

Manufacturer	HEWLETT-PACKARD	Calibration date	November 19 2018
Model Number	3458A	Ambient Temperature	23.06 °C
Serial	C-meter	Relative Humidity	68.22 %
ID Number	3458C	Pressure	1017.08
Notes	Check	Test type	HLK5720

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	03/HLK	E2E6	XC01	10/18/2018	01/18/2019
DMM	HP	3458A	001,X02	X	XD3	07/25/2018	01/25/2019
DC STD	xDevs.com	792X[2]	9.9999854 VDC	±2.2 ppm	XD01	02/16/2018	02/16/2019
STDR	ESI	SR104	10000.0012 KΩ	±1.00 ppm	XR04	06/30/2018	06/30/2019
STDR	IET	SRL-1	1.00000542 Ω	±2.60 ppm	PR02	09/27/2018	09/27/2019

MFC last calibrated	31.0 days ago	MFC since DCV ZERO	1.0 days ago
MFC since WBFLAT	11279.0 days ago	MFC since WBGAIN	11279.0 days ago
MFC Confidence level	24h 95% REL	MFC Calibrate date	2018-10-19 00:00:00
MFC Calibrate date Zero	2018-11-18 00:00:00	Calibrate date WB Flatness	1988-10-01 00:00:00
Calibrate date WB Gain	1988-10-01 00:00:00	CAL CONST 6.5V reference voltage	6.95748247322
CAL CONST 13V reference voltage	13.8552982766	CAL CONST 22V range positive zero	398.17928
CAL CONST 22V range negative zero	398.17901	CAL CONST DAC Linearity	0.0
CAL CONST 10KOHM true output resistance	9999.78752388	CAL CONST 10KOHM standard resistance	9998.74685126
CAL CONST, Zero calibration temperature	23.0	CAL CONST, All calibration temp	23.0

This note is test MFC dummy text block for further use.
Calibrator was warmed up >8 hours.

Meter Info	HP3458A	Last calibration date	7/24/2018
CALSTR?	"Refine 11/19/2018, TEMP=35.9"	Test date	19 November 2018 02:04
DUT Internal TEMP?	35.9	DUT Calibrations number?	14
Self-test result?	0,"NO ERROR"	ACAL ALL result?	0,"NO ERROR"
Firmware	9,2	Options	0,0
CAL? 72	0.98502389	CAL? 1,1	39999.8608
CAL? 2,1	7.09840903	CAL? Res 73	0.985166376
CAL 0 TEMP	35.63	CAL 10V TEMP	35.65
CAL 10KOhm TEMP	35.72	CAL? DCI	0.983043395

Service information

CAL DUMP

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Destructive overloads?

151, DESTRUCTIVE OVERLOADS valid 2941

Reference

Direct MFC test, ADC stabilized cal test

DUT Condition

Test with fresh 24h cal

Test procedure : \$Id: hp3458a.py | Rev 1014 | 2018/10/18 09:32:31 clu \$

Source procedure : \$Id: f5720a.py | Rev 1039 | 2018/10/29 04:33:02 tin_fpga \$

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	0.00 µV	0.75 µV	-0.910 µV	0.910 µV	N/A	0.16 µV	PASS
Short 0.0 VDC	0.000000E+00	-0.14 µV	0.75 µV	-0.900 µV	0.900 µV	N/A	0.15 µV	PASS
Short 00.0 VDC	0.000000E+00	-0.07 µV	0.75 µV	-1.070 µV	1.070 µV	N/A	0.32 µV	PASS
Short 000.0 VDC	0.000000E+00	4.21 µV	0.75 µV	-14.750 µV	14.750 µV	N/A	14.00 µV	PASS
Short 0000.0 VDC	0.000000E+00	17.56 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
0.1 VDC (0.10 Range)	0.1000000	0.10000007	7.27 ppm	0.099998723	0.10000128	0.687 ppm	5.50 ppm	PASS 5.38 %
-0.1 VDC (0.10 Range)	-0.1000000	-0.10000015	7.27 ppm	-0.10000128	-0.099998723	1.454 ppm	5.50 ppm	PASS 11.39 %
0.1 VDC (1.00 Range)	0.1000000	0.099999871	7.27 ppm	0.099999093	0.10000091	-1.288 ppm	1.80 ppm	PASS 14.20 %
0.2 VDC (1.00 Range)	0.2000000	0.19999987	3.86 ppm	0.19999887	0.20000113	-0.660 ppm	1.80 ppm	PASS 11.66 %
1.0 VDC (1.00 Range)	1.0000000	0.99999965	3.86 ppm	0.99999434	1.0000057	-0.353 ppm	1.80 ppm	PASS 6.23 %
-0.1 VDC (1.00 Range)	-0.1000000	-0.10000048	7.27 ppm	-0.10000091	-0.099999093	4.806 ppm	1.80 ppm	PASS 52.99 %
-0.2 VDC (1.00 Range)	-0.2000000	-0.20000056	3.86 ppm	-0.20000113	-0.19999887	2.791 ppm	1.80 ppm	PASS 49.31 %
-1.0 VDC (1.00 Range)	-1.0000000	-1.0000009	3.86 ppm	-1.0000057	-0.99999434	0.936 ppm	1.80 ppm	PASS 16.54 %
1.0 VDC (10.00 Range)	1.0000000	1.0000001	3.86 ppm	0.99999559	1.0000044	0.104 ppm	0.55 ppm	PASS 2.36 %
2.0 VDC (10.00 Range)	2.0000000	2.0000001	2.77 ppm	1.9999934	2.0000066	0.033 ppm	0.55 ppm	PASS 0.99 %
10.0 VDC (10.00 Range)	10.0000000	10.000001	2.73 ppm	9.9999672	10.000033	0.126 ppm	0.55 ppm	PASS 3.84 %
-1.0 VDC (10.00 Range)	-1.0000000	-1.0000018	3.86 ppm	-1.0000044	-0.99999559	1.805 ppm	0.55 ppm	PASS 40.93 %
-2.0 VDC (10.00 Range)	-2.0000000	-2.0000022	2.77 ppm	-2.0000066	-1.9999934	1.077 ppm	0.55 ppm	PASS 32.44 %
-10.0 VDC (10.00 Range)	-10.0000000	-10.000004	2.73 ppm	-10.000033	-9.9999672	0.352 ppm	0.55 ppm	PASS 10.73 %
10 VDC (100.00 Range)	10.0000000	10.000033	2.77 ppm	9.9999443	10.000056	3.304 ppm	2.80 ppm	PASS 59.32 %
20 VDC (100.00 Range)	20.0000000	20.000029	3.73 ppm	19.999869	20.000131	1.435 ppm	2.80 ppm	PASS 21.98 %
100 VDC (100.00 Range)	100.0000000	100.00006	3.73 ppm	99.999347	100.00065	0.608 ppm	2.80 ppm	PASS 9.31 %
-10 VDC (100.00 Range)	-10.0000000	-9.9999674	2.77 ppm	-10.000056	-9.9999443	-3.257 ppm	2.80 ppm	PASS 58.47 %
-20 VDC (100.00 Range)	-20.0000000	-19.999969	3.73 ppm	-20.000131	-19.999869	-1.537 ppm	2.80 ppm	PASS 23.55 %
-100 VDC (100.00 Range)	-100.0000000	-100.00007	3.73 ppm	-100.00065	-99.999347	0.704 ppm	2.80 ppm	PASS 10.78 %
100 VDC (1000.00 Range)	100.0000000	100.0001	3.73 ppm	99.999367	100.00063	0.991 ppm	2.60 ppm	PASS 15.66 %
200 VDC (1000.00 Range)	200.0000000	200.00011	3.73 ppm	199.99873	200.00127	0.533 ppm	2.60 ppm	PASS 8.43 %
1000 VDC (1000.00 Range)	1000.0000000	1000.0059	5.45 ppm	999.97995	1000.02	5.930 ppm	2.60 ppm	PASS 29.58 %
-100 VDC (1000.00 Range)	-100.0000000	-100.00049	3.73 ppm	-100.00063	-99.999367	4.901 ppm	2.60 ppm	PASS 77.42 %
-200 VDC (1000.00 Range)	-200.0000000	-200.0004	3.73 ppm	-200.00127	-199.99873	2.005 ppm	2.60 ppm	PASS 31.67 %
-1000 VDC (1000.00 Range)	-1000.0000000	-1000.0052	5.45 ppm	-1000.02	-999.97995	5.207 ppm	2.60 ppm	FAIL 131.82 %

Additional test for **combined DUT+MFC** DC Voltage Integral Linearity (INL) using fixed 10V range. Integral linearity is a measure of the device's deviation from ideal linear behaviour.

DCV Linearity	1V Range	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
1.0999999	1.0999999	1.0999984	2.73 ppm	1.099996	1.100004	-1.40 ppm	0.55 ppm	PASS 42.63 %
0.9999999	0.9999999	0.9999985	2.73 ppm	0.9999966	1.000003	-1.45 ppm	0.55 ppm	PASS 44.16 %
0.9000000	0.9000000	0.8999986	2.73 ppm	0.899997	0.900003	-1.51 ppm	0.55 ppm	PASS 46.04 %
0.8888888	0.8888888	0.8888875	2.73 ppm	0.8888859	0.8888917	-1.44 ppm	0.55 ppm	PASS 43.86 %
0.8000000	0.8000000	0.7999988	2.73 ppm	0.7999974	0.8000026	-1.50 ppm	0.55 ppm	PASS 45.58 %
0.7777777	0.7777777	0.7777766	2.73 ppm	0.7777751	0.7777803	-1.47 ppm	0.55 ppm	PASS 44.78 %
0.7000000	0.7000000	0.6999989	2.73 ppm	0.6999977	0.7000023	-1.52 ppm	0.55 ppm	PASS 46.45 %
0.6666666	0.6666666	0.6666656	2.73 ppm	0.6666644	0.6666688	-1.53 ppm	0.55 ppm	PASS 46.73 %
0.6000000	0.6000000	0.5999990	2.73 ppm	0.599998	0.600002	-1.74 ppm	0.55 ppm	PASS 52.96 %
0.5555555	0.5555555	0.5555545	2.73 ppm	0.5555537	0.5555573	-1.82 ppm	0.55 ppm	PASS 55.58 %
0.5000000	0.5000000	0.4999989	2.73 ppm	0.4999984	0.5000016	-2.19 ppm	0.55 ppm	PASS 66.89 %
0.4444444	0.4444444	0.4444434	2.73 ppm	0.4444429	0.4444459	-2.32 ppm	0.55 ppm	PASS 70.79 %
0.4000000	0.4000000	0.3999990	2.73 ppm	0.3999987	0.4000013	-2.51 ppm	0.55 ppm	PASS 76.47 %
0.3333333	0.3333333	0.3333328	2.73 ppm	0.3333322	0.3333344	-3.05 ppm	0.55 ppm	PASS 92.99 %
0.3000000	0.3000000	0.29999905	2.73 ppm	0.299999	0.300001	-3.18 ppm	0.55 ppm	PASS 97.00 %
0.2222222	0.2222222	0.2222212	2.73 ppm	0.2222215	0.2222229	-4.51 ppm	0.55 ppm	FAIL 137.64 %
0.2000000	0.2000000	0.1999990	2.73 ppm	0.1999993	0.2000007	-5.04 ppm	0.55 ppm	FAIL 153.70 %
0.1234567	0.1234567	0.1234557	2.73 ppm	0.1234563	0.1234571	-8.48 ppm	0.55 ppm	FAIL 258.58 %
0.1111111	0.1111111	0.1111100	2.73 ppm	0.1111107	0.1111115	-9.79 ppm	0.55 ppm	FAIL 298.59 %
0.1000000	0.1000000	0.0999990	2.73 ppm	0.09999967	0.1000003	-10.46 ppm	0.55 ppm	FAIL 319.00 %
0.0987654	0.0987654	0.0987644	3.86 ppm	0.09876496	0.09876584	-10.49 ppm	0.55 ppm	FAIL 237.91 %
0.0111111	0.0111111	0.0111100	7.27 ppm	0.01111101	0.01111119	-97.65 ppm	0.55 ppm	FAIL 1248.66 %
-0.0111111	-0.0111111	-0.0111121	7.27 ppm	-0.01111119	-0.01111101	93.75 ppm	0.55 ppm	FAIL 1198.85 %
-0.0987654	-0.0987654	-0.0987665	3.86 ppm	-0.09876584	-0.09876496	11.40 ppm	0.55 ppm	FAIL 258.40 %
-0.1000000	-0.1000000	-0.1000012	2.73 ppm	-0.1000003	-0.09999967	12.08 ppm	0.55 ppm	FAIL 368.43 %
-0.1111111	-0.1111111	-0.1111123	2.73 ppm	-0.1111115	-0.1111107	10.99 ppm	0.55 ppm	FAIL 335.06 %
-0.1234567	-0.1234567	-0.1234579	2.73 ppm	-0.1234571	-0.1234563	10.07 ppm	0.55 ppm	FAIL 307.13 %
-0.2000000	-0.2000000	-0.2000012	2.73 ppm	-0.2000007	-0.1999993	6.20 ppm	0.55 ppm	FAIL 189.09 %
-0.2222222	-0.2222222	-0.2222234	2.73 ppm	-0.2222229	-0.2222215	5.32 ppm	0.55 ppm	FAIL 162.31 %
-0.3000000	-0.3000000	-0.3000012	2.73 ppm	-0.3000001	-0.2999999	3.99 ppm	0.55 ppm	FAIL 121.71 %
-0.3333333	-0.3333333	-0.3333345	2.73 ppm	-0.3333344	-0.3333322	3.74 ppm	0.55 ppm	FAIL 114.05 %
-0.4000000	-0.4000000	-0.40000131	2.73 ppm	-0.4000013	-0.3999987	3.27 ppm	0.55 ppm	PASS 99.67 %
-0.4444444	-0.4444444	-0.44444575	2.73 ppm	-0.4444459	-0.4444429	3.03 ppm	0.55 ppm	PASS 92.50 %
-0.5000000	-0.5000000	-0.50000137	2.73 ppm	-0.5000016	-0.4999984	2.73 ppm	0.55 ppm	PASS 83.29 %
-0.5555555	-0.5555555	-0.5555569	2.73 ppm	-0.5555573	-0.5555537	2.48 ppm	0.55 ppm	PASS 75.53 %
-0.6000000	-0.6000000	-0.6000013	2.73 ppm	-0.600002	-0.599998	2.21 ppm	0.55 ppm	PASS 67.28 %
-0.6666666	-0.6666666	-0.6666679	2.73 ppm	-0.6666688	-0.6666644	2.01 ppm	0.55 ppm	PASS 61.16 %
-0.7000000	-0.7000000	-0.7000014	2.73 ppm	-0.7000023	-0.6999977	1.94 ppm	0.55 ppm	PASS 59.02 %
-0.7777777	-0.7777777	-0.7777790	2.73 ppm	-0.7777803	-0.7777751	1.68 ppm	0.55 ppm	PASS 51.28 %
-0.8000000	-0.8000000	-0.8000014	2.73 ppm	-0.8000026	-0.7999974	1.71 ppm	0.55 ppm	PASS 52.16 %
-0.8888888	-0.8888888	-0.8888903	2.73 ppm	-0.8888917	-0.8888859	1.66 ppm	0.55 ppm	PASS 50.49 %
-0.9000000	-0.9000000	-0.9000015	2.73 ppm	-0.900003	-0.899997	1.68 ppm	0.55 ppm	PASS 51.22 %
-0.9999999	-0.9999999	-1.0000014	2.73 ppm	-1.000003	-0.9999966	1.51 ppm	0.55 ppm	PASS 45.88 %
-1.0999999	-1.0999999	-1.1000013	2.73 ppm	-1.100004	-1.099996	1.28 ppm	0.55 ppm	PASS 39.15 %
DCV Linearity	10V Range	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
10.250000	10.250000	10.2500003	1.04 ppm	10.24998	10.25002	0.03 ppm	0.55 ppm	PASS 2.02 %
10.000000	10.000000	10.0000008	1.05 ppm	9.999984	10.00002	0.08 ppm	0.55 ppm	PASS 5.13 %
9.750000	9.750000	9.7500016	1.06 ppm	9.749984	9.750016	0.16 ppm	0.55 ppm	PASS 9.97 %
9.500000	9.500000	9.5000012	1.06 ppm	9.499985	9.500015	0.13 ppm	0.55 ppm	PASS 8.13 %
9.250000	9.250000	9.2500012	1.07 ppm	9.249985	9.250015	0.13 ppm	0.55 ppm	PASS 7.89 %
9.000000	9.000000	9.0000013	1.08 ppm	8.999985	9.000015	0.15 ppm	0.55 ppm	PASS 9.09 %
8.750000	8.750000	8.7500016	1.09 ppm	8.749986	8.750014	0.18 ppm	0.55 ppm	PASS 11.21 %
8.500000	8.500000	8.5000015	1.09 ppm	8.499986	8.500014	0.18 ppm	0.55 ppm	PASS 10.73 %
8.250000	8.250000	8.2500014	1.10 ppm	8.249986	8.250014	0.17 ppm	0.55 ppm	PASS 10.30 %
8.000000	8.000000	8.0000010	1.11 ppm	7.999987	8.000013	0.12 ppm	0.55 ppm	PASS 7.20 %
7.750000	7.750000	7.7500015	1.12 ppm	7.749987	7.750013	0.19 ppm	0.55 ppm	PASS 11.27 %
7.500000	7.500000	7.5000010	1.13 ppm	7.499987	7.500013	0.13 ppm	0.55 ppm	PASS 7.75 %
7.250000	7.250000	7.2500007	1.14 ppm	7.249988	7.250012	0.09 ppm	0.55 ppm	PASS 5.48 %
7.000000	7.000000	7.0000005	1.16 ppm	6.999988	7.000012	0.07 ppm	0.55 ppm	PASS 3.80 %
6.750000	6.750000	6.7500007	1.17 ppm	6.749988	6.750012	0.11 ppm	0.55 ppm	PASS 6.12 %
6.500000	6.500000	6.5000006	1.18 ppm	6.499989	6.500011	0.09 ppm	0.55 ppm	PASS 5.33 %
6.250000	6.250000	6.2500009	1.20 ppm	6.249989	6.250011	0.15 ppm	0.55 ppm	PASS 8.47 %
6.000000	6.000000	6.0000008	1.22 ppm	5.999989	6.000011	0.14 ppm	0.55 ppm	PASS 7.82 %
5.750000	5.750000	5.7500012	1.23 ppm	5.74999	5.75001	0.20 ppm	0.55 ppm	PASS 11.31 %
5.500000	5.500000	5.5000004	1.25 ppm	5.49999	5.50001	0.07 ppm	0.55 ppm	PASS 3.83 %
5.250000	5.250000	5.2500007	1.28 ppm	5.24999	5.25001	0.14 ppm	0.55 ppm	PASS 7.53 %
5.000000	5.000000	5.0000003	1.30 ppm	4.999991	5.000009	0.07 ppm	0.55 ppm	PASS 3.76 %
4.750000	4.750000	4.7500002	1.33 ppm	4.749991	4.750009	0.05 ppm	0.55 ppm	PASS 2.63 %
4.500000	4.500000	4.4999998	1.36 ppm	4.499991	4.500009	-0.04 ppm	0.55 ppm	PASS 1.84 %
4.250000	4.250000	4.2500001	1.39 ppm	4.249992	4.250008	0.02 ppm	0.55 ppm	PASS 0.78 %

4.000000	4.000000	4.0000000	1.42 ppm	3.999992	4.000008	-0.00 ppm	0.55 ppm	PASS 0.16 %
3.750000	3.750000	3.7499999	1.47 ppm	3.749992	3.750008	-0.04 ppm	0.55 ppm	PASS 1.89 %
3.500000	3.500000	3.4999996	1.51 ppm	3.499993	3.500007	-0.11 ppm	0.55 ppm	PASS 5.49 %
3.250000	3.250000	3.2499997	1.57 ppm	3.249993	3.250007	-0.10 ppm	0.55 ppm	PASS 4.82 %
3.000000	3.000000	2.9999999	1.63 ppm	2.999993	3.000007	-0.03 ppm	0.55 ppm	PASS 1.16 %
2.750000	2.750000	2.7499995	1.71 ppm	2.749994	2.750006	-0.16 ppm	0.55 ppm	PASS 7.26 %
2.500000	2.500000	2.4999995	1.80 ppm	2.499994	2.500006	-0.20 ppm	0.55 ppm	PASS 8.70 %
2.250000	2.250000	2.2499994	1.91 ppm	2.249994	2.250006	-0.26 ppm	0.55 ppm	PASS 10.62 %
2.000000	2.000000	1.9999994	2.05 ppm	1.999995	2.000005	-0.31 ppm	0.55 ppm	PASS 11.77 %
1.750000	1.750000	1.7499991	2.23 ppm	1.749995	1.750005	-0.50 ppm	0.55 ppm	PASS 18.13 %
1.500000	1.500000	1.4999991	2.47 ppm	1.499995	1.500005	-0.60 ppm	0.55 ppm	PASS 19.81 %
1.250000	1.250000	1.2499991	2.80 ppm	1.249996	1.250004	-0.74 ppm	0.55 ppm	PASS 22.23 %
1.000000	1.000000	0.9999988	3.30 ppm	0.9999961	1.000004	-1.24 ppm	0.55 ppm	PASS 32.11 %
0.750000	0.750000	0.7499989	4.13 ppm	0.7499965	0.7500035	-1.49 ppm	0.55 ppm	PASS 31.91 %
0.500000	0.500000	0.4999987	5.80 ppm	0.4999968	0.5000032	-2.60 ppm	0.55 ppm	PASS 41.02 %
0.250000	0.250000	0.2499985	10.80 ppm	0.2499972	0.2500028	-5.83 ppm	0.55 ppm	PASS 51.40 %
0.100000	0.100000	0.0999985	25.80 ppm	0.09999737	0.1000026	-15.36 ppm	0.55 ppm	PASS 58.30 %
-0.100000	-0.100000	-0.1000014	25.80 ppm	-0.1000026	-0.09999737	14.47 ppm	0.55 ppm	PASS 54.91 %
-0.250000	-0.250000	-0.2500021	10.80 ppm	-0.2500028	-0.2499972	8.21 ppm	0.55 ppm	PASS 72.30 %
-0.500000	-0.500000	-0.5000022	5.80 ppm	-0.5000032	-0.4999968	4.47 ppm	0.55 ppm	PASS 70.36 %
-0.750000	-0.750000	-0.7500024	4.13 ppm	-0.7500035	-0.7499965	3.15 ppm	0.55 ppm	PASS 67.34 %
-1.000000	-1.000000	-1.0000021	3.30 ppm	-1.000004	-0.9999961	2.12 ppm	0.55 ppm	PASS 54.96 %
-1.250000	-1.250000	-1.2500023	2.80 ppm	-1.250004	-1.249996	1.83 ppm	0.55 ppm	PASS 54.67 %
-1.500000	-1.500000	-1.5000024	2.47 ppm	-1.500005	-1.499995	1.63 ppm	0.55 ppm	PASS 53.97 %
-1.750000	-1.750000	-1.7500025	2.23 ppm	-1.750005	-1.749995	1.43 ppm	0.55 ppm	PASS 51.49 %
-2.000000	-2.000000	-2.0000025	2.05 ppm	-2.000005	-1.999995	1.25 ppm	0.55 ppm	PASS 47.97 %
-2.250000	-2.250000	-2.2500027	1.91 ppm	-2.250006	-2.249994	1.20 ppm	0.55 ppm	PASS 48.83 %
-2.500000	-2.500000	-2.5000028	1.80 ppm	-2.500006	-2.499994	1.13 ppm	0.55 ppm	PASS 47.91 %
-2.750000	-2.750000	-2.7500028	1.71 ppm	-2.750006	-2.749994	1.00 ppm	0.55 ppm	PASS 44.27 %
-3.000000	-3.000000	-3.0000028	1.63 ppm	-3.000007	-2.999993	0.93 ppm	0.55 ppm	PASS 42.71 %
-3.250000	-3.250000	-3.2500030	1.57 ppm	-3.250007	-3.249993	0.92 ppm	0.55 ppm	PASS 43.19 %
-3.500000	-3.500000	-3.5000027	1.51 ppm	-3.500007	-3.499993	0.78 ppm	0.55 ppm	PASS 37.96 %
-3.750000	-3.750000	-3.7500027	1.47 ppm	-3.750008	-3.749992	0.72 ppm	0.55 ppm	PASS 35.64 %
-4.000000	-4.000000	-4.0000027	1.42 ppm	-4.000008	-3.999992	0.67 ppm	0.55 ppm	PASS 34.01 %
-4.250000	-4.250000	-4.2500029	1.39 ppm	-4.250008	-4.249992	0.69 ppm	0.55 ppm	PASS 35.36 %
-4.500000	-4.500000	-4.5000031	1.36 ppm	-4.500009	-4.499991	0.69 ppm	0.55 ppm	PASS 36.04 %
-4.750000	-4.750000	-4.7500034	1.33 ppm	-4.750009	-4.749991	0.72 ppm	0.55 ppm	PASS 38.20 %
-5.000000	-5.000000	-5.0000033	1.30 ppm	-5.000009	-4.999991	0.66 ppm	0.55 ppm	PASS 35.44 %
-5.250000	-5.250000	-5.2500035	1.28 ppm	-5.25001	-5.24999	0.67 ppm	0.55 ppm	PASS 36.57 %
-5.500000	-5.500000	-5.5000035	1.25 ppm	-5.50001	-5.49999	0.64 ppm	0.55 ppm	PASS 35.37 %
-5.750000	-5.750000	-5.7500039	1.23 ppm	-5.75001	-5.74999	0.68 ppm	0.55 ppm	PASS 38.32 %
-6.000000	-6.000000	-6.0000036	1.22 ppm	-6.000011	-5.999989	0.60 ppm	0.55 ppm	PASS 34.10 %
-6.250000	-6.250000	-6.2500038	1.20 ppm	-6.250011	-6.249989	0.60 ppm	0.55 ppm	PASS 34.54 %
-6.500000	-6.500000	-6.5000039	1.18 ppm	-6.500011	-6.499989	0.59 ppm	0.55 ppm	PASS 34.28 %
-6.750000	-6.750000	-6.7500041	1.17 ppm	-6.750012	-6.749988	0.60 ppm	0.55 ppm	PASS 35.15 %
-7.000000	-7.000000	-7.0000040	1.16 ppm	-7.000012	-6.999988	0.57 ppm	0.55 ppm	PASS 33.27 %
-7.250000	-7.250000	-7.2500042	1.14 ppm	-7.250012	-7.249988	0.57 ppm	0.55 ppm	PASS 33.99 %
-7.500000	-7.500000	-7.5000041	1.13 ppm	-7.500013	-7.499987	0.55 ppm	0.55 ppm	PASS 32.55 %
-7.750000	-7.750000	-7.7500045	1.12 ppm	-7.750013	-7.749987	0.58 ppm	0.55 ppm	PASS 34.99 %
-8.000000	-8.000000	-8.0000045	1.11 ppm	-8.000013	-7.999987	0.56 ppm	0.55 ppm	PASS 33.56 %
-8.250000	-8.250000	-8.2500046	1.10 ppm	-8.250014	-8.249986	0.55 ppm	0.55 ppm	PASS 33.57 %
-8.500000	-8.500000	-8.5000043	1.09 ppm	-8.500014	-8.499986	0.50 ppm	0.55 ppm	PASS 30.75 %
-8.750000	-8.750000	-8.7500048	1.09 ppm	-8.750014	-8.749986	0.55 ppm	0.55 ppm	PASS 33.47 %
-9.000000	-9.000000	-9.0000043	1.08 ppm	-9.000015	-8.999985	0.48 ppm	0.55 ppm	PASS 29.55 %
-9.250000	-9.250000	-9.2500047	1.07 ppm	-9.250015	-9.249985	0.51 ppm	0.55 ppm	PASS 31.44 %
-9.500000	-9.500000	-9.5000051	1.06 ppm	-9.500015	-9.499985	0.54 ppm	0.55 ppm	PASS 33.60 %
-9.750000	-9.750000	-9.7500048	1.06 ppm	-9.750016	-9.749984	0.49 ppm	0.55 ppm	PASS 30.54 %
-10.000000	-10.000000	-10.0000047	1.05 ppm	-10.00002	-9.999984	0.47 ppm	0.55 ppm	PASS 29.09 %
-10.250000	-10.250000	-10.2500046	1.04 ppm	-10.25002	-10.24998	0.45 ppm	0.55 ppm	PASS 28.04 %
DCV Linearity	100V Range	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
100.99999	100.99999	101.0000477	2.73 ppm	100.99966	101.00032	0.57 ppm	0.55 ppm	PASS 12.72 %
100.10101	100.10101	100.1010720	2.73 ppm	100.10068	100.10134	0.62 ppm	0.55 ppm	PASS 13.82 %
100.00000	100.00000	100.0000594	2.73 ppm	99.999672	100.00033	0.59 ppm	0.55 ppm	PASS 13.26 %
99.99999	99.99999	100.0000529	2.73 ppm	99.999662	100.00032	0.63 ppm	0.55 ppm	PASS 14.04 %
90.00000	90.00000	90.0000671	2.73 ppm	89.999705	90.000295	0.75 ppm	0.55 ppm	PASS 22.72 %
88.88888	88.88888	88.8889482	2.73 ppm	88.888588	88.889172	0.77 ppm	0.55 ppm	PASS 23.41 %
80.00000	80.00000	80.0000608	2.73 ppm	79.999738	80.000262	0.76 ppm	0.55 ppm	PASS 23.17 %
77.77777	77.77777	77.7778316	2.73 ppm	77.777515	77.778025	0.79 ppm	0.55 ppm	PASS 24.13 %
70.00000	70.00000	70.0000616	2.73 ppm	69.99977	70.00023	0.88 ppm	0.55 ppm	PASS 26.84 %
66.66666	66.66666	66.6667186	2.73 ppm	66.666441	66.666879	0.88 ppm	0.55 ppm	PASS 26.78 %
60.00000	60.00000	60.0000511	2.73 ppm	59.999803	60.000197	0.85 ppm	0.55 ppm	PASS 25.97 %
55.55555	55.55555	55.5555950	2.73 ppm	55.555368	55.555732	0.81 ppm	0.55 ppm	PASS 24.70 %
50.00000	50.00000	50.0000393	2.73 ppm	49.999836	50.000164	0.79 ppm	0.55 ppm	PASS 23.96 %
44.44444	44.44444	44.4444747	2.73 ppm	44.444294	44.444586	0.78 ppm	0.55 ppm	PASS 23.82 %
40.00000	40.00000	40.0000304	2.73 ppm	39.999869	40.000131	0.76 ppm	0.55 ppm	PASS 23.16 %
33.33333	33.33333	33.3333497	2.73 ppm	33.333221	33.333439	0.59 ppm	0.55 ppm	PASS 18.00 %
30.00000	30.00000	30.0000107	2.73 ppm	29.999902	30.000098	0.36 ppm	0.55 ppm	PASS 10.83 %

22.22222	22.22222	22.2222275	2.73 ppm	22.222147	22.222293	0.34 ppm	0.55 ppm	PASS 10.24 %
20.00000	20.00000	19.9999981	2.73 ppm	19.999934	20.000066	-0.09 ppm	0.55 ppm	PASS 2.84 %
11.11111	11.11111	11.1110928	2.73 ppm	11.111075	11.111147	-1.64 ppm	0.55 ppm	PASS 50.02 %
10.00000	10.00000	9.9999796	3.86 ppm	9.9999559	10.000044	-2.04 ppm	0.55 ppm	PASS 46.35 %
9.87654	9.87654	9.8765178	7.27 ppm	9.8764658	9.8766202	-2.55 ppm	0.55 ppm	PASS 32.61 %
-9.87654	-9.87654	-9.8765988	7.27 ppm	-9.8766202	-9.8764658	5.64 ppm	0.55 ppm	PASS 72.18 %
-10.00000	-10.00000	-10.0000569	3.86 ppm	-10.000044	-9.9999559	5.69 ppm	0.55 ppm	FAIL 129.01 %
-11.11111	-11.11111	-11.1111655	2.73 ppm	-11.111147	-11.111075	4.90 ppm	0.55 ppm	FAIL 149.43 %
-20.00000	-20.00000	-20.0000721	2.73 ppm	-20.000066	-19.999934	3.61 ppm	0.55 ppm	FAIL 109.97 %
-22.22222	-22.22222	-22.2222951	2.73 ppm	-22.222293	-22.222147	3.38 ppm	0.55 ppm	FAIL 103.09 %
-30.00000	-30.00000	-30.00008703	2.73 ppm	-30.000098	-29.999902	2.90 ppm	0.55 ppm	PASS 88.45 %
-33.33333	-33.33333	-33.33342579	2.73 ppm	-33.333439	-33.333221	2.87 ppm	0.55 ppm	PASS 87.62 %
-40.00000	-40.00000	-40.0001005	2.73 ppm	-40.000131	-39.999869	2.51 ppm	0.55 ppm	PASS 76.61 %
-44.44444	-44.44444	-44.4445490	2.73 ppm	-44.444586	-44.444294	2.45 ppm	0.55 ppm	PASS 74.76 %
-50.00000	-50.00000	-50.0001173	2.73 ppm	-50.000164	-49.999836	2.35 ppm	0.55 ppm	PASS 71.55 %
-55.55555	-55.55555	-55.5556810	2.73 ppm	-55.555732	-55.555368	2.36 ppm	0.55 ppm	PASS 71.91 %
-60.00000	-60.00000	-60.0001355	2.73 ppm	-60.000197	-59.999803	2.26 ppm	0.55 ppm	PASS 68.84 %
-66.66666	-66.66666	-66.6668051	2.73 ppm	-66.666879	-66.666441	2.18 ppm	0.55 ppm	PASS 66.36 %
-70.00000	-70.00000	-70.0001410	2.73 ppm	-70.00023	-69.99977	2.01 ppm	0.55 ppm	PASS 61.40 %
-77.77777	-77.77777	-77.7779166	2.73 ppm	-77.778025	-77.777515	1.89 ppm	0.55 ppm	PASS 57.47 %
-80.00000	-80.00000	-80.0001514	2.73 ppm	-80.000262	-79.999738	1.89 ppm	0.55 ppm	PASS 57.69 %
-88.88888	-88.88888	-88.8890482	2.73 ppm	-88.889172	-88.888588	1.89 ppm	0.55 ppm	PASS 57.67 %
-90.00000	-90.00000	-90.0001676	2.73 ppm	-90.000295	-89.999705	1.86 ppm	0.55 ppm	PASS 56.77 %
-99.99999	-99.99999	-100.00016965	2.73 ppm	-100.00032	-99.999662	1.80 ppm	0.55 ppm	PASS 86.37 %
-100.00000	-100.00000	-100.00017335	2.73 ppm	-100.00033	-99.999672	1.73 ppm	0.55 ppm	PASS 83.34 %
-100.10101	-100.10101	-100.10119455	2.73 ppm	-100.10134	-100.10068	1.84 ppm	0.55 ppm	PASS 88.69 %
-100.99999	-100.99999	-101.00017970	2.73 ppm	-101.00032	-100.99966	1.88 ppm	0.55 ppm	PASS 90.82 %

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	1 Ohm to 1 GOhm	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
1 Ω	0.9998224	0.99980072	32.0 ppm	9.9978241E-01	9.9986239E-01	-21.682 ppm	8.0 ppm	PASS 54.21 %
1.9 Ω	1.8999361	1.8998566	25.0 ppm	1.8998734E+00	1.8999988E+00	-41.864 ppm	8.0 ppm	FAIL 126.86 %
10 Ω	10.00032	10.000303	5.0 ppm	1.0000190E+01	1.0000450E+01	-1.676 ppm	8.0 ppm	PASS 12.90 %
19 Ω	18.999992	18.999995	4.0 ppm	1.8999802E+01	1.9000182E+01	0.178 ppm	6.0 ppm	PASS 1.78 %
100 Ω	100.00313	100.0034	1.7 ppm	1.0000236E+02	1.0000390E+02	2.685 ppm	6.0 ppm	PASS 34.87 %
190 Ω	189.99805	189.99849	1.7 ppm	1.8999731E+02	1.8999879E+02	2.329 ppm	2.2 ppm	PASS 59.72 %
1.0 kΩ	1000.01	1000.0104	1.7 ppm	1.0000061E+03	1.0000139E+03	0.374 ppm	2.2 ppm	PASS 9.59 %
1.9 kΩ	1900.0232	1900.0254	1.7 ppm	1.9000158E+03	1.9000306E+03	1.138 ppm	2.2 ppm	PASS 29.19 %
10 kΩ	9999.793	9999.7861	1.6 ppm	9.9997550E+03	9.9998310E+03	-0.691 ppm	2.2 ppm	PASS 18.19 %
19 kΩ	18999.397	18999.381	1.7 ppm	1.8999323E+04	1.8999471E+04	-0.863 ppm	2.2 ppm	PASS 22.13 %
100 kΩ	99994.71	99993.886	2.0 ppm	9.9994290E+04	9.9995130E+04	-8.243 ppm	2.2 ppm	FAIL 196.27 %
190 kΩ	189988.9	189989.3	2.0 ppm	1.8998643E+05	1.8999137E+05	2.091 ppm	11.0 ppm	PASS 16.08 %
1.0 MΩ	999980.5	999976.91	2.5 ppm	9.9996700E+05	9.9999400E+05	-3.593 ppm	11.0 ppm	PASS 26.61 %
1.9 MΩ	1899966.5	1899979.2	3.0 ppm	1.8998563E+06	1.9000767E+06	6.686 ppm	55.0 ppm	PASS 11.53 %
10 MΩ	9999020	9998792.4	10.0 ppm	9.9983701E+06	9.9996699E+06	-22.765 ppm	55.0 ppm	PASS 35.02 %
19 MΩ	18998408	18999156	20.0 ppm	1.8988339E+07	1.9008477E+07	39.348 ppm	510.0 ppm	PASS 7.42 %
100 MΩ	1.0000758E+08	1.0001739E+08	50.0 ppm	9.9951576E+07	1.0006358E+08	98.087 ppm	510.0 ppm	PASS 17.52 %
1 GΩ STD	9.9751672E+08	1.0000000E+09	30000.0 ppm	962593659.633	1032439780.37	2489.462 ppm	5010.00 ppm	PASS 7.11 %

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 0.0000028 Ω	5.000e-05 Ω	-5e-05	5e-05	N/A	8.0000e-06 Ω	PASS
100 Ω	Range -0.0000275 Ω	5.500e-04 Ω	-0.00055	0.00055	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range 0.0000054 Ω	5.500e-03 Ω	-0.0055	0.0055	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range 0.0005207 Ω	5.500e-02 Ω	-0.055	0.055	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range 0.0000000 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range -0.1004697 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range -0.7897023 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range -1.9024644 Ω	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range -1.8665688 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 0.2312869 Ω	3.000e-01 Ω	-0.3	0.3	N/A	8.0000e-06 Ω	PASS
100 Ω	Range 0.2286236 Ω	3.500e-01 Ω	-0.35	0.35	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range 0.2282899 Ω	4.000e-01 Ω	-0.4	0.4	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range 0.2040743 Ω	4.000e-01 Ω	-0.4	0.4	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range 0.1683451 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range 0.2332333 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range 0.2871644 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range -0.9691798 Ω	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range -0.8614931 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	0.99990218	129.09	0.99955091	1.00044909	VAC	-97.817 ppm	320.0 ppm	PASS 21.78 %
1.0 VAC @ 1.0 MHz	1.0	1.0126026	0.2500 %	0.9874	1.0126	VAC	1.2603 %	1.0100 %	FAIL 100.02 %
10 VAC @ 40 Hz	10	10.001618	0.0073 %	9.8982682	10.1017318	VAC	0.0162 %	1.0100 %	PASS 1.59 %
10 VAC @ 200 Hz	10	10.000825	73.18	9.9983682	10.0016318	VAC	82.550 ppm	90.0 ppm	PASS 50.59 %
10 VAC @ 500 Hz	10	10.000838	73.18	9.9983682	10.0016318	VAC	83.783 ppm	90.0 ppm	PASS 51.34 %
10 VAC @ 50.0 kHz	10	9.9981084	129.09	9.9955091	10.0044909	VAC	-189.158 ppm	320.0 ppm	PASS 42.12 %
10 VAC @ 1.0 MHz	10	10.09344	0.3000 %	9.869	10.131	VAC	0.9344 %	1.0100 %	PASS 71.33 %

Procedure for all test points in the AC performance verification for SYNCronous 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	0.010001636	312.27	0.009991	0.010009	163.637 ppm	600.0 ppm	PASS 17.94 %
0.01 V AC+DC @ 20 Hz	0.010001065	312.27	0.009991	0.010009	106.507 ppm	600.0 ppm	PASS 11.67 %
0.01 V AC+DC @ 40 Hz	0.010000922	312.27	0.009991	0.010009	92.249 ppm	600.0 ppm	PASS 10.11 %
0.01 V AC+DC @ 100 Hz	0.010001357	312.27	0.009994	0.010006	135.667 ppm	310.0 ppm	PASS 21.80 %
0.01 V AC+DC @ 1.0 kHz	0.009999992	312.27	0.009994	0.010006	-0.804 ppm	310.0 ppm	PASS 0.13 %
0.01 V AC+DC @ 10.0 kHz	0.0099970737	312.27	0.009993	0.010007	-292.628 ppm	410.0 ppm	PASS 40.52 %
0.01 V AC+DC @ 20.0 kHz	0.0099951592	312.27	0.009993	0.010007	-484.078 ppm	410.0 ppm	PASS 67.02 %
0.01 V AC+DC @ 50.0 kHz	0.0099930712	0.0312 %	0.009986	0.010014	-0.0693 %	0.1110 %	PASS 48.72 %
0.01 V AC+DC @ 100.0 kHz	0.0099718366	0.0312 %	0.009946	0.010054	-0.2816 %	0.5110 %	PASS 51.94 %
0.01 V AC+DC @ 300.0 kHz	0.010097587	0.0447 %	0.009594	0.010406	0.9759 %	4.0200 %	PASS 24.01 %
0.01 V AC+DC @ 500.0 kHz	0.0095682057	0.0773 %	0.006787	0.013213	-4.3179 %	32.0500 %	PASS 13.44 %
0.01 V AC+DC @ 1.0 MHz	0.0087164304	0.1500 %	0.006780	0.013220	-12.8357 %	32.0500 %	PASS 39.86 %
0.1 V AC+DC @ 10 Hz	0.099999651	1500	0.099839	0.100161	-3.487 ppm	110.0 ppm	PASS 0.22 %
0.1 V AC+DC @ 20 Hz	0.099998273	2500	0.099739	0.100261	-17.269 ppm	110.0 ppm	PASS 0.66 %
0.1 V AC+DC @ 40 Hz	0.099997823	4000	0.099589	0.100411	-21.767 ppm	110.0 ppm	PASS 0.53 %
0.1 V AC+DC @ 100 Hz	0.099998092	101.36	0.099981	0.100019	-19.076 ppm	90.0 ppm	PASS 9.97 %
0.1 V AC+DC @ 1.0 kHz	0.099998696	101.36	0.099981	0.100019	-13.038 ppm	90.0 ppm	PASS 6.81 %
0.1 V AC+DC @ 10.0 kHz	0.099994325	101.36	0.099974	0.100026	-56.749 ppm	160.0 ppm	PASS 21.71 %
0.1 V AC+DC @ 20.0 kHz	0.099988344	101.36	0.099974	0.100026	-116.556 ppm	160.0 ppm	PASS 44.60 %
0.1 V AC+DC @ 50.0 kHz	0.099986229	101.36	0.099958	0.100042	-137.710 ppm	320.0 ppm	PASS 32.68 %
0.1 V AC+DC @ 100.0 kHz	0.099948897	101.36	0.099908	0.100092	-511.031 ppm	820.0 ppm	PASS 55.46 %
0.1 V AC+DC @ 300.0 kHz	0.099626861	0.0101 %	0.099680	0.100320	-0.3731 %	0.3100 %	FAIL 116.56 %
0.1 V AC+DC @ 500.0 kHz	0.099722947	0.0101 %	0.098980	0.101020	-0.2771 %	1.0100 %	PASS 27.16 %
0.1 V AC+DC @ 1.0 MHz	0.099734994	0.0101 %	0.098980	0.101020	-0.2650 %	1.0100 %	PASS 25.98 %
1.0 V AC+DC @ 10 Hz	1.0000198	171.36	0.999719	1.000281	19.836 ppm	110.0 ppm	PASS 7.05 %
1.0 V AC+DC @ 20 Hz	1.0000029	460.91	0.999429	1.000571	2.863 ppm	110.0 ppm	PASS 0.50 %
1.0 V AC+DC @ 40 Hz	1.0000007	763.64	0.999126	1.000874	0.744 ppm	110.0 ppm	PASS 0.09 %
1.0 V AC+DC @ 100 Hz	0.99999573	763.64	0.999146	1.000854	-4.268 ppm	90.0 ppm	PASS 0.50 %
1.0 V AC+DC @ 1.0 kHz	1.0000157	1500	0.998410	1.001590	15.692 ppm	90.0 ppm	PASS 0.99 %
1.0 V AC+DC @ 10.0 kHz	0.99995367	3000	0.996840	1.003160	-46.325 ppm	160.0 ppm	PASS 1.47 %
1.0 V AC+DC @ 20.0 kHz	0.99991811	49.55	0.999790	1.000210	-81.890 ppm	160.0 ppm	PASS 39.08 %
1.0 V AC+DC @ 50.0 kHz	1.0000021	49.55	0.999630	1.000370	2.096 ppm	320.0 ppm	PASS 0.57 %
1.0 V AC+DC @ 100.0 kHz	1.000078	49.55	0.999130	1.000870	77.995 ppm	820.0 ppm	PASS 8.97 %
1.0 V AC+DC @ 300.0 kHz	1.0013759	0.0050 %	0.996850	1.003150	0.1376 %	0.3100 %	PASS 43.69 %
1.0 V AC+DC @ 500.0 kHz	1.0036581	0.0050 %	0.989850	1.010150	0.3658 %	1.0100 %	PASS 36.04 %
1.0 V AC+DC @ 1.0 MHz	1.0105449	0.0050 %	0.989850	1.010150	1.0545 %	1.0100 %	FAIL 103.89 %
10.0 V AC+DC @ 10 Hz	10.000397	49.55	9.997105	10.002895	39.718 ppm	240.0 ppm	PASS 13.72 %
10.0 V AC+DC @ 20 Hz	10.000207	49.55	9.997105	10.002895	20.683 ppm	240.0 ppm	PASS 7.14 %
10.0 V AC+DC @ 40 Hz	10.000191	49.55	9.997105	10.002895	19.079 ppm	240.0 ppm	PASS 6.59 %
10.0 V AC+DC @ 100 Hz	10.00014	80.45	9.996996	10.003004	14.015 ppm	220.0 ppm	PASS 4.66 %
10.0 V AC+DC @ 1.0 kHz	10.00036	113.18	9.996668	10.003332	36.050 ppm	220.0 ppm	PASS 10.82 %
10.0 V AC+DC @ 10.0 kHz	9.9997301	395.45	9.993846	10.006154	-26.992 ppm	220.0 ppm	PASS 4.39 %
10.0 V AC+DC @ 20.0 kHz	9.9994084	395.45	9.993846	10.006154	-59.156 ppm	220.0 ppm	PASS 9.61 %
10.0 V AC+DC @ 50.0 kHz	9.9990471	1100	9.985300	10.014700	-95.293 ppm	370.0 ppm	PASS 6.48 %
10.0 V AC+DC @ 100.0 kHz	9.9964101	0.1800 %	9.969800	10.030200	-0.0359 %	0.1220 %	PASS 11.89 %
10.0 V AC+DC @ 300.0 kHz	9.986547	0.0048 %	9.958518	10.041482	-0.1345 %	0.4100 %	PASS 32.43 %
10.0 V AC+DC @ 500.0 kHz	9.9998054	0.0048 %	9.848518	10.151482	-0.0019 %	1.5100 %	PASS 0.13 %
10.0 V AC+DC @ 1.0 MHz	10.08109	0.0048 %	9.848518	10.151482	0.8109 %	1.5100 %	PASS 53.53 %
100.0 V AC+DC @ 1.0 kHz	99.999535	48.18	99.953182	100.046818	-4.650 ppm	420.0 ppm	PASS 0.99 %
100.0 V AC+DC @ 10.0 kHz	99.992174	48.18	99.933182	100.066818	-78.256 ppm	620.0 ppm	PASS 11.71 %
100.0 V AC+DC @ 20.0 kHz	99.977762	48.18	99.933182	100.066818	-222.383 ppm	620.0 ppm	PASS 33.28 %
100.0 V AC+DC @ 50.0 kHz	99.929936	0.0048 %	99.873182	100.126818	-0.0701 %	0.1220 %	PASS 55.25 %
100.0 V AC+DC @ 100.0 kHz	99.824577	0.0048 %	99.693182	100.306818	-0.1754 %	0.3020 %	PASS 57.18 %
700.0 V AC+DC @ 1.0 kHz	699.87791	48.18	699.672274	700.327726	-174.414 ppm	420.0 ppm	PASS 36.60 %

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	-1.0572916E-10	71.82 ppm	0	0	Z-check	410 ppm	INFO
50 nADC	5E-08	4.986414E-08	71.82 ppm	4.997591E-08	5.002409E-08	-2717.193 ppm	410 ppm	INFO
100 nADC	1E-07	9.9862826E-08	71.82 ppm	9.995182E-08	1.000482E-07	-1371.744 ppm	410 ppm	FAIL 284.70 %
-100 nADC	-1E-07	-1.0005196E-07	71.82 ppm	-1.000482E-07	-9.995182E-08	519.613 ppm	410 ppm	FAIL 107.84 %
-50 nADC	-5E-08	-5.0050217E-08	71.82 ppm	-5.002409E-08	-4.997591E-08	1004.350 ppm	410 ppm	INFO
Zero µADC	0	-2.4282642E-11	71.82 ppm	0	0	Z-check	410 ppm	INFO
0.5 µADC	5E-07	4.9992796E-07	71.82 ppm	4.999391E-07	5.000609E-07	-144.072 ppm	50 ppm	FAIL 118.27 %
1.0 µADC	1E-06	9.9987948E-07	71.82 ppm	9.998782E-07	1.000122E-06	-120.520 ppm	50 ppm	PASS 98.93 %
-1.0 µADC	-1E-06	-1.0000812E-06	71.82 ppm	-1.000122E-06	-9.998782E-07	81.194 ppm	50 ppm	PASS 66.65 %
-0.5 µADC	-5E-07	-5.0006945E-07	71.82 ppm	-5.000609E-07	-4.999391E-07	138.893 ppm	50 ppm	FAIL 114.01 %
Zero 00 µADC	0	-9.3193492E-11	71.82 ppm	0	0	Z-check	410 ppm	INFO
5 µADC	5E-06	4.9998903E-06	71.82 ppm	4.999556E-06	5.000444E-06	-21.948 ppm	17 ppm	PASS 24.71 %
10 µADC	1E-05	9.9998393E-06	71.82 ppm	9.999112E-06	1.000089E-05	-16.070 ppm	17 ppm	PASS 18.09 %
-10 µADC	-1E-05	-1.000011E-05	71.82 ppm	-1.000089E-05	-9.999112E-06	11.045 ppm	17 ppm	PASS 12.44 %
-5 µADC	-5E-06	-5.0001162E-06	71.82 ppm	-5.000444E-06	-4.999556E-06	23.245 ppm	17 ppm	PASS 26.17 %
Zero 000 µADC	0	-5.2161819E-11	71.82 ppm	0	0	Z-check	410 ppm	INFO
50 µADC	5E-05	4.9999845E-05	71.82 ppm	4.999561E-05	5.000439E-05	-3.108 ppm	16 ppm	PASS 3.54 %
100 µADC	0.0001	9.999939E-05	71.82 ppm	9.999122E-05	0.0001000088	-0.609 ppm	16 ppm	PASS 0.69 %
-100 µADC	-0.0001	-0.0001000052	71.82 ppm	-0.0001000088	-9.999122E-05	5.161 ppm	16 ppm	PASS 5.88 %
-50 µADC	-5E-05	-5.000034E-05	71.82 ppm	-5.000439E-05	-4.999561E-05	6.794 ppm	16 ppm	PASS 7.74 %
Zero mADC	0	-1.0039781E-10	33.64 ppm	0	0	Z-check	410 ppm	INFO
0.5 mADC	0.0005	0.00049999876	33.64 ppm	0.0004999762	0.0005000238	-2.478 ppm	14 ppm	PASS 5.20 %
1.0 mADC	0.001	0.0009999992	33.64 ppm	0.0009999524	0.001000048	-0.798 ppm	14 ppm	PASS 1.67 %
-1.0 mADC	-0.001	-0.0010000035	33.64 ppm	-0.001000048	-0.0009999524	3.531 ppm	14 ppm	PASS 7.41 %
-0.5 mADC	-0.0005	-0.0005000022	33.64 ppm	-0.0005000238	-0.0004999762	4.394 ppm	14 ppm	PASS 9.22 %
Zero 00 mADC	0	-1.3721773E-10	32.27 ppm	0	0	Z-check	410 ppm	INFO
5 mADC	0.005	0.004999962	32.27 ppm	0.004999769	0.005000231	-7.603 ppm	14 ppm	PASS 16.43 %
10 mADC	0.01	0.0099999579	32.27 ppm	0.009999537	0.01000046	-4.206 ppm	14 ppm	PASS 9.09 %
-10 mADC	-0.01	-0.01000002	32.27 ppm	-0.01000046	-0.009999537	2.029 ppm	14 ppm	PASS 4.38 %
-5 mADC	-0.005	-0.0050000249	32.27 ppm	-0.005000231	-0.004999769	4.980 ppm	14 ppm	PASS 10.76 %
Zero 000 mADC	0	-7.6478194E-11	53.32 ppm	0	0	Z-check	410 ppm	INFO
50 mADC	0.05	0.050000083	53.32 ppm	0.04999588	0.05000412	1.668 ppm	29 ppm	PASS 2.03 %
100 mADC	0.1	0.10000035	53.32 ppm	0.09999177	0.1000082	3.480 ppm	29 ppm	PASS 4.23 %
-100 mADC	-0.1	-0.10000137	53.32 ppm	-0.1000082	-0.09999177	13.656 ppm	29 ppm	PASS 16.59 %
-50 mADC	-0.05	-0.050000741	53.32 ppm	-0.05000412	-0.04999588	14.820 ppm	29 ppm	PASS 18.00 %
Zero ADC	0	7.8694906E-11	115.22 ppm	0	0	Z-check	410 ppm	INFO
0.5 ADC	0.5	0.50000703	115.22 ppm	0.4998874	0.5001126	14.066 ppm	110 ppm	PASS 6.25 %
1.0 ADC	1	1.0000045	115.22 ppm	0.9997748	1.000225	4.461 ppm	110 ppm	PASS 1.98 %
-1.0 ADC	-1	-1.0000536	115.22 ppm	-1.000225	-0.9997748	53.584 ppm	110 ppm	PASS 23.79 %
-0.5 ADC	-0.5	-0.50000964	115.22 ppm	-0.5001126	-0.4998874	19.276 ppm	110 ppm	PASS 8.56 %

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	1.0017196E-05	0.0160 %	9.9893955e-06	1.00106045e-05	1719.593 ppm	0.0900 %	INFO
100 µA AC @ 50 Hz	0.0001	0.00010001567	0.0160 %	9.9893955e-05	0.000100106045	156.719 ppm	0.0900 %	PASS 14.78 %
1.0 mA AC @ 50 Hz	0.001	0.0010000852	0.0160 %	0.00099903955	0.00100096045	85.224 ppm	0.0800 %	PASS 8.87 %
10 mA AC @ 50 Hz	0.01	0.010000835	0.0160 %	0.0099903955	0.0100096045	83.451 ppm	0.0800 %	PASS 8.69 %
100 mA AC @ 50 Hz	0.1	0.10001445	0.0133 %	0.099906682	0.100093318	144.487 ppm	0.0800 %	PASS 15.48 %
1.0 A AC @ 50 Hz	1.0	1.0002922	0.0133 %	0.99886682	1.00113318	0.0292 %	0.1000 %	PASS 25.79 %
10 µA AC @ 60 Hz	1e-05	9.9941392E-06	0.0133 %	9.9896682e-06	1.00103318e-05	-586.083 ppm	0.0900 %	INFO
100 µA AC @ 60 Hz	0.0001	9.99909E-05	0.0133 %	9.9896682e-05	0.000100103318	-90.999 ppm	0.0900 %	PASS 8.81 %
1.0 mA AC @ 60 Hz	0.001	0.0010001027	0.0129 %	0.00099907136	0.00100092864	102.694 ppm	0.0800 %	PASS 11.06 %
10 mA AC @ 60 Hz	0.01	0.010001172	0.0129 %	0.0099907136	0.0100092864	117.186 ppm	0.0800 %	PASS 12.62 %
100 mA AC @ 60 Hz	0.1	0.10001749	0.0288 %	0.099891182	0.100108818	174.861 ppm	0.0800 %	PASS 16.07 %
1.0 A AC @ 60 Hz	1.0	1.0003116	0.0288 %	0.99871182	1.00128818	0.0312 %	0.1000 %	PASS 24.19 %
10 µA AC @ 1.0 kHz	1e-05	1.0015117E-05	0.0160 %	9.9893955e-06	1.00106045e-05	1511.749 ppm	0.0900 %	INFO
100 µA AC @ 1.0 kHz	0.0001	9.9989338E-05	0.0160 %	9.9893955e-05	0.000100106045	-106.623 ppm	0.0900 %	PASS 10.05 %
1.0 mA AC @ 1.0 kHz	0.001	0.0010001712	0.0160 %	0.00099933955	0.00100066045	171.159 ppm	0.0500 %	PASS 25.92 %
10 mA AC @ 1.0 kHz	0.01	0.010001752	0.0160 %	0.0099933955	0.0100066045	175.164 ppm	0.0500 %	PASS 26.52 %
100 mA AC @ 1.0 kHz	0.1	0.10002422	0.0133 %	0.099936682	0.100063318	242.233 ppm	0.0500 %	PASS 38.26 %
1.0 A AC @ 1.0 kHz	1.0	1.0002353	0.0133 %	0.99866682	1.00133318	0.0235 %	0.1200 %	PASS 17.65 %

Test completed

Test date	19 November 2018 14:35
UUT Internal TEMP?	35.5
Destructive overloads?	153, DESTRUCTIVE OVERLOADS valid 2941

Lab temperature maintained +24°C ±2°C

Internal use only

Not validated

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