



E/2013/147

E-1163

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FLUKE®



Calibration Cert# 2166.01

Certificate of Calibration

Everett Service Center

ISO 9001:2008 (10100/2)

Certificate Number: 3669855-1885110:1372240769

Result Summary:	MV < Spec = YES	Date of Calibration:	26 June 2013
Data Type:	AS-LEFT	Recommended Due Date:	
Manufacturer:	FLUKE	Date of Certificate:	26 June 2013
Model:	5080A/SC/MEG 240	Received Date:	22 May 2013
Serial Number:	1885110	Temperature:	23.0 °C
Description:	CALIBRATOR	Relative Humidity:	49 %RH
Procedure Name:	Fluke 5080A:(90 day) ACAL VER Combine	Procedure Revision:	2.1
Customer Name:	ZELEZNICE OPRAVOVNE A STROJARNE(ZOS)		
City, State:	ZVOLEN, SK		
Customer Item ID:			
PO Number:	18750		
RMA Number:	30281737		

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes, ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Rev 116 08/12 and Fluke Customer Support Services QAM 400 Rev. 002 03/22/2012.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

Where applicable, the expanded uncertainty of measurement at the time of test is given in the following pages. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, such that the confidence level approximates 95%.

This calibration certificate may contain data that is not covered by the A2LA Scope of Accreditation. Unaccredited material, where applicable is indicated by an asterisk (*), or confined to clearly marked sections. Functional (Pass / Fail) tests are not accredited.

No statement of compliance with specifications is made or implied on this certificate. However, measurement results are reviewed, where applicable, to establish where any measurement result exceeded the manufacturer's specifications.

Measured values (MV) greater than the Manufacturer's specification (Spec) are indicated by "!".

Jacob Kiely
Metrology Technician

Authorized Signature

Fluke Corporation

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Rev 7.9, 06/06/12



Certificate Number:
3669855-1885110:1372240769

Calibration Date:
26-Jun-13

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
200.00 mVpp @ 50.00 kHz	200.00	202.610	1.7e-005 Vpp	195.700	204.300
0.50000 Vpp @ 50.00 kHz	0.50000	0.503124	3.5e-005 Vpp	0.489700	0.510300
1.00000 Vpp @ 50.00 kHz	1.00000	1.005431	5.5e-005 Vpp	0.979700	1.020300
2.00000 Vpp @ 50.00 kHz	2.00000	2.019955	1.0e-004 Vpp	1.959700	2.040300
5.00000 Vpp @ 50.00 kHz	5.00000	5.002999	2.7e-004 Vpp	4.899700	5.100300
LEVELED SINE FLATNESS TEST (relative to 50kHz)					
5.5V Applied					
0.000 % @ 500 kHz	0.0000	-0.117	4.6e-001 %	-1.503	1.503
0.000 % @ 1.00 MHz	0.0000	-0.035	4.6e-001 %	-1.503	1.503
0.000 % @ 1.01 MHz	0.0000	-0.032	4.6e-001 %	-1.503	1.503
0.000 % @ 2.00 MHz	0.0000	-0.052	4.6e-001 %	-1.503	1.503
0.000 % @ 5.00 MHz	0.0000	0.265	4.7e-001 %	-1.503	1.503
0.000 % @ 10.00 MHz	0.0000	0.095	4.7e-001 %	-1.503	1.503
0.000 % @ 20.00 MHz	0.0000	0.114	9.2e-001 %	-1.503	1.503
0.000 % @ 50.00 MHz	0.0000	0.252	9.2e-001 %	-1.503	1.503
0.000 % @ 100.00 MHz	0.0000	0.668	9.3e-001 %	-1.503	1.503
0.000 % @ 125.00 MHz	0.0000	0.504	9.7e-001 %	-2.003	2.003
0.000 % @ 160.00 MHz	0.0000	0.627	9.7e-001 %	-2.003	2.003
0.000 % @ 200.00 MHz	0.0000	-0.100	9.7e-001 %	-2.003	2.003
1.3V Applied					
0.000 % @ 500 kHz	0.0000	-0.095	4.6e-001 %	-1.515	1.515
0.000 % @ 1.00 MHz	0.0000	0.020	4.6e-001 %	-1.515	1.515
0.000 % @ 1.01 MHz	0.0000	0.026	4.6e-001 %	-1.515	1.515
0.000 % @ 2.00 MHz	0.0000	-0.000	4.6e-001 %	-1.515	1.515
0.000 % @ 5.00 MHz	0.0000	0.274	4.7e-001 %	-1.515	1.515
0.000 % @ 10.00 MHz	0.0000	0.051	4.7e-001 %	-1.515	1.515
0.000 % @ 20.00 MHz	0.0000	0.074	9.2e-001 %	-1.515	1.515
0.000 % @ 50.00 MHz	0.0000	0.010	9.2e-001 %	-1.515	1.515
0.000 % @ 100.00 MHz	0.0000	-0.104	9.1e-001 %	-1.515	1.515
0.000 % @ 125.00 MHz	0.0000	0.024	9.1e-001 %	-2.010	2.010
0.000 % @ 160.00 MHz	0.0000	-0.152	9.7e-001 %	-2.010	2.010
0.000 % @ 200.00 MHz	0.0000	-0.097	9.7e-001 %	-2.010	2.010
400mV Applied					
0.000 % @ 500 kHz	0.0000	-0.108	4.6e-001 %	-1.550	1.550
0.000 % @ 1.00 MHz	0.0000	0.002	4.6e-001 %	-1.550	1.550
0.000 % @ 1.01 MHz	0.0000	-0.004	4.6e-001 %	-1.550	1.550
0.000 % @ 2.00 MHz	0.0000	-0.089	4.6e-001 %	-1.550	1.550
0.000 % @ 5.00 MHz	0.0000	0.005	4.7e-001 %	-1.550	1.550
0.000 % @ 10.00 MHz	0.0000	-0.139	4.7e-001 %	-1.550	1.550
0.000 % @ 20.00 MHz	0.0000	-0.012	9.2e-001 %	-1.550	1.550
0.000 % @ 50.00 MHz	0.0000	-0.058	9.2e-001 %	-1.550	1.550
0.000 % @ 100.00 MHz	0.0000	-0.160	9.1e-001 %	-1.550	1.550

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
0.000 % @ 125.00 MHz	0.0000	-0.094	9.1e-001 %	-2.050	2.050
0.000 % @ 160.00 MHz	0.0000	-0.142	9.1e-001 %	-2.050	2.050
0.000 % @ 200.00 MHz	0.0000	-0.095	9.1e-001 %	-2.050	2.050
100mV Applied					
0.000 % @ 500 kHz	0.0000	-0.104	4.7e-001 %	-1.700	1.700
0.000 % @ 1.00 MHz	0.0000	-0.002	4.7e-001 %	-1.700	1.700
0.000 % @ 1.01 MHz	0.0000	-0.006	4.7e-001 %	-1.700	1.700
0.000 % @ 2.00 MHz	0.0000	-0.100	4.7e-001 %	-1.700	1.700
0.000 % @ 5.00 MHz	0.0000	-0.024	4.7e-001 %	-1.700	1.700
0.000 % @ 10.00 MHz	0.0000	-0.127	4.7e-001 %	-1.700	1.700
0.000 % @ 20.00 MHz	0.0000	-0.016	9.3e-001 %	-1.700	1.700
0.000 % @ 50.00 MHz	0.0000	-0.092	9.3e-001 %	-1.700	1.700
0.000 % @ 100.00 MHz	0.0000	-0.184	9.2e-001 %	-1.700	1.700
0.000 % @ 125.00 MHz	0.0000	-0.208	9.2e-001 %	-2.200	2.200
0.000 % @ 160.00 MHz	0.0000	-0.250	9.4e-001 %	-2.200	2.200
0.000 % @ 200.00 MHz	0.0000	-0.175	9.4e-001 %	-2.200	2.200
40mV Applied					
0.000 % @ 500 kHz	0.0000	-0.101	4.7e-001 %	-2.000	2.000
0.000 % @ 1.00 MHz	0.0000	0.000	4.7e-001 %	-2.000	2.000
0.000 % @ 1.01 MHz	0.0000	-0.013	4.7e-001 %	-2.000	2.000
0.000 % @ 2.00 MHz	0.0000	-0.107	4.7e-001 %	-2.000	2.000
0.000 % @ 5.00 MHz	0.0000	-0.021	4.7e-001 %	-2.000	2.000
0.000 % @ 10.00 MHz	0.0000	-0.148	4.7e-001 %	-2.000	2.000
0.000 % @ 20.00 MHz	0.0000	0.051	9.7e-001 %	-2.000	2.000
0.000 % @ 50.00 MHz	0.0000	0.032	9.7e-001 %	-2.000	2.000
0.000 % @ 100.00 MHz	0.0000	-0.094	9.7e-001 %	-2.000	2.000
0.000 % @ 125.00 MHz	0.0000	0.042	9.7e-001 %	-2.500	2.500
0.000 % @ 160.00 MHz	0.0000	0.111	9.8e-001 %	-2.500	2.500
0.000 % @ 200.00 MHz	0.0000	0.178	9.8e-001 %	-2.500	2.500
10mV Applied					
0.000 % @ 500 kHz	0.0000	-0.118	4.7e-001 %	-3.500	3.500
0.000 % @ 1.00 MHz	0.0000	-0.017	4.7e-001 %	-3.500	3.500
0.000 % @ 1.01 MHz	0.0000	-0.025	4.7e-001 %	-3.500	3.500
0.000 % @ 2.00 MHz	0.0000	-0.104	4.7e-001 %	-3.500	3.500
0.000 % @ 5.00 MHz	0.0000	-0.010	4.8e-001 %	-3.500	3.500
0.000 % @ 10.00 MHz	0.0000	-0.096	4.8e-001 %	-3.500	3.500
0.000 % @ 20.00 MHz	0.0000	0.152	9.8e-001 %	-3.500	3.500
0.000 % @ 50.00 MHz	0.0000	0.118	9.8e-001 %	-3.500	3.500
0.000 % @ 100.00 MHz	0.0000	0.042	9.9e-001 %	-3.500	3.500
0.000 % @ 125.00 MHz	0.0000	0.136	9.9e-001 %	-4.000	4.000
0.000 % @ 160.00 MHz	0.0000	0.238	9.9e-001 %	-4.000	4.000
0.000 % @ 200.00 MHz	0.0000	0.454	9.9e-001 %	-4.000	4.000



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Calibration Date:
26-Jun-13

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
5mV Applied					
0.000 % @ 500 kHz	0.0000	-0.123	4.7e-001 %	-5.500	5.500
0.000 % @ 1.00 MHz	0.0000	-0.042	4.7e-001 %	-5.500	5.500
0.000 % @ 1.01 MHz	0.0000	-0.052	4.7e-001 %	-5.500	5.500
0.000 % @ 2.00 MHz	0.0000	-0.110	4.7e-001 %	-5.500	5.500
0.000 % @ 5.00 MHz	0.0000	-0.005	4.8e-001 %	-5.500	5.500
0.000 % @ 10.00 MHz	0.0000	-0.083	4.8e-001 %	-5.500	5.500
0.000 % @ 20.00 MHz	0.0000	0.128	9.8e-001 %	-5.500	5.500
0.000 % @ 50.00 MHz	0.0000	0.138	9.9e-001 %	-5.500	5.500
0.000 % @ 100.00 MHz	0.0000	0.071	9.9e-001 %	-5.500	5.500
0.000 % @ 125.00 MHz	0.0000	0.167	9.9e-001 %	-6.000	6.000
0.000 % @ 160.00 MHz	0.0000	0.282	9.9e-001 %	-6.000	6.000
0.000 % @ 200.00 MHz	0.0000	0.566	9.9e-001 %	-6.000	6.000
TIME MARKER ACCURACY TEST					
2.0000000000 ns @ 1 Vp	2.00000000000	1.9999994992	3.1e-018 s	1.9999900000	2.0000100000
5.0000000000 ns @ 1 Vp	5.00000000000	4.999998711	6.1e-017 s	4.999975000	5.000025000
10.0000000000 ns @ 1 Vp	10.00000000000	9.999996192	1.7e-016 s	9.999950000	10.000050000
20.0000000000 ns @ 1 Vp	20.00000000000	19.999991847	1.6e-016 s	19.999900000	20.000100000
50.00000000 ns @ 1 Vp	50.000000000	49.99997899	4.4e-016 s	49.99975000	50.00025000
100.0000000 ns @ 1 Vp	100.000000000	99.9999568	5.2e-016 s	99.9995000	100.0005000
200.0000000 ns @ 1 Vp	200.000000000	199.99991183	7.0e-016 s	199.99900000	200.00100000
500.000000 ns @ 1 Vp	500.000000000	499.999776	1.9e-015 s	499.9975000	500.0025000
1.0000000000 µs @ 1 Vp	1.00000000000	0.9999995479	1.2e-015 s	0.9999950000	1.0000050000
2.0000000000 µs @ 1 Vp	2.00000000000	1.999999092	2.8e-015 s	1.9999900000	2.0000100000
5.0000000000 µs @ 1 Vp	5.00000000000	4.999997729	6.9e-015 s	4.999975000	5.000025000
10.0000000000 µs @ 1 Vp	10.00000000000	9.999995443	1.0e-014 s	9.999950000	10.000050000
20.0000000000 µs @ 1 Vp	20.00000000000	19.99999090	2.5e-014 s	19.999900000	20.000100000
50.0000000000 µs @ 1 Vp	50.00000000000	49.99997730	3.0e-014 s	49.99975000	50.00025000
100.0000000000 µs @ 1 Vp	100.00000000000	99.99995462	3.4e-013 s	99.99950000	100.00050000
200.0000000000 µs @ 1 Vp	200.00000000000	199.9999095	2.7e-013 s	199.99900000	200.00100000
500.0000000000 µs @ 1 Vp	500.00000000000	499.9997744	5.6e-013 s	499.9975000	500.0025000
1.0000000000 ms @ 1 Vp	1.00000000000	0.999999548	4.4e-013 s	0.999995000	1.0000050000
2.0000000000 ms @ 1 Vp	2.00000000000	1.999999096	2.3e-012 s	1.9999900000	2.0000100000
5.0000000000 ms @ 1 Vp	5.00000000000	4.999997750	3.6e-012 s	4.999975000	5.000025000
10.0000000000 ms @ 1 Vp	10.00000000000	9.99999551	2.3e-011 s	9.99995000	10.000050000
20.0000000000 ms @ 1 Vp	20.00000000000	19.999991057	2.3e-011 s	19.999900000	20.000100000
50.00000 ms @ 1 Vp	50.000000	50.00145	7.6e-009 s	49.99375	50.00625
100.00000 ms @ 1 Vp	100.000000	100.00286	1.5e-008 s	99.98000	100.02000
200.0000000000 ms @ 1 Vp	200.00000000000	200.00572033	3.1e-008 s	199.93000000	200.07000000
500.00000 ms @ 1 Vp	500.000000	500.0152	7.5e-008 s	499.6000	500.4000
0.9990000 s @ 1 Vp	0.99900000	0.9990309	2.2e-009 s	0.9974031	1.0005969
2.0020000 s @ 1 Vp	2.00200000	2.0020456	1.7e-008 s	1.9957878	2.0082122

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications					
				Lower Limit	Upper Limit				
4.9790000 s @ 1 Vp	4.97900000	4.9791400	5.7e-008 s	4.9413164	5.0166836				
MEGOHM OPTION									
SHORT MODE									
4Wire Measurement									
Measured Value = 59.367		PASS*							
LOW RESISTANCE SOURCE									
4Wire Measurement									
1.0000 Ohm	1.1544	1.154	5.8e-004 Ohm	1.143	1.165				
1.8000 Ohm	1.9661	1.966	5.8e-004 Ohm	1.952	1.980				
3.7000 Ohm	3.8744	3.874	6.0e-004 Ohm	3.853	3.895				
5.9000 Ohm	6.0807	6.081	6.0e-004 Ohm	6.052	6.110				
10.000 Ohm	10.1080	10.109	6.1e-004 Ohm	10.063	10.153				
18.000 Ohm	18.1660	18.166	6.3e-004 Ohm	18.091	18.241				
37.000 Ohm	37.324	37.32	5.9e-003 Ohm	37.17	37.47				
59.000 Ohm	59.366	59.37	5.9e-003 Ohm	59.09	59.65				
100.00 Ohm	99.560	99.56	6.0e-003 Ohm	99.11	100.01				
180.00 Ohm	180.020	180.02	6.2e-003 Ohm	179.27	180.77				
370.00 Ohm	370.600	370.60	1.2e-002 Ohm	369.10	372.10				
590.00 Ohm	591.570	591.57	1.4e-002 Ohm	589.57	593.57				
1.0000 kOhm	0.99290	0.9929	6.0e-002 Ohm	0.9899	0.9959				
1.8000 kOhm	1.79870	1.7987	6.2e-002 Ohm	1.7947	1.8027				
3.7000 kOhm	3.70050	3.7005	1.2e-001 Ohm	3.6955	3.7055				
5.9000 kOhm	5.91010	5.9102	1.4e-001 Ohm	5.9041	5.9161				
HIGH RESISTANCE SOURCE									
10.000 kOhm	10.000	10.0012	6.0e-001 Ohm	9.9800	10.0200				
11.550 kOhm	11.550	11.5490	6.0e-001 Ohm	11.5269	11.5731				
21.000 kOhm	21.000	20.9986	1.2e+000 Ohm	20.9580	21.0420				
42.000 kOhm	42.000	42.0000	1.3e+000 Ohm	41.9160	42.0840				
80.850 kOhm	80.850	80.8478	1.6e+000 Ohm	80.6883	81.0117				
100.00 kOhm	100.00	99.999	6.0e+000 Ohm	99.800	100.200				
150.20 kOhm	150.20	150.197	6.1e+000 Ohm	149.900	150.500				
288.20 kOhm	288.20	288.194	1.3e+001 Ohm	287.624	288.776				
500.00 kOhm	500.00	499.992	1.5e+001 Ohm	499.000	501.000				
535.50 kOhm	535.50	535.490	1.4e+001 Ohm	534.429	536.571				
1.0000 MOhm	1.0000	1.00002	6.0e+001 Ohm	0.99700	1.00300				
1.0290 MOhm	1.0290	1.02902	6.0e+001 Ohm	1.02591	1.03209				
1.9200 MOhm	1.9200	1.91998	6.3e+001 Ohm	1.91424	1.92576				
3.6600 MOhm	3.6600	3.65992	2.4e+002 Ohm	3.64902	3.67098				
6.9800 MOhm	6.9800	6.97974	2.9e+002 Ohm	6.95906	7.00094				
10.000 MOhm	10.000	9.9999	6.2e+002 Ohm	9.9500	10.0500				
10.240 MOhm	10.240	10.2400	6.3e+002 Ohm	10.1888	10.2912				
20.980 MOhm	20.980	20.9802	3.0e+003 Ohm	20.8751	21.0849				



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Calibration Date:
26-Jun-13

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
39.190 MΩ	39.190	39.1892	4.0e+003 Ohm	38.9940	39.3860
76.550 MΩ	76.550	76.5492	6.2e+003 Ohm	76.1672	76.9327
100.00 MΩ	100.00	99.997	9.5e+003 Ohm	99.500	100.500
138.60 MΩ	138.60	138.599	1.1e+004 Ohm	137.907	139.293
148.90 MΩ	148.90	148.897	1.2e+004 Ohm	148.156	149.644
289.60 MΩ	289.60	289.624	1.5e+005 Ohm	288.152	291.048
559.60 MΩ	559.60	559.568	2.4e+005 Ohm	556.802	562.398
1.000 GΩ @ 500 V	1.0000	1.001	5.5e+006 Ohm	0.990	1.010
1.060 GΩ @ 500 V	1.0600	1.061	5.9e+006 Ohm	1.049	1.071
2.000 GΩ @ 500 V	2.0000	2.002	1.3e+007 Ohm	1.980	2.020
3.920 GΩ @ 500 V	3.9200	3.925	3.3e+007 Ohm	3.881	3.959
5.000 GΩ @ 500 V	5.0000	5.006	2.5e+007 Ohm	4.950	5.050
5.370 GΩ @ 500 V	5.3700	5.378	2.7e+007 Ohm	5.316	5.424
7.000 GΩ @ 500 V	7.0000	7.016	3.7e+007 Ohm	6.930	7.070
7.210 GΩ @ 500 V	7.2100	7.226	3.8e+007 Ohm	7.138	7.282
10.000 GΩ @ 500 V	10.0000	10.015	5.5e+007 Ohm	9.900	10.100
18.24 GΩ Single Value Resistance - 1yr Specification					
18.24 GΩ	18.240	18.18	1.2e+008 Ohm	17.69	18.79
MODE-SHORT					
Test Current Measurement					
50.0 mA	50.00	50.0	5.8e-005 A	45.7	54.3
MODE-HIGH RESISTANCE SOURCE					
Test Voltage Measurement					
100 V	100.0	100	5.8e-001 V	92	108

End of Report



Certificate Number:
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Calibration Date:
26-Jun-13

Standards Used

Asset #	Instrument Model	Cal Date	Cal Due
10835	FLUKE 910R GPS FREQUENCY STANDARD	05 February 2013	05 February 2014
12170	FLUKE 8508A REFERENCE MULTIMETER	23 June 2013	23 October 2013
13714	KROHN-HITE 6900B-6 DISTORTION ANALYZER	27 February 2013	27 January 2014
13719	CLARK HESS 6000 PHASE METER	14 August 2012	14 August 2013
13760	FLUKE 5790A AC MEASUREMENT STANDARD	21 June 2013	21 December 2013
13842	QUAD TECH 1865 MEGOHMMETER	18 April 2013	18 January 2014
14145	FLUKE 8846A 6-1/2 DIGIT PRECISION MULTIMETER	18 October 2012	18 July 2013
14363	FLUKE A40B-50MA CURRENT SHUNT	19 August 2012	19 August 2013
14364	FLUKE A40B-20A CURRENT SHUNT	19 August 2012	19 August 2013
14365	FLUKE A40B-1A CURRENT SHUNT	19 August 2012	19 August 2013
15869	FLUKE A40B-10MA PRECISION CURRENT SHUNT	31 January 2013	31 January 2014
6996	HEWLETT PACKARD 8482A POWER SENSOR	10 April 2013	10 April 2014
8678	HEWLETT PACKARD 3458A DIGITAL MULTIMETER	08 January 2013	08 July 2013
9122	FLUKE PM6680B TIMER/COUNTER	26 February 2013	26 February 2014
9261	TEKTRONIX 11801B SAMPLING SCOPE MAINFRAME	07 June 2013	07 June 2014
9895	HEWLETT PACKARD 8481D POWER SENSOR	11 April 2013	11 April 2014
J1515	FLUKE 8508A REFERENCE MULTIMETER	21 November 2012	21 November 2013
J1674	FLUKE 5520A CALIBRATOR	09 April 2013	09 January 2014
J603	TEKTRONIX SD-22 SAMPLING HEAD	07 June 2013	07 June 2014
J787	FLUKE 6680B COUNTER/TIMER	12 February 2013	12 February 2014
J807	HEWLETT PACKARD E4418B POWER METER	07 January 2013	07 January 2014

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
Serial Number: 1885110					
Firmware Level: 2.01+2.01+2.7					
DC VOLTAGE ACCURACY TESTS (NORMAL)					
330 mV Range					
0.000 mV	0.000	-0.0013	5.9e-007 V	-0.0100	0.0100
329.000 mV	329.000	329.0008	1.7e-006 V	328.9538	329.0462
-329.000 mV	-329.000	-328.9949	1.7e-006 V	-329.0462	-328.9538
3.3 V Range					
0.00000 V	0.000000	-0.0000009	9.7e-007 V	-0.0000150	0.0000150
1.00000 V	1.00000	1.000002	6.8e-006 V	0.999905	1.000095
-1.00000 V	-1.00000	-1.000000	6.9e-006 V	-1.000095	-0.999905
3.29000 V	3.29000	3.289978	1.7e-005 V	3.289722	3.290278
-3.29000 V	-3.29000	-3.290056	1.7e-005 V	-3.290278	-3.289722
33 V Range					
0.0000 V	0.00000	-0.000005	8.4e-006 V	-0.000150	0.000150
10.0000 V	10.0000	10.00009	6.8e-005 V	9.99905	10.00095
-10.0000 V	-10.0000	-10.00005	6.9e-005 V	-10.00095	-9.99905
32.9000 V	32.9000	32.89995	2.2e-004 V	32.89722	32.90278
-32.9000 V	-32.9000	-32.90071	2.2e-004 V	-32.90278	-32.89722
Fluke Corporation	Telephone		Facsimile	Internet	Page 2 of 14
1420 75th Street SW, Everett WA 98203 USA	888.993.5853		425.446.6390	www.fluke.com	Rev 7.9, 06/06/12



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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
100 V Range					
100.000 V	100.000	100.0014	7.8e-004 V	99.9885	100.0115
-100.000 V	-100.000	-100.0009	7.8e-004 V	-100.0115	-99.9885
330 V Range					
329.000 V	329.000	328.9994	2.7e-003 V	328.9656	329.0344
-329.000 V	-329.000	-329.0064	2.7e-003 V	-329.0344	-328.9656
1000 V Range					
330.00 V	330.00	330.003	6.3e-003 V	329.962	330.039
-330.00 V	-330.00	-330.003	6.4e-003 V	-330.039	-329.962
1020.00 V	1020.00	1019.994	8.3e-003 V	1019.893	1020.108
-1020.00 V	-1020.00	-1020.020	8.2e-003 V	-1020.108	-1019.893
DC VOLTAGE ACCURACY TESTS (AUX)					
330 mV Range					
0.00 mV	0.00	-0.006	5.8e-006 V	-1.000	1.000
329.00 mV	329.00	329.001	6.0e-006 V	327.671	330.329
-329.00 mV	-329.00	-329.015	6.0e-006 V	-330.329	-327.671
3.3 V Range					
3.2900 V	3.2900	3.28998	6.0e-005 V	3.28571	3.29429
-3.2900 V	-3.2900	-3.28998	6.0e-005 V	-3.29429	-3.28571
7 V Range					
7.000 V	7.000	6.9999	5.8e-004 V	6.9920	7.0080
-7.000 V	-7.000	-7.0001	5.8e-004 V	-7.0080	-6.9920
1 Year Specification Limits					
PHASE ACCURACY TEST (Normal Voltage vs. Aux Voltage)					
0.00 ° @ 65 Hz	0.00	-0.080	5.0e-002 °	-0.250	0.250
60.00 ° @ 65 Hz	60.00	59.950	5.0e-002 °	59.750	60.250
90.00 ° @ 65 Hz	90.00	89.910	5.0e-002 °	89.750	90.250
0.00 ° @ 500 Hz	0.00	-0.470	5.0e-002 °	-1.500	1.500
0.00 ° @ 1 kHz	0.00	1.140	5.0e-002 °	-5.000	5.000
1 Year Specification Limits					
PHASE ACCURACY TEST (Normal Voltage vs. Aux Current)					
0.00 ° @ 45 Hz	0.00	-0.070	5.0e-002 °	-0.250	0.250
0.00 ° @ 500 Hz	0.00	0.310	5.0e-002 °	-1.500	1.500
0.00 ° @ 1 kHz	0.00	0.680	5.0e-002 °	-5.000	5.000
0.00 ° @ 65 Hz	0.00	0.050	5.0e-002 °	-0.250	0.250
0.00 ° @ 65 Hz	0.00	-0.040	5.0e-002 °	-0.250	0.250
1 Year Specification Limits					
FREQUENCY ACCURACY TEST					
100.000 Hz @ 1 V	100.0000	99.997	5.9e-004 Hz	99.993	100.007
DISTORTION ACCURACY TEST (Normal Voltage)					
0.000 % @ 45 Hz	0.000	0.0106		0.0000	0.2200 *
0.000 % @ 100 Hz	0.000	0.0080		0.0000	0.2200 *



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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
0.000 % @ 45 Hz	0.000	0.0140		0.0000	0.5200 *
0.000 % @ 1 kHz	0.000	0.0108		0.0000	0.5200 *
0.000 % @ 100 Hz	0.000	0.0089		0.0000	0.5300 *
0.000 % @ 1 kHz	0.000	0.0067		0.0000	0.5300 *
AC VOLTAGE ACCURACY TESTS (NORMAL)					
33 mV Range					
10.00 mV @ 45 Hz	10.00	10.000	7.5e-006 V	9.909	10.091
10.00 mV @ 100 Hz	10.00	10.001	6.5e-006 V	9.908	10.092
10.00 mV @ 1 kHz	10.00	10.001	6.4e-006 V	9.908	10.092
32.90 mV @ 45 Hz	32.90	32.899	9.1e-006 V	32.738	33.062
32.90 mV @ 100 Hz	32.90	32.901	7.7e-006 V	32.735	33.065
32.90 mV @ 1 kHz	32.90	32.901	7.7e-006 V	32.735	33.065
330 mV Range					
329.00 mV @ 45 Hz	329.00	328.990	4.3e-005 V	328.512	329.488
329.00 mV @ 100 Hz	329.00	329.003	3.8e-005 V	328.479	329.521
329.00 mV @ 1 kHz	329.00	329.007	3.8e-005 V	328.479	329.521
3.3 V Range					
3.2900 V @ 45 Hz	3.2900	3.28989	4.3e-004 V	3.28686	3.29314
3.2900 V @ 100 Hz	3.2900	3.29000	3.8e-004 V	3.28653	3.29347
3.2900 V @ 1 kHz	3.2900	3.28993	3.8e-004 V	3.28653	3.29347
33 V Range					
32.900 V @ 45 Hz	32.900	32.8984	4.3e-003 V	32.8686	32.9314
32.900 V @ 100 Hz	32.900	32.8999	3.8e-003 V	32.8620	32.9380
32.900 V @ 1 kHz	32.900	32.8996	3.8e-003 V	32.8620	32.9380
330 V Range					
100.00 V @ 45 Hz	100.00	99.993	1.1e-002 V	99.862	100.138
100.00 V @ 100 Hz	100.00	99.997	9.6e-003 V	99.852	100.148
100.00 V @ 1 kHz	100.00	99.997	9.6e-003 V	99.852	100.148
329.00 V @ 45 Hz	329.00	328.982	6.7e-002 V	328.587	329.413
329.00 V @ 100 Hz	329.00	328.995	6.7e-002 V	328.554	329.446
329.00 V @ 1 kHz	329.00	329.001	6.7e-002 V	328.554	329.446
1000 V Range					
1020.0 V @ 45 Hz	1020.0	1019.95	1.4e-001 V	1018.60	1021.40
1020.0 V @ 100 Hz	1020.0	1020.00	1.4e-001 V	1018.49	1021.51
1020.0 V @ 1 kHz	1020.0	1020.06	1.4e-001 V	1018.49	1021.51
AC VOLTAGE ACCURACY TESTS (AUX)					
330 mV Range					
10.00 mV @ 45 Hz	10.00	9.953	7.6e-006 V	8.982	11.018
10.00 mV @ 100 Hz	10.00	9.952	6.5e-006 V	8.980	11.020
10.00 mV @ 1 kHz	10.00	9.952	6.5e-006 V	8.980	11.020
329.00 mV @ 45 Hz	329.00	328.993	4.4e-005 V	327.408	330.592
329.00 mV @ 100 Hz	329.00	328.997	3.8e-005 V	327.342	330.658

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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
329.00 mV @ 1 kHz	329.00	329.009	3.8e-005 V	327.342	330.658
3.3V Range					
3.2900 V @ 45 Hz	3.29000	3.289740	5.2e-004 V	3.283078	3.296922
3.2900 V @ 100 Hz	3.29000	3.290020	4.6e-004 V	3.282420	3.297580
3.2900 V @ 1 kHz	3.29000	3.289920	4.6e-004 V	3.282420	3.297580
5V Range					
5.000 V @ 45 Hz	5.00000	4.999660	6.3e-004 V	4.990000	5.010000
5.000 V @ 100 Hz	5.00000	5.000020	5.6e-004 V	4.989000	5.011000
5.000 V @ 1 kHz	5.00000	4.999780	5.6e-004 V	4.989000	5.011000
4-WIRE RESISTANCE ACCURACY TESTS					
0.0000 Ohm	0.0000	0.00000	5.9e-005 Ohm	-0.01000	0.01000
1.0000 Ohm	0.9997	0.99970	6.4e-005 Ohm	0.98980	1.00960
1.9000 Ohm	1.8991	1.89914	7.0e-005 Ohm	1.88979	1.90841
10.000 Ohm	10.000	10.0001	5.9e-004 Ohm	9.9860	10.0140
19.000 Ohm	19.001	19.0011	6.1e-004 Ohm	18.9839	19.0181
100.000 Ohm	100.005	100.0052	1.1e-003 Ohm	99.9700	100.0400
190.000 Ohm	190.017	190.0171	1.8e-003 Ohm	189.9505	190.0835
1.00000 kOhm	1.00017	1.000164	9.9e-003 Ohm	0.999950	1.000390
1.90000 kOhm	1.90008	1.900081	1.6e-002 Ohm	1.899662	1.900498
10.0000 kOhm	10.0010	10.00102	1.1e-001 Ohm	9.99880	10.00320
19.0000 kOhm	18.9998	18.99977	1.8e-001 Ohm	18.99486	19.00474
100.000 kOhm	100.009	100.0087	1.2e+000 Ohm	99.9740	100.0440
190.000 kOhm	190.001	190.0003	1.8e+000 Ohm	189.9269	190.0751
1.00000 MOhm	1.00010	1.000072	4.9e+001 Ohm	0.999750	1.000450
1.90000 MOhm	1.90011	1.900110	2.5e+001 Ohm	1.899445	1.900775
10.000 MOhm	9.999	9.9988	8.2e+002 Ohm	9.9900	10.0080
19.000 MOhm	18.984	18.9889	1.6e+003 Ohm	18.9574	19.0106
100.00 MOhm	99.93	99.972	3.8e+004 Ohm	99.440	100.420
190.00 MOhm	190.01	190.065	6.2e+004 Ohm	188.129	191.891
DC CURRENT ACCURACY TEST - ZERO					
330 uA Range					
0.00 μA	0.00	-0.000	5.8e-009 A	-0.100	0.100
3.3 mA Range					
0.00000 mA	0.00000	-0.000001	5.8e-009 A	-0.000250	0.000250
33 mA Range					
0.00000 mA	0.00000	-0.000007	7.7e-009 A	-0.001250	0.001250
330 mA Range					
0.00000 mA	0.00000	-0.000163	2.1e-007 A	-0.016500	0.016500
1.1 A Range					
0.00000 A	0.00000	-0.000002	5.8e-006 A	-0.000220	0.000220
3 A Range					
0.00000 A	0.00000	-0.000002	5.8e-006 A	-0.000220	0.000220

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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
11 A Range					
0.00000 A	0.00000	-0.000016	9.7e-006 A	-0.002500	0.002500
20 A Range					
0.00000 A	0.00000	-0.000013	1.5e-005 A	-0.003750	0.003750
DC CURRENT ACCURACY TESTS					
330 µA Range					
329.00 µA	329.00	329.083	1.0e-008 A	328.670	329.330
-329.00 µA	-329.00	-329.118	9.7e-009 A	-329.330	-328.670
3.3 mA Range					
3.2900 mA	3.2900	3.29103	9.4e-008 A	3.28778	3.29222
-3.2900 mA	-3.2900	-3.29104	9.4e-008 A	-3.29222	-3.28778
33 mA Range					
32.900 mA	32.900	32.9002	9.5e-007 A	32.8830	32.9170
-32.900 mA	-32.900	-32.9002	9.5e-007 A	-32.9170	-32.8830
330 mA Range					
329.00 mA	329.00	329.003	9.8e-006 A	328.826	329.174
-329.00 mA	-329.00	-329.004	9.7e-006 A	-329.174	-328.826
1.1 A Range					
1.0000 A	1.0000	1.00022	6.9e-005 A	0.99838	1.00162
-1.0000 A	-1.0000	-1.00025	6.9e-005 A	-1.00162	-0.99838
3 A Range					
2.9900 A	2.9900	2.98862	1.3e-004 A	2.98440	2.99560
-2.9900 A	-2.9900	-2.98864	9.6e-005 A	-2.99560	-2.98440
11 A Range					
10.900 A	10.900	10.9135	7.1e-004 A	10.8724	10.9276
-10.900 A	-10.900	-10.9138	7.0e-004 A	-10.9276	-10.8724
20.5 A Range					
19.900 A	19.900	19.9213	2.0e-003 A	19.8007	19.9993
-19.900 A	-19.900	-19.9226	1.9e-003 A	-19.9993	-19.8007
AC CURRENT ACCURACY TESTS					
330 µA Range					
29 µA @ 45 Hz	29.0	28.95	6.6e-008 A	28.18	29.82
29 µA @ 100 Hz	29.0	28.95	6.6e-008 A	28.18	29.82
29 µA @ 1 kHz	29.0	28.95	6.6e-008 A	28.18	29.82
329.0 µA @ 45 Hz	329.0	329.11	9.9e-008 A	327.46	330.54
329.0 µA @ 100 Hz	329.0	329.11	8.0e-008 A	327.43	330.57
329.0 µA @ 1 kHz	329.0	329.12	8.0e-008 A	327.43	330.57
3.3 mA Range					
3.2900 mA @ 45 Hz	3.2900	3.29090	4.8e-007 A	3.28219	3.29781
3.2900 mA @ 100 Hz	3.2900	3.29118	4.3e-007 A	3.28186	3.29814
3.2900 mA @ 1 kHz	3.2900	3.29117	4.3e-007 A	3.28186	3.29814
33 mA Range					

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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
19.900 mA @ 45 Hz	19.900	19.8984	2.7e-006 A	19.8701	19.9299
19.900 mA @ 65 Hz	19.900	19.8997	2.7e-006 A	19.8701	19.9299
32.900 mA @ 1 kHz	32.900	32.9010	5.1e-006 A	32.8288	32.9712
330 mA Range					
199.00 mA @ 45 Hz	199.00	199.002	2.5e-005 A	198.701	199.299
199.00 mA @ 65 Hz	199.00	199.016	2.5e-005 A	198.701	199.299
329.00 mA @ 1 kHz	329.00	328.990	4.3e-005 A	328.288	329.712
1.1 A Range					
1.0000 A @ 45 Hz	1.0000	1.00001	1.1e-004 A	0.99790	1.00210
1.0000 A @ 65 Hz	1.0000	1.00008	1.1e-004 A	0.99790	1.00210
1.0000 A @ 1 kHz	1.0000	1.00001	1.0e-004 A	0.99660	1.00340
3 A Range					
1.9900 A @ 45 Hz	1.9900	1.99000	3.0e-004 A	1.98671	1.99329
1.9900 A @ 65 Hz	1.9900	1.99015	3.0e-004 A	1.98671	1.99329
2.9900 A @ 1 kHz	2.9900	2.98875	5.1e-004 A	2.98073	2.99927
11 A Range					
10.000 A @ 45 Hz	10.000	10.0122	1.3e-003 A	9.9700	10.0300
10.000 A @ 65 Hz	10.000	10.0130	1.3e-003 A	9.9700	10.0300
10.000 A @ 1 kHz	10.000	10.0120	1.2e-003 A	9.9560	10.0440
20.5 A Range					
19.900 A @ 45 Hz	19.900	19.9268	2.0e-003 A	19.7895	20.0105
19.900 A @ 100 Hz	19.900	19.9298	1.7e-003 A	19.7855	20.0145
19.900 A @ 1 kHz	19.900	19.9219	1.7e-003 A	19.7855	20.0145
Scope Option 1yr Interval					
AMPLITUDE ACCURACY TESTS					
DC VOLTAGE TEST (1 MOhm)					
0.00 mV	0.00	0.019	3.4e-006 V	-0.200	0.200
5.00 mV	5.00	5.008	3.3e-006 V	4.782	5.218
-5.00 mV	-5.00	-4.991	2.3e-006 V	-5.218	-4.782
22.00 mV	22.00	22.013	2.6e-006 V	21.723	22.277
-22.00 mV	-22.00	-21.989	2.4e-006 V	-22.277	-21.723
25.00 mV	25.00	25.001	2.3e-006 V	24.712	25.288
-25.00 mV	-25.00	-24.995	1.9e-006 V	-25.288	-24.712
45.00 mV	45.00	45.007	2.0e-006 V	44.642	45.358
-45.00 mV	-45.00	-44.994	3.2e-006 V	-45.358	-44.642
50.00 mV	50.00	49.992	2.8e-006 V	49.625	50.375
-50.00 mV	-50.00	-50.000	2.0e-006 V	-50.375	-49.625
220.00 mV	220.00	219.978	2.9e-006 V	219.030	220.970
-220.00 mV	-220.00	-220.011	2.9e-006 V	-220.970	-219.030
250.00 mV	250.00	249.961	3.5e-006 V	248.925	251.075
-250.00 mV	-250.00	-250.002	2.6e-006 V	-251.075	-248.925
450.00 mV	450.00	449.969	7.4e-006 V	448.225	451.775



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				Lower Limit	Upper Limit
-450.00 mV	-450.00	-450.043	4.1e-006 V	-451.775	-448.225
500.00 mV	500.00	499.970	4.2e-006 V	498.050	501.950
-500.00 mV	-500.00	-500.043	5.0e-006 V	-501.950	-498.050
3.300 V	3.300	3.3003	1.6e-005 V	3.2882	3.3118
-3.300 V	-3.300	-3.2999	3.6e-005 V	-3.3118	-3.2882
4.000 V	4.000	4.0003	4.0e-005 V	3.9858	4.0142
-4.000 V	-4.000	-4.0000	4.2e-005 V	-4.0142	-3.9858
33.00 V	33.00	32.999	2.0e-004 V	32.884	33.116
-33.00 V	-33.00	-32.999	2.0e-004 V	-33.116	-32.884
DC VOLTAGE TEST (50 Ohm)					
0.000 mV	0.0000	0.014	2.3e-006 V	-0.200	0.200
5.000 mV	5.0000	5.009	2.0e-006 V	4.782	5.218
-5.000 mV	-5.0000	-4.993	1.8e-006 V	-5.218	-4.782
10.000 mV	10.0000	10.005	1.8e-006 V	9.765	10.235
-10.000 mV	-10.0000	-9.995	1.9e-006 V	-10.235	-9.765
22.000 mV	22.0000	22.001	1.9e-006 V	21.723	22.277
-22.000 mV	-22.0000	-21.996	2.0e-006 V	-22.277	-21.723
25.000 mV	25.0000	24.996	2.0e-006 V	24.712	25.288
-25.000 mV	-25.0000	-24.999	1.9e-006 V	-25.288	-24.712
55.000 mV	55.0000	54.998	2.5e-006 V	54.608	55.392
-55.000 mV	-55.0000	-55.001	2.7e-006 V	-55.392	-54.608
100.00 mV	100.000	99.99	3.8e-006 V	99.45	100.55
-100.00 mV	-100.000	-100.00	3.8e-006 V	-100.55	-99.45
220.000 mV	220.0000	219.995	7.7e-006 V	219.030	220.970
-220.000 mV	-220.0000	-220.003	7.6e-006 V	-220.970	-219.030
250.000 mV	250.0000	249.996	8.5e-006 V	248.925	251.075
-250.000 mV	-250.0000	-250.003	8.5e-006 V	-251.075	-248.925
550.000 mV	550.0000	550.187	2.0e-005 V	547.875	552.125
-550.000 mV	-550.0000	-550.783	1.9e-005 V	-552.125	-547.875
700.000 mV	700.0000	700.287	2.3e-005 V	697.350	702.650
-700.000 mV	-700.0000	-700.885	2.3e-005 V	-702.650	-697.350
2.2000 V	2.20000	2.2004	4.9e-004 V	2.1921	2.2079
-2.2000 V	-2.20000	-2.2002	1.7e-004 V	-2.2079	-2.1921
AC VOLTAGE TEST (1 MOhm)					
5.00 mVpp @ 45 Hz	5.00	4.996	4.2e-006 Vpp	4.782	5.218
5.00 mVpp @ 100 Hz	5.00	4.997	4.1e-006 Vpp	4.782	5.218
5.00 mVpp @ 1 kHz	5.00	4.999	4.3e-006 Vpp	4.782	5.218
20.00 mVpp @ 100 Hz	20.00	19.991	4.7e-006 Vpp	19.730	20.270
20.00 mVpp @ 1 kHz	20.00	19.999	4.9e-006 Vpp	19.730	20.270
50.00 mVpp @ 1 kHz	50.00	49.993	6.9e-006 Vpp	49.625	50.375
89.00 mVpp @ 45 Hz	89.00	88.961	7.7e-006 Vpp	88.489	89.511
100.00 mVpp @ 1 kHz	100.00	99.986	1.2e-005 Vpp	99.450	100.550



Certificate Number:
3669855-1885110:1372240769

Calibration Date:
26-Jun-13

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
200.00 mVpp @ 100 Hz	200.00	199.912	1.2e-005 Vpp	199.100	200.900
200.00 mVpp @ 1 kHz	200.00	199.941	1.5e-005 Vpp	199.100	200.900
500.00 mVpp @ 1 kHz	500.00	499.922	5.0e-005 Vpp	498.050	501.950
890.00 mVpp @ 45 Hz	890.00	889.596	4.6e-005 Vpp	886.685	893.315
1.00000 Vpp @ 100 Hz	1.00000	0.999833	4.3e-005 Vpp	0.996300	1.003700
1.00000 Vpp @ 1 kHz	1.00000	0.999995	3.0e-004 Vpp	0.996300	1.003700
5.0000 Vpp @ 45 Hz	5.0000	4.99929	2.6e-004 Vpp	4.98230	5.01770
50.00 Vpp @ 45 Hz	50.00	50.001	3.0e-003 Vpp	49.825	50.175
50.00 Vpp @ 100 Hz	50.00	49.990	2.3e-003 Vpp	49.825	50.175
50.00 Vpp @ 1 kHz	50.00	49.998	3.7e-003 Vpp	49.825	50.175
105.00 Vpp @ 100 Hz	105.00	104.698	5.4e-003 Vpp	103.950	106.050
105.00 Vpp @ 1 kHz	105.00	104.976	5.7e-003 Vpp	103.950	106.050
AC VOLTAGE TEST (50 Ohm)					
5.00 mVpp @ 45 Hz	5.00	5.000	4.1e-006 Vpp	4.782	5.218
5.00 mVpp @ 100 Hz	5.00	5.000	4.1e-006 Vpp	4.782	5.218
5.00 mVpp @ 1 kHz	5.00	5.000	4.2e-006 Vpp	4.782	5.218
10.00 mVpp @ 100 Hz	10.00	10.001	4.3e-006 Vpp	9.765	10.235
10.00 mVpp @ 1 kHz	10.00	10.001	4.4e-006 Vpp	9.765	10.235
44.900 mVpp @ 45 Hz	44.900	44.8842	5.9e-006 Vpp	44.5429	45.2571
100.00 mVpp @ 100 Hz	100.00	99.965	8.4e-006 Vpp	99.450	100.550
100.00 mVpp @ 1 kHz	100.00	99.985	9.4e-006 Vpp	99.450	100.550
449.00 mVpp @ 45 Hz	449.00	448.872	2.8e-005 Vpp	447.229	450.772
1.00000 Vpp @ 100 Hz	1.00000	0.999831	5.3e-005 Vpp	0.996300	1.003700
1.00000 Vpp @ 1 kHz	1.00000	1.000025	7.1e-005 Vpp	0.996300	1.003700
2.00000 Vpp @ 45 Hz	2.00000	1.999752	3.9e-004 Vpp	1.992800	2.007200
2.00000 Vpp @ 100 Hz	2.00000	1.999667	1.0e-004 Vpp	1.992800	2.007200
2.00000 Vpp @ 1 kHz	2.00000	1.999571	6.0e-004 Vpp	1.992800	2.007200
EDGE RISE TIME TEST					
25 mVpp					
24.0 ps @ 1 MHz	24.00	280.0	8.3e-012 s	24.0	1000.0
250 mVpp					
24.0 ps @ 1 kHz	24.00	263.9	7.3e-012 s	24.0	1000.0
24.0 ps @ 10 kHz	24.00	264.7	7.3e-012 s	24.0	1000.0
24.0 ps @ 100 kHz	24.00	267.8	7.3e-012 s	24.0	1000.0
1 Vpp					
24.0 ps @ 100 kHz	24.00	264.4	7.3e-012 s	24.0	1000.0
LEVELED SINE AMPLITUDE ACCURACY TEST (50 Ohm)					
5.000 mVpp @ 50.00 kHz	5.000	4.9827	7.6e-006 Vpp	4.6000	5.4000
10.000 mVpp @ 50.00 kHz	10.000	9.8634	7.5e-006 Vpp	9.5000	10.5000
20.000 mVpp @ 50.00 kHz	20.000	20.2554	7.8e-006 Vpp	19.3000	20.7000
50.00 mVpp @ 50.00 kHz	50.00	50.215	1.3e-005 Vpp	48.700	51.300
100.00 mVpp @ 50.00 kHz	100.00	98.646	1.5e-005 Vpp	97.700	102.300