cal equipment

IM5700S

Manufacturer	HEWLETT-PACKARD	Calibration date	June 25 2018
Model Number	3458A	Ambient Temperature	24.7 °C
Serial	3458B	Relative Humidity	34.80 %
ID Number	IM5700A	Pressure	1007.0 hPa
Notes	Test A7Mark,TA9,A10	Test type	M5700

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
TEST MFC	Fluke	5700A	None	x26	ID02	05/17/2018	06/17/2018
DMM	HP	3458A	001,X02	MY45040325	XD2	04/23/2018	07/23/2018
STDR	ESI	SR104	10000.0011 KΩ	±1.00 ppm	XR04	05/25/2016	05/25/2018
STDR	xDevs.com/Fluke	SL935	1.00005616 Ω	±0.17 ppm	XR03	10/04/2018	10/04/2019
STDR	xDevs.com/Fluke	SL935	9999.9747 kΩ	±0.33 ppm	XR02	10/04/2018	10/04/2019
DC STD	xDevs.com	792X[2]	10.000009 VDC	±2.2 ppm	XD01	02/16/2018	08/16/2018

MFC last calibrated	1 days ago	MFC since DCV ZERO	1 days ago
MFC since WBFLAT	1 days ago	MFC since WBGAIN	1 days ago
MFC Confidence level	**24h 95%**	MFC Calibrate date	Debug
MFC Calibrate date Zero	Debug	Calibrate date WB Flatness	Debug
Calibrate date WB Gain	Debug	CAL CONST 6.5V reference voltage	1
CAL CONST 13V reference voltage	1	CAL CONST 22V range positive zero	1
CAL CONST 22V range negative zero	1	CAL CONST DAC Linearity	1
CAL CONST 10KOHM true output resistance	1	CAL CONST 10KOHM standard resistance	1
CAL CONST, Zero calibration temperature	1	CAL CONST, All calibration temp	1

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

Meter Info	1	Last calibration date	1/8/2017
Next calibration date	1/8/2018	Test date	25 June 2018 12:42
DUT Internal TEMP?	1	DUT Calibrations number?	1
Self-test result?	Not tested	ACAL ALL result?	Not tested
Firmware	1	Options	1
CAL? 72	1	CAL? 1,1	1
CAL? 2,1	1	CAL? Res 73	1
CAL 0 TEMP	1.00	CAL 10V TEMP	1.00
CAL 10KOhm TEMP	1.00	CAL? DCI	1

Service information

CAL DUMP
[(1, 39999.2111), (1, 7.07034233), (1, -1.29881905e-06), (1, -1.71312623e-06), (1, -1.3300917e-06), (1, -1.76259828e-06), (1, -1.87107913e-06), (1, -2.30779516e-06), (1, -9.52521074e-05), (1, -9.52521074e-05), (1, -0.000144846919), (1, -0.000144846919), (1, 0.311407914), (1, 0.310582751), (1, 0.310302903), (1, 0.298866359), (1, 0.275649882), (1, -0.118583768), (1, -4.02463152), (1, -2.65913154), (1, -2.65913154), (1, 0.315720995), (1, 0.314496002), (1, 0.314214194), (1, 0.298331353), (1, 0.270044906), (1, -0.140144453), (1, -3.593421), (1, -4.99485518), (1, -4.99485518), (1, -0.000196953492), (1, -0.00189542235), (1, -0.00193076138), (1, -0.0190312616), (1, -0.0515226709), (1, -0.50308265), (1, -5.53386833), (1, -4.74331571), (1, -4.74331571), (1, -0.000194058948), (1, -0.00198204786), (1, -0.00206483056), (1, -0.0198342199), (1, -0.0492591226), (1, -0.48870886), (1, -5.31826307), (1, -5.74947359), (1, -5.74947359), (1, 317.0), (1, 31.0), (1, 3.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 0.0), (1, 36.0875674), (1, 36.5337523), (1, 37.0288235), (1, 106.0), (1, -1.63231738e-11), (1, -7.28604246e-13), (1, 4.72743653e-11), (1, 3.93119599e-10), (1, 2.93716911e-09), (1, 3.1350025e-08), (1, 2.13200272e-07), (1, 3.97353476e-06), (1, 0.979566224), (1, 0.982392651), (1, 0.982328756), (1, 0.982502495), (1, 0.982438592), (1, 0.997123505), (1, 0.997130333), (1, 1.00000744), (1, 1.00025186), (1, 0.99988204), (1, 1.00002499), (1, 1.00001762), (1, 1.00001762), (1, 1.00001762), (1, 0.997123508), (1, 0.997130369), (1, 1.00000748), (1, 1.00025145), (1, 0.999882756), (1, 1.00002499), (1, 1.00001762), (1, 1.00001762), (1, 1.00001762), (1, 0.98113688), (1, 0.979560839), (1, 0.978856288), (1, 0.978855007), (1, 0.979073792), (1, 0.97733135), (1, 0.981587024), (1, 0.997810386), (1, 82.0), (1, 115.0), (1, 4.93493577), (1, 3.48853347e-11), (1, -7.49953784e-11), (1, 9998290.09), (1, -0.00783635158), (1, -0.0242788372), (1, 0.999999268), (1, 0.999999926), (1, 1666.99777), (1, 16666.9868), (1, 5154.0), (1, 5139.0), (1, 5139.0), (1, 5138.0), (1, 5139.0), (1, 61848.0), (1, 61668.0), (1, 61668.0), (1, 61656.0), (1, 61668.0), (1, 5023.0), (1, 5023.0), (1, 5009.0), (1, 5007.0), (1, 2504.0), (1, 2504.0), (1, 2504.0), (1, 12522.0), (1, 22768.0), (1, 60276.0), (1, 60276.0), (1, 60108.0), (1, 60084.0), (1, 30048.0), (1, 30048.0), (1, 30048.0), (1, 150264.0), (1, 273216.0), (1, 5023.0), (1, 5023.0), (1, 5009.0), (1, 5007.0), (1, 2504.0), (1, 2504.0), (1, 2504.0), (1, 12522.0), (1, 22768.0), (1, 60276.0), (1, 60276.0), (1, 60108.0), (1, 60084.0), (1, 30048.0), (1, 30048.0), (1, 30048.0), (1, 150264.0), (1, 273216.0), (1, 280.0), (1, 280.0), (1, 280.0), (1, 280.0), (1, 280.0), (1, 280.0), (1, 280.0), (1, 280.0), (1, 3360.0), (1, 3360.0), (1, 3360.0), (1, 3360.0), (1, 3360.0), (1, 3360.0), (1, 3360.0), (1, 41.4249205), (1, 41.4419549), (1, 41.4602444), (1, 143.0), (1, 144.0), (1, 144.0), (1, 141.0), (1, 144.0), (1, 144.0), (1, 143.0), (1, 144.0), (1, 143.0), (1, 141.0), (1, 144.0), (1, 144.0), (1, 145.0), (1, 145.0), (1, 145.0), (1, 145.0), (1, 145.0), (1, 2174.0), (1, 2167.0), (1, 2175.0), (1, 2247.0), (1, 2473.0), (1, 2478.0), (1, 124.0), (1, 126.0), (1, 126.0), (1, 126.0), (1, 124.0), (1, 126.0), (1, 126.0), (1, 126.0), (1, 126.0), (1, -0.00121388918), (1, -0.011940395), (1, -0.119058568), (1, -1.21599893), (1, -11.9911616), (1, -119.288814), (1, -0.00129148587), (1, -0.0120083516), (1, -0.115645526), (1, -1.21710052), (1, -11.9916241), (1, -119.333892), (1, 1.00580964), (1, 1.01032348), (1, 0.998629478), (1, 1.02266722), (1, 1.01086388), (1, 1.01034289), (1, 69432.1426), (1, 10.3459749), (1, 0.993444721), (1, 0.997985482), (1, 0.986434289), (1, 1.01017848), (1, 0.998519288), (1, 0.998004659), (1, 2.46338454e-06), (1, 2.53723244e-05), (1, 0.000253723244), (1, 0.00253723244), (1, 0.0253723244), (1, 0.253723244), (1, 1.0270017), (1, 1.00018786), (1, 0.999856261), (1, 1.00000267), (1, 86.0), (1, 29.0), (1, 29.0), (1, 29.0), (1, 38.0), (1, 50.0), (1, 50.0), (1, 12.0)]
Destructive overloads?
1
Reference
3458B test,PTFE paired cable
DUT Condition
Front terminals used

Test procedure : $Id: hp3458a.py | Rev 716 | 2018/06/14 08:27:08 clu $

Source procedure : $Id: f5700a.py | Rev 724 | 2018/06/24 05:09:55 clu $

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	**-1.26 µV**	0.75 µV	-0.910 µV	0.910 µV	N/A	0.16 µV	FAIL
Short 0.0 VDC	0.0000000E+00	**-1.13 µV**	0.75 µV	-0.900 µV	0.900 µV	N/A	0.15 µV	FAIL
Short 00.0 VDC	0.0000000E+00	**-0.53 µV**	0.75 µV	-1.070 µV	1.070 µV	N/A	0.32 µV	PASS
Short 000.0 VDC	0.0000000E+00	**-17.16 µV**	0.75 µV	-14.750 µV	14.750 µV	N/A	14.00 µV	FAIL
Short 0000.0 VDC	0.0000000E+00	**64.80 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**
0.1 VDC (0.10 Range)	0.1000000	**0.099999604**	3.81 ppm	0.099999069	0.10000093	-3.959 ppm	5.50 ppm	PASS 42.53 %
-0.1 VDC (0.10 Range)	-0.1000000	**-0.099999834**	3.81 ppm	-0.10000093	-0.099999069	-1.659 ppm	5.50 ppm	PASS 17.82 %
0.1 VDC (1.00 Range)	0.1000000	**0.10000035**	2.45 ppm	0.099999575	0.10000043	3.528 ppm	1.80 ppm	PASS 83.01 %
0.2 VDC (1.00 Range)	0.2000000	**0.20000043**	2.45 ppm	0.19999915	0.20000085	2.147 ppm	1.80 ppm	PASS 50.53 %
1.0 VDC (1.00 Range)	1.0000000	**1.0000006**	2.45 ppm	0.99999575	1.0000042	0.575 ppm	1.80 ppm	PASS 13.53 %
-0.1 VDC (1.00 Range)	-0.1000000	**-0.099999489**	2.45 ppm	-0.10000043	-0.099999575	-5.112 ppm	1.80 ppm	FAIL 120.28 %
-0.2 VDC (1.00 Range)	-0.2000000	**-0.19999955**	2.45 ppm	-0.20000085	-0.19999915	-2.251 ppm	1.80 ppm	PASS 52.98 %
-1.0 VDC (1.00 Range)	-1.0000000	**-0.9999996**	2.45 ppm	-1.0000042	-0.99999575	-0.395 ppm	1.80 ppm	PASS 9.31 %
1.0 VDC (10.00 Range)	1.0000000	**1.000001**	1.47 ppm	0.99999798	1.000002	0.979 ppm	0.55 ppm	PASS 48.47 %
2.0 VDC (10.00 Range)	2.0000000	**2.0000002**	1.47 ppm	1.999996	2.000004	0.125 ppm	0.55 ppm	PASS 6.19 %
10.0 VDC (10.00 Range)	10.0000000	**10.000002**	1.47 ppm	9.9999798	10.00002	0.219 ppm	0.55 ppm	PASS 10.84 %
-1.0 VDC (10.00 Range)	-1.0000000	**-0.99999921**	1.47 ppm	-1.000002	-0.99999798	-0.792 ppm	0.55 ppm	PASS 39.20 %
-2.0 VDC (10.00 Range)	-2.0000000	**-1.9999984**	1.47 ppm	-2.000004	-1.999996	-0.795 ppm	0.55 ppm	PASS 39.38 %
-10.0 VDC (10.00 Range)	-10.0000000	**-9.9999994**	1.47 ppm	-10.00002	-9.9999798	-0.065 ppm	0.55 ppm	PASS 3.21 %
10 VDC (100.00 Range)	10.0000000	**10.000014**	2.36 ppm	9.9999484	10.000052	1.440 ppm	2.80 ppm	PASS 27.91 %
20 VDC (100.00 Range)	20.0000000	**20.000015**	2.36 ppm	19.999897	20.000103	0.731 ppm	2.80 ppm	PASS 14.18 %
100 VDC (100.00 Range)	100.0000000	**100.00007**	2.36 ppm	99.999484	100.00052	0.718 ppm	2.80 ppm	PASS 13.91 %
-10 VDC (100.00 Range)	-10.0000000	**-10.000005**	2.36 ppm	-10.000052	-9.9999484	0.549 ppm	2.80 ppm	PASS 10.64 %
-20 VDC (100.00 Range)	-20.0000000	**-20.000013**	2.36 ppm	-20.000103	-19.999897	0.671 ppm	2.80 ppm	PASS 13.00 %
-100 VDC (100.00 Range)	-100.0000000	**-100.00004**	2.36 ppm	-100.00052	-99.999484	0.359 ppm	2.80 ppm	PASS 6.96 %
100 VDC (1000.00 Range)	100.0000000	**100.0001**	2.85 ppm	99.999455	100.00055	1.017 ppm	2.60 ppm	PASS 18.66 %
200 VDC (1000.00 Range)	200.0000000	**200.00008**	2.85 ppm	199.99891	200.00109	0.406 ppm	2.60 ppm	PASS 7.44 %
1000 VDC (1000.00 Range)	1000.0000000	**1000.002**	2.85 ppm	999.98255	1000.0175	2.027 ppm	2.60 ppm	PASS 11.62 %
-100 VDC (1000.00 Range)	-100.0000000	**-100.00007**	2.85 ppm	-100.00055	-99.999455	0.691 ppm	2.60 ppm	PASS 12.68 %
-200 VDC (1000.00 Range)	-200.0000000	**-200.00001**	2.85 ppm	-200.00109	-199.99891	0.068 ppm	2.60 ppm	PASS 1.25 %
-1000 VDC (1000.00 Range)	-1000.0000000	**-1000.0023**	2.85 ppm	-1000.0175	-999.98255	2.285 ppm	2.60 ppm	PASS 34.89 %

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	**1.1000003**	2.73 ppm	1.099996	1.100004	0.38 ppm	0.55 ppm	PASS 11.54 %
0.9999999	0.9999999	**1.0000005**	2.73 ppm	0.9999966	1.000003	0.60 ppm	0.55 ppm	PASS 18.41 %
0.9000000	0.9000000	**0.9000005**	2.73 ppm	0.899997	0.900003	0.60 ppm	0.55 ppm	PASS 18.16 %
0.8888888	0.8888888	**0.8888895**	2.73 ppm	0.8888859	0.8888917	0.76 ppm	0.55 ppm	PASS 23.28 %
0.8000000	0.8000000	**0.8000006**	2.73 ppm	0.7999974	0.8000026	0.80 ppm	0.55 ppm	PASS 24.54 %
0.7777777	0.7777777	**0.7777783**	2.73 ppm	0.7777751	0.7777803	0.77 ppm	0.55 ppm	PASS 23.34 %
0.7000000	0.7000000	**0.7000005**	2.73 ppm	0.6999977	0.7000023	0.72 ppm	0.55 ppm	PASS 21.98 %
0.6666666	0.6666666	**0.6666672**	2.73 ppm	0.6666644	0.6666688	0.87 ppm	0.55 ppm	PASS 26.37 %
0.6000000	0.6000000	**0.6000004**	2.73 ppm	0.599998	0.600002	0.71 ppm	0.55 ppm	PASS 21.69 %
0.5555555	0.5555555	**0.5555559**	2.73 ppm	0.5555537	0.5555573	0.73 ppm	0.55 ppm	PASS 22.17 %
0.5000000	0.5000000	**0.5000005**	2.73 ppm	0.4999984	0.5000016	0.96 ppm	0.55 ppm	PASS 29.29 %
0.4444444	0.4444444	**0.4444449**	2.73 ppm	0.4444429	0.4444459	1.05 ppm	0.55 ppm	PASS 32.11 %
0.4000000	0.4000000	**0.4000005**	2.73 ppm	0.3999987	0.4000013	1.17 ppm	0.55 ppm	PASS 35.75 %
0.3333333	0.3333333	**0.3333336**	2.73 ppm	0.3333322	0.3333344	0.97 ppm	0.55 ppm	PASS 29.48 %
0.3000000	0.3000000	**0.3000004**	2.73 ppm	0.299999	0.300001	1.21 ppm	0.55 ppm	PASS 37.02 %
0.2222222	0.2222222	**0.2222225**	2.73 ppm	0.2222215	0.2222229	1.19 ppm	0.55 ppm	PASS 36.21 %
0.2000000	0.2000000	**0.2000002**	2.73 ppm	0.1999993	0.2000007	0.82 ppm	0.55 ppm	PASS 25.07 %
0.1234567	0.1234567	**0.1234569**	2.73 ppm	0.1234563	0.1234571	1.88 ppm	0.55 ppm	PASS 57.42 %
0.1111111	0.1111111	**0.1111113**	2.73 ppm	0.1111107	0.1111115	1.36 ppm	0.55 ppm	PASS 41.33 %
0.1000000	0.1000000	**0.1000002**	2.73 ppm	0.09999967	0.1000003	1.73 ppm	0.55 ppm	PASS 52.76 %
0.0987654	0.0987654	**0.0987655**	2.73 ppm	0.09876508	0.09876572	1.12 ppm	0.55 ppm	PASS 34.08 %
0.0111111	0.0111111	**0.0111111**	2.73 ppm	0.01111106	0.01111114	1.67 ppm	0.55 ppm	PASS 50.84 %
-0.0111111	-0.0111111	**-0.0111106**	2.73 ppm	-0.01111114	-0.01111106	-42.95 ppm	0.55 ppm	FAIL 1309.36 %
-0.0987654	-0.0987654	**-0.0987650**	2.73 ppm	-0.09876572	-0.09876508	-3.85 ppm	0.55 ppm	FAIL 117.50 %
-0.1000000	-0.1000000	**-0.0999996**	2.73 ppm	-0.1000003	-0.09999967	-4.04 ppm	0.55 ppm	FAIL 123.11 %
-0.1111111	-0.1111111	**-0.1111106**	2.73 ppm	-0.1111115	-0.1111107	-4.22 ppm	0.55 ppm	FAIL 128.64 %
-0.1234567	-0.1234567	**-0.1234562**	2.73 ppm	-0.1234571	-0.1234563	-3.78 ppm	0.55 ppm	FAIL 115.16 %
-0.2000000	-0.2000000	**-0.1999996**	2.73 ppm	-0.2000007	-0.1999993	-2.25 ppm	0.55 ppm	PASS 68.47 %
-0.2222222	-0.2222222	**-0.2222219**	2.73 ppm	-0.2222229	-0.2222215	-1.55 ppm	0.55 ppm	PASS 47.19 %
-0.3000000	-0.3000000	**-0.2999997**	2.73 ppm	-0.300001	-0.299999	-1.01 ppm	0.55 ppm	PASS 30.79 %
-0.3333333	-0.3333333	**-0.3333331**	2.73 ppm	-0.3333344	-0.3333322	-0.54 ppm	0.55 ppm	PASS 16.40 %
-0.4000000	-0.4000000	**-0.3999997**	2.73 ppm	-0.4000013	-0.3999987	-0.65 ppm	0.55 ppm	PASS 19.96 %
-0.4444444	-0.4444444	**-0.4444442**	2.73 ppm	-0.4444459	-0.4444429	-0.45 ppm	0.55 ppm	PASS 13.82 %
-0.5000000	-0.5000000	**-0.4999998**	2.73 ppm	-0.5000016	-0.4999984	-0.49 ppm	0.55 ppm	PASS 14.82 %
-0.5555555	-0.5555555	**-0.5555554**	2.73 ppm	-0.5555573	-0.5555537	-0.23 ppm	0.55 ppm	PASS 7.05 %
-0.6000000	-0.6000000	**-0.5999999**	2.73 ppm	-0.600002	-0.599998	-0.23 ppm	0.55 ppm	PASS 6.88 %
-0.6666666	-0.6666666	**-0.6666664**	2.73 ppm	-0.6666688	-0.6666644	-0.30 ppm	0.55 ppm	PASS 9.11 %
-0.7000000	-0.7000000	**-0.6999998**	2.73 ppm	-0.7000023	-0.6999977	-0.28 ppm	0.55 ppm	PASS 8.43 %
-0.7777777	-0.7777777	**-0.7777774**	2.73 ppm	-0.7777803	-0.7777751	-0.35 ppm	0.55 ppm	PASS 10.71 %
-0.8000000	-0.8000000	**-0.7999998**	2.73 ppm	-0.8000026	-0.7999974	-0.26 ppm	0.55 ppm	PASS 7.88 %
-0.8888888	-0.8888888	**-0.8888886**	2.73 ppm	-0.8888917	-0.8888859	-0.26 ppm	0.55 ppm	PASS 8.03 %
-0.9000000	-0.9000000	**-0.8999997**	2.73 ppm	-0.900003	-0.899997	-0.29 ppm	0.55 ppm	PASS 8.88 %
-0.9999999	-0.9999999	**-0.9999996**	2.73 ppm	-1.000003	-0.9999966	-0.29 ppm	0.55 ppm	PASS 8.87 %
-1.0999999	-1.0999999	**-1.0999995**	2.73 ppm	-1.100004	-1.099996	-0.38 ppm	0.55 ppm	PASS 11.54 %
DCV Linearity	**10V Range**	**DUT**	**Source unc.**	**Low Limit**	**Hi limit**	**Measured**	**24h spec**	**Result**
10.999999	10.999999	**11.0000000**	2.73 ppm	10.99996	11.00004	0.09 ppm	0.55 ppm	PASS 2.88 %
10.101010	10.101010	**10.1010116**	2.73 ppm	10.10098	10.10104	0.15 ppm	0.55 ppm	PASS 4.72 %
10.000000	10.000000	**10.0000017**	2.73 ppm	9.999967	10.00003	0.17 ppm	0.55 ppm	PASS 5.05 %
9.999999	9.999999	**10.0000007**	2.73 ppm	9.999966	10.00003	0.17 ppm	0.55 ppm	PASS 5.10 %
9.000000	9.000000	**9.0000017**	2.73 ppm	8.99997	9.00003	0.19 ppm	0.55 ppm	PASS 5.65 %
8.888888	8.888888	**8.8888897**	2.73 ppm	8.888859	8.888917	0.19 ppm	0.55 ppm	PASS 5.78 %
8.000000	8.000000	**8.0000013**	2.73 ppm	7.999974	8.000026	0.16 ppm	0.55 ppm	PASS 5.00 %
7.777777	7.777777	**7.7777783**	2.73 ppm	7.777751	7.777803	0.17 ppm	0.55 ppm	PASS 5.19 %
7.000000	7.000000	**7.0000007**	2.73 ppm	6.999977	7.000023	0.10 ppm	0.55 ppm	PASS 3.04 %
6.666666	6.666666	**6.6666672**	2.73 ppm	6.666644	6.666688	0.18 ppm	0.55 ppm	PASS 5.46 %
6.000000	6.000000	**6.0000009**	2.73 ppm	5.99998	6.00002	0.16 ppm	0.55 ppm	PASS 4.79 %
5.555555	5.555555	**5.5555550**	2.73 ppm	5.555537	5.555573	0.01 ppm	0.55 ppm	PASS 0.23 %
5.000000	5.000000	**5.0000001**	2.73 ppm	4.999984	5.000016	0.02 ppm	0.55 ppm	PASS 0.62 %
4.444444	4.444444	**4.4444439**	2.73 ppm	4.444429	4.444459	-0.02 ppm	0.55 ppm	PASS 0.76 %
4.000000	4.000000	**3.9999996**	2.73 ppm	3.999987	4.000013	-0.10 ppm	0.55 ppm	PASS 3.06 %
3.333333	3.333333	**3.3333324**	2.73 ppm	3.333322	3.333344	-0.17 ppm	0.55 ppm	PASS 5.19 %

3.000000	3.000000	**2.9999994**	2.73 ppm	2.99999	3.00001	-0.21 ppm	0.55 ppm	PASS 6.40 %
2.222222	2.222222	**2.2222215**	2.73 ppm	2.222215	2.222229	-0.24 ppm	0.55 ppm	PASS 7.41 %
2.000000	2.000000	**1.9999991**	2.73 ppm	1.999993	2.000007	-0.46 ppm	0.55 ppm	PASS 13.87 %
1.111111	1.111111	**1.1111096**	2.73 ppm	1.111107	1.111115	-1.23 ppm	0.55 ppm	PASS 37.45 %
1.000000	1.000000	**0.9999988**	3.86 ppm	0.9999956	1.000004	-1.21 ppm	0.55 ppm	PASS 27.39 %
0.555555	0.555555	**0.5555532**	7.27 ppm	0.5555507	0.5555593	-3.15 ppm	0.55 ppm	PASS 40.34 %
-0.555555	-0.555555	**-0.5555549**	7.27 ppm	-0.5555593	-0.5555507	-0.24 ppm	0.55 ppm	PASS 3.12 %
-1.000000	-1.000000	**-0.9999999**	3.86 ppm	-1.000004	-0.9999956	-0.08 ppm	0.55 ppm	PASS 1.71 %
-1.111111	-1.111111	**-1.1111108**	2.73 ppm	-1.111115	-1.111107	-0.16 ppm	0.55 ppm	PASS 4.77 %
-2.000000	-2.000000	**-2.0000001**	2.73 ppm	-2.000007	-1.999993	0.03 ppm	0.55 ppm	PASS 0.82 %
-2.222222	-2.222222	**-2.2222222**	2.73 ppm	-2.222229	-2.222215	0.09 ppm	0.55 ppm	PASS 2.60 %
-3.000000	-3.000000	**-3.0000002**	2.73 ppm	-3.00001	-2.99999	0.05 ppm	0.55 ppm	PASS 1.67 %
-3.333333	-3.333333	**-3.3333333**	2.73 ppm	-3.333344	-3.333322	0.09 ppm	0.55 ppm	PASS 2.71 %
-4.000000	-4.000000	**-4.0000004**	2.73 ppm	-4.000013	-3.999987	0.09 ppm	0.55 ppm	PASS 2.82 %
-4.444444	-4.444444	**-4.4444442**	2.73 ppm	-4.444459	-4.444429	0.04 ppm	0.55 ppm	PASS 1.32 %
-5.000000	-5.000000	**-5.0000001**	2.73 ppm	-5.000016	-4.999984	0.02 ppm	0.55 ppm	PASS 0.51 %
-5.555555	-5.555555	**-5.5555551**	2.73 ppm	-5.555573	-5.555537	0.02 ppm	0.55 ppm	PASS 0.49 %
-6.000000	-6.000000	**-6.0000003**	2.73 ppm	-6.00002	-5.99998	0.06 ppm	0.55 ppm	PASS 1.70 %
-6.666666	-6.666666	**-6.6666663**	2.73 ppm	-6.666688	-6.666644	0.05 ppm	0.55 ppm	PASS 1.45 %
-7.000000	-7.000000	**-7.0000004**	2.73 ppm	-7.000023	-6.999977	0.05 ppm	0.55 ppm	PASS 1.64 %
-7.777777	-7.777777	**-7.7777776**	2.73 ppm	-7.777803	-7.777751	0.07 ppm	0.55 ppm	PASS 2.23 %
-8.000000	-8.000000	**-8.0000007**	2.73 ppm	-8.000026	-7.999974	0.09 ppm	0.55 ppm	PASS 2.84 %
-8.888888	-8.888888	**-8.8888886**	2.73 ppm	-8.888917	-8.888859	0.07 ppm	0.55 ppm	PASS 2.12 %
-9.000000	-9.000000	**-9.0000009**	2.73 ppm	-9.00003	-8.99997	0.10 ppm	0.55 ppm	PASS 2.98 %
-9.999999	-9.999999	**-9.9999993**	2.73 ppm	-10.00003	-9.999966	0.03 ppm	0.55 ppm	PASS 0.94 %
-10.000000	-10.000000	**-10.0000005**	2.73 ppm	-10.00003	-9.999967	0.05 ppm	0.55 ppm	PASS 1.51 %
-10.101010	-10.101010	**-10.1010110**	2.73 ppm	-10.10104	-10.10098	0.10 ppm	0.55 ppm	PASS 3.10 %
-10.999999	-10.999999	**-10.9999998**	2.73 ppm	-11.00004	-10.99996	0.07 ppm	0.55 ppm	PASS 2.17 %
DCV Linearity	**100V Range**	**DUT**	**Source unc.**	**Low Limit**	**Hi limit**	**Measured**	**24h spec**	**Result**
100.99999	100.99999	**101.0000798**	2.73 ppm	100.99966	101.00032	0.89 ppm	0.55 ppm	PASS 19.79 %
100.10101	100.10101	**100.1010920**	2.73 ppm	100.10068	100.10134	0.82 ppm	0.55 ppm	PASS 18.29 %
100.00000	100.00000	**100.0000758**	2.73 ppm	99.999672	100.00033	0.76 ppm	0.55 ppm	PASS 16.93 %
99.99999	99.99999	**100.0000586**	2.73 ppm	99.999662	100.00032	0.69 ppm	0.55 ppm	PASS 15.32 %
90.00000	90.00000	**90.0000659**	2.73 ppm	89.999705	90.000295	0.73 ppm	0.55 ppm	PASS 22.34 %
88.88888	88.88888	**88.8889401**	2.73 ppm	88.888588	88.889172	0.68 ppm	0.55 ppm	PASS 20.61 %
80.00000	80.00000	**80.0000583**	2.73 ppm	79.999738	80.000262	0.73 ppm	0.55 ppm	PASS 22.22 %
77.77777	77.77777	**77.7778251**	2.73 ppm	77.777515	77.778025	0.71 ppm	0.55 ppm	PASS 21.58 %
70.00000	70.00000	**70.0000464**	2.73 ppm	69.99977	70.00023	0.66 ppm	0.55 ppm	PASS 20.21 %
66.66666	66.66666	**66.6667054**	2.73 ppm	66.666441	66.666879	0.68 ppm	0.55 ppm	PASS 20.74 %
60.00000	60.00000	**60.0000406**	2.73 ppm	59.999803	60.000197	0.68 ppm	0.55 ppm	PASS 20.65 %
55.55555	55.55555	**55.5555877**	2.73 ppm	55.555368	55.555732	0.68 ppm	0.55 ppm	PASS 20.68 %
50.00000	50.00000	**50.0000346**	2.73 ppm	49.999836	50.000164	0.69 ppm	0.55 ppm	PASS 21.11 %
44.44444	44.44444	**44.4444661**	2.73 ppm	44.444294	44.444586	0.59 ppm	0.55 ppm	PASS 17.91 %
40.00000	40.00000	**40.0000216**	2.73 ppm	39.999869	40.000131	0.54 ppm	0.55 ppm	PASS 16.43 %
33.33333	33.33333	**33.3333437**	2.73 ppm	33.333221	33.333439	0.41 ppm	0.55 ppm	PASS 12.49 %
30.00000	30.00000	**30.0000084**	2.73 ppm	29.999902	30.000098	0.28 ppm	0.55 ppm	PASS 8.57 %
22.22222	22.22222	**22.2222214**	2.73 ppm	22.222147	22.222293	0.06 ppm	0.55 ppm	PASS 1.89 %
20.00000	20.00000	**19.9999951**	2.73 ppm	19.999934	20.000066	-0.24 ppm	0.55 ppm	PASS 7.41 %
11.11111	11.11111	**11.1110879**	2.73 ppm	11.111075	11.111147	-2.07 ppm	0.55 ppm	PASS 63.25 %
10.00000	10.00000	**9.9999875**	2.73 ppm	9.9999672	10.000033	-1.25 ppm	0.55 ppm	PASS 38.12 %
9.87654	9.87654	**9.8765185**	2.73 ppm	9.8765106	9.8765754	-2.48 ppm	0.55 ppm	PASS 75.56 %
-9.87654	-9.87654	**-9.8765384**	2.73 ppm	-9.8765754	-9.8765106	-0.46 ppm	0.55 ppm	PASS 14.11 %
-10.00000	-10.00000	**-9.9999982**	2.73 ppm	-10.000033	-9.9999672	-0.18 ppm	0.55 ppm	PASS 5.37 %
-11.11111	-11.11111	**-11.1111066**	2.73 ppm	-11.111147	-11.111075	-0.39 ppm	0.55 ppm	PASS 11.98 %
-20.00000	-20.00000	**-20.0000019**	2.73 ppm	-20.000066	-19.999934	0.09 ppm	0.55 ppm	PASS 2.82 %
-22.22222	-22.22222	**-22.2222266**	2.73 ppm	-22.222293	-22.222147	0.30 ppm	0.55 ppm	PASS 9.02 %
-30.00000	-30.00000	**-30.0000133**	2.73 ppm	-30.000098	-29.999902	0.44 ppm	0.55 ppm	PASS 13.56 %
-33.33333	-33.33333	**-33.3333487**	2.73 ppm	-33.333439	-33.333221	0.56 ppm	0.55 ppm	PASS 17.08 %
-40.00000	-40.00000	**-40.0000250**	2.73 ppm	-40.000131	-39.999869	0.63 ppm	0.55 ppm	PASS 19.06 %
-44.44444	-44.44444	**-44.4444615**	2.73 ppm	-44.444586	-44.444294	0.48 ppm	0.55 ppm	PASS 14.74 %
-50.00000	-50.00000	**-50.0000267**	2.73 ppm	-50.000164	-49.999836	0.53 ppm	0.55 ppm	PASS 16.31 %
-55.55555	-55.55555	**-55.5555837**	2.73 ppm	-55.555732	-55.555368	0.61 ppm	0.55 ppm	PASS 18.47 %
-60.00000	-60.00000	**-60.0000343**	2.73 ppm	-60.000197	-59.999803	0.57 ppm	0.55 ppm	PASS 17.44 %
-66.66666	-66.66666	**-66.6666954**	2.73 ppm	-66.666879	-66.666441	0.53 ppm	0.55 ppm	PASS 16.20 %
-70.00000	-70.00000	**-70.0000381**	2.73 ppm	-70.00023	-69.99977	0.54 ppm	0.55 ppm	PASS 16.60 %
-77.77777	-77.77777	**-77.7778108**	2.73 ppm	-77.778025	-77.777515	0.52 ppm	0.55 ppm	PASS 16.00 %

-80.00000	-80.00000	**-80.0000385**	2.73 ppm	-80.000262	-79.999738	0.48 ppm	0.55 ppm	PASS 14.66 %
-88.88888	-88.88888	**-88.8889214**	2.73 ppm	-88.889172	-88.888588	0.47 ppm	0.55 ppm	PASS 14.20 %
-90.00000	-90.00000	**-90.0000377**	2.73 ppm	-90.000295	-89.999705	0.42 ppm	0.55 ppm	PASS 12.77 %
-99.99999	-99.99999	**-100.0000270**	2.73 ppm	-100.00032	-99.999662	0.37 ppm	0.55 ppm	PASS 17.80 %
-100.00000	-100.00000	**-100.0000415**	2.73 ppm	-100.00033	-99.999672	0.42 ppm	0.55 ppm	PASS 19.97 %
-100.10101	-100.10101	**-100.1010535**	2.73 ppm	-100.10134	-100.10068	0.43 ppm	0.55 ppm	PASS 20.89 %
-100.99999	-100.99999	**-101.0000321**	2.73 ppm	-101.00032	-100.99966	0.42 ppm	0.55 ppm	PASS 20.14 %

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	0.9997848	**0.99979148**	27.0 ppm	9.9974981E-01	9.9981979E-01	6.680 ppm	8.0 ppm	PASS 19.09 %
1.9 Ω	1.8998263	**1.89984**	20.0 ppm	1.8997731E+00	1.8998795E+00	7.219 ppm	8.0 ppm	PASS 25.78 %
10 Ω	9.999695	**9.9996817**	4.0 ppm	9.9995750E+00	9.9998150E+00	-1.326 ppm	8.0 ppm	PASS 11.05 %
19 Ω	18.9982	**18.998289**	3.5 ppm	1.8998020E+01	1.8998380E+01	4.701 ppm	6.0 ppm	PASS 49.48 %
100 Ω	99.99801	**99.997992**	1.6 ppm	9.9997250E+01	9.9998770E+01	-0.177 ppm	6.0 ppm	PASS 2.33 %
190 Ω	189.98804	**189.98812**	1.6 ppm	1.8998732E+02	1.8998876E+02	0.413 ppm	2.2 ppm	PASS 10.88 %
1.0 kΩ	999.9383	**999.93741**	1.6 ppm	9.9993450E+02	9.9994210E+02	-0.893 ppm	2.2 ppm	PASS 23.51 %
1.9 kΩ	1899.8875	**1899.8852**	1.6 ppm	1.8998803E+03	1.8998947E+03	-1.185 ppm	2.2 ppm	PASS 31.19 %
10 kΩ	9999.581	**9999.5602**	1.6 ppm	9.9995430E+03	9.9996190E+03	-2.079 ppm	2.2 ppm	PASS 54.71 %
19 kΩ	18999.12	**18999.062**	1.6 ppm	1.8999048E+04	1.8999192E+04	-3.060 ppm	2.2 ppm	PASS 80.51 %
100 kΩ	99992.75	**99992.302**	1.6 ppm	9.9992370E+04	9.9993130E+04	-4.479 ppm	2.2 ppm	FAIL 117.86 %
190 kΩ	189998.12	**189997.11**	1.6 ppm	1.8999573E+05	1.9000051E+05	-5.299 ppm	11.0 ppm	PASS 42.06 %
1.0 MΩ	999879.7	**999866.75**	2.0 ppm	9.9986670E+05	9.9989270E+05	-12.955 ppm	11.0 ppm	PASS 99.65 %
1.9 MΩ	1899907	**1899865.9**	2.5 ppm	1.8997978E+06	1.9000162E+06	-21.654 ppm	55.0 ppm	PASS 37.66 %
10 MΩ	9998137	**9997445.2**	8.0 ppm	9.9975071E+06	9.9987669E+06	-69.192 ppm	55.0 ppm	FAIL 109.83 %
19 MΩ	18998461	**18999845**	16.0 ppm	1.8988468E+07	1.9008454E+07	72.874 ppm	510.0 ppm	PASS 13.85 %
100 MΩ	1.0000477E+08	**1.0000867E+08**	40.0 ppm	9.9949767E+07	1.0005977E+08	38.950 ppm	510.0 ppm	PASS 7.08 %

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 0.0000042 Ω**	5.000e-05 Ω	-5e-05	5e-05	N/A	8.0000e-06 Ω	PASS
100 Ω	**Range -0.0000425 Ω**	5.500e-04 Ω	-0.00055	0.00055	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	**Range -0.0001255 Ω**	5.500e-03 Ω	-0.0055	0.0055	N/A	2.2000e-06 Ω	PASS
10 kΩ	**Range -0.0007947 Ω**	5.500e-02 Ω	-0.055	0.055	N/A	2.2000e-06 Ω	PASS
100 kΩ	**Range -0.0126352 Ω**	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	**Range -0.6380376 Ω**	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	**Range -5.8047627 Ω**	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	**Range 1.5221380 Ω**	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	**Range -6.2654542 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 0.4763256 Ω**	5.500e-01 Ω	-0.55	0.55	N/A	8.0000e-06 Ω	PASS
100 Ω	**Range 0.4754128 Ω**	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	**Range 0.4748894 Ω**	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
10 kΩ	**Range 0.4850105 Ω**	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
100 kΩ	**Range 0.4852266 Ω**	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	**Range 0.4839184 Ω**	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	**Range 0.8605791 Ω**	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS
100 MΩ	**Range -0.5307211 Ω**	5.500e+02 Ω	-550	550	N/A	2.2000e-06 Ω	PASS
1 GΩ	**Range -0.6127249 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

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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	**1.0000878**	129.09	0.99955091	1.00044909	VAC	87.757 ppm	320.0 ppm	PASS 19.54 %
1.0 VAC @ 1.0 MHz	1.0	**1.0111754**	0.2500 %	0.9874	1.0126	VAC	1.1175 %	1.0100 %	PASS 88.69 %
10 VAC @ 10 Hz	10	**9.9812981**	2085	9.97805	10.02195	VAC	-1870.189 ppm	110.0 ppm	PASS 85.20 %
10 VAC @ 200 Hz	10	**10.000503**	73.18	9.9983682	10.0016318	VAC	50.278 ppm	90.0 ppm	PASS 30.81 %
10 VAC @ 500 Hz	10	**10.000453**	73.18	9.9983682	10.0016318	VAC	45.287 ppm	90.0 ppm	PASS 27.75 %
10 VAC @ 50.0 kHz	10	**10.000193**	129.09	9.9955091	10.0044909	VAC	19.332 ppm	320.0 ppm	PASS 4.30 %
10 VAC @ 1.0 MHz	10	**10.093548**	0.3000 %	9.869	10.131	VAC	0.9355 %	1.0100 %	PASS 71.41 %

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

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ACV SYNC Test	DUT	w/Guardband	Low Limit	Hi limit	Measured	24h spec	Result, % spec
0.01 V AC+DC @ 10 Hz	**0.010000992**	372.33	0.009990	0.010010	99.164 ppm	600.0 ppm	PASS 10.20 %
0.01 V AC+DC @ 20 Hz	**0.01000094**	372.33	0.009990	0.010010	94.033 ppm	600.0 ppm	PASS 9.67 %
0.01 V AC+DC @ 40 Hz	**0.010000721**	372.33	0.009990	0.010010	72.078 ppm	600.0 ppm	PASS 7.41 %
0.01 V AC+DC @ 100 Hz	**0.010000208**	372.33	0.009993	0.010007	20.792 ppm	310.0 ppm	PASS 3.05 %
0.01 V AC+DC @ 1.0 kHz	**0.010000513**	372.33	0.009993	0.010007	51.293 ppm	310.0 ppm	PASS 7.52 %
0.01 V AC+DC @ 10.0 kHz	**0.010002033**	372.33	0.009992	0.010008	203.347 ppm	410.0 ppm	PASS 25.99 %
0.01 V AC+DC @ 20.0 kHz	**0.010000997**	372.33	0.009992	0.010008	99.675 ppm	410.0 ppm	PASS 12.74 %
0.01 V AC+DC @ 50.0 kHz	**0.0099829042**	0.0613 %	0.009983	0.010017	-0.1710 %	0.1110 %	PASS 99.24 %
0.01 V AC+DC @ 100.0 kHz	**0.0099575463**	0.1200 %	0.009937	0.010063	-0.4245 %	0.5110 %	PASS 67.28 %
0.01 V AC+DC @ 300.0 kHz	**0.0098173112**	0.1800 %	0.009580	0.010420	-1.8269 %	4.0200 %	PASS 43.50 %
0.01 V AC+DC @ 500.0 kHz	**0.0097191237**	0.2900 %	0.006766	0.013234	-2.8088 %	32.0500 %	PASS 8.69 %
0.01 V AC+DC @ 1.0 MHz	**0.0091449539**	0.4400 %	0.006751	0.013249	-8.5505 %	32.0500 %	PASS 26.32 %
0.1 V AC+DC @ 10 Hz	**0.10000104**	422.72	0.099947	0.100053	10.358 ppm	110.0 ppm	PASS 1.94 %
0.1 V AC+DC @ 20 Hz	**0.099995054**	206.36	0.099968	0.100032	-49.461 ppm	110.0 ppm	PASS 15.63 %
0.1 V AC+DC @ 40 Hz	**0.099993854**	206.36	0.099968	0.100032	-61.463 ppm	110.0 ppm	PASS 19.43 %
0.1 V AC+DC @ 100 Hz	**0.099992575**	121.36	0.099979	0.100021	-74.248 ppm	90.0 ppm	PASS 35.13 %
0.1 V AC+DC @ 1.0 kHz	**0.099994851**	121.36	0.099979	0.100021	-51.494 ppm	90.0 ppm	PASS 24.36 %
0.1 V AC+DC @ 10.0 kHz	**0.099995796**	121.36	0.099972	0.100028	-42.039 ppm	160.0 ppm	PASS 14.94 %
0.1 V AC+DC @ 20.0 kHz	**0.099990933**	121.36	0.099972	0.100028	-90.668 ppm	160.0 ppm	PASS 32.22 %
0.1 V AC+DC @ 50.0 kHz	**0.099970247**	345.45	0.099933	0.100067	-297.526 ppm	320.0 ppm	PASS 44.71 %
0.1 V AC+DC @ 100.0 kHz	**0.099922147**	886.36	0.099829	0.100171	-778.527 ppm	820.0 ppm	PASS 45.63 %
0.1 V AC+DC @ 300.0 kHz	**0.099424918**	0.1100 %	0.099580	0.100420	-0.5751 %	0.3100 %	FAIL 136.92 %
0.1 V AC+DC @ 500.0 kHz	**0.099536134**	0.1700 %	0.098820	0.101180	-0.4639 %	1.0100 %	PASS 39.31 %
0.1 V AC+DC @ 1.0 MHz	**0.098419867**	0.3500 %	0.098640	0.101360	-1.5801 %	1.0100 %	FAIL 116.19 %
1.0 V AC+DC @ 10 Hz	**1.0000783**	436.36	0.999454	1.000546	78.269 ppm	110.0 ppm	PASS 14.33 %
1.0 V AC+DC @ 20 Hz	**1.0000135**	141.36	0.999749	1.000251	13.464 ppm	110.0 ppm	PASS 5.36 %
1.0 V AC+DC @ 40 Hz	**0.9999959**	141.36	0.999749	1.000251	-4.100 ppm	110.0 ppm	PASS 1.63 %
1.0 V AC+DC @ 100 Hz	**0.99998496**	62.72	0.999847	1.000153	-15.040 ppm	90.0 ppm	PASS 9.85 %
1.0 V AC+DC @ 1.0 kHz	**1.0000026**	62.72	0.999847	1.000153	2.553 ppm	90.0 ppm	PASS 1.67 %
1.0 V AC+DC @ 10.0 kHz	**0.99995857**	62.72	0.999777	1.000223	-41.434 ppm	160.0 ppm	PASS 18.60 %
1.0 V AC+DC @ 20.0 kHz	**0.99991463**	62.72	0.999777	1.000223	-85.370 ppm	160.0 ppm	PASS 38.33 %
1.0 V AC+DC @ 50.0 kHz	**0.99997721**	129.09	0.999551	1.000449	-22.795 ppm	320.0 ppm	PASS 5.08 %
1.0 V AC+DC @ 100.0 kHz	**1.0000231**	266.36	0.998914	1.001086	23.124 ppm	820.0 ppm	PASS 2.13 %
1.0 V AC+DC @ 300.0 kHz	**1.0010011**	0.0468 %	0.996432	1.003568	0.1001 %	0.3100 %	PASS 28.06 %
1.0 V AC+DC @ 500.0 kHz	**1.0025787**	0.1200 %	0.988700	1.011300	0.2579 %	1.0100 %	PASS 22.82 %
1.0 V AC+DC @ 1.0 MHz	**1.0053246**	0.2500 %	0.987400	1.012600	0.5325 %	1.0100 %	PASS 42.26 %
10.0 V AC+DC @ 10 Hz	**10.000809**	403.63	9.993564	10.006436	80.937 ppm	240.0 ppm	PASS 12.58 %
10.0 V AC+DC @ 20 Hz	**10.000215**	141.36	9.996186	10.003814	21.505 ppm	240.0 ppm	PASS 5.64 %
10.0 V AC+DC @ 40 Hz	**10.000039**	141.36	9.996186	10.003814	3.868 ppm	240.0 ppm	PASS 1.01 %
10.0 V AC+DC @ 100 Hz	**9.9999411**	62.72	9.997173	10.002827	-5.892 ppm	220.0 ppm	PASS 2.08 %
10.0 V AC+DC @ 1.0 kHz	**10.000095**	62.72	9.997173	10.002827	9.535 ppm	220.0 ppm	PASS 3.37 %
10.0 V AC+DC @ 10.0 kHz	**9.9994558**	62.72	9.997173	10.002827	-54.419 ppm	220.0 ppm	PASS 19.25 %
10.0 V AC+DC @ 20.0 kHz	**9.9992391**	62.72	9.997173	10.002827	-76.092 ppm	220.0 ppm	PASS 26.91 %
10.0 V AC+DC @ 50.0 kHz	**9.9986496**	129.09	9.995009	10.004991	-135.039 ppm	370.0 ppm	PASS 27.06 %
10.0 V AC+DC @ 100.0 kHz	**9.9963032**	0.0248 %	9.985318	10.014682	-0.0370 %	0.1220 %	PASS 25.18 %
10.0 V AC+DC @ 300.0 kHz	**9.9826126**	0.0577 %	9.953227	10.046773	-0.1739 %	0.4100 %	PASS 37.17 %
10.0 V AC+DC @ 500.0 kHz	**9.9915778**	0.1400 %	9.835000	10.165000	-0.0842 %	1.5100 %	PASS 5.10 %
10.0 V AC+DC @ 1.0 MHz	**10.041325**	0.3000 %	9.819000	10.181000	0.4133 %	1.5100 %	PASS 22.83 %
100.0 V AC+DC @ 1.0 kHz	**100.00088**	65.0	99.951500	100.048500	8.772 ppm	420.0 ppm	PASS 1.80 %
100.0 V AC+DC @ 10.0 kHz	**99.995495**	65.0	99.931500	100.068500	-45.054 ppm	620.0 ppm	PASS 6.58 %
100.0 V AC+DC @ 20.0 kHz	**99.981768**	65.0	99.931500	100.068500	-182.318 ppm	620.0 ppm	PASS 26.62 %
100.0 V AC+DC @ 50.0 kHz	**99.942167**	0.0170 %	99.860998	100.139002	-0.0578 %	0.1220 %	PASS 41.61 %
100.0 V AC+DC @ 100.0 kHz	**99.926534**	0.0400 %	99.657997	100.342003	-0.0735 %	0.3020 %	PASS 21.48 %
700.0 V AC+DC @ 1.0 kHz	**700.0498**	78.64	699.650952	700.349048	71.147 ppm	420.0 ppm	PASS 14.03 %

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	**-4.7676196E-10**	71.82 ppm	0	0	Z-check	410 ppm	INFO
50 nADC	5E-08	**4.9592379E-08**	71.82 ppm	4.997591E-08	5.002409E-08	-8152.416 ppm	410 ppm	INFO
100 nADC	1E-07	**9.958617E-08**	71.82 ppm	9.995182E-08	1.000482E-07	-4138.298 ppm	410 ppm	FAIL 858.89 %
-100 nADC	-1E-07	**-1.0048389E-07**	71.82 ppm	-1.000482E-07	-9.995182E-08	4838.903 ppm	410 ppm	FAIL 1004.30 %
-50 nADC	-5E-08	**-5.0474981E-08**	71.82 ppm	-5.002409E-08	-4.997591E-08	9499.622 ppm	410 ppm	INFO
Zero µADC	0	**-4.9760353E-10**	71.82 ppm	0	0	Z-check	410 ppm	INFO
0.5 µADC	5E-07	**4.9952603E-07**	71.82 ppm	4.999391E-07	5.000609E-07	-947.949 ppm	50 ppm	FAIL 778.16 %
1.0 µADC	1E-06	**9.9954878E-07**	71.82 ppm	9.998782E-07	1.000122E-06	-451.220 ppm	50 ppm	FAIL 370.40 %
-1.0 µADC	-1E-06	**-1.0004818E-06**	71.82 ppm	-1.000122E-06	-9.998782E-07	481.759 ppm	50 ppm	FAIL 395.47 %
-0.5 µADC	-5E-07	**-5.0039332E-07**	71.82 ppm	-5.000609E-07	-4.999391E-07	786.631 ppm	50 ppm	FAIL 645.73 %
Zero 00 µADC	0	**-4.1422766E-10**	71.82 ppm	0	0	Z-check	410 ppm	INFO
5 µADC	5E-06	**4.9995957E-06**	71.82 ppm	4.999556E-06	5.000444E-06	-80.865 ppm	17 ppm	PASS 91.04 %
10 µADC	1E-05	**9.9995807E-06**	71.82 ppm	9.999112E-06	1.000089E-05	-41.927 ppm	17 ppm	PASS 47.20 %
-10 µADC	-1E-05	**-1.0000354E-05**	71.82 ppm	-1.000089E-05	-9.999112E-06	35.412 ppm	17 ppm	PASS 39.87 %
-5 µADC	-5E-06	**-5.0003496E-06**	71.82 ppm	-5.000444E-06	-4.999556E-06	69.915 ppm	17 ppm	PASS 78.71 %
Zero 000 µADC	0	**-3.6671531E-10**	71.82 ppm	0	0	Z-check	410 ppm	INFO
50 µADC	5E-05	**4.9999457E-05**	71.82 ppm	4.999561E-05	5.000439E-05	-10.865 ppm	16 ppm	PASS 12.37 %
100 µADC	0.0001	**9.9999339E-05**	71.82 ppm	9.999122E-05	0.0001000088	-6.606 ppm	16 ppm	PASS 7.52 %
-100 µADC	-0.0001	**-0.0001**	71.82 ppm	-0.0001000088	-9.999122E-05	0.028 ppm	16 ppm	PASS 0.03 %
-50 µADC	-5E-05	**-5.0000267E-05**	71.82 ppm	-5.000439E-05	-4.999561E-05	5.331 ppm	16 ppm	PASS 6.07 %
Zero mADC	0	**-3.1826028E-10**	33.64 ppm	0	0	Z-check	410 ppm	INFO
0.5 mADC	0.0005	**0.00049999712**	33.64 ppm	0.0004999762	0.0005000238	-5.754 ppm	14 ppm	PASS 12.08 %
1.0 mADC	0.001	**0.0009999953**	33.64 ppm	0.0009999524	0.001000048	-4.698 ppm	14 ppm	PASS 9.86 %
-1.0 mADC	-0.001	**-0.00099999782**	33.64 ppm	-0.001000048	-0.0009999524	-2.181 ppm	14 ppm	PASS 4.58 %
-0.5 mADC	-0.0005	**-0.0004999991**	33.64 ppm	-0.0005000238	-0.0004999762	-1.803 ppm	14 ppm	PASS 3.79 %
Zero 00 mADC	0	**-2.7686894E-10**	32.27 ppm	0	0	Z-check	410 ppm	INFO
5 mADC	0.005	**0.0049999894**	32.27 ppm	0.004999769	0.005000231	-2.112 ppm	14 ppm	PASS 4.56 %
10 mADC	0.01	**0.0099999634**	32.27 ppm	0.009999537	0.01000046	-3.659 ppm	14 ppm	PASS 7.91 %
-10 mADC	-0.01	**-0.0099999478**	32.27 ppm	-0.01000046	-0.009999537	-5.221 ppm	14 ppm	PASS 11.28 %
-5 mADC	-0.005	**-0.0049999672**	32.27 ppm	-0.005000231	-0.004999769	-6.561 ppm	14 ppm	PASS 14.18 %
Zero 000 mADC	0	**-2.8164646E-10**	53.32 ppm	0	0	Z-check	410 ppm	INFO
50 mADC	0.05	**0.050000271**	53.32 ppm	0.04999588	0.05000412	5.420 ppm	29 ppm	PASS 6.58 %
100 mADC	0.1	**0.099999527**	53.32 ppm	0.09999177	0.1000082	-4.729 ppm	29 ppm	PASS 5.74 %
-100 mADC	-0.1	**-0.099999414**	53.32 ppm	-0.1000082	-0.09999177	-5.859 ppm	29 ppm	PASS 7.12 %
-50 mADC	-0.05	**-0.050000001**	53.32 ppm	-0.05000412	-0.04999588	0.011 ppm	29 ppm	PASS 0.01 %
Zero ADC	0	**-2.6830786E-10**	115.22 ppm	0	0	Z-check	410 ppm	INFO
0.5 ADC	0.5	**0.50000113**	115.22 ppm	0.4998874	0.5001126	2.250 ppm	110 ppm	PASS 1.00 %
1.0 ADC	1	**0.9999864**	115.22 ppm	0.9997748	1.000225	-13.598 ppm	110 ppm	PASS 6.04 %
-1.0 ADC	-1	**-1.0000029**	115.22 ppm	-1.000225	-0.9997748	2.908 ppm	110 ppm	PASS 1.29 %
-0.5 ADC	-0.5	**-0.49999863**	115.22 ppm	-0.5001126	-0.4998874	-2.730 ppm	110 ppm	PASS 1.21 %

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	**1.0015132E-05**	0.0165 %	9.9893455e-06	1.00106545e-05	1513.237 ppm	0.0900 %	INFO
100 µA AC @ 50 Hz	0.0001	**9.9984379E-05**	0.0165 %	9.9893455e-05	0.000100106545	-156.212 ppm	0.0900 %	PASS 14.66 %
1.0 mA AC @ 50 Hz	0.001	**0.00099997499**	0.0165 %	0.00099903455	0.00100096545	-25.014 ppm	0.0800 %	PASS 2.59 %
10 mA AC @ 50 Hz	0.01	**0.0099998373**	0.0165 %	0.0099903455	0.0100096545	-16.272 ppm	0.0800 %	PASS 1.69 %
100 mA AC @ 50 Hz	0.1	**0.10000257**	0.0138 %	0.099906182	0.100093818	25.706 ppm	0.0800 %	PASS 2.74 %
1.0 A AC @ 50 Hz	1.0	**0.99997752**	0.0138 %	0.99886182	1.00113818	-0.0022 %	0.1000 %	PASS 1.98 %
10 µA AC @ 60 Hz	1e-05	**1.0023788E-05**	0.0138 %	9.9896182e-06	1.00103818e-05	2378.815 ppm	0.0900 %	INFO
100 µA AC @ 60 Hz	0.0001	**9.9975248E-05**	0.0138 %	9.9896182e-05	0.000100103818	-247.520 ppm	0.0900 %	PASS 23.84 %
1.0 mA AC @ 60 Hz	0.001	**0.00099998506**	0.0134 %	0.00099906636	0.00100093364	-14.941 ppm	0.0800 %	PASS 1.60 %
10 mA AC @ 60 Hz	0.01	**0.010000092**	0.0134 %	0.0099906636	0.0100093364	9.176 ppm	0.0800 %	PASS 0.98 %
100 mA AC @ 60 Hz	0.1	**0.10000541**	0.0308 %	0.099889182	0.100110818	54.057 ppm	0.0800 %	PASS 4.88 %
1.0 A AC @ 60 Hz	1.0	**1.0000072**	0.0308 %	0.99869182	1.00130818	0.0007 %	0.1000 %	PASS 0.55 %
10 µA AC @ 1.0 kHz	1e-05	**1.0012834E-05**	0.0165 %	9.9893455e-06	1.00106545e-05	1283.437 ppm	0.0900 %	INFO
100 µA AC @ 1.0 kHz	0.0001	**9.9969459E-05**	0.0165 %	9.9893455e-05	0.000100106545	-305.409 ppm	0.0900 %	PASS 28.66 %
1.0 mA AC @ 1.0 kHz	0.001	**0.0010000554**	0.0165 %	0.00099933455	0.00100066545	55.400 ppm	0.0500 %	PASS 8.33 %
10 mA AC @ 1.0 kHz	0.01	**0.010000611**	0.0165 %	0.0099933455	0.0100066545	61.124 ppm	0.0500 %	PASS 9.19 %
100 mA AC @ 1.0 kHz	0.1	**0.10001144**	0.0138 %	0.099936182	0.100063818	114.353 ppm	0.0500 %	PASS 17.92 %
1.0 A AC @ 1.0 kHz	1.0	**1.0001534**	0.0138 %	0.99866182	1.00133818	0.0153 %	0.1200 %	PASS 11.46 %

Test completed

Test date	25 June 2018 12:42
UUT Internal TEMP?	1
Destructive overloads?	1

Lab temperature maintained +24°C ±2°C

Internal use only

Not validated