

Manufacturer	HEWLETT-PACKARD	Calibration date	February 23 2021
Model Number	3458A	Ambient Temperature	23.44 °C
Serial	ROHS14 meter	Relative Humidity	28.46 %
ID Number	STD Calibration test, GPIB14 unit	Pressure	991.97
Notes	Test front spade cables	Test type	Front terminals

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
MFC	Fluke	5720A		9250208	VDM1	12.NOV.2020	12.NOV.2021

MFC last calibrated	77.0 days ago	MFC since DCV ZERO	0.0 days ago
MFC since WBFLAT	12110.0 days ago	MFC since WBGAIN	5267.0 days ago
MFC Confidence level	24h 95% REL	MFC Calibrate date	2020-11-12 00:00:00
MFC Calibrate date Zero	Debug	Calibrate date WB Flatness	1988-10-01 00:00:00
Calibrate date WB Gain	Debug	CAL CONST 6.5V reference voltage	6.91958558081
CAL CONST 13V reference voltage	13.8237896968	CAL CONST 22V range positive zero	398.17439
CAL CONST 22V range negative zero	398.17371	CAL CONST DAC Linearity	0.316817603263
CAL CONST 10KOHM true output resistance	9999.90274242	CAL CONST 10KOHM standard resistance	9998.84909801
CAL CONST, Zero calibration temperature	23.0	CAL CONST, All calibration temp	23.0
Booster type	VB5725,IB5725	Current output posts	AUX
Calibrate date 5725A AMP	1988-10-01 00:00:00	Calibrated days ago	2010-12-01 00:00:00
CAL CONST, Amp ACAL temperature	23.0	CAL CONST, Amp CalCheck temperature	23.0

Total uncertainty of each calibration point calculated with RSS

$$U_{95\%} = \sqrt{U_{SRC}^2 + U_{DUT}^2} * 2$$

Meter Info	HP3458A	Last calibration date	7/24/2018
CALSTR?	"PASS 55 MY59350899"	Test date	23 February 2021 06:28
DUT Internal TEMP?	33.1	DUT Calibrations number?	1
Self-test result?	0,"NO ERROR"	ACAL ALL result?	0,"NO ERROR"
Firmware	9,2	Options	1,0
CAL? 72	0.989932224	CAL? 1,1	40006.2739

CAL? 2,1	7.12452714	CAL? Res 73	0.989997019
CAL 0 TEMP	35.28	CAL 10V TEMP	33.91
CAL 10KOhm TEMP	33.87	CAL? DCI	0.990299144

Service information

CAL DUMP

[(1, 40006.2739), (1, 7.12452714), (1, -8.74329073e-06), (1, -8.41241123e-06), (1, -8.73104966e-06), (1, -8.40673949e-06), (1, -8.91270878e-06), (1, -8.49978679e-06), (1, -0.000108128525), (1, -0.000108128525), (1, -0.000117505664), (1, -0.000117505664), (1, 0.612177009), (1, 0.604195373), (1, 0.604090487), (1, 0.523774643), (1, 0.431385825), (1, -1.26453362), (1, -18.8079235), (1, -17.3680824), (1, -17.3680824), (1, 0.620049735), (1, 0.612348055), (1, 0.612262805), (1, 0.534492875), (1, 0.443434372), (1, -1.18962049), (1, -16.5281752), (1, -16.2882017), (1, -16.2882017), (1, -1.5964419e-06), (1, 8.61962658e-05), (1, 3.80059025e-05), (1, -0.000773826509), (1, -0.00200310834), (1, 0.0599305031), (1, -1.19986752), (1, -0.899900644), (1, -0.899900644), (1, 9.81749623e-06), (1, 0.000150503246), (1, 0.000154944836), (1, 0.000421964629), (1, 0.00352786246), (1, -0.0179791509), (1, -0.749917203), (1, -0.269970193), (1, -0.269970193), (1, 613.0), (1, 60.0), (1, 6.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 35.276808), (1, 33.9066906), (1, 33.8725092), (1, 122.0), (1, -1.17374876e-11), (1, -2.25638336e-11), (1, -1.61261896e-10), (1, -1.13414273e-09), (1, -8.17757012e-09), (1, -8.07921868e-08), (1, -7.35584431e-07), (1, -8.21029788e-06), (1, 0.989398048), (1, 0.9900272), (1, 0.989932224), (1, 0.989997019), (1, 0.989902046), (1, 1.0001499), (1, 0.999918097), (1, 1.00055394), (1, 1.00045861), (1, 0.998411477), (1, 1.00068607), (1, 1.00173589), (1, 1.00173589), (1, 1.00173589), (1, 1.001499), (1, 0.999918104), (1, 1.00055395), (1, 1.00045862), (1, 0.998411624), (1, 1.00068607), (1, 1.00173589), (1, 1.00173589), (1, 1.00173589), (1, 0.990299144), (1, 0.989302607), (1, 0.98923406), (1, 0.989327095), (1, 0.988886428), (1, 0.986811576), (1, 0.981931217), (1, 0.989801379), (1, 47.0), (1, 53.0), (1, 4.93679602), (1, 7.25835821e-12), (1, -5.49790694e-12), (1, 9995579.33), (1, 0.00550767946), (1, -0.000489830327), (1, 0.999999628), (1, 1.00000001), (1, 1667.004), (1, 16666.9984), (1, 5102.0), (1, 5099.0), (1, 5100.0), (1, 5099.0), (1, 5100.0), (1, 61224.0), (1, 61188.0), (1, 61200.0), (1, 61188.0), (1, 61200.0), (1, 5008.0), (1, 5009.0), (1, 5006.0), (1, 5006.0), (1, 2508.0), (1, 2502.0), (1, 2500.0), (1, 12501.0), (1, 22729.0), (1, 60096.0), (1, 60108.0), (1, 60072.0), (1, 60072.0), (1, 30096.0), (1, 30024.0), (1, 30000.0), (1, 150012.0), (1, 272748.0), (1, 5008.0), (1, 5009.0), (1, 5006.0), (1, 5006.0), (1, 2508.0), (1, 2502.0), (1, 2500.0), (1, 12501.0), (1, 22729.0), (1, 60096.0), (1, 60108.0), (1, 60072.0), (1, 60072.0), (1, 30096.0), (1, 30024.0), (1, 30000.0), (1, 150012.0), (1, 272748.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 278.0), (1, 3336.0), (1, 3336.0), (1, 3336.0), (1, 3336.0), (1, 3336.0), (1, 3336.0), (1, 3336.0), (1, 33.1278728), (1, 33.1974414), (1, 33.1713908), (1, 126.0), (1, 126.0), (1, 124.0), (1, 123.0), (1, 126.0), (1, 126.0), (1, 121.0), (1, 121.0), (1, 124.0), (1, 123.0), (1, 126.0), (1, 126.0), (1, 125.0), (1, 125.0), (1, 125.0), (1, 125.0), (1, 125.0), (1, 2410.0), (1, 2439.0), (1, 1352.0), (1, 1368.0), (1, 1536.0), (1, 1541.0), (1, 127.0), (1, 127.0), (1, 127.0), (1, 127.0), (1, 127.0), (1, 125.0), (1, 127.0), (1, 127.0), (1, 127.0), (1, 127.0), (1, -0.00118694965), (1, -0.0102787501), (1, -0.105614523), (1, -1.06388615), (1, -10.6611969), (1, -105.855771), (1, -0.00109059335), (1, -0.0102972128), (1, -0.107238554), (1, -1.06771699), (1, -10.6639593), (1, -105.903368), (1, 1.00790692), (1, 1.0152533), (1, 1.05232078), (1, 1.07922224), (1, 1.06889158), (1, 1.06961439), (1, 6660.63666), (1, 10.3795262), (1, 0.994113992), (1, 1.00144254), (1, 1.03800579), (1, 1.06454129), (1, 1.05435116), (1, 1.05506414), (1, 1.96927791e-07), (1, 2.02831337e-06), (1, 2.02831337e-05), (1, 0.000202831337), (1, 0.00202831337), (1, 0.0202831337), (1, 1.02515303), (1, 0.999795702), (1, 0.999990438), (1, 1.00005016), (1, 48.0), (1, 54.0), (1, 54.0), (1, 54.0), (1, 48.0), (1, 52.0), (1, 52.0), (1, 9.0)]

Reference

Verification

DUT Condition

xfer-calkit

Test procedure : \$Id: hp3458a.py | Rev 1816 | 2020/10/10 01:36:15 Vadim \$

Source procedure : \$Id: f5720b.py | Rev 2035 | 2020/12/28 08:14:46 Vadim \$

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	0.0000000E+00	-2.40 µV	0.75 µV	-0.910 µV	0.910 µV	N/A	0.16 µV	FAIL
Short 0.0 VDC	0.0000000E+00	-2.36 µV	0.75 µV	-0.900 µV	0.900 µV	N/A	0.15 µV	FAIL
Short 00.0 VDC	0.0000000E+00	-2.53 µV	0.75 µV	-1.070 µV	1.070 µV	N/A	0.32 µV	FAIL
Short 000.0 VDC	0.0000000E+00	9.41 µV	0.75 µV	-14.750 µV	14.750 µV	N/A	14.00 µV	PASS
Short 0000.0 VDC	0.0000000E+00	-2.94 µV	0.75 µV	-41.750 µV	41.750 µV	N/A	41.00 µV	PASS
DCV Test	0.1V-1000V	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
0.019 VDC (0.10 Range)	0.0190000	0.019000051	7.27 ppm	0.018999514	0.019000486	2.693 ppm	18.29 ppm	PASS 13.68 %
0.1 VDC (0.10 Range)	0.1000000	0.10000003	7.27 ppm	0.099998723	0.10000128	0.258 ppm	5.50 ppm	PASS 2.83 %
0.11 VDC (0.10 Range)	0.1100000	0.11000011	7.27 ppm	0.10999863	0.11000137	0.990 ppm	5.23 ppm	PASS 11.06 %
-0.019 VDC (0.10 Range)	-0.0190000	-0.018999831	7.27 ppm	-0.019000486	-0.018999514	-8.903 ppm	18.29 ppm	PASS 45.23 %
-0.1 VDC (0.10 Range)	-0.1000000	-0.099999822	7.27 ppm	-0.10000128	-0.099998723	-1.778 ppm	5.50 ppm	PASS 19.50 %
-0.11 VDC (0.10 Range)	-0.1100000	-0.10999989	7.27 ppm	-0.11000137	-0.10999863	-0.980 ppm	5.23 ppm	PASS 10.94 %
0.19 VDC (1.00 Range)	0.1900000	0.18999978	7.27 ppm	0.18999803	0.19000197	-1.159 ppm	3.08 ppm	PASS 14.68 %
1.0 VDC (1.00 Range)	1.0000000	0.99999937	3.86 ppm	0.99999434	1.0000057	-0.635 ppm	1.80 ppm	PASS 14.90 %
1.1 VDC (1.00 Range)	1.1000000	1.0999994	3.86 ppm	1.0999938	1.1000062	-0.563 ppm	1.77 ppm	PASS 13.25 %
-0.19 VDC (1.00 Range)	-0.1900000	-0.18999949	7.27 ppm	-0.19000197	-0.18999803	-2.690 ppm	3.08 ppm	PASS 34.07 %
-1.0 VDC (1.00 Range)	-1.0000000	-0.99999793	3.86 ppm	-1.0000057	-0.99999434	-2.066 ppm	1.80 ppm	PASS 48.51 %
-1.1 VDC (1.00 Range)	-1.1000000	-1.0999979	3.86 ppm	-1.1000062	-1.0999938	-1.903 ppm	1.77 ppm	PASS 44.81 %
1.9 VDC (10.00 Range)	1.9000000	1.8999984	3.86 ppm	1.8999912	1.9000088	-0.827 ppm	0.76 ppm	PASS 21.01 %
10.0 VDC (10.00 Range)	10.0000000	9.9999961	2.77 ppm	9.9999668	10.000033	-0.387 ppm	0.55 ppm	PASS 13.69 %
11.0 VDC (10.00 Range)	11.0000000	10.999997	2.73 ppm	10.999964	11.000036	-0.249 ppm	0.55 ppm	PASS 8.93 %
-1.9 VDC (10.00 Range)	-1.9000000	-1.8999972	3.86 ppm	-1.9000088	-1.8999912	-1.483 ppm	0.76 ppm	PASS 37.69 %
-10.0 VDC (10.00 Range)	-10.0000000	-9.9999896	2.77 ppm	-10.000033	-9.9999668	-1.044 ppm	0.55 ppm	PASS 36.95 %
-11.0 VDC (10.00 Range)	-11.0000000	-10.999988	2.73 ppm	-11.000036	-10.999964	-1.087 ppm	0.55 ppm	PASS 39.05 %
19 VDC (100.00 Range)	19.0000000	19.000031	2.77 ppm	18.99987	19.00013	1.626 ppm	4.08 ppm	PASS 32.98 %
100 VDC (100.00 Range)	100.0000000	99.999995	3.73 ppm	99.999347	100.00065	-0.052 ppm	2.80 ppm	PASS 1.12 %
110 VDC (100.00 Range)	110.0000000	109.99993	3.73 ppm	109.99928	110.00072	-0.654 ppm	2.77 ppm	PASS 14.06 %
-19 VDC (100.00 Range)	-19.0000000	-19.00001	2.77 ppm	-19.00013	-18.99987	0.543 ppm	4.08 ppm	PASS 11.01 %
-100 VDC (100.00 Range)	-100.0000000	-100.00003	3.73 ppm	-100.00065	-99.999347	0.280 ppm	2.80 ppm	PASS 6.00 %
-110 VDC (100.00 Range)	-110.0000000	-110.00001	3.73 ppm	-110.00072	-109.99928	0.085 ppm	2.77 ppm	PASS 1.84 %
190 VDC (1000.00 Range)	190.0000000	189.99968	3.73 ppm	189.99872	190.00128	-1.659 ppm	3.03 ppm	PASS 34.54 %
500 VDC (1000.00 Range)	500.0000000	499.99984	3.73 ppm	499.99678	500.00322	-0.312 ppm	2.70 ppm	PASS 8.35 %
1000 VDC (1000.00 Range)	1000.0000000	999.99233	5.45 ppm	999.97995	1000.02	-7.672 ppm	2.60 ppm	PASS 58.21 %
-190 VDC (1000.00 Range)	-190.0000000	-189.99975	3.73 ppm	-190.00128	-189.99872	-1.311 ppm	3.03 ppm	PASS 27.28 %
-500 VDC (1000.00 Range)	-500.0000000	-500.00001	3.73 ppm	-500.00322	-499.99678	0.018 ppm	2.70 ppm	PASS 0.14 %
-1000 VDC (1000.00 Range)	-1000.0000000	-999.99165	5.45 ppm	-1000.02	-999.97995	-8.349 ppm	2.60 ppm	PASS 63.35 %

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	0.9999951 Ω	1.0000194 Ω	32.0 ppm	9.9992810E-01	1.0000621E+00	24.320 ppm	35.00 ppm	PASS, 51.28 % of 47.42 ppm
1.9 Ω	1.8995806 Ω	1.8995557 Ω	25.0 ppm	1.8994936E+00	1.8996676E+00	-13.120 ppm	20.79 ppm	PASS, 41.32 % of 31.75 ppm
10 Ω	9.999534	9.9994542	5.00 ppm	9.9994040E+00	9.9996640E+00	-7.982 ppm	8.0 ppm	PASS, 89.24 % of 8.94 ppm
19 Ω	19.000082 Ω	18.999869 Ω	4.0 ppm	1.8999649E+01	1.9000515E+01	-11.193 ppm	18.79 ppm	PASS, 58.26 % of 19.21 ppm
100 Ω	99.99773 Ω	99.997244 Ω	1.7 ppm	9.9996960E+01	9.9998500E+01	-4.860 ppm	6.00 ppm	PASS, 77.93 % of 6.24 ppm
190 Ω	190.00159 Ω	190.00066 Ω	1.7 ppm	1.9000069E+02	1.9000249E+02	-4.884 ppm	3.05 ppm	FAIL, 139.79 % of 3.49 ppm
1.0 kΩ	1000.0208 kΩ	1000.0177 kΩ	1.7 ppm	1.0000169E+03	1.0000247E+03	-3.123 ppm	2.20 ppm	FAIL, 112.32 % of 2.78 ppm
1.9 kΩ	1900.036 kΩ	1900.0314 kΩ	1.7 ppm	1.9000270E+03	1.9000450E+03	-2.420 ppm	3.05 ppm	PASS, 69.26 % of 3.49 ppm
10 kΩ	9999.916 kΩ	9999.8857 kΩ	1.6 ppm	9.9998780E+03	9.9999540E+03	-3.034 ppm	2.20 ppm	FAIL, 111.53 % of 2.72 ppm
19 kΩ	19000.292 kΩ	19000.251 kΩ	1.7 ppm	1.9000202E+04	1.9000382E+04	-2.176 ppm	3.05 ppm	PASS, 62.27 % of 3.49 ppm
100 kΩ	99998.81 kΩ	99998.431 kΩ	2.0 ppm	9.9998390E+04	9.9999230E+04	-3.789 ppm	2.20 ppm	FAIL, 127.42 % of 2.97 ppm
190 kΩ	189999.8 kΩ	189998.97 kΩ	2.0 ppm	1.8999652E+05	1.9000308E+05	-4.368 ppm	15.26 ppm	PASS, 28.38 % of 15.39 ppm
1.0 MΩ	999970 MΩ	999966.56 MΩ	2.5 ppm	9.9995650E+05	9.9998350E+05	-3.440 ppm	11.00 ppm	PASS, 30.49 % of 11.28 ppm
1.9 MΩ	1900005.6 MΩ	1900004.1 MΩ	3.0 ppm	1.8998549E+06	1.9001563E+06	-0.766 ppm	76.32 ppm	PASS, 1.00 % of 76.34 ppm
10 MΩ	9998760 MΩ	9998642.1 MΩ	10.0 ppm	9.9981101E+06	9.9994099E+06	-11.790 ppm	55.00 ppm	PASS, 21.09 % of 55.90 ppm
19 MΩ	18999470 MΩ	18999449 MΩ	20.0 ppm	1.8988590E+07	1.9010350E+07	-1.085 ppm	552.63 ppm	PASS, 0.20 % of 552.99 ppm
100 MΩ	99998610 MΩ	99989149 MΩ	50.0 ppm	9.9942611E+07	1.0005461E+08	-94.612 ppm	510.00 ppm	PASS, 18.46 % of 512.45 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 0.0000046 Ω	5.000e-05 Ω	-5e-05	5e-05	N/A	8.0000e-06 Ω	PASS
100 Ω	Range 0.0000491 Ω	5.500e-04 Ω	-0.00055	0.00055	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range -0.0000150 Ω	5.500e-03 Ω	-0.0055	0.0055	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range -0.0005243 Ω	5.500e-02 Ω	-0.055	0.055	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range -0.0011959 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range -0.0839027 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range 0.4499503 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range 0.1199868 Ω	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range -0.0599934 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 0.2441635 Ω	3.000e-01 Ω	-0.3	0.3	N/A	8.0000e-06 Ω	PASS
100 Ω	Range 0.2518298 Ω	3.500e-01 Ω	-0.35	0.35	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range 0.2515983 Ω	4.000e-01 Ω	-0.4	0.4	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range 0.3314004 Ω	4.000e-01 Ω	-0.4	0.4	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range 0.4188593 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range 0.1348438 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range -0.5699376 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range -2.1297663 Ω	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range -2.3997366 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 ANAlog mode. 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 ANA Test	1V-10V	DUT	w/Guardband	Low Limit	Hi limit	Units	Measured	24h spec	Result
1.0 VAC @ 50.0 kHz	1.0	1.0001283	129.09	0.99956891	1.00043109	VAC	128.260 ppm	302.0 ppm	PASS 29.75 %
1.0 VAC @ 1.0 MHz	1.0	1.0125932	0.2500 %	0.98749	1.01251	VAC	1.2593 %	1.0010 %	FAIL 100.67 %
10 VAC @ 40 Hz	10	9.9998273	0.0073 %	9.8892682	10.1107318	VAC	-0.0017 %	1.1000 %	PASS 0.16 %
10 VAC @ 200 Hz	10	10.001638	73.18	9.9965682	10.0034318	VAC	163.794 ppm	270.0 ppm	PASS 47.73 %
10 VAC @ 500 Hz	10	10.001613	73.18	9.9965682	10.0034318	VAC	161.285 ppm	270.0 ppm	PASS 47.00 %
10 VAC @ 50.0 kHz	10	10.001264	129.09	9.9937091	10.0062909	VAC	126.402 ppm	500.0 ppm	PASS 20.09 %
10 VAC @ 1.0 MHz	10	10.128555	0.3000 %	9.86	10.14	VAC	1.2856 %	1.1000 %	PASS 91.83 %

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	-4.1841881E-11						INFO
50 nADC	5E-08	4.995153E-08						INFO
100 nADC	1E-07	9.9978219E-08	71.82 ppm	9.995282E-08	1.000472E-07	-217.809 ppm	400 ppm	PASS 26.80 %
-100 nADC	-1E-07	-1.0003603E-07	71.82 ppm	-1.000492E-07	-9.995082E-08	360.271 ppm	420 ppm	PASS 42.28 %
-50 nADC	-5E-08	-5.0036544E-08						INFO
Zero µADC	0	-8.8338703E-12						INFO
0.5 µADC	5E-07	4.9996848E-07	71.82 ppm	4.999201E-07	5.000799E-07	-63.042 ppm	88 ppm	PASS 27.75 %
1.0 µADC	1E-06	9.9994213E-07	71.82 ppm	9.998792E-07	1.000121E-06	-57.867 ppm	49 ppm	PASS 33.28 %
-1.0 µADC	-1E-06	-1.0000337E-06	71.82 ppm	-1.000123E-06	-9.998772E-07	33.685 ppm	51 ppm	PASS 19.12 %
-0.5 µADC	-5E-07	-5.0006231E-07	71.82 ppm	-5.000819E-07	-4.999181E-07	124.617 ppm	92 ppm	PASS 53.39 %
Zero 00 µADC	0	-3.7890844E-11						INFO
5 µADC	5E-06	5.0000113E-06	71.82 ppm	4.999522E-06	5.000478E-06	2.267 ppm	24 ppm	PASS 1.50 %
10 µADC	1E-05	1.0000052E-05	71.82 ppm	9.999113E-06	1.000089E-05	5.236 ppm	17 ppm	PASS 3.55 %
-10 µADC	-1E-05	-1.0000031E-05	71.82 ppm	-1.000089E-05	-9.999111E-06	3.108 ppm	17 ppm	PASS 2.10 %
-5 µADC	-5E-06	-5.0000233E-06	71.82 ppm	-5.00048E-06	-4.99952E-06	4.651 ppm	24 ppm	PASS 3.07 %
Zero 000 µADC	0	-5.9377471E-11						INFO
50 µADC	5E-05	5.0000527E-05	71.82 ppm	4.999531E-05	5.000469E-05	10.540 ppm	22 ppm	PASS 7.02 %
100 µADC	0.0001	0.00010000072	71.82 ppm	9.999122E-05	0.0001000088	7.241 ppm	16 ppm	PASS 4.92 %
-100 µADC	-0.0001	-0.00010000006	71.82 ppm	-0.0001000088	-9.999122E-05	0.575 ppm	16 ppm	PASS 0.39 %
-50 µADC	-5E-05	-4.9999811E-05	71.82 ppm	-5.000469E-05	-4.999531E-05	-3.786 ppm	22 ppm	PASS 2.52 %
Zero mADC	0	-4.0641737E-11						INFO
0.5 mADC	0.0005	0.00050000083	33.64 ppm	0.0004999742	0.0005000258	1.651 ppm	18 ppm	PASS 2.16 %
1.0 mADC	0.001	0.00099999802	33.64 ppm	0.0009999524	0.001000048	-1.984 ppm	14 ppm	PASS 2.72 %
-1.0 mADC	-0.001	-0.000999999197	33.64 ppm	-0.001000048	-0.0009999524	-8.028 ppm	14 ppm	PASS 11.02 %
-0.5 mADC	-0.0005	-0.000499999481	33.64 ppm	-0.0005000258	-0.0004999742	-10.387 ppm	18 ppm	PASS 13.61 %
Zero 00 mADC	0	-2.2251213E-11						INFO
5 mADC	0.005	0.0050000136	32.27 ppm	0.004999749	0.005000251	2.730 ppm	18 ppm	PASS 3.69 %
10 mADC	0.01	0.0099999894	32.27 ppm	0.009999537	0.01000046	-1.059 ppm	14 ppm	PASS 1.51 %
-10 mADC	-0.01	-0.0099999266	32.27 ppm	-0.01000046	-0.009999537	-7.339 ppm	14 ppm	PASS 10.43 %
-5 mADC	-0.005	-0.0049999481	32.27 ppm	-0.005000251	-0.004999749	-10.375 ppm	18 ppm	PASS 14.04 %
Zero 000 mADC	0	-5.226156E-11						INFO
50 mADC	0.05	0.050000253	53.32 ppm	0.04999568	0.05000432	5.056 ppm	33 ppm	PASS 4.03 %
100 mADC	0.1	0.10000073	53.32 ppm	0.09999177	0.1000082	7.306 ppm	29 ppm	PASS 6.02 %
-100 mADC	-0.1	-0.10000128	53.32 ppm	-0.1000082	-0.09999177	12.788 ppm	29 ppm	PASS 10.53 %
-50 mADC	-0.05	-0.050000618	53.32 ppm	-0.05000432	-0.04999568	12.359 ppm	33 ppm	PASS 9.86 %
Zero ADC	0	2.5548238E-11						INFO
0.5 ADC	0.5	0.50000931	115.22 ppm	0.4998824	0.5001176	18.616 ppm	120 ppm	PASS 5.60 %
1.0 ADC	1	1.0000186	115.22 ppm	0.9997748	1.000225	18.558 ppm	110 ppm	PASS 5.82 %
-1.0 ADC	-1	-0.99998176	115.22 ppm	-1.000225	-0.9997748	-18.244 ppm	110 ppm	PASS 5.73 %
-0.5 ADC	-0.5	-0.49997763	115.22 ppm	-0.5001176	-0.4998824	-44.740 ppm	120 ppm	PASS 13.45 %

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	1.044431E-05	0.0160 %	-0.0002900076045	0.0003100076045	4.4431 %	3000.0600 %	INFO
100 µA AC @ 50 Hz	0.0001	0.000100112	0.0160 %	-0.000200076045	0.000400076045	0.1120 %	300.0600 %	PASS 0.02 %
1.0 mA AC @ 50 Hz	0.001	0.0010003904	0.0160 %	0.00099921955	0.00100078045	390.408 ppm	0.0620 %	PASS 30.48 %
10 mA AC @ 50 Hz	0.01	0.010001748	0.0160 %	0.0099921955	0.0100078045	174.752 ppm	0.0620 %	PASS 13.64 %
100 mA AC @ 50 Hz	0.1	0.10002406	0.0133 %	0.099924682	0.100075318	240.640 ppm	0.0620 %	PASS 18.97 %
1.0 A AC @ 50 Hz	1.0	1.0001973	0.0133 %	0.99904682	1.00095318	197.338 ppm	0.0820 %	PASS 11.88 %
10 µA AC @ 60 Hz	1e-05	1.0408271E-05	0.0133 %	-0.0002900073318	0.0003100073318	4.0827 %	3000.0600 %	INFO
100 µA AC @ 60 Hz	0.0001	0.00010006253	0.0133 %	-0.000200073318	0.000400073318	0.0625 %	300.0600 %	PASS 0.01 %
1.0 mA AC @ 60 Hz	0.001	0.0010003209	0.0129 %	0.00099925136	0.00100074864	320.917 ppm	0.0620 %	PASS 25.34 %
10 mA AC @ 60 Hz	0.01	0.010001999	0.0129 %	0.0099925136	0.0100074864	199.880 ppm	0.0620 %	PASS 15.78 %
100 mA AC @ 60 Hz	0.1	0.10002489	0.0288 %	0.099909182	0.100090818	248.854 ppm	0.0620 %	PASS 18.20 %
1.0 A AC @ 60 Hz	1.0	1.0002247	0.0288 %	0.99889182	1.00110818	224.740 ppm	0.0820 %	PASS 12.93 %
10 µA AC @ 1.0 kHz	1e-05	1.040717E-05	0.0160 %	-0.0002900076045	0.0003100076045	4.0717 %	3000.0600 %	INFO
100 µA AC @ 1.0 kHz	0.0001	0.00010005612	0.0160 %	-0.000200076045	0.000400076045	0.0561 %	300.0600 %	PASS 0.01 %
1.0 mA AC @ 1.0 kHz	0.001	0.0010003726	0.0160 %	0.00099951955	0.00100048045	372.623 ppm	0.0320 %	PASS 52.05 %
10 mA AC @ 1.0 kHz	0.01	0.010002513	0.0160 %	0.0099951955	0.0100048045	251.314 ppm	0.0320 %	PASS 35.10 %
100 mA AC @ 1.0 kHz	0.1	0.10003097	0.0133 %	0.099954682	0.100045318	309.706 ppm	0.0320 %	PASS 44.68 %
1.0 A AC @ 1.0 kHz	1.0	1.0004002	0.0133 %	0.99884682	1.00115318	0.0400 %	0.1020 %	PASS 19.45 %

Test date	23 February 2021 23:05
UUT Internal TEMP?	33.6

Lab temperature maintained +24°C ±2°C

Internal use only

Not validated