.079	Pass
300Vpk 2Apk	150.000	149.700	149.898	150.300	W	-0.068	Pass
600Vpk 2Apk	0.30000	0.29940	0.29981	0.30060	kW	-0.064	Pass
1200Vpk 2Apk	0.60000	0.59880	0.59964	0.60120	kW	-0.060	Pass
2000Vpk 2Apk	1.00000	0.99800	0.99951	1.00200	kW	-0.049	Pass
200Vpk 1Apk	50.000	49.900	49.969	50.100	W	-0.063	Pass
200Vpk 4Apk	200.000	199.600	199.857	200.400	W	-0.071	Pass
200Vpk 10Apk	0.50000	0.49900	0.49957	0.50100	kW	-0.085	Pass
200Vpk 20Apk	200.000	198.000	199.800	202.000	W	-0.100	Pass
200Vpk 40Apk	0.50000	0.49600	0.49936	0.50400	kW	-0.129	Pass

Power Calibration AC 1 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9700	14.9929	15.0300	W	-0.047	Pass
60Vpk 2Apk	30.000	29.940	29.983	30.060	W	-0.057	Pass
120Vpk 2Apk	60.000	59.880	59.964	60.120	W	-0.060	Pass
200Vpk 2Apk	100.000	99.800	99.943	100.200	W	-0.057	Pass
300Vpk 2Apk	150.000	149.700	149.927	150.300	W	-0.049	Pass
600Vpk 2Apk	0.30000	0.29940	0.29983	0.30060	kW	-0.055	Pass
1200Vpk 2Apk	0.60000	0.59880	0.59978	0.60120	kW	-0.037	Pass
2000Vpk 2Apk	1.00000	0.99800	0.99959	1.00200	kW	-0.041	Pass
200Vpk 1Apk	50.000	49.900	49.974	50.100	W	-0.052	Pass
200Vpk 4Apk	200.000	199.600	199.894	200.400	W	-0.053	Pass
200Vpk 10Apk	0.50000	0.49900	0.49964	0.50100	kW	-0.072	Pass
200Vpk 20Apk	200.000	198.000	199.875	202.000	W	-0.062	Pass
200Vpk 40Apk	0.50000	0.49600	0.49947	0.50400	kW	-0.106	Pass

Power Calibration AC 10 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9610	14.9842	15.0390	W	-0.105	Pass
60Vpk 2Apk	30.000	29.922	29.967	30.078	W	-0.109	Pass
120Vpk 2Apk	60.000	59.844	59.932	60.156	W	-0.113	Pass
200Vpk 2Apk	100.000	99.740	99.880	100.260	W	-0.120	Pass
200Vpk 1Apk	50.000	49.870	49.931	50.130	W	-0.139	Pass

Power Calibration AC 50 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9400	14.9563	15.0600	W	-0.292	Pass
60Vpk 2Apk	30.000	29.880	29.922	30.120	W	-0.259	Pass
120Vpk 2Apk	60.000	59.760	59.851	60.240	W	-0.248	Pass
200Vpk 2Apk	100.000	99.600	99.738	100.400	W	-0.262	Pass
200Vpk 1Apk	50.000	49.850	49.868	50.150	W	-0.265	Pass

Power Calibration AC 100 kHz 20A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.8500	14.9029	15.1500	W	-0.647	Pass
60Vpk 2Apk	30.000	29.700	29.850	30.300	W	-0.501	Pass
120Vpk 2Apk	60.000	59.400	59.791	60.600	W	-0.348	Pass
200Vpk 2Apk	100.000	99.000	99.465	101.000	W	-0.535	Pass
200Vpk 1Apk	50.000	49.500	49.548	50.500	W	-0.905	Pass

Power Calibration Linearity 60 Hz PF=1 at constant 1 A

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	10.000	9.890	9.984	10.110	W	-0.164	Pass
200Vpk 2Apk	50.000	49.850	49.964	50.150	W	-0.072	Pass
200Vpk 2Apk	140.000	139.760	139.908	140.240	W	-0.065	Pass

Power Calibration Linearity 60 Hz PF=1 at constant 100 V

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	10.000	9.890	9.997	10.110	W	-0.026	Pass
200Vpk 2Apk	50.000	49.850	49.952	50.150	W	-0.096	Pass
200Vpk 2Apk	140.000	139.760	139.895	140.240	W	-0.075	Pass

Power Calibration 60Hz PF=0 lagging

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	0.000	-0.015	-0.002	0.150	W	-	Pass

Power Calibration 60Hz PF=0 Leading

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	0.000	-0.015	-0.001	0.150	W	-	Pass

See Next Page: 8



Current Calibration DC 500 Hz Filter On 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mApk	50.000	49.800	50.073	50.200	mA DC	0.147	Pass
200mApk	100.000	99.600	100.070	100.400	mA DC	0.070	Pass
400mApk	200.000	199.200	200.003	200.800	mA DC	0.002	Pass
1Apk	0.50000	0.49800	0.50032	0.50200	A DC	0.064	Pass
2Apk	1.00000	0.99600	1.00039	1.00400	A DC	0.039	Pass
4Apk	2.00000	1.99200	2.00001	2.00800	A DC	0.001	Pass
10Apk	5.0000	4.9800	4.9996	5.0200	A DC	-0.007	Pass

Current Calibration AC 10 Hz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mApk	50.000	49.800	50.029	50.200	mA AC	0.058	Pass
200mApk	100.000	99.600	99.981	100.400	mA AC	-0.019	Pass
400mApk	200.000	199.200	199.957	200.800	mA AC	-0.021	Pass
1Apk	0.50000	0.49800	0.49986	0.50200	A AC	-0.027	Pass
2Apk	1.00000	0.99600	0.99981	1.00400	A AC	-0.019	Pass
4Apk	2.00000	1.99200	1.99947	2.00800	A AC	-0.027	Pass

See Next Page: 9



Current Calibration AC 60 Hz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mApk	50.000	49.900	49.985	50.100	mA AC	-0.030	Pass
200mApk	100.000	99.800	99.968	100.200	mA AC	-0.032	Pass
400mApk	200.000	199.600	199.929	200.400	mA AC	-0.035	Pass
1Apk	0.50000	0.49900	0.49981	0.50100	A AC	-0.037	Pass
2Apk	1.00000	0.99800	0.99977	1.00200	A AC	-0.023	Pass
4Apk	2.00000	1.99600	1.99930	2.00400	A AC	-0.035	Pass
10Apk	5.0000	4.9900	4.9979	5.0100	A AC	-0.042	Pass

Current Calibration AC 1 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mApk	50.000	49.900	49.987	50.100	mA AC	-0.027	Pass
200mApk	100.000	99.800	99.981	100.200	mA AC	-0.019	Pass
400mApk	200.000	199.600	199.957	200.400	mA AC	-0.021	Pass
1Apk	0.50000	0.49900	0.49989	0.50100	A AC	-0.022	Pass
2Apk	1.00000	0.99800	0.99989	1.00200	A AC	-0.011	Pass
4Apk	2.00000	1.99600	1.99956	2.00400	A AC	-0.022	Pass
10Apk	5.0000	4.9900	4.9984	5.0100	A AC	-0.031	Pass

Current Calibration AC 10 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mApk	50.000	49.900	50.004	50.100	mA AC	0.007	Pass
200mApk	100.000	99.800	99.988	100.200	mA AC	-0.012	Pass
400mApk	200.000	199.600	199.926	200.400	mA AC	-0.037	Pass
1Apk	0.50000	0.49900	0.49991	0.50100	A AC	-0.018	Pass
2Apk	1.00000	0.99800	0.99993	1.00200	A AC	-0.007	Pass

See Next Page: 10

Current Calibration AC 100 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mApk	50.000	49.500	50.007	50.500	mA AC	0.014	Pass
200mApk	100.000	99.000	99.984	101.000	mA AC	-0.016	Pass
400mApk	200.000	198.000	199.974	202.000	mA AC	-0.013	Pass
1Apk	0.50000	0.49500	0.49977	0.50500	A AC	-0.046	Pass
2Apk	1.00000	0.99000	0.99957	1.01000	A AC	-0.043	Pass

Current Calibration AC 60 Hz Linerity 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
2Apk	0.10000	0.09890	0.10002	0.10110	A AC	0.025	Pass
2Apk	0.50000	0.49850	0.49982	0.50150	A AC	-0.035	Pass
2Apk	1.40000	1.39760	1.39966	1.40240	A AC	-0.024	Pass

Power Calibration DC 500 Hz Filter On 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9100	14.9982	15.0900	W	-0.012	Pass
60Vpk 2Apk	30.000	29.820	29.999	30.180	W	-0.003	Pass
120Vpk 2Apk	60.000	59.640	59.995	60.360	W	-0.008	Pass
200Vpk 2Apk	100.000	99.400	99.975	100.600	W	-0.025	Pass
300Vpk 2Apk	150.000	149.100	149.976	150.900	W	-0.016	Pass
600Vpk 2Apk	0.30000	0.29820	0.29993	0.30180	kW	-0.022	Pass
1200Vpk 2Apk	0.60000	0.59640	0.60004	0.60360	kW	0.007	Pass
2000Vpk 2Apk	1.00000	0.99400	1.00021	1.00600	kW	0.021	Pass
200Vpk 1Apk	50.000	49.700	50.022	50.300	W	0.044	Pass
200Vpk 4Apk	200.000	198.800	199.931	201.200	W	-0.034	Pass
200Vpk 10Apk	0.50000	0.49700	0.49973	0.50300	kW	-0.053	Pass

Power Calibration AC 10 Hz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9400	14.9907	15.0600	W	-0.062	Pass
60Vpk 2Apk	30.000	29.880	29.979	30.120	W	-0.070	Pass
120Vpk 2Apk	60.000	59.760	59.957	60.240	W	-0.072	Pass
200Vpk 2Apk	100.000	99.600	99.922	100.400	W	-0.078	Pass
200Vpk 1Apk	50.000	49.800	49.957	50.200	W	-0.085	Pass
200Vpk 4Apk	200.000	199.200	199.825	200.800	W	-0.087	Pass
200Vpk 10Apk	0.50000	0.49800	0.49953	0.50200	kW	-0.094	Pass

Power Calibration AC 60 Hz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9700	14.9886	15.0300	W	-0.076	Pass
60Vpk 2Apk	30.000	29.940	29.977	30.060	W	-0.078	Pass
120Vpk 2Apk	60.000	59.880	59.954	60.120	W	-0.077	Pass
200Vpk 2Apk	100.000	99.800	99.914	100.200	W	-0.086	Pass
300Vpk 2Apk	150.000	149.700	149.884	150.300	W	-0.078	Pass
600Vpk 2Apk	0.30000	0.29940	0.29977	0.30060	kW	-0.075	Pass
1200Vpk 2Apk	0.60000	0.59880	0.59960	0.60120	kW	-0.066	Pass
2000Vpk 2Apk	1.00000	0.99800	0.99945	1.00200	kW	-0.055	Pass
200Vpk 1Apk	50.000	49.900	49.962	50.100	W	-0.075	Pass
200Vpk 4Apk	200.000	199.600	199.835	200.400	W	-0.083	Pass
200Vpk 10Apk	0.50000	0.49900	0.49954	0.50100	kW	-0.093	Pass

Power Calibration AC 1 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9700	14.9899	15.0300	W	-0.068	Pass
60Vpk 2Apk	30.000	29.940	29.980	30.060	W	-0.066	Pass
120Vpk 2Apk	60.000	59.880	59.961	60.120	W	-0.066	Pass
200Vpk 2Apk	100.000	99.800	99.930	100.200	W	-0.070	Pass
300Vpk 2Apk	150.000	149.700	149.893	150.300	W	-0.072	Pass
600Vpk 2Apk	0.30000	0.29940	0.29982	0.30060	kW	-0.060	Pass
1200Vpk 2Apk	0.60000	0.59880	0.59976	0.60120	kW	-0.040	Pass
2000Vpk 2Apk	1.00000	0.99800	0.99951	1.00200	kW	-0.049	Pass
200Vpk 1Apk	50.000	49.900	49.971	50.100	W	-0.058	Pass
200Vpk 4Apk	200.000	199.600	199.871	200.400	W	-0.064	Pass
200Vpk 10Apk	0.50000	0.49900	0.49961	0.50100	kW	-0.079	Pass

Power Calibration AC 10 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9610	14.9909	15.0390	W	-0.060	Pass
60Vpk 2Apk	30.000	29.922	29.980	30.078	W	-0.065	Pass
120Vpk 2Apk	60.000	59.844	59.959	60.156	W	-0.068	Pass
200Vpk 2Apk	100.000	99.740	99.925	100.260	W	-0.075	Pass
200Vpk 1Apk	50.000	49.870	49.955	50.130	W	-0.091	Pass

Power Calibration AC 50 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.9400	14.9820	15.0600	W	-0.120	Pass
60Vpk 2Apk	30.000	29.880	29.974	30.120	W	-0.086	Pass
120Vpk 2Apk	60.000	59.760	59.954	60.240	W	-0.076	Pass
200Vpk 2Apk	100.000	99.600	99.907	100.400	W	-0.093	Pass
200Vpk 1Apk	50.000	49.850	49.951	50.150	W	-0.098	Pass

Power Calibration AC 100 kHz 5A input

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
30Vpk 2Apk	15.0000	14.8500	14.9529	15.1500	W	-0.314	Pass
60Vpk 2Apk	30.000	29.700	29.952	30.300	W	-0.161	Pass
120Vpk 2Apk	60.000	59.400	59.994	60.600	W	-0.011	Pass
200Vpk 2Apk	100.000	99.000	99.575	101.000	W	-0.425	Pass
200Vpk 1Apk	50.000	49.500	49.637	50.500	W	-0.727	Pass

Power Calibration Linearity 60 Hz PF=1 at constant 1 A

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	10.000	9.890	9.983	10.110	W	-0.172	Pass
200Vpk 2Apk	50.000	49.850	49.959	50.150	W	-0.082	Pass
200Vpk 2Apk	140.000	139.760	139.895	140.240	W	-0.075	Pass

Power Calibration Linearity 60 Hz PF=1 at constant 100 V

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	10.000	9.890	9.996	10.110	W	-0.043	Pass
200Vpk 2Apk	50.000	49.850	49.950	50.150	W	-0.099	Pass
200Vpk 2Apk	140.000	139.760	139.881	140.240	W	-0.085	Pass

Power Calibration 60Hz PF=0 lagging

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	0.000	-0.015	0.005	0.150	W	-	Pass

Power Calibration 60Hz PF=0 Leading

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 2Apk	0.000	-0.015	-0.008	0.150	W	-	Pass

External Current Calibration DC. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mVpk	50.000	49.800	49.969	50.200	mA DC	-0.062	Pass
200mVpk	100.000	99.600	99.961	100.400	mA DC	-0.039	Pass
400mVpk	200.000	199.200	199.868	200.800	mA DC	-0.066	Pass
1Vpk	0.50000	0.49800	0.49977	0.50200	A DC	-0.046	Pass

External Current Calibration 60 Hz. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mVpk	50.000	49.945	50.004	50.055	mA AC	0.009	Pass
200mVpk	100.000	99.890	99.983	100.110	mA AC	-0.017	Pass
400mVpk	200.000	199.780	199.897	200.220	mA AC	-0.052	Pass
1Vpk	0.50000	0.49945	0.49977	0.50055	A AC	-0.047	Pass

External Current Calibration 1 kHz. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mVpk	50.000	49.945	50.012	50.055	mA AC	0.023	Pass
200mVpk	100.000	99.890	99.988	100.110	mA AC	-0.012	Pass
400mVpk	200.000	199.780	199.932	200.220	mA AC	-0.034	Pass
1Vpk	0.50000	0.49945	0.49987	0.50055	A AC	-0.027	Pass

External Current Calibration 10 kHz. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mVpk	50.000	49.900	49.999	50.100	mA AC	-0.001	Pass
200mVpk	100.000	99.800	99.965	100.200	mA AC	-0.035	Pass
400mVpk	200.000	199.600	199.906	200.400	mA AC	-0.047	Pass
1Vpk	0.50000	0.49900	0.49995	0.50100	A AC	-0.010	Pass

External Current Calibration 50 kHz. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mVpk	50.000	49.800	50.067	50.200	mA AC	0.135	Pass
200mVpk	100.000	99.600	100.061	100.400	mA AC	0.061	Pass
400mVpk	200.000	199.200	200.074	200.800	mA AC	0.037	Pass
1Vpk	0.50000	0.49800	0.50029	0.50200	A AC	0.058	Pass

External Current Calibration 100 kHz. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
100mVpk	50.000	49.500	50.103	50.500	mA AC	0.206	Pass
200mVpk	100.000	99.000	100.119	101.000	mA AC	0.119	Pass
400mVpk	200.000	198.000	200.202	202.000	mA AC	0.101	Pass
1Vpk	0.50000	0.49500	0.50053	0.50500	A AC	0.106	Pass

See Next Page: 14

External Current Power Calibration DC. For current 1V/A is used. 500 Hz Filter On.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 100mVpk	5.0000	4.9800	4.9949	5.0200	W	-0.102	Pass
200Vpk 200mVpk	10.0000	9.9600	9.9871	10.0400	W	-0.129	Pass
200Vpk 400mVpk	20.0000	19.9200	19.9772	20.0800	W	-0.114	Pass
200Vpk 1Vpk	50.000	49.800	49.951	50.200	W	-0.099	Pass

External Current Power Calibration 60 Hz. PF=1. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 100mVpk	5.0000	4.9925	4.9951	5.0075	W	-0.098	Pass
200Vpk 200mVpk	10.0000	9.9850	9.9881	10.0150	W	-0.119	Pass
200Vpk 400mVpk	20.0000	19.9700	19.9748	20.0300	W	-0.126	Pass
200Vpk 1Vpk	50.000	49.925	49.946	50.075	W	-0.108	Pass

External Current Power Calibration 1 kHz. PF=1. For current 1V/A is used.

Range	Target	Lowlimit	Measured	Highlimit	Unit	Deviation %	Result
200Vpk 100mVpk	5.0000	4.9925	4.9933	5.0075	W	-0.135	Pass
200Vpk 200mVpk	10.0000	9.9850	9.9896	10.0150	W	-0.104	Pass
200Vpk 400mVpk	20.0000	19.9700	19.9790	20.0300	W	-0.105	Pass
200Vpk 1Vpk	50.000	49.925	49.945	50.075	W	-0.109	Pass

The above measurements are within the Manufacturer Specifications.

Comments :