

Centro de Servicio Autorizado FLUKE Certificado de Calibración

Instrumento: Fluke 189

Descripción TRUE RMS MULTIMETER

Nro de Inventario: SU1682 **Nro de Serie:** 91880805

Viditec S.A. certifica que...

Los sistemas de calibración utilizados como estándares de referencia fueron calibrados según patrones nacionales, los cuales representan a las unidades de medida en concordancia con el Sistema Internacional de Unidades (SI). Estos estándares son "trazables" al Instituto Nacional de Tecnología Industrial (INTI) o al National Institute of Standards and Technology (NIST), según se indique en la tabla inferior.

MEDICIONES NORMALES (SIN TRANSFERENCIA)

A menos que se especifique de otro modo, la Relación de Incertidumbre de las Pruebas (T.U.R) son 4:1 o mayor. En casos donde el T.U.R es menor que 4:1, se utiliza el método de salvaguarda para mantener el mismo riesgo que podría ser obtenido desde un T.U.R. 4:1. Específicamente, para un T.U.R. de 1.5:1 hasta 4:1, el límite de la prueba no debe ser mayor que el 88% del límite de la especificación. Para un T.U.R. de 1.2:1 hasta 1.5:1, el límite de la prueba no debe ser mayor que el 82% del límite de la especificación.

MEDICIONES DE TIPO TRANSFERENCIA

En mediciones de transferencia donde un valor de medición es informado o destinado para ser usado como una corrección, la resolución y reiteración del proceso de medición es mayor que 4:1 desde el reporte de incertidumbre.

Información de Calibración

Fecha Calib.: 14/Jun/2012 **Temperatura:** 23,20°C **Orden de Trabajo:** 10583
Humedad: 43 % **Cliete:** SUPERTEC S A
Método: Por comparación contra los "standards usados", según procedimiento y especificación del fabricante **Calibrado por:** Leandro Chaumont
Revisión: 1.0
Procedimiento: Fluke 189: (1 year) CAL VER RS-232 /5500
Nota:

Standars Usados

Nro Inventario	Marna	Modelo	Descripción	Nº de Serie	Trazabilidad	Fecha Cal.	Fecha Venc.
VI00001	Fluke	5500A	CALIBRATOR	6450037	NIST	23/Feb/12	23/Feb/13


Diego Triglia
 Resp. Servicio Técnico
 División Instrumentos


LEANDRO CHAUMONT
 LABORATORIO DE METROLOGIA
 VIDITEC S.A

Reporte de Calibración

Viditec S.A.

Equipo: Fluke 189
TRUE RMS MULTIMETER
N° de Serie: 91880805
N° de Inventario: SU1682

Resultado: PASS
Fecha de Calibración: 14/06/2012 - 09:35:22
Calibrado por: Leandro Chaumont
Condiciones Ambientales: Temp: 23,2°C Humed: 43 %
Estado: FOUND-LEFT
Procedimiento Terminado:

Notas:

Información de Calibración

Fecha Calib. 14/Jun/2012
Procedimiento: Fluke 189: (1 year) CAL VER RS-232 /5500
Técnico Cal. Leandro Chaumont

Hora Calib.: 09:35:22
Revisión: 1.0
Orden de Trabajo: 10583
Cliente: SUPERTEC S.A.

Resultados

Aceptado: Y
Interrumpido: n
Sello Ok: Y
Estado F/L: FOUND-LEFT
Std FDC: n

Número de Pruebas

Erróneas: 0
Notif. Usr.: 0

Config. MET/CAL

Límite de TUR: 4,00
Límite FDT: 100
Accept. 100%: y

Referencias

Fail: Rechazado
Pass: Aceptado
Found: Recibido
Left: Entregado
N / Y: No / Si
Std FDC: Standars usados Fuera De Calibración
Notif. Usr: notificación al usuario de pruebas erróneas o marginales
TUR: Relación de Incertidumbre de la Prueba (Test Uncertainty Ratio)
FDT: Fuera De Tolerancia
UAP: Unidad A Prueba

Standard Usados

N° de Inventario	Marca	Modelo	Descripción	N° de Serie	Fecha Cal.	Fecha Venc.
VI00001	Fluke	5500A	CALIBRATOR	6450037	23-Feb-12	23-Feb-13

Resultados

PRUEBA#	VALOR	VALOR	-- UNIDAD A PRUEBA --		--- LIMITES ---		ESTADO	T. U. R.	
	NOMINAL	REAL	LECTURA	ERROR	MIN	MAX			
DISPLAY TEST									
	Result of Operator Evaluation							PASS	
	Backlight Test							PASS	
	Beeper Silent:Non-Current Functions							PASS	
	Beeper Audible:Current Function							PASS	
	Keypad Pushbutton Test							PASS	

MET/CAL RunTime Report: Calibration Results

Fluke 189 N° de Inventario: SU1682 N° de Serie: 91880805

Calibrated on: 14/06/2012 - 09:35:22

PRUEBA#	VALOR NOMINAL	VALOR REAL	-- UNIDAD A PRUEBA -- LECTURA	ERROR	--- LIMITES --- MIN	MAX	ESTADO	T.U.R.
AC VOLTAGE TESTS								
5V Range								
6	0.2500V @ 100kHz		0.2426	-7.4mV	0.2260	0.2740	PASS	
7	5.0000V @ 20kHz		4.9770	-23mV	4.9210	5.0790	PASS	
8	5.0000V @ 100kHz		4.8776	-122.4mV	4.5960	5.4040	PASS	
50V Range								
9	50.000V @ 700Hz		49.981	-19mV	49.760	50.240	PASS	
10	50.000V @ 20kHz		50.189	189mV	49.210	50.790	PASS	
11	50.000V @ 100kHz		50.189	189mV	45.960	54.040	PASS	
500V Range								
12	500.00V @ 65Hz		499.36	-640mV	497.60	502.40	PASS	
1000V Range								
13	500.0V @ 65Hz		499.3	-700mV	494.0	506.0	PASS	
AC MILLIVOLT TESTS								
50mV Range								
14	2.500mV @ 100kHz		2.299	-201uV	2.085	2.915	PASS	
15	50.000mV @ 20kHz		48.330	-1.67mV	46.850	53.150	PASS	
16	50.000mV @ 100kHz		46.187	-3.813mV	42.460	57.540	PASS	
500mV Range								
17	500.00mV @ 10kHz		483.67	-16.33mV	474.60	525.40	PASS	
5000mV Range								
18	3000.0mV @ 20kHz		2982.4	-17.6mV	2951.0	3049.0	PASS	
19	3000.0mV @ 100kHz		3001.3	1.3mV	2756.0	3244.0	PASS	
FREQUENCY TESTS								
50kHz Range								
20	20.000kHz @ 1V		20.000	0Hz	19.998	20.002	PASS	4.0
DUTY CYCLE TESTS								
21	30.00%		30.02	0.02%	21.82	38.18	PASS	
DC VOLTAGE TESTS								
5V Range								
22	0.0000V		-0.0001	-100uV	-0.0010	0.0010	PASS	
23	5.0000V		4.9996	-400uV	4.9977	5.0023	PASS	
24	-5.0000V		-4.9994	600uV	-5.0023	-4.9977	PASS	
50V Range								
25	-50.000V		-49.993	7mV	-50.018	-49.982	PASS	
500V Range								
26	-500.00V		-499.93	70mV	-500.52	-499.48	PASS	
1000V Range								
27	-500.0V		-499.9	100mV	-500.7	-499.3	PASS	
AC&DC VOLTAGE TESTS								
50V Range								
28	50.000V @ 20kHz		50.194	194mV	48.960	51.040	PASS	
DC MILLIVOLT TESTS								
50mV Range								
29	0.000mV		0.000	0V	-0.020	0.020	PASS	
30	50.000mV		50.005	5uV	49.930	50.070	PASS	

MET/CAK RunTime Report: Calibration Results

Ficha 189 N° de Inventario: SU1682 N° de Serie: 91880805

Calibrated on: 14/06/2012 - 09:35:22

PRUEBA#	VALOR NOMINAL	VALOR REAL	-- UNIDAD A LECTURA	PRUEBA -- ERROR	--- LIMITES --- MIN	MAX	ESTADO	T.U.R.
31	-50.000mV		-50.000	0V	-50.070	-49.930	PASS	
500mV Range								
32	0.00mV		0.00	0V	-0.02	0.02	PASS	
33	500.00mV		499.95	-50uV	499.83	500.17	PASS	
5000mV Range								
34	-3000.0mV		-2999.6	400uV	-3001.3	-2998.7	PASS	
35	2000.0mV		1999.7	-300uV	1999.0	2001.0	PASS	
AC&DC MILLIVOLT TESTS								
5000mV Range								
36	1000.0mV @ 20kHz		993.2	-6.8mV	976.0	1024.0	PASS	
RESISTANCE TESTS								
500 Ohm Range								
37	0.00 Ohm		0.00	0 Ohm	-0.10	0.10	PASS	
38	500.00 Ohm		500.06	60 mOhm	499.65	500.35	PASS	3.3
5 kOhm Range								
39	5.0000 kOhm		5.0007	700 mOhm	4.9973	5.0027	PASS	2.6
50 kOhm Range								
40	50.000 kOhm		50.006	6 Ohm	49.973	50.027	PASS	2.3
500 kOhm Range								
41	500.00 kOhm		500.07	70 Ohm	499.73	500.27	PASS	2.1
5 MOhm Range								
42	5.0000 MOhm		5.0003	300 Ohm	4.9921	5.0079	PASS	2.2
30 MOhm Range								
43	30.000 MOhm		30.005	5 kOhm	29.696	30.304	PASS	
100 MOhm Range								
44	100.0 MOhm		99.7	-300 kOhm	89.8	110.2	PASS	
CONDUCTANCE TEST								
50nS Range								
45	0.00nS		0.01	0.01nS	-0.10	0.10	PASS	
46	10.00nS		10.02	20pS	9.80	10.20	PASS	3.9
CAPACITANCE TESTS								
1nF Range								
47	0.000nF		0.066	0.0655nF	0.000	0.070	PASS	
110nF Range								
48	100.0nF		100.2	180pF	98.5	101.5	PASS	
11uF Range								
49	5.00uF		5.00	0F	4.90	5.10	PASS	3.6
DIODE TEST								
Reading: 1.0069V							PASS	
Acceptance limits are .9000V to 1.1000V								
AC MILLIAMP TESTS								
50mA Range								
51	2.500mA @ 1kHz		2.501	1uA	2.461	2.539	PASS	
400mA Range								
52	329.00mA @ 10kHz		329.17	170uA	323.96	334.04	PASS	2.5
AC MICROAMP TESTS								

PRUEBA#	VALOR NOMINAL	VALOR REAL	-- UNIDAD A LECTURA	PRUEBA -- ERROR	--- LIMITES --- MIN	MAX	ESTADO	T.U.R.
500uA Range								
53	500.00uA @ 1kHz		499.97	-30nA	496.05	503.95	PASS	
5000uA Range								
54	1500.0uA @ 1kHz		1500.1	100nA	1488.2	1511.8	PASS	
DC MILLIAMP TESTS								
50mA Range								
55	0.000mA		0.001	1uA	-0.010	0.010	PASS	
56	50.000mA		50.011	11uA	49.915	50.085	PASS	
57	-50.000mA		-50.010	-10uA	-50.085	-49.915	PASS	
400mA Range								
58	-329.00mA		-328.98	20uA	-329.51	-328.49	PASS	
DC MICROAMP TESTS								
5000uA Range								
59	-5000.0uA		-4999.5	500nA	-5012.7	-4987.3	PASS	
500uA Range								
60	500.00uA		500.08	80nA	498.55	501.45	PASS	
61	-500.00uA		-499.85	150nA	-501.45	-498.55	PASS	
62	0.00uA		-0.02	-0.02uA	-0.20	0.20	PASS	
AC AMP TESTS								
5A Range								
63	0.2500A @ 1kHz		0.2501	100uA	0.2422	0.2578	PASS	
64	0.2500A @ 20kHz		0.2534	3.4mA	0.2310	0.2690	PASS	
DC AMP TESTS								
5A Range								
65	0.0000A		-0.0004	-400uA	-0.0010	0.0010	PASS	
66	5.0000A		5.0004	400uA	4.9740	5.0260	PASS	
67	-5.0000A		-5.0002	-200uA	-5.0260	-4.9740	PASS	
10A Range								
68	-6.000A		-6.000	0A	-6.032	-5.968	PASS	
AC AMP TESTS								
10A Range								
69	6.000A @ 1kHz		5.996	-4mA	5.905	6.095	PASS	
TEMPERATURE: Degrees C								
70	-10.0degC		-9.8	200mdegC	-11.1	-8.9	PASS	
71	0.0degC		0.0	0degC	-1.0	1.0	PASS	
72	350.0degC		350.3	300mdegC	345.0	355.0	PASS	

Fin de Resultados

This laboratory maintains A2LA accreditation to ISO/IEC 17025 for the specific calibrations listed in Certificate #215621 and meets the relevant requirements of ISO 9001:2008



This certificate applies to only the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signatures are not valid. This certificate shall not be used to claim product endorsement by A2LA.

FLUKE	Certificate Number 6673699-64800371330023104	Calibration Date 23-Feb-13
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Traceability Information
For each parameter listed below, the calibration was conducted using an unbroken chain of standards to:

DC Voltage
The Voltage Reference Standard group, traceable to the Fluke Primary Electrical Standards Laboratory, which is traceable to the U.S. representation of the volt, through the International accepted value of the Josephson constant, $K_J = 483597.9 \text{ GHz/V}$ and a 10 Volt Josephson Array Voltage Standard.

Frequency and Period
A GPS disciplined, Sudduth oscillator frequency standard which is traceable to the National Institute of Standards and Technology (NIST).

AC Voltage, Resistance, DC Current, AC Current, Capacitance, Inductance, Phase
The Fluke Primary Electrical Standards Laboratory, or Agilent Technologies Standards Laboratory, or IET, which are traceable to NIST or NRC.

AC Voltage Flatness
The Fluke Primary Electrical Standards Laboratory or Agilent Technologies Standards Laboratory, which are traceable to NIST or PTB or NPL.

Humidity
The Vaisala Measurement Standards Laboratory Primary Salt Calibration Lab, with traceability based on the physical phenomena in which the equilibrium relative humidity values associated with certain saturated salt solutions are known.

Rise Time
The Teledyne Cembri Calibration Laboratory which is traceable to the Physikalisch-Technische Bundesanstalt (PTB), or the National Physical Laboratory (NPL).

Radiation Temperature
Traceable to NIST, PTB, and the Fluke Primary Temperature Standard Laboratory.

Contact Temperature
Traceable to the Fluke Primary Temperature Standard Laboratory which is traceable to the NIST.

Gas Flow
The Fluke Primary Gas Flow Laboratory which is traceable to the NIST.

Pressure
The Fluke Primary Pressure Laboratory (Phoenix), which is traceable to the Laboratoire National de Métrologie et d'Essais (LNE) and PTB.

Gas Mixtures
Traceable to NIST reference materials.

FLUKE Everett Service Center
1420 75th St SW
Everett, Washington 98203
USA

Calibration Certificate

Description: CALIBRATOR	Certificate Number: 6673699-64800371330023104
Manufacturer: FLUKE	Date of Calibration: 23 February 2013
Model: 5600A-D 240	Date of Certificate: 23 February 2013
Serial Number: 6450037	Recommended Due Date:
Customer Name: VICTEC SA	Procedure Name: FLUKE 6480A (30 DAY) ACAL VER COMBINE
City, State: DUENOS AJRES, AR	Procedure Revision: 4.1
Customer Item ID: 6450037	Data Type: AS-LEFT
PO Number: IRV N 601	Temperature: 22.5 °Celsius
RMA Number: 4919305	Relative Humidity: 41%
Result Summary: NV-Spec = YES	
Received Date: 28 February 2013	

This calibration certificate may contain data that is not covered by the A2LA Scope of Accreditation. The unaccredited material, where applicable, is indicated by an asterisk (*), or confined to clearly marked sections. PASS / FAIL tests are not accredited. If there is non accredited material, the non accredited data is compliant with ANSI/ISO/IEC 17025:1-1994 (R2009) requirements.

Measurement uncertainties at the time of test are given in the following pages, where applicable. They are calculated in accordance with the method described in NIST TN1337, for a coverage level of approximately 95% using a coverage factor of approximately 2 (k=2).

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), increased without units with a scalar multiplier such as % (0.3%), or as a ratio of the preferred replacement for what was historically labeled as "ppm" or parts per million, and described the results in that column, unless otherwise noted by units symbols.

The Data type that could be found in this certificate must be interpreted as:
 As-found - Calibration data collected before the unit is adjusted and/or repaired.
 As-set - Calibration data collected after the unit is adjusted and/or repaired.
 Found-as-is - Calibration data collected without any adjustment and/or repair performed.

No statement of compliance with specifications is made or implied on this certificate. However, results are reviewed, if applicable, to establish where any measurement results exceeded the manufacturer's specifications are to communicate results by means of this certificate. Measured values greater than the Manufacturer's specification (Spec) are indicated by "I".

Comments

[Handwritten Signature]
 Authorized Signature

FLUKE	Certificate Number 6673699-64800371330023104	Calibration Date 23-Feb-13
Standards Used		

Asset #	Instrument Model	Cal Date	Cal Due
10743	HEWLETT PACKARD 144A DIGITAL MULTIMETER	09 November 2011	09 November 2011
10051	HEWLETT PACKARD 3445B DIGITAL ANALOGUE	21 Dec 2011	21 Dec 2011
10092	FLUKE 78900000000000000000	11 November 2011	14 November 2012
10094	FLUKE 78900000000000000000	11 January 2012	11 Jan 2012
10095	FLUKE 78900000000000000000	21 February 2012	21 Feb 2012
10096	CLARK-HUNT 800718E METER	25 August 2011	25 Aug 2012
10097	FLUKE 78900000000000000000	27 November 2011	27 November 2012
10098	HEWLETT PACKARD 344A POWER SOURCE	19 July 2011	19 Jul 2012
10099	HEWLETT PACKARD 344A POWER SOURCE	27 September 2011	27 September 2012
10100	FLUKE 78900000000000000000	28 October 2011	28 October 2012
10101	FLUKE 78900000000000000000	28 March 2011	28 March 2012
10102	FLUKE 78900000000000000000	28 December 2011	28 Dec 2012
10103	FLUKE 78900000000000000000	28 September 2011	28 September 2012
10104	HEWLETT PACKARD 344A DIGITAL MULTIMETER	14 January 2012	14 Jan 2012
10105	TESTRONICS 8000 SAMPLING HEAD	06 May 2011	16 March 2012
10106	FLUKE 78900000000000000000	23 January 2012	23 January 2012
10107	FLUKE 78900000000000000000	04 April 2011	04 Apr 2012
10108	HEWLETT PACKARD 344A DIGITAL MULTIMETER	07 November 2011	07 November 2012
10109	FLUKE 78900000000000000000	16 October 2011	16 October 2012
10110	HEWLETT PACKARD 344A DIGITAL MULTIMETER	21 November 2011	20 May 2012
10111	FLUKE 78900000000000000000	28 October 2011	28 Oct 2012
10112	HEWLETT PACKARD 344A DIGITAL MULTIMETER	09 March 2011	09 Mar 2012
10113	HEWLETT PACKARD 344A DIGITAL MULTIMETER	27 January 2012	27 Jan 2012
10114	FLUKE 78900000000000000000	21 January 2012	21 January 2012
10115	HEWLETT PACKARD 344A DIGITAL MULTIMETER	27 October 2011	27 October 2012
10116	TESTRONICS 8000 SAMPLING HEAD	11 July 2011	11 July 2012
10117	TESTRONICS 8000 SAMPLING HEAD	23 January 2012	23 January 2012

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications (Lower Limit / Upper Limit)
80 Day Specification Limits shown, except as noted				
DC VOLTAGE ACCURACY TEST (NORMAL)				
330 mV Range				
0.0000 mV	0.0000	0.00053	2.4e-007 V	-0.00000 / 0.00000
300.000 mV	300.000	300.0012	1.2e-008 V	299.9920 / 300.0180
-300.000 mV	-300.000	-299.9981	1.2e-008 V	-300.0180 / -299.9820
3.3 V Range				
0.00000 V	0.000000	0.0000002	8.4e-007 V	-0.0000050 / 0.0000050
0.30000 V	0.300000	0.2999265	1.2e-008 V	0.2999530 / 0.3000170
0.30000 V	0.300000	-0.2999979	1.2e-008 V	-0.2999980 / -0.2999980
3.00000 V	3.000000	3.0000000	9.0e-008 V	2.9998750 / 3.0001250
-3.00000 V	-3.000000	-3.0000002	9.0e-008 V	-2.9998750 / -2.9998750
33 V Range				
0.00000 V	0.000000	0.0000003	1.0e-008 V	-0.0000050 / 0.0000050

FLUKE	Certificate Number 6673699-64800371330023104	Calibration Date 23-Feb-13
Calibration Results		

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications (Lower Limit / Upper Limit)
DC VOLTAGE ACCURACY TEST (AUX)				
330 mV Range				
0.000 mV	0.000	0.0047	3.9e-008 V	-0.3500 / 0.3500
500.000 mV	500.000	500.0012	3.9e-008 V	292.9500 / 600.4400
-500.000 mV	-500.000	-500.0058	3.9e-008 V	300.4400 / -299.5600
3.3 V Range				
0.330000 V	0.330000	0.3299987	5.5e-008 V	0.3299510 / 0.3300480
-0.330000 V	-0.330000	-0.3299997	5.5e-008 V	-0.3300480 / -0.3299510
3.00000 V	3.00000	2.9999998	3.9e-008 V	2.998750 / 3.001250
-3.00000 V	-3.00000	-2.9999998	3.9e-008 V	0.001250 / 2.998750
DC OFFSET ACCURACY TEST				
1 Year Specification Limits shown				
50 mV Range				
0.000 mV	0.000	0.0015	4.5e-008 V	-0.0030 / 0.0030
50.0000 mV	50.0000	50.01078	1.9e-008 V	49.91700 / 50.08300
60.0000 mV	60.0000	-50.0149	3.5e-008 V	50.08300 / -49.91700
500 mV Range				
0.00 mV	0.00	0.000	2.6e-008 V	0.300 / 0.300
500.00 mV	500.00	500.102	7.0e-008 V	499.170 / 500.830
-500.00 mV	-500.00	-500.057	3.0e-008 V	-500.830 / -499.170
5 V Range				
0.0000 V	0.00000	0.00019	9.9e-008 V	0.00030 / 0.00030
5.0000 V	5.0000	5.00116	2.2e-008 V	4.99170 / 5.00830
-5.0000 V	-5.0000	-5.00149	3.5e-008 V	5.00830 / -4.99170
50 V Range				
0.000 V	0.000	0.0003	7.9e-008 V	-0.0030 / 0.0030
45.0000 V	45.0000	45.00504	3.5e-008 V	44.82202 / 45.07798
-45.0000 V	-45.0000	-44.99927	3.0e-008 V	-45.07798 / -44.82202
DC CURRENT ACCURACY TEST				
3.3 mA Range				

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
9.0000 mA	0.0000	0.00007	1.8e-008 A	-0.000090	0.000050
3.0000 mA	3.0000	3.00010	2.3e-008 A	2.998550	3.000350
-3.0000 mA	-3.0000	-2.99972	2.8e-008 A	-3.000350	-2.998650
33 mA Range					
0.0000 mA	0.0000	0.00082	7.9e-008 A	-0.000250	0.000250
30.0000 mA	30.0000	30.00011	3.2e-007 A	29.99735	30.00265
-30.0000 mA	-30.0000	-29.99973	3.2e-007 A	-30.00265	-29.99735
330 mA Range					
0.0000 mA	0.0000	0.00060	1.7e-007 A	-0.00030	0.00030
300.0000 mA	300.0000	300.0002	7.9e-008 A	299.9727	300.0273
-300.0000 mA	-300.0000	-299.9983	7.9e-008 A	-300.0273	-299.9727
2.2 A Range					
0.000000 A	0.000000	0.0000016	2.0e-007 A	-0.0004400	0.0004400
2.000000 A	2.000000	1.9999512	1.0e-004 A	1.999360	2.000540
-2.000000 A	-2.000000	-1.9993252	1.0e-004 A	-2.000540	-1.9994900
11 A Range					
0.000000 A	0.000000	0.00003965	1.5e-006 A	-0.0003000	0.0003000
10.0000 A	10.0000	9.99985	8.7e-004 A	9.99587	10.00413
-10.0000 A	-10.0000	-9.99904	8.6e-004 A	-10.00413	-9.99587
DC POWER ACCURACY TEST (NORMAL)					
20 mV @ 2.5 A	20.0000	19.99941	3.8e-007 V	19.99800	20.00400
20.0000 mV	20.0000	19.99970	3.8e-007 V	19.99800	20.00400
20 mV @ 11 A	20.0000	19.99970	3.8e-007 V	19.99800	20.00400
20.0000 mV	20.0000	19.99970	3.8e-007 V	19.99800	20.00400
DC POWER ACCURACY TEST (AUX)					
2.1 mA @ 1000 V	0.000000	0.0000034	2.9e-008 A	0.0009400	0.0000000
1.000000 mA	1.000000	0.999997	2.0e-008 A	0.999850	1.000150
2A @ 300 V	2.000000	1.999956	1.3e-004 A	1.999480	2.000504
2.000000 A	2.000000	1.999956	1.3e-004 A	1.999480	2.000504
10 A @ 1000 V	10.000000	9.99983	8.6e-004 A	9.99987	10.00413
10.000000 A	10.000000	9.99983	8.6e-004 A	9.99987	10.00413
PHASE ACCURACY TEST (Voltage vs Voltage)					
1 Year Specification Limits shown					
0 degrees					
0.00° @ 60 Hz	0.00	0.022	5.2e-002°	-0.150	0.150
0.00° @ 400 Hz	0.00	-0.040	5.2e-002°	-0.900	0.900
0.00° @ 1 kHz	0.00	-0.050	5.2e-002°	-2.000	2.000
0.00° @ 5 kHz	0.00	-0.300	5.2e-002°	-5.000	5.000
0.00° @ 10 kHz	0.00	0.020	5.2e-002°	-10.000	10.000
60 degrees					

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
80.00° @ 80 Hz	80.00	80.012	5.3e-002°	80.350	80.150
80.00° @ 400 Hz	80.00	80.960	5.2e-002°	80.100	80.900
80.00° @ 1 kHz	80.00	80.800	5.2e-002°	80.000	80.600
80.00° @ 5 kHz	80.00	80.700	5.2e-002°	80.000	80.600
80.00° @ 10 kHz	80.00	80.110	5.2e-002°	80.000	80.000
90 degrees					
80.00° @ 60 Hz	90.00	80.012	5.2e-002°	89.850	90.150
80.00° @ 400 Hz	90.00	89.950	5.2e-002°	89.100	90.900
90.00° @ 1 kHz	90.00	89.940	5.2e-002°	88.000	92.000
90.00° @ 5 kHz	90.00	89.980	5.2e-002°	84.000	96.000
90.00° @ 10 kHz	90.00	80.120	5.2e-002°	80.000	100.000
PHASE ACCURACY TEST (Voltage vs Current)					
0.0 degrees (33 V, 300 mA @ 65 Hz)					
0.00° @ 65 Hz	0.00	0.008	1.0e-001°	-0.150	0.150
0.00 degrees (33 V, 2 A @ 65 Hz)					
0.00° @ 65 Hz	0.00	-0.050	5.2e-002°	-0.150	0.150
0.00 degrees (33 V, 5 A @ 65 Hz)					
0.00° @ 65 Hz	0.00	-0.040	5.2e-002°	-0.150	0.150
0.00 degrees (33 V, 5 A @ 400 Hz)					
0.00° @ 400 Hz	0.00	-0.173	6.8e-002°	-0.900	0.900
FREQUENCY ACCURACY TEST					
1 Year Specification Limits shown					
110.0000 Hz @ 0 V	110.0000	119.00072	1.6e-005 Hz	118.998025	119.003975
120.0000 Hz @ 0 V	120.0000	120.00009	5.1e-005 Hz	119.998000	120.004000
1.0000000 kHz @ 3 V	1.0000000	1.00000478	3.5e-005 Hz	0.999974000	1.000026000
100.000000 kHz @ 3 V	100.000000	99.9999341	5.5e-004 Hz	99.99748000	100.00251000
DISTORTION AND NOISE TEST (NORMAL)					
1 Year Specification Limits shown					
300 mV Range					
0.000% @ 10 Hz	0.000	0.0640	0.0000	0.0000	0.1800
0.000% @ 45 Hz	0.000	0.0211	0.0000	0.0000	0.0650
0.000% @ 10 kHz	0.000	0.0327	0.0000	0.0000	0.0650
0.000% @ 20 kHz	0.000	0.0436	0.0000	0.0000	0.0900
0.000% @ 50 kHz	0.000	0.0859	0.0000	0.0000	0.1800
0.000% @ 100 kHz	0.000	0.1124	0.0000	0.0000	0.2300
0.000% @ 500 kHz	0.000	0.1141	0.0000	0.0000	0.9900
300 V Range					
0.000% @ 45 Hz	0.000	0.0268	0.0000	0.0000	0.1580
0.000% @ 1 kHz	0.000	0.0285	0.0000	0.0000	0.0580
0.000% @ 10 kHz	0.000	0.0322	0.0000	0.0000	0.0580
0.000% @ 20 kHz	0.000	0.0617	0.0000	0.0000	0.0880
DISTORTION AND NOISE TEST (AUX)					

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
1 Year Specification Limits shown					
300 mV Range					
0.000% @ 10 Hz	0.000	0.0621	0.0000	0.2687	0.2687
0.000% @ 20 Hz	0.000	0.0130	0.0000	0.1287	0.1287
0.000% @ 45 Hz	0.000	0.0154	0.0000	0.1267	0.1267
0.000% @ 1 kHz	0.000	0.0253	0.0000	0.1467	0.1467
0.000% @ 5 kHz	0.000	0.2036	0.0000	0.3067	0.3067
0.000% @ 10 kHz	0.000	0.4901	0.0000	0.6667	0.6667
3 V Range					
0.000% @ 10 Hz	0.000	0.0617	0.0000	0.2057	0.2057
0.000% @ 20 Hz	0.000	0.0129	0.0000	0.0687	0.0687
0.000% @ 45 Hz	0.000	0.0149	0.0000	0.0687	0.0687
0.000% @ 1 kHz	0.000	0.0255	0.0000	0.0867	0.0867
0.000% @ 5 kHz	0.000	0.0888	0.0000	0.3087	0.3087
0.000% @ 10 kHz	0.000	0.3106	0.0000	0.5087	0.5087
90 Day Specification Limits shown, except as noted					
AC VOLTAGE ACCURACY TEST (NORMAL)					
33mV Range					
20.00 mV @ 9.5 Hz	20.00	30.380	3.0e-005 V	29.335	31.865
30.000 mV @ 10 Hz	30.000	30.0046	6.8e-006 V	29.9020	30.0090
30.000 mV @ 45 Hz	30.000	30.0020	2.7e-006 V	29.8470	30.0530
30.000 mV @ 1 kHz	30.000	30.0017	2.7e-006 V	29.9470	30.0530
30.000 mV @ 10 kHz	30.000	30.0033	2.7e-006 V	29.9050	30.0560
30.000 mV @ 20 kHz	30.000	30.0101	4.8e-006 V	29.9200	30.0720
30.000 mV @ 100 kHz	30.000	30.0192	8.1e-006 V	29.8890	30.1110
30.00 mV @ 500 kHz	30.00	30.013	2.3e-005 V	29.715	30.285
330mV Range					
300.0 mV @ 9.5 Hz	300.0	289.28	3.0e-004 V	283.35	318.65
300.00 mV @ 10 Hz	300.00	300.007	5.0e-005 V	299.280	300.820
300.000 mV @ 45 Hz	300.000	300.0062	8.1e-005 V	299.8600	300.1400
300.000 mV @ 1 kHz	300.000	300.0004	8.1e-005 V	299.8600	300.1400
300.000 mV @ 10 kHz	300.000	299.9920	9.0e-005 V	299.8600	300.1400
300.000 mV @ 20 kHz	300.000	299.9784	9.1e-005 V	299.7400	300.2500
300.00 mV @ 50 kHz	300.00	299.950	1.4e-005 V	299.800	300.400
300.00 mV @ 100 kHz	300.00	299.910	2.1e-005 V	299.320	300.580
300.00 mV @ 500 kHz	300.00	299.459	7.0e-005 V	298.000	301.920
3.3V Range					
3.000 V @ 9.5 Hz	3.000	2.9888	3.0e-003 V	2.8035	3.1665
3.0000 V @ 10 Hz	3.0000	3.00000	4.7e-004 V	2.99545	3.00355
3.00000 V @ 45 Hz	3.00000	3.000016	6.1e-005 V	2.999340	3.000660
3.00000 V @ 1 kHz	3.00000	2.999896	6.0e-005 V	2.995340	3.000500

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
3.00000 V @ 10 kHz	3.00000	2.999930	6.1e-005 V	2.99940	3.00050
3.00000 V @ 20 kHz	3.00000	2.999858	6.1e-005 V	2.99810	3.00180
3.0000 V @ 50 kHz	3.0000	2.99964	1.4e-004 V	2.99670	3.00330
3.0000 V @ 100 kHz	3.0000	2.99949	2.1e-004 V	2.99320	3.00080
3.0000 V @ 500 kHz	3.0000	2.99977	9.8e-004 V	2.98590	3.01470
33V Range					
30.00 V @ 9.5 Hz	30.00	30.034	3.0e-002 V	28.335	31.665
30.000 V @ 10 Hz	30.000	29.9987	4.7e-003 V	29.9345	30.0365
30.0000 V @ 45 Hz	30.0000	30.00046	7.6e-004 V	29.93040	30.00980
30.0000 V @ 1 kHz	30.0000	29.99842	7.5e-004 V	29.9040	30.0090
30.0000 V @ 10 kHz	30.0000	29.99798	7.5e-004 V	29.9040	30.0090
30.0000 V @ 20 kHz	30.0000	29.99800	7.6e-004 V	29.87940	30.0200
30.000 V @ 50 kHz	30.000	29.9968	1.4e-003 V	29.9530	30.0470
30.000 V @ 100 kHz	30.000	29.9993	2.3e-003 V	29.9320	30.0680
330V Range					
300.000 V @ 45 Hz	300.000	300.0156	9.7e-003 V	299.8734	300.1266
300.000 V @ 1 kHz	300.000	299.9942			



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
5.00000 Vpp @ 1 kHz	5.00000	5.000250		5.982500	6.015000
4.00000 Vpp @ 20 kHz	4.00000	4.018940		5.953500	6.048500
6.00000 Vpp @ 100 kHz	6.00000	6.078440		5.667000	6.035000
65V Range					
60.0000 Vpp @ 10 Hz	60.0000	60.01920		59.82000	60.45000
50.0000 Vpp @ 45 Hz	50.0000	60.00240		59.68500	60.31800
60.0000 Vpp @ 1 kHz	60.0000	60.00320		59.68500	60.31500
60.0000 Vpp @ 20 kHz	60.0000	60.23220		59.63500	60.48500
60.0000 Vpp @ 100 kHz	60.0000	61.32440		56.67000	63.38000
AC VOLTAGE ACCURACY TEST, TRIANGLEWAVE (NORMAL)					
1 Year Specification Limits shown					
30mV Range					
30.000 mVpp @ 10 Hz	30.000	30.0081		30.3100	30.6900
30.000 mVpp @ 45 Hz	30.000	30.0081		30.5425	30.4575
30.000 mVpp @ 1 kHz	30.000	30.0105		30.5425	30.4575
30.000 mVpp @ 20 kHz	30.000	30.0173		30.3175	30.4575
30.000 mVpp @ 100 kHz	30.000	30.1418		30.0350	30.8630
30mV Range					
300.000 mVpp @ 10 Hz	300.000	300.0425		300.1000	300.9000
300.000 mVpp @ 15 Hz	300.000	300.0915		300.4250	300.5750
300.000 mVpp @ 1 kHz	300.000	300.0222		300.4250	300.5750
300.000 mVpp @ 20 kHz	300.000	300.09805		300.1750	300.8250
300.000 mVpp @ 100 kHz	300.000	300.8210		300.3500	300.8500
3.3V Range					
3.30000 Vpp @ 10 Hz	3.30000	3.3099287		3.331000	3.359000
3.30000 Vpp @ 45 Hz	3.30000	3.309945		3.324250	3.345750
3.30000 Vpp @ 1 kHz	3.30000	3.300257		3.324250	3.345750
3.30000 Vpp @ 20 kHz	3.30000	3.300118		3.331750	3.352500
3.30000 Vpp @ 100 kHz	3.30000	3.307947		3.303500	3.349250
50V Range					
50.0000 Vpp @ 10 Hz	50.0000	50.99148		50.31000	50.69000
50.0000 Vpp @ 45 Hz	50.0000	50.99980		50.54250	50.45750
50.0000 Vpp @ 1 kHz	50.0000	50.98806		50.54250	50.45750
50.0000 Vpp @ 20 kHz	50.0000	50.02231		50.31750	50.63250
50.0000 Vpp @ 100 kHz	50.0000	50.06423		50.03500	50.943500
AC VOLTAGE ACCURACY TEST, SINWAVE (AUX)					
300mV Range					
30.000 mV @ 10 Hz	30.000	3.9924	5.5e-006 V	3.8150	10.3650
30.000 mV @ 20 Hz	30.000	3.9940	5.5e-006 V	3.8220	10.3700
30.000 mV @ 45 Hz	30.000	3.9841	6.8e-006 V	3.8220	10.3760
30.000 mV @ 1 kHz	30.000	3.9984	7.9e-006 V	3.8220	10.3760
30.000 mV @ 5 kHz	30.000	3.0043	8.9e-006 V	3.8350	10.4650



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
10.000 mV @ 10 kHz	10.000	10.0108	1.0e-005 V	9.9200	10.4800
300.0 mV @ 9.5 Hz	300.0	299.37	3.0e-004 V	253.35	316.65
300.00 mV @ 10 Hz	300.00	299.94	5.2e-005 V	299.130	300.870
300.00 mV @ 20 Hz	300.00	299.939	2.2e-005 V	299.390	300.810
300.00 mV @ 45 Hz	300.00	295.857	1.7e-005 V	299.330	300.610
300.00 mV @ 1 kHz	300.00	300.057	2.0e-005 V	299.390	300.610
300.00 mV @ 5 kHz	300.00	299.990	2.3e-005 V	299.100	300.800
300.00 mV @ 10 kHz	300.00	299.993	2.5e-005 V	298.860	301.560
3.3V Range					
3.300 V @ 9.5 Hz	3.000	2.9930	3.0e-003 V	2.8325	3.1865
3.000 V @ 10 Hz	3.0000	2.98945	3.1e-004 V	2.9525	3.0453
3.000 V @ 20 Hz	3.0000	2.99349	2.1e-004 V	2.9715	3.0285
3.000 V @ 45 Hz	3.0000	2.98596	1.8e-004 V	2.93745	3.0255
3.000 V @ 1 kHz	3.0000	3.00038	2.2e-004 V	2.99745	3.0285
3.000 V @ 5 kHz	3.0000	2.99992	2.5e-004 V	2.9810	3.00590
3.000 V @ 10 kHz	3.0000	2.99993	2.5e-004 V	2.98960	3.01040
AC VOLTAGE ACCURACY TEST, SQUAREWAVE (AUX)					
1 Year Specification Limits shown					
50mV Range					
600.000 mVpp @ 10 Hz	600.000	600.0640		595.2000	604.8000
600.000 mVpp @ 45 Hz	600.000	600.0580		598.6500	603.1500
600.000 mVpp @ 1 kHz	600.000	600.0340		598.6500	603.1500
600.000 mVpp @ 10 kHz	600.000	600.1680		590.7000	603.3000
3.3V Range					
3.30000 Vpp @ 10 Hz	3.30000	3.300600		3.292000	3.308000
3.30000 Vpp @ 45 Hz	3.30000	3.301040		3.295500	3.301500
3.30000 Vpp @ 1 kHz	3.30000	3.302120		3.298500	3.301500
3.30000 Vpp @ 10 kHz	3.30000	3.302740		3.297000	3.303000
AC VOLTAGE ACCURACY TEST, TRIANGLEWAVE (AUX)					
1 Year Specification Limits shown					
300mV Range					
300.000 mVpp @ 10 Hz	300.000	300.7728		300.1000	300.9000
300.000 mVpp @ 45 Hz	300.000	300.9727		300.4250	300.6750
300.000 mVpp @ 1 kHz	300.000	300.9876		300.4250	300.6750
300.000 mVpp @ 10 kHz	300.000	300.8943		300.3500	300.8500
3.3V Range					
3.30000 Vpp @ 10 Hz	3.30000	3.309755		3.293000	3.306000
3.30000 Vpp @ 45 Hz	3.30000	3.299633		3.291250	3.304750
3.30000 Vpp @ 1 kHz	3.30000	3.309114		3.294250	3.304750
3.30000 Vpp @ 10 kHz	3.30000	3.305225		3.290300	3.309500
HARMONIC AMPLITUDE ACCURACY TEST (NORMAL)					
30mV Range					



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
30.000 mA @ 1 kHz	30.000	30.0009		29.9270	30.0730
30.000 mA @ 5 kHz	30.000	30.0008		29.9270	30.0730
30.000 mA @ 10 kHz	30.000	30.0007		29.9270	30.0730
30mV Range					
300.000 mV @ 1 kHz	300.000	300.0010		299.8401	300.1589
300.000 mV @ 5 kHz	300.000	299.9990		299.8401	300.1589
300.000 mV @ 10 kHz	300.000	299.9920		299.8401	300.1589
3.3V Range					
3.30000 V @ 1 kHz	3.30000	3.300000		2.992720	3.300720
3.30000 V @ 5 kHz	3.30000	2.999990		2.992720	3.300720
3.30000 V @ 10 kHz	3.30000	2.999940		2.992720	3.300720
30V Range					
30.0000 V @ 1 kHz	30.0000	29.99840		29.99300	30.01020
30.0000 V @ 5 kHz	30.0000	29.99800		29.99890	30.01020
30.0000 V @ 10 kHz	30.0000	29.99790		29.99300	30.01020
300V Range					
300.000 V @ 1 kHz	300.000	299.9870		299.5688	300.1332
300.000 V @ 5 kHz	300.000	299.9900		299.7000	300.2100
300.000 V @ 10 kHz	300.000	300.0120		299.7000	300.2100
1000V Range					
1000.00 V @ 1 kHz	1000.00	1000.035		999.440	1000.560
1000.00 V @ 5 kHz	1000.00	1000.015		999.300	1001.700
1000.00 V @ 10 kHz	1000.00	999.974		997.500	1002.500
HARMONIC AMPLITUDE ACCURACY TEST (AUX)					
30mV Range					
300.000 mV @ 1 kHz	300.000	300.0520		299.0200	300.5300
300.000 mV @ 5 kHz	300.000	299.9930		298.6500	301.3500
300.000 mV @ 10 kHz	300.000	300.0020		298.2000	301.8000
3.3V Range					
3.30000 V @ 1 kHz	3.30000	3.3000330		2.997000	3.300000
3.30000 V @ 5 kHz	3.30000	2.999910		2.992700	3.300000
3.30000 V @ 10 kHz	3.30000	2.999910		2.998200	3.011800
AC CURRENT ACCURACY TEST					
300µA Range					
300.00 µA @ 10 Hz	300.00	299.581	3.0e-008 A	299.260	300.720
300.00 µA @ 20 Hz	300.00	299.696	3.0e-008 A	299.580	300.490
300.00 µA @ 45 Hz	300.00	298.599	2.5e-008 A	299.580	300.420
300.00 µA @ 1 kHz	300.00	300.059	2.3e-008 A	299.480	300.620
300.00 µA @ 5 kHz	300.00	300.011	8.1e-008 A	300.050	300.050
300.00 µA @ 10 kHz	300.00	300.074	7.7e-008 A	297.020	302.970
3.3mA Range					
3.3000 mA @ 10 Hz	3.30000	3.29989	3.0e-007 A	2.99820	3.00480



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
3.0000 mA @ 20 Hz	3.0000	3.00010	1.0e-007 A	2.90730	3.00270
3.0000 mA @ 45 Hz	3.0000	3.00012	2.0e-007 A	2.99730	3.00270
3.0000 mA @ 1 kHz	3.0000	3.00076	2.0e-007 A	2.99720	3.00270
3.0000 mA @ 5 kHz	3.0000	3.00010	2.8e-007 A	2.93220	3.00480
3.0000 mA @ 10 kHz	3.0000	3.00010	3.0e-007 A	2.98620	3.01380
30mA Range					
30.000 mA @ 10 Hz	30.000	30.0011	4.5e-006 A	29.9520	30.0480
30.000 mA @ 20 Hz	30.000	30.0006	4.5e-006 A	29.9730	30.0270
30.000 mA @ 45 Hz	30.000	30.0018	2.9e-006 A	29.9750	30.0240
30.000 mA @ 1 kHz	30.000	30.0080	3.0e-006 A	29.2760	30.0740
30.000 mA @ 5 kHz	30.000	30.0037	3.0e-006 A	29.3520	30.0480
30.000 mA @ 10 kHz	30.000	30.0046	3.0e-006 A	29.8626	30.1380
300mA Range					
300.00 mA @ 10 Hz	300.00	300.008	1.9e-005 A	299.520	300.480
300.00 mA @ 20 Hz	300.00	300.0060	4.0e-005 A	299.730	300.270
300.00 mA @ 45 Hz	300.00	300.0078	2.0e-005 A	299.750	300.240
300.00 mA @ 1 kHz	300.00	300.127	2.0e-005 A	299.780	300.240
300.00 mA @ 5 kHz	300.00	300.083	2.0e-005 A	299.520	300.480
300.00 mA @ 10 kHz	300.00	300.085	2.0e-005 A	299.520	301.380

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
AC POWER ACCURACY TEST (High Current)					
33mV, 10A (0° Phase)	33.000	33.0042	0.0e-006 V	32.9888	33.0332
33.000 mV @ 85 Hz					
33mV, 10A (90° Phase)	33.000	33.0226	3.0e-008 V	32.9698	33.0332
33.000 mV @ 65 Hz					
33mV, 10A (0° Phase)	33.000	33.0208	3.0e-008 V	32.9898	33.0332
33.000 mV @ 500 Hz					
330mV, 10A (0° Phase)	330.000	330.0199	1.0e-005 V	329.9714	330.0332
0.33000 V @ 1 kHz					
3.3V, 2A (0° Phase)	3.30000	3.299918	6.9e-008 V	3.299282	3.300331
3.30000 V @ 5 kHz					
3.3V, 300mA (0° Phase)	3.30000	3.299941	6.8e-008 V	3.299258	3.300591
3.30000 V @ 10 kHz					
AC POWER ACCURACY TEST (High Power)					
300V, 2A (0° Phase)	300.000	300.0078	9.7e-003 V	299.8353	300.1950
300.000 V @ 5 kHz					
300V, 2A (90° Phase)	300.000	300.0054	9.7e-003 V	299.8050	300.1950
300.000 V @ 5 kHz					
1900V, 10A (0° Phase)	1900.000	1899.9223	3.2e-002 V	1899.520	1900.480
1900.000 V @ 1 kHz					
1600V, 10A (90° Phase)	1600.000	1599.9223	3.2e-002 V	1599.520	1600.480
1600.000 V @ 1 kHz					
30 Day Specification Limits shown, except as noted					

RESISTANCE 2W COMP TEST
2W Comp Test: PASS

RESISTANCE ACCURACY TEST

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Lower Limit	Upper Limit
11 Ohm Range					
0.00000 Ohm	0.00000	-0.000094	4.7e-006 Ohm	0.000000	0.000000
1.00000 Ohm	1.00000	0.999824	3.1e-005 Ohm	0.999910	1.000090
1.80000 Ohm	1.80000	1.800020	5.6e-005 Ohm	1.800029	1.800171
1.80000 Ohm	1.80000	1.800001	1.2e-004 Ohm	1.800000	1.800000
33 Ohm Range					
11.00000 Ohm	11.00000	11.999015	1.4e-004 Ohm	11.888928	11.911071
19.00000 Ohm	19.00000	18.999932	2.2e-004 Ohm	18.986290	19.011710
19.00000 Ohm	19.00000	18.999933	3.5e-004 Ohm	18.98730	19.01270
110 Ohm Range					
33.00000 Ohm	33.00000	33.00012	3.8e-004 Ohm	32.98769	33.01291
100.00000 Ohm	100.00000	100.00025	5.8e-004 Ohm	99.99800	100.01700
330 Ohm Range					
119.00000 Ohm	119.00000	119.00023	7.0e-004 Ohm	118.98167	119.01833

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
190.000 Ohm	190.000	189.9998	1.1e-003 Ohm	189.9787	190.0233
200.000 Ohm	200.000	200.0000	2.1e-003 Ohm	200.0000	200.0010
1.1 kOhm Range					
0.330000 kOhm	0.330000	0.3300007	2.4e-003 Ohm	0.3299169	0.3300831
1.000000 kOhm	1.000000	1.0000005	6.8e-003 Ohm	0.9998700	1.0001300
3.3 kOhm Range					
1.190000 kOhm	1.190000	1.1900090	1.0e-002 Ohm	1.1898587	1.1901433
1.800000 kOhm	1.800000	1.800030	1.8e-002 Ohm	1.800007	1.800193
3.000000 kOhm	3.000000	2.999978	3.3e-002 Ohm	2.999730	3.000270
11 kOhm Range					
3.300000 kOhm	3.300000	3.300003	3.5e-002 Ohm	3.299169	3.300831
10.000000 kOhm	10.000000	10.000109	9.9e-002 Ohm	9.998700	10.001300
33 kOhm Range					
11.90000 kOhm	11.90000	11.90006	1.2e-001 Ohm	11.89857	11.90143
19.00000 kOhm	19.00000	18.99989	2.2e-001 Ohm	18.99807	19.00183
30.00000 kOhm	30.00000	29.99985	3.0e-001 Ohm	29.99790	30.00270
119 kOhm Range					
33.00000 kOhm	33.00000	32.99990	3.5e-001 Ohm	32.99836	33.00864
100.00000 kOhm	100.00000	99.99999	9.6e-001 Ohm	99.99800	100.01400
330 kOhm Range					
119.00000 kOhm	119.00000	118.99988	1.0e+000 Ohm	118.98329	119.01871
190.00000 kOhm	190.00000	189.99747	1.8e+000 Ohm	189.97850	190.02310
300.00000 kOhm	300.00000	299.9970	2.5e+000 Ohm	299.9670	300.0330
1.1 MOhm Range					
0.330000 MOhm	0.330000	0.3299988	2.8e+000 Ohm	0.3288097	0.3300910
1.000000 MOhm	1.000000	0.9999996	8.7e+000 Ohm	0.9998350	1.0001650
3.3 MOhm Range					
1.190000 MOhm	1.190000	1.189995	1.4e+001 Ohm	1.188814	1.190188
1.800000 MOhm	1.800000	1.800005	2.2e+001 Ohm	1.800738	1.800284
3.000000 MOhm	3.000000	2.999923	3.5e+001 Ohm	2.999815	3.000085
11 MOhm Range					
3.300000 MOhm	3.300000	3.299995	3.8e+001 Ohm	3.297965	3.302035
10.000000 MOhm	10.000000	9.999991	3.3e+002 Ohm	9.994950	10.005050
33 MOhm Range					
11.900000 MOhm	11.900000	11.899929	7.2e+002 Ohm	11.890525	11.909475
19.000000 MOhm	19.000000	18.998172	1.1e+003 Ohm	18.984200	19.014800
30.000000 MOhm	30.000000	29.998121	2.2e+003 Ohm	29.976950	30.023050
110 MOhm Range					
33.000000 MOhm	33.000000	32.99818	2.8e+003 Ohm	32.862600	33.137300
100.000000 MOhm	100.000000	99.99245	8.3e+003 Ohm	99.994600	100.405900
330 MOhm Range					
119.000000 MOhm	119.000000	118.984690	2.5e+004 Ohm	118.507500	119.492500

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
300.00000 MOhm	300.00000	300.200669	5.7e+004 Ohm	299.780300	301.218500
CAPACITANCE ACCURACY TEST					
500pF Range					
350 pF @ 1 kHz	350	349.8	2.9e-012 F	338.7	361.3
480 pF @ 1 kHz	480	480.0	2.2e-012 F	468.2	491.8
1 nF Range					
0.800 nF @ 1 kHz	0.800	0.8000	2.0e-012 F	0.5877	0.6123
1.000 nF @ 1 kHz	1.000	1.0000	1.8e-012 F	0.9862	1.0138
3 nF Range					
1.200 nF @ 1 kHz	1.200	1.2003	1.7e-012 F	1.1854	1.2146
3.000 nF @ 1 kHz	3.000	2.9998	3.3e-012 F	2.9788	3.0214
11 nF Range					
3.300 nF @ 1 kHz	3.300	3.3003	4.3e-012 F	3.2775	3.3225
10.900 nF @ 1 kHz	10.900	10.8983	6.8e-012 F	10.8468	10.9514
33 nF Range					
12.000 nF @ 1 kHz	12.000	12.0010	7.2e-012 F	11.8772	12.1228
30.000 nF @ 1 kHz	30.00	30.000	1.8e-011 F	29.843	30.157
110 nF Range					
33.00 nF @ 1 kHz	33.00	33.001	2.7e-011 F	32.837	33.163
109.00 nF @ 1 kHz	109.00	109.000	5.8e-011 F	108.883	109.907
330 nF Range					
120.00 nF @ 1 kHz	120.00	120.000	7.2e-011 F	119.472	120.528
300.0 nF @ 1 kHz	300.0	299.98	1.8e-010 F	299.13	300.87
1.1uF Range					
3.3000 uF @ 100 Hz	0.3300	0.32998	2.7e-010 F	0.32837	0.33163
1.0900 uF @ 100 Hz	1.0900	1.09000	8.8e-010 F	1.08693	1.09307
3.3uF Range					
1.2000 uF @ 100 Hz	1.2000	1.19993	7.3e-010 F	1.19888	1.20612
3.000 uF @ 100 Hz	3.000	2.9999	1.8e-009 F	2.9992	3.0108
11uF Range					
3.300 uF @ 100 Hz	3.300	3.2997	2.7e-009 F	3.2814	3.3186
10.9000 uF @ 100 Hz	10.9000	10.89987	8.8e-009 F	10.88168	10.93234
33uF Range					
12.000 uF @ 100 Hz	12.000	11.9993	9.7e-009 F	11.9340	12.0660
30.00 uF @ 100 Hz	30.00	29.999	2.4e-008 F	29.980	30.120
110uF Range					
33.00 uF @ 100 Hz	33.00	32.998	2.7e-008 F	32.775	33.225
109.00 uF @ 100 Hz	109.00	109.010	1.2e-007 F	108.486	109.514
330uF Range					
120.0 uF @ 100 Hz	120.0	120.09	1.3e-007 F	119.10	120.90
300.0 uF @ 50 Hz	300.0	300.00	3.3e-007 F	298.20	301.80
1100uF Range					

Calibration Results

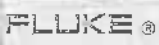
Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Manufacturer's Specifications	
				Lower Limit	Upper Limit
330.0 uF @ 50 Hz	330.0	329.98	4.3e-007 F	326.40	333.50
800.0 uF @ 50 Hz	800.0	799.96	2.6e-006 F	791.70	808.30
THERMOCOUPLE (J" Type) MEASUREMENT ACCURACY TEST					
23.510 °C	23.510	23.47	4.0e-002 °C	23.41	23.81
THERMOCOUPLE SOURCELINE ACCURACY TEST (100uV/°C)					
0.00000 mV	0.00000	0.00000	1.1e-007 V	-0.00000	0.00000
1.00000 mV	1.00000	1.00000	1.8e-006 V	0.99980	1.00020
-1.00000 mV	-1.00000	-1.00000	1.8e-006 V	-1.00020	-0.99980
10.00000 mV	10.00000	10.00000	1.1e-005 V	10.00000	10.00000
-10.00000 mV	-10.00000	-10.00000	1.1e-005 V	-10.00000	-10.00000
100.00000 mV	100.00000	100.00000	5.5e-005 V	100.00000	100.00000
-100.00000 mV	-100.00000	-100.00000	5.5e-005 V	-100.00000	-100.00000
THERMOCOUPLE MEASUREMENT ACCURACY TEST (100uV/°C)					
0.000 mV	0.000	0.0000	2.6e-007 V	-0.0030	0.0030
100.000 mV	100.000	100.0000	8.9e-007 V	99.9920	100.0080
-100.000 mV	-100.000	-100.0015	6.8e-007 V	-100.0080	-99.9920
SC Option					
1 Year Specification Limits shown					
AMPLITUDE ACCURACY TESTS					
DC VOLTAGE TEST (1 MOhm)					
0.000 mV	0.000	+0.0083	1.8e-005 V	-0.1000	0.1000
5.000 mV	5.000	4.9891	1.7e-006 V	4.8875	5.1125
-5.000 mV	-5.000	-5.0089	1.7e-006 V	-5.1125	-4.8875
22.000 mV	22.000	21.9971	1.9e-006 V	21.8450	22.1550
-22.000 mV	-22.000	-22.0008	2.0e-006 V	-22.1550	-21.8450
25.000 mV	25.000	24.9911	2.0e-006 V	24.8375	

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
4.0000 V	4.0000	4.00038	1.7e-005 V	3.99990	4.01010
-4.0000 V	-4.0000	-4.00023	1.8e-005 V	-4.01010	-3.99990
33.0000 V	33.0000	33.00005	4.6e-004 V	32.81740	33.08260
-33.0000 V	-33.0000	-32.99994	2.2e-004 V	-33.08260	-32.81740
DC VOLTAGE TEST (50 Ohm)					
0.0000 mV	0.0000	0.0008	1.6e-006 V	-0.1000	0.1000
5.0000 mV	5.0000	5.0011	1.7e-006 V	4.8875	5.1125
-5.0000 mV	-5.0000	-5.0018	1.8e-006 V	-5.1125	-4.8875
10.0000 mV	10.0000	10.0046	1.7e-006 V	9.8750	10.1250
-10.0000 mV	-10.0000	-10.0011	1.8e-006 V	-10.1250	-9.8750
22.0000 mV	22.0000	22.0047	1.9e-006 V	21.8450	22.1550
-22.0000 mV	-22.0000	-22.0079	1.8e-006 V	-22.1550	-21.8450
25.0000 mV	25.0000	25.0048	1.9e-006 V	24.8375	25.1625
-25.0000 mV	-25.0000	-25.0094	1.9e-006 V	-25.1625	-24.8375
55.0000 mV	55.0000	55.0168	2.5e-006 V	54.7625	55.2375
-55.0000 mV	-55.0000	-55.0229	2.5e-006 V	-55.2375	-54.7625
100.0000 mV	100.0000	100.0307	3.8e-006 V	98.9500	100.3500
-100.0000 mV	-100.0000	-100.0336	3.8e-006 V	-100.3500	-98.9500
220.0000 mV	220.0000	220.1080	7.5e-006 V	219.3000	220.8500
-220.0000 mV	-220.0000	-220.1249	7.5e-006 V	-220.8500	-219.3000
250.0000 mV	250.0000	250.1244	8.4e-006 V	249.2750	250.7250
-250.0000 mV	-250.0000	-250.1395	8.4e-006 V	-250.7250	-249.2750
550.00 mV	550.000	550.34	1.9e-005 V	548.52	551.48
-550.00 mV	-550.000	-550.69	1.8e-005 V	-551.48	-548.52
700.00 mV	700.000	700.68	2.3e-005 V	698.15	701.85
-700.00 mV	-700.000	-700.83	2.3e-005 V	-701.85	-698.15
2.20000 V	2.200000	2.20129	4.7e-004 V	2.19440	2.20580
-2.20000 V	-2.200000	-2.20097	9.1e-005 V	-2.20580	-2.19440
AMPLITUDE ACCURACY TESTS					
AC VOLTAGE TEST (1 MOhm)					
5.000 mVpp @ 1 kHz	5.000	5.0019	4.1e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 100 Hz	5.000	5.0003	4.1e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 1 kHz	5.000	4.9995	4.3e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 5 kHz	5.000	4.9937	4.7e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 10 kHz	5.000	4.9851	5.3e-008 Vpp	4.8875	5.1125
10.000 mVpp @ 10 kHz	10.000	9.9760	5.2e-008 Vpp	9.8750	10.1250
20.000 mVpp @ 100 Hz	20.000	20.0044	4.7e-008 Vpp	19.8500	20.1500
20.000 mVpp @ 1 kHz	20.000	20.0069	4.8e-008 Vpp	19.8500	20.1500
20.000 mVpp @ 10 kHz	20.000	19.9529	5.7e-008 Vpp	19.8500	20.1500
50.000 mVpp @ 10 kHz	50.000	49.9155	7.0e-008 Vpp	49.7750	50.2250
89.000 mVpp @ 10 kHz	89.000	89.0141	7.4e-008 Vpp	88.8775	89.3225
89.000 mVpp @ 10 kHz	89.000	88.8740	8.9e-008 Vpp	88.8775	89.3225
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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
100.000 mVpp @ 10 kHz	100.000	99.8520	1.2e-006 Vpp	99.8560	100.3500
200.00 mVpp @ 100 Hz	200.00	200.038	1.2e-006 Vpp	199.400	200.500
200.00 mVpp @ 1 kHz	200.00	199.993	1.3e-006 Vpp	199.400	200.600
200.00 mVpp @ 10 kHz	200.00	199.922	1.4e-006 Vpp	199.400	200.600
500.00 mVpp @ 10 kHz	500.00	499.659	3.4e-006 Vpp	498.600	501.250
890.00 mVpp @ 10 kHz	890.00	890.160	4.4e-006 Vpp	887.875	892.325
890.00 mVpp @ 10 kHz	890.00	889.304	4.6e-006 Vpp	887.875	892.325
1.00000 Vpp @ 100 Hz	1.00000	0.999876	4.3e-006 Vpp	0.997400	1.002600
1.00000 Vpp @ 1 kHz	1.00000	0.999888	1.9e-004 Vpp	0.997400	1.002600
1.00000 Vpp @ 10 kHz	1.00000	0.999943	1.8e-004 Vpp	0.997400	1.002600
5.0000 Vpp @ 10 Hz	5.0000	5.00049	4.7e-004 Vpp	4.88740	5.11260
5.0000 Vpp @ 10 kHz	5.0000	4.99743	2.5e-004 Vpp	4.99740	5.01260
10.0000 Vpp @ 10 kHz	10.0000	9.99193	2.0e-003 Vpp	9.97490	10.02510
50.000 Vpp @ 10 Hz	50.000	50.0187	2.6e-003 Vpp	49.8749	50.1251
50.000 Vpp @ 100 Hz	50.000	49.9949	2.5e-003 Vpp	49.8749	50.1251
50.000 Vpp @ 1 kHz	50.000	49.9995	2.7e-003 Vpp	49.8749	50.1251
105.000 Vpp @ 100 Hz	105.000	104.7767	4.5e-003 Vpp	104.4750	105.8250
105.000 Vpp @ 1 kHz	105.000	104.9880	4.7e-003 Vpp	104.4750	105.8250
AC VOLTAGE TEST (50 Ohm)					
5.000 mVpp @ 10 Hz	5.000	5.0043	4.1e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 100 Hz	5.000	5.0025	4.1e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 1 kHz	5.000	5.0014	4.2e-008 Vpp	4.8875	5.1125
5.000 mVpp @ 10 kHz	5.000	4.9802	5.8e-008 Vpp	4.8875	5.1125
10.000 mVpp @ 100 Hz	10.000	10.0087	4.3e-008 Vpp	9.8750	10.1250
10.000 mVpp @ 1 kHz	10.000	10.0031	4.3e-008 Vpp	9.8750	10.1250
10.000 mVpp @ 10 kHz	10.000	9.9813	5.3e-008 Vpp	9.8750	10.1250
20.000 mVpp @ 10 kHz	20.000	19.9759	5.5e-008 Vpp	19.8500	20.1500
44.900 mVpp @ 10 Hz	44.900	44.9175	5.9e-008 Vpp	44.6878	45.1122
44.900 mVpp @ 10 kHz	44.900	44.8293	8.8e-008 Vpp	44.6878	45.1122
50.000 mVpp @ 10 kHz	50.000	49.9355	7.3e-008 Vpp	49.7750	50.2250
100.000 mVpp @ 100 Hz	100.000	100.0234	8.4e-008 Vpp	99.6500	100.3500
100.000 mVpp @ 1 kHz	100.000	100.0226	8.9e-008 Vpp	99.6500	100.3500
100.000 mVpp @ 10 kHz	100.000	99.8985	8.8e-008 Vpp	99.6500	100.3500
200.00 mVpp @ 10 kHz	200.00	199.893	2.0e-005 Vpp	199.000	200.600
449.00 mVpp @ 10 kHz	449.00	449.131	2.6e-005 Vpp	447.777	450.223
449.00 mVpp @ 10 kHz	449.00	448.799	2.8e-005 Vpp	447.777	450.223
0.50000 Vpp @ 10 kHz	0.50000	0.499889	4.1e-005 Vpp	0.498850	0.501350
1.00000 Vpp @ 100 Hz	1.00000	1.000551	5.3e-005 Vpp	0.997400	1.002600
1.00000 Vpp @ 1 kHz	1.00000	1.000463	6.1e-005 Vpp	0.997400	1.002600
1.00000 Vpp @ 10 kHz	1.00000	0.999795	6.2e-005 Vpp	0.997400	1.002600
2.00000 Vpp @ 10 kHz	2.00000	2.001235	1.4e-004 Vpp	1.994900	2.005100
2.00000 Vpp @ 100 Hz	2.00000	2.001114	1.0e-004 Vpp	1.994900	2.005100
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Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
2.00000 Vpp @ 1 kHz	2.00000	2.000751	3.4e-004 Vpp	1.994900	2.005100
2.00000 Vpp @ 5 kHz	2.00000	1.999518	3.4e-004 Vpp	1.994900	2.005100
2.00000 Vpp @ 10 kHz	2.00000	1.997059	3.4e-004 Vpp	1.994900	2.005100
AC VOLTAGE FREQUENCY TEST					
10.00000000 Hz @ 2.1 V	10.00000000	9.99720788	2.5e-007 Hz	9.99475000	10.00185000
100.000000 Hz @ 2.1 V	100.000000	99.999545	5.7e-006 Hz	99.982500	100.017500
1.00000000 kHz @ 2.1 V	1.00000000	0.999995426	8.1e-006 Hz	0.999960000	1.000040000
10.00000000 kHz @ 2.1 V	10.00000000	10.000000074	2.6e-004 Hz	9.999735000	10.000285000
EDGE AMPLITUDE ACCURACY TESTS					
100.000 mVpp @ 1 kHz	100.000	99.7139	8.8e-006 Vpp	97.8000	102.2000
1.000 Vpp @ 1 kHz	1.000	0.9968	3.9e-003 Vpp	0.9788	1.0200
5.000 mVpp @ 10 kHz	5.000	4.9957	5.2e-008 Vpp	4.7000	5.3000
10.000 mVpp @ 10 kHz	10.000	8.9908	5.4e-008 Vpp	9.6000	10.0000
25.000 mVpp @ 10 kHz	25.000	24.9866	6.6e-008 Vpp	24.3000	25.7000
50.000 mVpp @ 10 kHz	50.000	49.9283	7.0e-008 Vpp	48.8000	51.2000
100.00 mVpp @ 10 kHz	100.00	99.892	8.8e-008 Vpp	102.200	100.000
500.00 mVpp @ 10 kHz	500.00	498.451	3.1e-005 Vpp	499.800	510.200
1.000 Vpp @ 10 kHz	1.000	0.9981	3.9e-003 Vpp	0.9788	1.0200
2.500 Vpp @ 10 kHz	2.500	2.4923	4.0e-003 Vpp	2.4498	2.5502
SCOPE EDGE FREQUENCY VERIFICATION TEST					
1.00000000 kHz @ 2.5 Vpp	1.00000000	1.000000832	4.7e-005 Hz	0.999960000	1.000040000
10.00000000 kHz @ 2.5 Vpp	10.00000000	10.000000385	8.2e-004 Hz	9.99970500	10.00028500
100.00000000 kHz @ 2.5 Vpp	100.00000000	100.000000308	3.3e-004 Hz	99.99749500	100.00251500
1.000000000 MHz @ 2.5 Vpp	1.0000000000	1.0000000702	7.8e-003 Hz	0.9999749850	1.0000251500
EDGE RISE TIME TEST					
250 mVpp					
24.0 ps @ 1 kHz	24.0	953.2	8.0e-012 s	24.0	1000.0
24.0 ps @ 1 MHz	24.0	800.7	8.0e-012 s	24.0	1000.0
500 mVpp					
24.0 ps @ 1 kHz	24.0	792.2	8.0e-012 s	24.0	1000.0
24.0 ps @ 1 MHz	24.0	781.1	8.3e-012 s	24.0	1000.0
1 Vpp					
24.0 ps @ 1 kHz	24.0	745.1	1.9e-011 s	24.0	1000.0
24.0 ps @ 1 MHz	24.0	734.3	8.0e-012 s	24.0	1000.0
2.5 Vpp					
24.0 ps @ 1 kHz	24.0	943.9	8.0e-012 s	24.0	1000.0
24.0 ps @ 1 MHz	24.0	931.7	1.4e-011 s	24.0	1000.0
LEVELLED SINE FREQUENCY TEST					
50.00000000 kHz @ 5.5 V	50.00000000	50.00000654	9.8e-004 Hz	49.99873500	50.00126500
500.00000000 kHz @ 5.5 V	500.00000000	500.0002055	8.4e-003 Hz	499.9874850	500.0125150
5.00000000 MHz @ 5.5 V	5.00000000	4.9999948	6.7e-003 Hz	4.9998750	5.0001250
50.00000000 MHz @ 5.5 V	50.00000000	49.9999685	6.4e-003 Hz	49.9987500	50.0012500
Fluke Corporation Telephone: 888.993.8853 Facsimile: 425.446.6390 Internet: www.fluke.com Page 19 of 26					

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
300.00000000 MHz @ 2 Vpp	300.00000000	299.9998085	3.0e-003 Hz	299.9925000	300.0075000
LEVELLED SINE HARMONICS TEST					
Fundamental Frequency/Level: (50 kHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-48		-230	-33 *
-100 dB @ 3rd_harmonic	-100.0	53		-20	



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
Fundamental Frequency Level: (8 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-54	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-60	-200	-99 *	
-100 dB @ 4th_harmonic	-100.0	-75	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-80	-200	-98 *	
Fundamental Frequency Level: (10 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-50	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-60	-200	-99 *	
-100 dB @ 4th_harmonic	-100.0	-74	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-79	-200	-98 *	
Fundamental Frequency Level: (20 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-51	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-62	-200	-98 *	
-100 dB @ 4th_harmonic	-100.0	-74	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-80	-200	-98 *	
Fundamental Frequency Level: (40 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-50	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-61	-200	-98 *	
-100 dB @ 4th_harmonic	-100.0	-70	-200	-95 *	
-100 dB @ 5th_harmonic	-100.0	-72	-200	-98 *	
Fundamental Frequency Level: (80 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-51	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-66	-200	-98 *	
-100 dB @ 4th_harmonic	-100.0	-70	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-81	-200	-98 *	
Fundamental Frequency Level: (100 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-51	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-58	-200	-98 *	
-100 dB @ 4th_harmonic	-100.0	-82	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-87	-200	-98 *	
Fundamental Frequency Level: (200 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-75	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-58	-200	-98 *	
-100 dB @ 4th_harmonic	-100.0	-82	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-74	-200	-98 *	
Fundamental Frequency Level: (250 MHz @ 5.5 Vpp)					
-100 dB @ 2nd_harmonic	-100.0	-73	-200	-93 *	
-100 dB @ 3rd_harmonic	-100.0	-62	-200	-98 *	
-100 dB @ 4th_harmonic	-100.0	-81	-200	-98 *	
-100 dB @ 5th_harmonic	-100.0	-75	-200	-98 *	
LEVELLED SINE AMPLITUDE ACCURACY TEST (50 Ohm)					
5.000 mVpp @ 50.00 kHz	5.000	4.9877	7.5e-005 Vpp	4.7000	5.3000



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
LEVELLED SINE FLATNESS TEST (relative to 50kHz)					
5V Range					
5.0V Applied					
0.000 % @ 500 kHz	0.0000	0.0025	4.6e-001 %	-1.502	1.502
0.000 % @ 1.00 MHz	0.0000	-0.001	4.6e-001 %	-1.502	1.502
0.000 % @ 1.01 MHz	0.0000	0.154	4.6e-001 %	-1.502	1.502
0.000 % @ 2.00 MHz	0.0000	-0.019	4.6e-001 %	-1.502	1.502
0.000 % @ 5.00 MHz	0.0000	0.115	4.7e-001 %	-1.502	1.502
0.000 % @ 10.00 MHz	0.0000	0.007	4.7e-001 %	-1.502	1.502
0.000 % @ 30.00 MHz	0.0000	0.027	9.2e-001 %	-1.50	1.50
0.000 % @ 100.00 MHz	0.0000	0.002	9.2e-001 %	-1.50	1.50
0.000 % @ 150.00 MHz	0.0000	0.259	9.7e-001 %	-2.002	2.002
0.000 % @ 200.00 MHz	0.0000	0.006	9.7e-001 %	-2.00	2.00
0.000 % @ 250.00 MHz	0.0000	0.19	9.7e-001 %	-2.00	2.00
0.000 % @ 300.00 MHz	0.0000	-0.19	9.5e-001 %	-2.00	2.00
1.0V Range					
1.2V Applied					
0.000 % @ 500 kHz	0.0000	0.0022	4.6e-001 %	-1.508	1.508
0.000 % @ 1.00 MHz	0.0000	-0.004	4.6e-001 %	-1.508	1.508
0.000 % @ 1.01 MHz	0.0000	0.118	4.6e-001 %	-1.508	1.508
0.000 % @ 2.00 MHz	0.0000	-0.019	4.6e-001 %	-1.508	1.508
0.000 % @ 5.00 MHz	0.0000	0.101	4.7e-001 %	-1.508	1.508
0.000 % @ 10.00 MHz	0.0000	-0.016	4.7e-001 %	-1.508	1.508
0.000 % @ 30.00 MHz	0.0000	0.025	9.2e-001 %	-1.51	1.51
0.000 % @ 100.00 MHz	0.0000	-0.06	9.1e-001 %	-1.51	1.51
0.000 % @ 150.00 MHz	0.0000	-0.17	9.7e-001 %	-2.01	2.01
0.000 % @ 200.00 MHz	0.0000	0.04	9.7e-001 %	-2.01	2.01
0.000 % @ 250.00 MHz	0.0000	-0.14	9.7e-001 %	-2.01	2.01
0.000 % @ 300.00 MHz	0.0000	-0.27	9.5e-001 %	-2.01	2.01
400mV Range					
350mV Applied					
0.000 % @ 500 kHz	0.0000	0.016	4.6e-001 %	-1.528	1.528
0.000 % @ 1.00 MHz	0.0000	0.005	4.6e-001 %	-1.528	1.528



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
WAVE GENERATOR ACCURACY TEST (SQUARE) (1 MOhm)					
5.000 mVpp @ 100.0 Hz	5.000	5.0001	4.3e-006 Vpp	4.7500	5.2500
20.000 mVpp @ 1000.0 Hz	20.000	20.0010	4.8e-006 Vpp	19.2000	20.7000
80.000 mVpp @ 10000.0 Hz	80.000	80.0002	7.9e-006 Vpp	80.2000	81.7700
219.000 mVpp @ 100000.0 Hz	219.000	219.0003	1.4e-005 Vpp	218.2000	225.5700
890.000 mVpp @ 1000000.0 Hz	890.000	890.0008	4.7e-005 Vpp	883.2000	919.5000
5.30000 Vpp @ 10000.0 Hz	5.30000	5.499300	3.1e-004 Vpp	6.304300	6.699100
35.00000 Vpp @ 10000.0 Hz	35.00000	55.0158	2.2e-003 Vpp	55.3499	56.3501
55.00000 Vpp @ 10000.0 Hz	55.00000	54.99951	2.2e-003 Vpp	53.0489	56.6501
85.00000 Vpp @ 10000.0 Hz	85.00000	84.9978	2.5e-003 Vpp	83.3499	86.6501
55.00000 Vpp @ 10000.0 Hz	55.00000	54.9734	3.9e-003 Vpp	53.3499	56.3501
SCOPE WAVE GENERATOR ACCURACY TEST (SQUARE) (1 MOhm)					
5.000 mVpp @ 1000.0 Hz	5.000	5.010	4.0e-006 Vpp	4.7500	5.2500
20.000 mVpp @ 10000.0 Hz	20.000	20.030	7.9e-006 Vpp	19.2000	20.7000
80.000 mVpp @ 100000.0 Hz	80.000	80.340	8.7e-006 Vpp	80.2000	81.7700
219.000 mVpp @ 1000000.0 Hz	219.000	219.98	8.6e-006 Vpp	218.33	225.67
890.000 mVpp @ 10000000.0 Hz	890.000	888.28	7.7e-006 Vpp	883.20	919.60
5.50000 Vpp @ 10000.0 Hz	5.50000	6.4934	7.2e-004 Vpp	6.2049	6.6951
35.00000 Vpp @ 10000.0 Hz	35.00000	54.9567	7.1e-002 Vpp	53.3499	56.6501
SCOPE WAVE GENERATOR ACCURACY TEST (TRIANGLE) (1 MOhm)					
5.000 mVpp @ 1000.0 Hz	5.000	4.983	4.1e-006 Vpp	4.7500	5.2500
20.000 mVpp @ 10000.0 Hz	20.000	19.929	8.8e-006 Vpp	19.2000	20.7000
80.000 mVpp @ 100000.0 Hz	80.000	80.737	1.0e-004 Vpp	80.3000	81.7700
219.000 mVpp @ 1000000.0 Hz	219.000	218.40	8.8e-006 Vpp	218.33	225.67
890.000 mVpp @ 10000000.0 Hz	890.000	888.45	8.1e-006 Vpp	883.20	919.60
5.50000 Vpp @ 10000.0 Hz	5.50000	6.4588	7.7e-004 Vpp	6.2049	6.6951
35.00000 Vpp @ 10000.0 Hz	35.00000	54.8071	7.4e-002 Vpp	53.3499	56.6501
SCOPE WAVE GENERATOR ACCURACY TEST (SQUARE) (50 Ohm)					
5.000 mVpp @ 1000.0 Hz	5.0000	5.0028	4.2e-006 Vpp	4.75000	5.25000
10.000 mVpp @ 10000.0 Hz	10.0000	10.9056	4.4e-006 Vpp	10.47300	11.32700
45.000 mVpp @ 10000.0 Hz	45.0000	45.017	8.7e-006 Vpp	43.55000	46.45000
109.00000 mVpp @ 10000.0 Hz	109.00000	109.04424	8.7e-006 Vpp	105.53000	112.57000



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Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
WAVE GENERATOR ACCURACY TEST (SQUARE) (1 MOhm)					
5.000 mVpp @ 100.0 Hz	5.000	5.0001	4.3e-006 Vpp	4.7500	5.2500
20.000 mVpp @ 1000.0 Hz	20.000	20.0010	4.8e-006 Vpp	19.2000	20.7000
80.000 mVpp @ 10000.0 Hz	80.000	80.0002	7.9e-006 Vpp	80.2000	81.7700
219.000 mVpp @ 100000.0 Hz	219.000	219.0003	1.4e-005 Vpp	218.2000	225.5700
890.000 mVpp @ 1000000.0 Hz	890.000	890.0008	4.7e-005 Vpp	883.2000	919.5000
5.30000 Vpp @ 10000.0 Hz	5.30000	5.499300	3.1e-004 Vpp	6.304300	6.699100
35.00000 Vpp @ 10000.0 Hz	35.00000	55.0158	2.2e-003 Vpp	55.3499	56.3501
55.00000 Vpp @ 10000.0 Hz	55.00000	54.99951	2.2e-003 Vpp	53.0489	56.6501
85.00000 Vpp @ 10000.0 Hz	85.00000	84.9978	2.5e-003 Vpp	83.3499	86.6501
55.00000 Vpp @ 10000.0 Hz	55.00000	54.9734	3.9e-003 Vpp	53.3499	56.3501
SCOPE WAVE GENERATOR ACCURACY TEST (SQUARE) (1 MOhm)					
5.000 mVpp @ 1000.0 Hz	5.000	5.010	4.0e-006 Vpp	4.7500	5.2500
20.000 mVpp @ 10000.0 Hz	20.000	20.030	7.9e-006 Vpp	19.2000	20.7000
80.000 mVpp @ 100000.0 Hz	80.000	80.340	8.7e-006 Vpp	80.2000	81.7700
219.000 mVpp @ 1000000.0 Hz	219.000	219.98	8.6e-006 Vpp	218.33	225.67
890.000 mVpp @ 10000000.0 Hz	890.000	888.28	7.7e-006 Vpp	883.20	919.60
5.50000 Vpp @ 10000.0 Hz	5.50000	6.4934	7.2e-004 Vpp	6.2049	6.6951
35.00000 Vpp @ 10000.0 Hz	35.00000	54.9567	7.1e-002 Vpp	53.3499	56.6501
SCOPE WAVE GENERATOR ACCURACY TEST (TRIANGLE) (1 MOhm)					
5.000 mVpp @ 1000.0 Hz	5.000	4.983	4.1e-006 Vpp	4.7500	5.2500
20.000 mVpp @ 10000.0 Hz	20.000	19.929	8.8e-006 Vpp	19.2000	20.7000
80.000 mVpp @ 100000.0 Hz	80.000	80.737	1.0e-004 Vpp	80.3000	81.7700
219.000 mVpp @ 1000000.0 Hz	219.000	218.40	8.8e-006 Vpp	218.33	225.67
890.000 mVpp @ 10000000.0 Hz	890.000	888.45	8.1e-006 Vpp	883.20	919.60
5.50000 Vpp @ 10000.0 Hz	5.50000	6.4588	7.7e-004 Vpp	6.2049	6.6951
35.00000 Vpp @ 10000.0 Hz	35.00000	54.8071	7.4e-002 Vpp	53.3499	56.6501
SCOPE WAVE GENERATOR ACCURACY TEST (SQUARE) (50 Ohm)					
5.000 mVpp @ 1000.0 Hz	5.0000	5.0028	4.2e-006 Vpp	4.75000	5.25000
10.000 mVpp @ 10000.0 Hz	10.0000	10.9056	4.4e-006 Vpp	10.47300	11.32700
45.000 mVpp @ 10000.0 Hz	45.0000	45.017	8.7e-006 Vpp	43.55000	46.45000
109.00000 mVpp @ 10000.0 Hz	109.00000	109.04424	8.7e-006 Vpp	105.53000	112.57000

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
0.450 Vpp @ 1000.0 Hz	0.450	0.4503	2.8e-005 Vpp	0.4364	0.4635
1.090 Vpp @ 1000.0 Hz	1.090	1.0907	5.7e-005 Vpp	1.0572	1.1228
2.200 Vpp @ 10.00 Hz	2.200	2.20212	1.1e-004 Vpp	2.13360	2.26610
2.200 Vpp @ 100.00 Hz	2.200	2.20150	8.0e-005 Vpp	2.13390	2.26610
2.200 Vpp @ 1000.0 Hz	2.200	2.2012	3.4e-004 Vpp	2.1299	2.2861
2.200 Vpp @ 1000.0 Hz	2.200	2.1973	3.7e-004 Vpp	2.1309	2.2861
SCOPE WAVE GENERATOR ACCURACY TEST (SINE) (50 Ohm)					
5.00 mVpp @ 1000.0 Hz	5.00	5.015	4.0e-005 Vpp	4.750	5.250
10.90 mVpp @ 1000.0 Hz	10.90	10.908	7.2e-005 Vpp	10.473	11.327
45.00 mVpp @ 1000.0 Hz	45.00	45.051	8.2e-005 Vpp	43.550	46.450
109.00 mVpp @ 1000.0 Hz	109.00	109.993	9.1e-005 Vpp	105.830	112.970
0.4500 Vpp @ 1000.0 Hz	0.4500	0.45007	7.1e-004 Vpp	0.43610	0.46360
1.090 Vpp @ 1000.0 Hz	1.090	1.0898	8.8e-004 Vpp	1.0572	1.1220
2.200 Vpp @ 1000.0 Hz	2.200	2.2031	6.7e-003 Vpp	2.1309	2.2851
SCOPE WAVE GENERATOR ACCURACY TEST (TRIANGLE) (50 Ohm)					
5.00 mVpp @ 1000.0 Hz	5.00	4.991	4.1e-005 Vpp	4.750	5.250
10.90 mVpp @ 1000.0 Hz	10.90	10.862	7.3e-005 Vpp	10.473	11.327
45.00 mVpp @ 1000.0 Hz	45.00	44.913	9.7e-005 Vpp	43.550	46.450
109.00 mVpp @ 1000.0 Hz	109.00	108.47	8.4e-004 Vpp	105.63	112.37
0.4500 Vpp @ 1000.0 Hz	0.4500	0.44942	7.2e-004 Vpp	0.43610	0.46360
1.090 Vpp @ 1000.0 Hz	1.090	1.0883	6.4e-003 Vpp	1.0572	1.1228
2.200 Vpp @ 1000.0 Hz	2.200	2.1941	7.1e-003 Vpp	2.1309	2.2861
TIME MARKER ACCURACY TEST					
2.000000000 ns @ 1 Vp	2.000000000	1.999991409	8.3e-018 s	1.999950000	2.000050000
5.000000000 ns @ 1 Vp	5.000000000	4.999995265	1.5e-017 s	4.999875000	5.000125000
10.000000000 ns @ 1 Vp	10.000000000	10.00001594	1.4e-016 s	9.999750000	10.000250000
20.000000000 ns @ 1 Vp	20.000000000	20.00004456	3.0e-016 s	19.999600000	20.000400000
50.000000000 ns @ 1 Vp	50.000000000	50.0001088	1.9e-015 s	49.998750000	50.001250000
100.000000000 ns @ 1 Vp	100.000000000	100.0002225	1.8e-015 s	99.997500000	100.002500000
200.000000000 ns @ 1 Vp	200.000000000	200.0004591	5.6e-014 s	199.995000000	200.005000000
500.000000000 ns @ 1 Vp	500.000000000	500.000168	1.7e-013 s	499.9875000	500.0125000
1.0000000000 µs @ 1 Vp	1.0000000000	0.999997600	3.2e-014 s	0.9999750000	1.0000250000
2.0000000000 µs @ 1 Vp	2.0000000000	1.99999435	5.9e-014 s	1.999949990	2.0000500000
5.0000000000 µs @ 1 Vp	5.0000000000	4.999998911	4.0e-013 s	4.999874225	5.000125375
10.0000000000 µs @ 1 Vp	10.0000000000	9.999997784	5.1e-013 s	9.999740500	10.000251500
20.0000000000 µs @ 1 Vp	20.0000000000	20.00000068	1.5e-012 s	19.99948400	20.00050600
50.0000000000 µs @ 1 Vp	50.0000000000	50.00001599	1.4e-012 s	49.99871250	50.00128750
100.0000000000 µs @ 1 Vp	100.0000000000	99.99997676	3.8e-012 s	99.99749000	100.00251000
200.0000000000 µs @ 1 Vp	200.0000000000	199.9999201	2.4e-012 s	199.99494000	200.00504000
500.0000000000 µs @ 1 Vp	500.0000000000	500.0000825	7.8e-012 s	499.98725000	500.01275000
1.0000000000 ms @ 1 Vp	1.0000000000	0.999999282	7.2e-012 s	0.999874000	1.000026000
2.0000000000 ms @ 1 Vp	2.0000000000	2.000002004	5.6e-011 s	1.999846000	2.000054000

Calibration Results

Function/Range	Nominal Value	Measured Value	Measurement Uncertainty	Specifications	
				Lower Limit	Upper Limit
5.000000000 ms @ 1 Vp	5.000000000	4.99980035	4.7e-010 s	4.999800000	5.000000000
10.000000000 ms @ 1 Vp	10.000000000	10.00004598	7.5e-010 s	9.999500000	10.000500000
20.000000000 ms @ 1 Vp	20.000000000	20.00009300	1.2e-008 s	19.999100000	20.000800000
50.000000000 ms @ 1 Vp	50.000000000	50.00110	5.8e-008 s	49.99925	50.00275
100.000000000 ms @ 1 Vp	100.000000000	99.99358	3.0e-007 s	99.99750	100.001250
200.000000000 ms @ 1 Vp	200.000000000	199.99714017	9.8e-008 s	199.985000000	200.009000000
500.000000000 ms @ 1 Vp	500.000000000	500.00645	5.5e-008 s	499.7375	500.2625
0.999200000 s @ 1 Vp	0.999200000	0.9992501	1.1e-006 s	0.9981768	1.0002232
2.001900000 s @ 1 Vp	2.001900000	2.0019330	1.1e-006 s	1.9978423	2.0039577
4.979000000 s @ 1 Vp	4.979000000	4.9791000	1.1e-006 s	4.9540851	5.0039151