

Manufacturer	HEWLETT-PACKARD	Calibration date	April 17 2020
Model Number	3458A	Ambient Temperature	23.75 °C
Serial	KSDMM	Relative Humidity	57.10 %
ID Number	Calibration test, GPIB4 unit	Pressure	1019.93
Notes	Test front spade cables	Test type	Front Fluke DIY cables, 5-wire

This note is test dummy text block for further use. It allow to include user information for further reference

Reference standard	Mfg	Model	Options	Serial / Unc	CEID	Calibration date	Due date
CAL MFC	Fluke	5700A	/03 WB	XXX	MC01	7/19/2019	4/25/2020
MFC last calibrated			15.0 days ago	MFC since DCV ZERO		15.0 days ago	
MFC since WBFLAT			0.0 days ago	MFC since WBGAIN		13.0 days ago	
MFC Confidence level			24h 95% REL	MFC Calibrate date		2020-04-02 00:00:00	
MFC Calibrate date Zero			2020-04-02 00:00:00	Calibrate date WB Flatness		1988-10-01 00:00:00	
Calibrate date WB Gain			2020-04-04 00:00:00	CAL CONST 6.5V reference voltage		6.55013026055	
CAL CONST 13V reference voltage			13.0979751665	CAL CONST 22V range positive zero		398.17795	
CAL CONST 22V range negative zero			398.17748	CAL CONST DAC Linearity		-0.297304277641	
CAL CONST 10KOHM true output resistance			10000.395597	CAL CONST 10KOHM standard resistance		10000.1199949	
CAL CONST, Zero calibration temperature			23.4799995422	CAL CONST, All calibration temp		23.4799995422	
Booster type			VB5725,IB5725	Current output posts		AUX	
Calibrate date 5725A AMP			1988-10-01 00:00:00	Calibrated days ago		Debug	
CAL CONST, Amp ACAL temperature			23.0	CAL CONST, Amp CalCheck temperature		23.0	

Total uncertainty of each calibration point calculated with RSS



Meter Info	HP3458A	Last calibration date	7/24/2018
CALSTR?	"20190321143525~36.4~2823A22815"	Test date	17 April 2020 23:22

DUT Internal TEMP?	37.1	DUT Calibrations number?	1
Self-test result?	0,"NO ERROR"	ACAL ALL result?	0,"NO ERROR"
Firmware	9,2	Options	1,0
CAL? 72	0.997925949	CAL? 1,1	39999.5844
CAL? 2,1	7.18235527	CAL? Res 73	0.998645175
CAL 0 TEMP	39.31	CAL 10V TEMP	36.06
CAL 10KOhm TEMP	36.15	CAL? DCI	0.996847267

Service information

CAI DUMP

Destructive overloads?

60, DESTRUCTIVE OVERLOADS valid 2941

Reference

Verification

DUT Condition

xfer-calkit

Test procedure : \$Id\$

Source procedure : \$Id\$

Main DC Voltage ranges performance test.
Checks zero offset and +/-FS calibration on all ranges

The following test for the offset voltage specification using MFC 0V source in 4-wire ext sense mode as reference.

DCV gain range points verify gain of the DC voltage function, using uncorrected 24-hour MFC output. DC voltage offset of DUT is nulled before FS tests.

Test Description	Expected Value	Measured Value	Measurement Uncertainty	Lower Limit	Upper Limit	Deviation	DUT Spec	Test Status
Short 0 mVDC	0.000000E+00	0.67 µV	0.75 µV	-0.910 µV	0.910 µV	N/A	0.16 µV	PASS
Short 0.0 VDC	0.000000E+00	0.69 µV	0.75 µV	-0.900 µV	0.900 µV	N/A	0.15 µV	PASS
Short 00.0 VDC	0.000000E+00	0.44 µV	0.75 µV	-1.070 µV	1.070 µV	N/A	0.32 µV	PASS
Short 000.0 VDC	0.000000E+00	10.68 µV	0.75 µV	-14.750 µV	14.750 µV	N/A	14.00 µV	PASS
Short 0000.0 VDC	0.000000E+00	48.07 µV	0.75 µV	-41.750 µV	41.750 µV	N/A	41.00 µV	FAIL
DCV Test	0.1V-1000V	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
0.019 VDC (0.10 Range)	0.0190000	0.018999897	7.27 ppm	0.018999514	0.019000486	-5.400 ppm	18.29 ppm	PASS 13.72 %
0.1 VDC (0.10 Range)	0.1000000	0.099999561	7.27 ppm	0.099998723	0.10000128	-4.391 ppm	5.50 ppm	PASS 24.08 %
0.11 VDC (0.10 Range)	0.1100000	0.10999956	7.27 ppm	0.10999863	0.11000137	-4.029 ppm	5.23 ppm	PASS 22.50 %
-0.019 VDC (0.10 Range)	-0.0190000	-0.019000035	7.27 ppm	-0.019000486	-0.018999514	1.825 ppm	18.29 ppm	PASS 4.64 %
-0.1 VDC (0.10 Range)	-0.1000000	-0.099999752	7.27 ppm	-0.10000128	-0.099998723	-2.485 ppm	5.50 ppm	PASS 13.63 %
-0.11 VDC (0.10 Range)	-0.1100000	-0.10999969	7.27 ppm	-0.11000137	-0.10999863	-2.792 ppm	5.23 ppm	PASS 15.59 %
0.19 VDC (1.00 Range)	0.1900000	0.18999927	7.27 ppm	0.18999803	0.19000197	-3.844 ppm	3.08 ppm	PASS 24.34 %
1.0 VDC (1.00 Range)	1.0000000	0.99999848	3.86 ppm	0.99999434	1.0000057	-1.524 ppm	1.80 ppm	PASS 17.89 %
1.1 VDC (1.00 Range)	1.1000000	1.0999982	3.86 ppm	1.0999938	1.1000062	-1.592 ppm	1.77 ppm	PASS 18.74 %
-0.19 VDC (1.00 Range)	-0.1900000	-0.18999946	7.27 ppm	-0.19000197	-0.18999803	-2.836 ppm	3.08 ppm	PASS 17.96 %
-1.0 VDC (1.00 Range)	-1.0000000	-0.99999826	3.86 ppm	-1.0000057	-0.99999434	-1.738 ppm	1.80 ppm	PASS 20.40 %
-1.1 VDC (1.00 Range)	-1.1000000	-1.099998	3.86 ppm	-1.1000062	-1.0999938	-1.793 ppm	1.77 ppm	PASS 21.10 %
1.9 VDC (10.00 Range)	1.9000000	1.8999977	3.86 ppm	1.8999912	1.9000088	-1.231 ppm	0.76 ppm	PASS 15.64 %
10.0 VDC (10.00 Range)	10.0000000	9.9999892	2.77 ppm	9.9999668	10.000033	-1.083 ppm	0.55 ppm	PASS 19.17 %
11.0 VDC (10.00 Range)	11.0000000	10.999986	2.73 ppm	10.999964	11.000036	-1.239 ppm	0.55 ppm	PASS 22.25 %
-1.9 VDC (10.00 Range)	-1.9000000	-1.8999973	3.86 ppm	-1.9000088	-1.8999912	-1.413 ppm	0.76 ppm	PASS 17.96 %
-10.0 VDC (10.00 Range)	-10.0000000	-9.9999886	2.77 ppm	-10.000033	-9.9999668	-1.137 ppm	0.55 ppm	PASS 20.13 %
-11.0 VDC (10.00 Range)	-11.0000000	-10.999989	2.73 ppm	-11.000036	-10.999964	-0.971 ppm	0.55 ppm	PASS 17.44 %
19 VDC (100.00 Range)	19.0000000	19.000018	2.77 ppm	18.99987	19.00013	0.939 ppm	4.08 ppm	PASS 9.53 %
100 VDC (100.00 Range)	100.0000000	99.999859	3.73 ppm	99.999347	100.00065	-1.405 ppm	2.80 ppm	PASS 15.06 %
110 VDC (100.00 Range)	110.0000000	109.99982	3.73 ppm	109.99928	110.00072	-1.633 ppm	2.77 ppm	PASS 17.56 %
-19 VDC (100.00 Range)	-19.0000000	-18.999957	2.77 ppm	-19.00013	-18.99987	-2.255 ppm	4.08 ppm	PASS 22.87 %
-100 VDC (100.00 Range)	-100.0000000	-99.999819	3.73 ppm	-100.00065	-99.999347	-1.808 ppm	2.80 ppm	PASS 19.38 %
-110 VDC (100.00 Range)	-110.0000000	-109.9998	3.73 ppm	-110.00072	-109.99928	-1.835 ppm	2.77 ppm	PASS 19.74 %
190 VDC (1000.00 Range)	190.0000000	189.99962	3.73 ppm	189.99872	190.00128	-1.995 ppm	3.03 ppm	PASS 20.77 %
500 VDC (1000.00 Range)	500.0000000	499.99895	3.73 ppm	499.99678	500.00322	-2.096 ppm	2.70 ppm	PASS 28.09 %
1000 VDC (1000.00 Range)	1000.0000000	999.99577	5.45 ppm	999.97995	1000.02	-4.227 ppm	2.60 ppm	PASS 16.04 %
-190 VDC (1000.00 Range)	-190.0000000	-189.9995	3.73 ppm	-190.00128	-189.99872	-2.618 ppm	3.03 ppm	PASS 27.26 %
-500 VDC (1000.00 Range)	-500.0000000	-499.99899	3.73 ppm	-500.00322	-499.99678	-2.010 ppm	2.70 ppm	PASS 8.00 %
-1000 VDC (1000.00 Range)	-1000.0000000	-999.99624	5.45 ppm	-1000.02	-999.97995	-3.762 ppm	2.60 ppm	PASS 14.27 %

4W test procedure for all test points that verify Gain of the OHMF function. 4-wire kelvin connection is used between DMM and MFC.
1GΩ resistance range is tested using the external standard, as MFC unable to provide this range value.

OHM Test	Reference	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
1 Ω	0.9999291 Ω	0.99990188 Ω	32.0 ppm	9.9986210E-01	9.9999610E-01	-27.222 ppm	35.00 ppm	PASS, 28.70 % of 94.85 ppm
1.9 Ω	1.8998858 Ω	1.8998411 Ω	25.0 ppm	1.8997988E+00	1.8999728E+00	-23.548 ppm	20.79 ppm	PASS, 36.21 % of 65.03 ppm
10 Ω	9.999061 Ω	9.9990342 Ω	5.0 ppm	9.9989310E+00	9.9991910E+00	-2.679 ppm	8.00 ppm	PASS, 14.20 % of 18.87 ppm
19 Ω	18.999398 Ω	18.999451 Ω	4.0 ppm	1.8998965E+01	1.8999831E+01	2.773 ppm	18.79 ppm	PASS, 7.22 % of 38.42 ppm
100 Ω	99.99614 Ω	99.996214 Ω	1.7 ppm	9.9995370E+01	9.9996910E+01	0.744 ppm	6.00 ppm	PASS, 5.96 % of 12.47 ppm
190 Ω	189.99719 Ω	189.99747 Ω	1.7 ppm	1.8999629E+02	1.8999809E+02	1.482 ppm	3.05 ppm	PASS, 21.20 % of 6.99 ppm
1.0 kΩ	999.9957 kΩ	999.99514 kΩ	1.7 ppm	9.9999180E+02	9.9999960E+02	-0.556 ppm	2.20 ppm	PASS, 10.00 % of 5.56 ppm
1.9 kΩ	1899.9986 kΩ	1899.9984 kΩ	1.7 ppm	1.8999896E+03	1.9000076E+03	-0.115 ppm	3.05 ppm	PASS, 1.64 % of 6.99 ppm
10 kΩ	10000.393 kΩ	10000.388 kΩ	1.6 ppm	1.0000355E+04	1.0000431E+04	-0.482 ppm	2.20 ppm	PASS, 8.86 % of 5.44 ppm
19 kΩ	18999.384 kΩ	18999.372 kΩ	1.7 ppm	1.8999294E+04	1.8999474E+04	-0.653 ppm	3.05 ppm	PASS, 9.35 % of 6.99 ppm
100 kΩ	100002.34 kΩ	100001.94 kΩ	2.0 ppm	1.0000192E+05	1.0000276E+05	-3.956 ppm	2.20 ppm	PASS, 66.53 % of 5.95 ppm
190 kΩ	189996.84 kΩ	189997.04 kΩ	2.0 ppm	1.8999356E+05	1.9000012E+05	1.061 ppm	15.26 ppm	PASS, 3.45 % of 30.79 ppm
1.0 MΩ	1000004.4 MΩ	1000002.8 MΩ	2.5 ppm	9.9999090E+05	1.0000179E+06	-1.556 ppm	11.00 ppm	PASS, 6.90 % of 22.56 ppm
1.9 MΩ	1899941.5 MΩ	1899966.6 MΩ	3.0 ppm	1.8997908E+06	1.9000922E+06	13.227 ppm	76.32 ppm	PASS, 8.66 % of 152.75 ppm
10 MΩ	9999592 MΩ	9999600 MΩ	10.0 ppm	9.9989420E+06	1.0000242E+07	0.795 ppm	55.00 ppm	PASS, 0.71 % of 111.80 ppm
19 MΩ	18998173 MΩ	18998854 MΩ	20.0 ppm	1.8987294E+07	1.9009052E+07	35.833 ppm	552.64 ppm	PASS, 3.24 % of 1106.00 ppm
100 MΩ	1.0000501E+08 MΩ	1.0001447E+08 MΩ	50.0 ppm	9.9949007E+07	1.0006101E+08	94.571 ppm	510.00 ppm	PASS, 9.23 % of 1024.89 ppm

4W and 2W Zero test procedure for all test points that verify Zero offset of the OHMF function. 4-wire kelvin connection is used between DMM and MFC. 1GΩ resistance range is tested using the external standard, as MFC unable to provide this range value.

OHM ZERO 4W	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
10 Ω	Range -0.0000051 Ω	5.000e-05 Ω	-5e-05	5e-05	N/A	8.0000e-06 Ω	PASS
100 Ω	Range -0.0000618 Ω	5.500e-04 Ω	-0.00055	0.00055	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range -0.0000665 Ω	5.500e-03 Ω	-0.0055	0.0055	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range -0.0008445 Ω	5.500e-02 Ω	-0.055	0.055	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range -0.0017975 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range 0.0539270 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range 0.6829232 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range 1.1501866 Ω	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range 1.5096199 Ω	5.500e+03 Ω	-5500	5500	N/A	2.2000e-06 Ω	PASS
OHM ZERO 2W	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
10 Ω	Range 0.2415059 Ω	3.000e-01 Ω	-0.3	0.3	N/A	8.0000e-06 Ω	PASS
100 Ω	Range 0.2412123 Ω	3.500e-01 Ω	-0.35	0.35	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range 0.2402993 Ω	4.000e-01 Ω	-0.4	0.4	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range 0.2486446 Ω	4.000e-01 Ω	-0.4	0.4	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range 0.2638708 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range 0.3343476 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range 1.8690481 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range 2.0128215 Ω	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range 1.8690485 Ω	5.500e+03 Ω	-5500	5500	N/A	2.2000e-06 Ω	PASS

Procedure for all test points in the AC performance verification for SYNChronous mode. This is highest AC accuracy test. AC-measurements does not suffer from TEMF offsets, test connection can be made using shielded leads terminated with dual banana plugs. MFC main AC output is used as reference source

ACV SYNC Test	DUT	w/Guardband	Low Limit	Hi limit	Measured	24h spec	Result, % spec
0.01 V AC+DC @ 10 Hz	0.010003827	0.0312 %	-0.290006	0.310006	0.0383 %	3000.0300 %	PASS 0.00 %
0.01 V AC+DC @ 20 Hz	0.010002871	0.0312 %	-0.290006	0.310006	0.0287 %	3000.0300 %	PASS 0.00 %
0.01 V AC+DC @ 40 Hz	0.010002252	0.0312 %	-0.290006	0.310006	0.0225 %	3000.0300 %	PASS 0.00 %
0.01 V AC+DC @ 100 Hz	0.010002353	0.0312 %	-0.100005	0.120005	0.0235 %	1100.0200 %	PASS 0.00 %
0.01 V AC+DC @ 1.0 kHz	0.010002759	0.0312 %	-0.100005	0.120005	0.0276 %	1100.0200 %	PASS 0.00 %
0.01 V AC+DC @ 10.0 kHz	0.010004553	0.0312 %	-0.100006	0.120006	0.0455 %	1100.0300 %	PASS 0.00 %
0.01 V AC+DC @ 20.0 kHz	0.010002913	0.0312 %	-0.100006	0.120006	0.0291 %	1100.0300 %	PASS 0.00 %
0.01 V AC+DC @ 50.0 kHz	0.01000107	0.0447 %	-0.100014	0.120014	0.0107 %	1100.1000 %	PASS 0.00 %
0.01 V AC+DC @ 100.0 kHz	0.0099843602	0.0773 %	-0.100058	0.120058	-0.1564 %	1100.5000 %	PASS 0.01 %
0.01 V AC+DC @ 300.0 kHz	0.0098273511	0.1500 %	-0.190055	0.210055	-1.7265 %	2000.4000 %	PASS 0.04 %
0.01 V AC+DC @ 500.0 kHz	0.0095839732	0.2500 %	-0.490070	0.510070	-4.1603 %	5000.4500 %	PASS 0.04 %
0.01 V AC+DC @ 1.0 MHz	0.0086200436	0.4000 %	-0.490085	0.510085	-13.7996 %	5000.4500 %	PASS 0.14 %
0.03 V AC+DC @ 10 Hz	0.030010376	0.0121 %	0.029994	0.030006	0.0346 %	0.0083 %	FAIL 117.47 %
0.03 V AC+DC @ 20 Hz	0.030010639	0.0121 %	0.029994	0.030006	0.0355 %	0.0083 %	FAIL 120.45 %
0.03 V AC+DC @ 40 Hz	0.030009205	0.0121 %	0.029994	0.030006	0.0307 %	0.0083 %	FAIL 104.22 %
0.03 V AC+DC @ 100 Hz	0.030010513	0.0121 %	0.029994	0.030006	0.0350 %	0.0077 %	FAIL 122.06 %
0.03 V AC+DC @ 1.0 kHz	0.03001103	0.0121 %	0.029994	0.030006	0.0368 %	0.0077 %	FAIL 128.06 %
0.03 V AC+DC @ 10.0 kHz	0.03001096	0.0121 %	0.029992	0.030008	0.0365 %	0.0147 %	PASS 95.95 %
0.03 V AC+DC @ 20.0 kHz	0.03000898	0.0121 %	0.029992	0.030008	0.0299 %	0.0147 %	PASS 78.62 %
0.03 V AC+DC @ 50.0 kHz	0.030008363	0.0256 %	0.029983	0.030017	0.0279 %	0.0307 %	PASS 34.87 %
0.03 V AC+DC @ 100.0 kHz	0.029998489	0.0591 %	0.029958	0.030042	-0.0050 %	0.0807 %	PASS 2.52 %
0.03 V AC+DC @ 300.0 kHz	0.029942947	0.0964 %	0.029880	0.030120	-0.1902 %	0.3033 %	PASS 29.88 %
0.03 V AC+DC @ 500.0 kHz	0.029898721	0.1500 %	0.029654	0.030346	-0.3376 %	1.0033 %	PASS 16.64 %
0.03 V AC+DC @ 1.0 MHz	0.029898539	0.3000 %	0.029609	0.030391	-0.3382 %	1.0033 %	PASS 16.15 %
0.1 V AC+DC @ 10 Hz	0.10000254	0.0121 %	0.099980	0.100020	0.0025 %	0.0074 %	PASS 8.93 %
0.1 V AC+DC @ 20 Hz	0.10000024	0.0121 %	0.099980	0.100020	0.0002 %	0.0074 %	PASS 0.85 %
0.1 V AC+DC @ 40 Hz	0.099998247	0.0121 %	0.099980	0.100020	-0.0018 %	0.0074 %	PASS 6.17 %
0.1 V AC+DC @ 100 Hz	0.099997452	0.0121 %	0.099981	0.100019	-0.0025 %	0.0072 %	PASS 9.03 %
0.1 V AC+DC @ 1.0 kHz	0.10000101	0.0121 %	0.099981	0.100019	0.0010 %	0.0072 %	PASS 3.58 %
0.1 V AC+DC @ 10.0 kHz	0.10000171	0.0121 %	0.099974	0.100026	0.0017 %	0.0142 %	PASS 4.58 %
0.1 V AC+DC @ 20.0 kHz	0.09999495	0.0121 %	0.099974	0.100026	-0.0050 %	0.0142 %	PASS 13.52 %
0.1 V AC+DC @ 50.0 kHz	0.099989606	0.0256 %	0.099944	0.100056	-0.0104 %	0.0302 %	PASS 13.12 %
0.1 V AC+DC @ 100.0 kHz	0.09995379	0.0591 %	0.099861	0.100139	-0.0462 %	0.0802 %	PASS 23.19 %
0.1 V AC+DC @ 300.0 kHz	0.099769471	0.0964 %	0.099603	0.100397	-0.2305 %	0.3010 %	PASS 36.47 %
0.1 V AC+DC @ 500.0 kHz	0.099625253	0.1500 %	0.098849	0.101151	-0.3747 %	1.0010 %	PASS 18.51 %
0.1 V AC+DC @ 1.0 MHz	0.099662336	0.3000 %	0.098699	0.101301	-0.3377 %	1.0010 %	PASS 16.16 %
0.3 V AC+DC @ 10 Hz	0.30001125	0.0050 %	0.299960	0.300040	0.0037 %	0.0083 %	PASS 19.34 %
0.3 V AC+DC @ 20 Hz	0.30000018	0.0050 %	0.299960	0.300040	0.0001 %	0.0083 %	PASS 0.31 %

0.3 V AC+DC @ 40 Hz	0.29999555	0.0050 %	0.299960	0.300040	-0.0015 %	0.0083 %	PASS 7.64 %
0.3 V AC+DC @ 100 Hz	0.29999739	0.0050 %	0.299962	0.300038	-0.0009 %	0.0077 %	PASS 4.77 %
0.3 V AC+DC @ 1.0 kHz	0.30000509	0.0050 %	0.299962	0.300038	0.0017 %	0.0077 %	PASS 9.29 %
0.3 V AC+DC @ 10.0 kHz	0.29999334	0.0050 %	0.299941	0.300059	-0.0022 %	0.0147 %	PASS 7.17 %
0.3 V AC+DC @ 20.0 kHz	0.29996704	0.0050 %	0.299941	0.300059	-0.0110 %	0.0147 %	PASS 35.48 %
0.3 V AC+DC @ 50.0 kHz	0.29999304	0.0085 %	0.299882	0.300118	-0.0023 %	0.0307 %	PASS 3.64 %
0.3 V AC+DC @ 100.0 kHz	0.30001393	0.0138 %	0.299717	0.300283	0.0046 %	0.0807 %	PASS 2.84 %
0.3 V AC+DC @ 300.0 kHz	0.3002986	0.0425 %	0.298962	0.301038	0.0995 %	0.3033 %	PASS 16.25 %
0.3 V AC+DC @ 500.0 kHz	0.30078413	0.1100 %	0.296660	0.303340	0.2614 %	1.0033 %	PASS 12.95 %
0.3 V AC+DC @ 1.0 MHz	0.30203814	0.1800 %	0.296450	0.303550	0.6794 %	1.0033 %	PASS 33.32 %
1.0 V AC+DC @ 10 Hz	1.0000657	0.0050 %	0.999876	1.000124	0.0066 %	0.0074 %	PASS 36.89 %
1.0 V AC+DC @ 20 Hz	1.0000145	0.0050 %	0.999876	1.000124	0.0014 %	0.0074 %	PASS 8.14 %
1.0 V AC+DC @ 40 Hz	1.0000039	0.0050 %	0.999876	1.000124	0.0004 %	0.0074 %	PASS 2.17 %
1.0 V AC+DC @ 100 Hz	0.99999873	0.0050 %	0.999878	1.000122	-0.0001 %	0.0072 %	PASS 0.72 %
1.0 V AC+DC @ 1.0 kHz	1.0000244	0.0050 %	0.999878	1.000122	0.0024 %	0.0072 %	PASS 13.95 %
1.0 V AC+DC @ 10.0 kHz	0.99996557	0.0050 %	0.999808	1.000192	-0.0034 %	0.0142 %	PASS 11.45 %
1.0 V AC+DC @ 20.0 kHz	0.99991296	0.0050 %	0.999808	1.000192	-0.0087 %	0.0142 %	PASS 28.94 %
1.0 V AC+DC @ 50.0 kHz	0.99997072	0.0085 %	0.999613	1.000387	-0.0029 %	0.0302 %	PASS 4.66 %
1.0 V AC+DC @ 100.0 kHz	0.9999928	0.0138 %	0.999060	1.000940	-0.0007 %	0.0802 %	PASS 0.44 %
1.0 V AC+DC @ 300.0 kHz	1.0010044	0.0425 %	0.996565	1.003435	0.1004 %	0.3010 %	PASS 16.52 %
1.0 V AC+DC @ 500.0 kHz	1.0026367	0.1100 %	0.988890	1.011110	0.2637 %	1.0010 %	PASS 13.09 %
1.0 V AC+DC @ 1.0 MHz	1.0070571	0.1800 %	0.988190	1.011810	0.7057 %	1.0010 %	PASS 34.69 %
3.0 V AC+DC @ 10 Hz	3.0001762	0.0048 %	2.999605	3.000395	0.0059 %	0.0083 %	PASS 30.51 %
3.0 V AC+DC @ 20 Hz	3.0000463	0.0048 %	2.999605	3.000395	0.0015 %	0.0083 %	PASS 8.01 %
3.0 V AC+DC @ 40 Hz	3.0000113	0.0048 %	2.999605	3.000395	0.0004 %	0.0083 %	PASS 1.95 %
3.0 V AC+DC @ 100 Hz	3.0000069	0.0048 %	2.999625	3.000375	0.0002 %	0.0077 %	PASS 1.28 %
3.0 V AC+DC @ 1.0 kHz	3.0000746	0.0048 %	2.999625	3.000375	0.0025 %	0.0077 %	PASS 13.73 %
3.0 V AC+DC @ 10.0 kHz	2.9999362	0.0048 %	2.999415	3.000585	-0.0021 %	0.0147 %	PASS 6.89 %
3.0 V AC+DC @ 20.0 kHz	2.999863	0.0048 %	2.999415	3.000585	-0.0046 %	0.0147 %	PASS 14.79 %
3.0 V AC+DC @ 50.0 kHz	2.9998613	0.0085 %	2.998824	3.001176	-0.0046 %	0.0307 %	PASS 7.26 %
3.0 V AC+DC @ 100.0 kHz	2.9989799	0.0121 %	2.997216	3.002784	-0.0340 %	0.0807 %	PASS 20.84 %
3.0 V AC+DC @ 300.0 kHz	2.9952949	0.0336 %	2.989891	3.010109	-0.1568 %	0.3033 %	PASS 25.69 %
3.0 V AC+DC @ 500.0 kHz	2.9981156	0.1100 %	2.966600	3.033400	-0.0628 %	1.0033 %	PASS 3.11 %
3.0 V AC+DC @ 1.0 MHz	3.0181376	0.1700 %	2.964800	3.035200	0.6046 %	1.0033 %	PASS 29.71 %
10.0 V AC+DC @ 10 Hz	10.000853	0.0048 %	9.998778	10.001222	0.0085 %	0.0074 %	PASS 48.32 %
10.0 V AC+DC @ 20 Hz	10.000354	0.0048 %	9.998778	10.001222	0.0035 %	0.0074 %	PASS 20.03 %
10.0 V AC+DC @ 40 Hz	10.000213	0.0048 %	9.998778	10.001222	0.0021 %	0.0074 %	PASS 12.08 %
10.0 V AC+DC @ 100 Hz	10.000171	0.0048 %	9.998798	10.001202	0.0017 %	0.0072 %	PASS 9.86 %
10.0 V AC+DC @ 1.0 kHz	10.000395	0.0048 %	9.998798	10.001202	0.0039 %	0.0072 %	PASS 22.78 %
10.0 V AC+DC @ 10.0 kHz	9.9999109	0.0048 %	9.998098	10.001902	-0.0009 %	0.0142 %	PASS 2.97 %
10.0 V AC+DC @ 20.0 kHz	9.9997072	0.0048 %	9.998098	10.001902	-0.0029 %	0.0142 %	PASS 9.76 %
10.0 V AC+DC @ 50.0 kHz	9.999479	0.0085 %	9.996125	10.003875	-0.0052 %	0.0302 %	PASS 8.30 %
10.0 V AC+DC @ 100.0 kHz	9.9959894	0.0121 %	9.990766	10.009234	-0.0401 %	0.0802 %	PASS 24.72 %

10.0 V AC+DC @ 300.0 kHz	9.9844312	0.0336 %	9.966536	10.033464	-0.1557 %	0.3010 %	PASS 25.70 %
10.0 V AC+DC @ 500.0 kHz	9.9937136	0.1100 %	9.888900	10.111100	-0.0629 %	1.0010 %	PASS 3.12 %
10.0 V AC+DC @ 1.0 MHz	10.062502	0.1700 %	9.882900	10.117100	0.6250 %	1.0010 %	PASS 30.78 %
30 V AC+DC @ 10 Hz	30.003393	0.0060 %	29.991795	30.008205	0.0113 %	0.0213 %	PASS 25.51 %
30 V AC+DC @ 20 Hz	30.002105	0.0060 %	29.991795	30.008205	0.0070 %	0.0213 %	PASS 15.83 %
30 V AC+DC @ 40 Hz	30.001776	0.0060 %	29.991795	30.008205	0.0059 %	0.0213 %	PASS 13.36 %
30 V AC+DC @ 100 Hz	30.001708	0.0060 %	29.991995	30.008005	0.0057 %	0.0207 %	PASS 13.22 %
30 V AC+DC @ 1.0 kHz	30.002342	0.0060 %	29.991995	30.008005	0.0078 %	0.0207 %	PASS 18.13 %
30 V AC+DC @ 10.0 kHz	30.001771	0.0060 %	29.991995	30.008005	0.0059 %	0.0207 %	PASS 13.71 %
30 V AC+DC @ 20.0 kHz	30.000785	0.0060 %	29.991995	30.008005	0.0026 %	0.0207 %	PASS 6.07 %
30 V AC+DC @ 50.0 kHz	30.00111	0.0060 %	29.987495	30.012505	0.0037 %	0.0357 %	PASS 5.11 %
30 V AC+DC @ 100.0 kHz	29.992831	0.0174 %	29.958591	30.041409	-0.0239 %	0.1207 %	PASS 9.80 %
30 V AC+DC @ 300.0 kHz	29.968214	0.0991 %	29.849273	30.150727	-0.1060 %	0.4033 %	PASS 12.76 %
30 V AC+DC @ 500.0 kHz	29.996575	0.5200 %	29.393000	30.607000	-0.0114 %	1.5033 %	PASS 0.36 %
100.0 V AC+DC @ 10 Hz	100.01412	0.0060 %	99.973582	100.026418	0.0141 %	0.0204 %	PASS 33.20 %
100.0 V AC+DC @ 20 Hz	100.00917	0.0060 %	99.973582	100.026418	0.0092 %	0.0204 %	PASS 21.56 %
100.0 V AC+DC @ 40 Hz	100.00784	0.0060 %	99.973582	100.026418	0.0078 %	0.0204 %	PASS 18.44 %
100.0 V AC+DC @ 100 Hz	100.00786	0.0060 %	99.973782	100.026218	0.0079 %	0.0202 %	PASS 18.64 %
100.0 V AC+DC @ 1.0 kHz	100.00979	0.0060 %	99.973782	100.026218	0.0098 %	0.0202 %	PASS 23.23 %
100.0 V AC+DC @ 10.0 kHz	100.00906	0.0060 %	99.973782	100.026218	0.0091 %	0.0202 %	PASS 21.49 %
100.0 V AC+DC @ 20.0 kHz	100.00587	0.0060 %	99.973782	100.026218	0.0059 %	0.0202 %	PASS 13.94 %
100.0 V AC+DC @ 50.0 kHz	100.00477	0.0095 %	99.955255	100.044745	0.0048 %	0.0352 %	PASS 6.54 %
100.0 V AC+DC @ 100.0 kHz	99.97159	0.0174 %	99.862436	100.137564	-0.0284 %	0.1202 %	PASS 11.70 %
300.0 V AC+DC @ 40 Hz	150.03671	0.0079 %	299.074408	300.925592	-49.9878 %	0.3007 %	FAIL 8309.98 %
300.0 V AC+DC @ 100 Hz	300.0703	0.0079 %	299.854408	300.145592	0.0234 %	0.0407 %	PASS 28.29 %
300.0 V AC+DC @ 1.0 kHz	300.08018	0.0079 %	299.854408	300.145592	0.0267 %	0.0407 %	PASS 32.26 %
300.0 V AC+DC @ 10.0 kHz	150.03045	0.0110 %	299.784865	300.215135	-49.9899 %	0.0607 %	FAIL 40534.13 %
300.0 V AC+DC @ 20.0 kHz	150.02261	0.0110 %	299.784865	300.215135	-49.9925 %	0.0607 %	FAIL 40536.25 %
300.0 V AC+DC @ 50.0 kHz	150.08561	0.0245 %	299.564599	300.435401	-49.9715 %	0.1207 %	FAIL 20293.44 %
300.0 V AC+DC @ 100.0 kHz	150.1912	0.0660 %	298.900000	301.100000	-49.9363 %	0.3007 %	FAIL 8111.14 %
300.0 V AC+DC @ 40 Hz	150.19178	0.0079 %	299.074408	300.925592	-49.9361 %	0.3007 %	FAIL 8301.39 %
750.0 V AC+DC @ 100 Hz	750.27777	0.0079 %	749.639020	750.360980	0.0370 %	0.0403 %	PASS 45.14 %
750.0 V AC+DC @ 1.0 kHz	750.30619	0.0079 %	749.639020	750.360980	0.0408 %	0.0403 %	PASS 49.75 %
750.0 V AC+DC @ 10.0 kHz	750.30607	0.0110 %	749.465162	750.534838	0.0408 %	0.0603 %	PASS 33.30 %
750.0 V AC+DC @ 20.0 kHz	750.30565	0.0110 %	749.465162	750.534838	0.0408 %	0.0603 %	PASS 33.26 %
750.0 V AC+DC @ 50.0 kHz	750.30553	0.0245 %	748.914498	751.085502	0.0407 %	0.1203 %	PASS 16.60 %
750.0 V AC+DC @ 50.0 kHz	750.30481	0.0660 %	748.603000	751.397000	0.0406 %	0.1203 %	PASS 14.81 %

Procedure for all test points that verify Gain of the DC current DCI function. Both +/-FS points are tested.
 2-wire connection at LO and DCI is used between DMM and MFC.
 DCI gain range points verify gain of the DC current function, using corrected 24-hour MFC output.

DCI Test	100nA-1A	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
Zero μADC	0	-5.4492115E-11						INFO
50 nADC	5E-08	4.9952095E-08						INFO
100 nADC	1E-07	9.9973918E-08	71.82 ppm	9.995282E-08	1.000472E-07	-260.818 ppm	400 ppm	PASS 32.09 %
-100 nADC	-1E-07	-1.000386E-07	71.82 ppm	-1.000492E-07	-9.995082E-08	385.975 ppm	420 ppm	PASS 45.29 %
-50 nADC	-5E-08	-5.0049252E-08						INFO
Zero μADC	0	-3.844126E-11						INFO
0.5 μADC	5E-07	4.9996419E-07	71.82 ppm	4.999201E-07	5.000799E-07	-71.619 ppm	88 ppm	PASS 31.53 %
1.0 μADC	1E-06	9.9998683E-07	71.82 ppm	9.998792E-07	1.000121E-06	-13.169 ppm	49 ppm	PASS 7.57 %
-1.0 μADC	-1E-06	-1.0000733E-06	71.82 ppm	-1.000123E-06	-9.998772E-07	73.328 ppm	51 ppm	PASS 41.62 %
-0.5 μADC	-5E-07	-5.0008544E-07	71.82 ppm	-5.000819E-07	-4.999181E-07	170.878 ppm	92 ppm	PASS 73.20 %
Zero 00 μADC	0	-6.0033521E-11						INFO
5 μADC	5E-06	4.9999072E-06	71.82 ppm	4.999522E-06	5.000478E-06	-18.556 ppm	24 ppm	PASS 12.26 %
10 μADC	1E-05	9.9998643E-06	71.82 ppm	9.999113E-06	1.000089E-05	-13.572 ppm	17 ppm	PASS 9.20 %
-10 μADC	-1E-05	-1.0000044E-05	71.82 ppm	-1.000089E-05	-9.999111E-06	4.397 ppm	17 ppm	PASS 2.98 %
-5 μADC	-5E-06	-5.0000715E-06	71.82 ppm	-5.00048E-06	-4.99952E-06	14.296 ppm	24 ppm	PASS 9.43 %
Zero 000 μADC	0	-8.7797558E-11						INFO
50 μADC	5E-05	4.9999806E-05	71.82 ppm	4.999531E-05	5.000469E-05	-3.877 ppm	22 ppm	PASS 2.58 %
100 μADC	0.0001	9.9999622E-05	71.82 ppm	9.999122E-05	0.0001000088	-3.775 ppm	16 ppm	PASS 2.57 %
-100 μADC	-0.0001	-9.9999693E-05	71.82 ppm	-0.0001000088	-9.999122E-05	-3.069 ppm	16 ppm	PASS 2.09 %
-50 μADC	-5E-05	-4.9999952E-05	71.82 ppm	-5.000469E-05	-4.999531E-05	-0.950 ppm	22 ppm	PASS 0.63 %
Zero mADC	0	-7.6110437E-11						INFO
0.5 mADC	0.0005	0.00049999974	33.64 ppm	0.0004999742	0.0005000258	-0.517 ppm	18 ppm	PASS 0.68 %
1.0 mADC	0.001	0.0009999998	33.64 ppm	0.0009999524	0.001000048	-0.195 ppm	14 ppm	PASS 0.27 %
-1.0 mADC	-0.001	-0.00099999903	33.64 ppm	-0.001000048	-0.0009999524	-0.974 ppm	14 ppm	PASS 1.34 %
-0.5 mADC	-0.0005	-0.00049999993	33.64 ppm	-0.0005000258	-0.0004999742	-0.136 ppm	18 ppm	PASS 0.18 %
Zero 00 mADC	0	-1.1487584E-10						INFO
5 mADC	0.005	0.0049999886	32.27 ppm	0.004999749	0.005000251	-2.277 ppm	18 ppm	PASS 3.08 %
10 mADC	0.01	0.0099999841	32.27 ppm	0.009999537	0.01000046	-1.589 ppm	14 ppm	PASS 2.26 %
-10 mADC	-0.01	-0.010000005	32.27 ppm	-0.01000046	-0.009999537	0.504 ppm	14 ppm	PASS 0.72 %
-5 mADC	-0.005	-0.0050000054	32.27 ppm	-0.005000251	-0.004999749	1.074 ppm	18 ppm	PASS 1.45 %
Zero 000 mADC	0	-8.2094895E-11						INFO
50 mADC	0.05	0.050000018	53.32 ppm	0.04999568	0.05000432	0.362 ppm	33 ppm	PASS 0.29 %
100 mADC	0.1	0.10000064	53.32 ppm	0.09999177	0.1000082	6.413 ppm	29 ppm	PASS 5.28 %
-100 mADC	-0.1	-0.10000123	53.32 ppm	-0.1000082	-0.09999177	12.313 ppm	29 ppm	PASS 10.14 %
-50 mADC	-0.05	-0.050000635	53.32 ppm	-0.05000432	-0.04999568	12.696 ppm	33 ppm	PASS 10.12 %
Zero ADC	0	-1.1730285E-10						INFO
0.5 ADC	0.5	0.50000098	115.22 ppm	0.4998824	0.5001176	1.961 ppm	120 ppm	PASS 0.59 %

1.0 ADC	1	0.9999988	115.22 ppm	0.9997748	1.000225	-1.203 ppm	110 ppm	PASS 0.38 %
-1.0 ADC	-1	-0.9999753	115.22 ppm	-1.000225	-0.9997748	-24.697 ppm	110 ppm	PASS 7.75 %
-0.5 ADC	-0.5	-0.49999074	115.22 ppm	-0.5001176	-0.4998824	-18.523 ppm	120 ppm	PASS 5.57 %

Procedure for all test points that verify Gain of the AC Current ACI function. Three frequency band points are tested, 50 Hz, 60 Hz and 1 kHz. 2-wire connection at LO and DCI is used between DMM and MFC.

ACI Test	200µA-2A	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result, % spec
10 µA AC @ 50 Hz	1e-05	1.0078853E-05	0.0160 %	-0.0002900076045	0.0003100076045	0.7885 %	3000.0600 %	INFO
100 µA AC @ 50 Hz	0.0001	0.00010001982	0.0160 %	-0.000200076045	0.000400076045	0.0198 %	300.0600 %	PASS 0.00 %
1.0 mA AC @ 50 Hz	0.001	0.0010000655	0.0160 %	0.00099921955	0.00100078045	65.454 ppm	0.0620 %	PASS 5.11 %
10 mA AC @ 50 Hz	0.01	0.010000328	0.0160 %	0.0099921955	0.0100078045	32.813 ppm	0.0620 %	PASS 2.56 %
100 mA AC @ 50 Hz	0.1	0.10000875	0.0133 %	0.099924682	0.100075318	87.509 ppm	0.0620 %	PASS 6.90 %
1.0 A AC @ 50 Hz	1.0	1.0002384	0.0133 %	0.99904682	1.00095318	238.390 ppm	0.0820 %	PASS 14.35 %
10 µA AC @ 60 Hz	1e-05	1.0088662E-05	0.0133 %	-0.0002900073318	0.0003100073318	0.8866 %	3000.0600 %	INFO
100 µA AC @ 60 Hz	0.0001	0.00010002017	0.0133 %	-0.000200073318	0.000400073318	0.0202 %	300.0600 %	PASS 0.00 %
1.0 mA AC @ 60 Hz	0.001	0.0010000958	0.0129 %	0.00099925136	0.00100074864	95.809 ppm	0.0620 %	PASS 7.57 %
10 mA AC @ 60 Hz	0.01	0.010000607	0.0129 %	0.0099925136	0.0100074864	60.671 ppm	0.0620 %	PASS 4.79 %
100 mA AC @ 60 Hz	0.1	0.10001061	0.0288 %	0.099909182	0.100090818	106.119 ppm	0.0620 %	PASS 7.76 %
1.0 A AC @ 60 Hz	1.0	1.00026	0.0288 %	0.99889182	1.00110818	259.973 ppm	0.0820 %	PASS 14.96 %
10 µA AC @ 1.0 kHz	1e-05	1.0078393E-05	0.0160 %	-0.0002900076045	0.0003100076045	0.7839 %	3000.0600 %	INFO
100 µA AC @ 1.0 kHz	0.0001	9.9991643E-05	0.0160 %	-0.000200076045	0.000400076045	-0.0084 %	300.0600 %	PASS 0.00 %
1.0 mA AC @ 1.0 kHz	0.001	0.0010001413	0.0160 %	0.00099951955	0.00100048045	141.311 ppm	0.0320 %	PASS 19.74 %
10 mA AC @ 1.0 kHz	0.01	0.010001172	0.0160 %	0.0099951955	0.0100048045	117.201 ppm	0.0320 %	PASS 16.37 %
100 mA AC @ 1.0 kHz	0.1	0.10001705	0.0133 %	0.099954682	0.100045318	170.462 ppm	0.0320 %	PASS 24.59 %
1.0 A AC @ 1.0 kHz	1.0	1.0001444	0.0133 %	0.99884682	1.00115318	0.0144 %	0.1020 %	PASS 7.02 %

Test date	18 April 2020 13:44
UUT Internal TEMP?	37.0
Destructive overloads?	65, DESTRUCTIVE OVERLOADS valid 2941

Lab temperature maintained +24°C ±2°C

Internal use only

Not validated

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