

Manufacturer	HEWLETT-PACKARD	Calibration date	December 29 2019
Model Number	3458A	Ambient Temperature	24.42 °C
Serial	B unit	Relative Humidity	25.66 %
ID Number	KSB	Pressure	1012.50
Notes	Test Belden, 3458-2, curr 5440-7003 cable	Test type	Automated verification

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
DC STD	xDevs.com	792X[2]	9.9999838 VDC	±0.22 ppm	XD01	08/07/2019	08/07/2020
STDR	xDevs.com/Fluke	SL935	1.00006085 Ω	±0.17 ppm	XR03	08/14/2019	08/14/2020
STDR	xDevs.com/Fluke	SL935	9999.9737 kΩ	±0.17 ppm	XR02	08/14/2019	08/14/2020
MFC	Fluke	5720A	03/HLK	E2E6	XC01	08/18/2019	08/18/2020
Amplifier	Fluke	5725A		5930005	XB01	08/18/2019	08/18/2020
DMM	HP	3458A	001,X02	MY45040325	XD2	08/19/2019	08/19/2020
AVMS	Wavetek	4920M	80	29336	XA02	07/11/2017	07/11/2018

MFC last calibrated	135.0 days ago	MFC since DCV ZERO	0.0 days ago
MFC since WBFLAT	324.0 days ago	MFC since WBGAIN	134.0 days ago
MFC Confidence level	<b>24h 95% REL</b>	MFC Calibrate date	2019-08-17 00:00:00
MFC Calibrate date Zero	2019-12-30 00:00:00	Calibrate date WB Flatness	2019-02-09 00:00:00
Calibrate date WB Gain	2019-08-18 00:00:00	CAL CONST 6.5V reference voltage	6.95748559915
CAL CONST 13V reference voltage	13.85531006	CAL CONST 22V range positive zero	398.17964
CAL CONST 22V range negative zero	398.17905	CAL CONST DAC Linearity	0.0
CAL CONST 10KOHM true output resistance	9999.79198631	CAL CONST 10KOHM standard resistance	9998.72316298
CAL CONST, Zero calibration temperature	23.0	CAL CONST, All calibration temp	23.0
Booster type	VB5725,IB5725	Current output posts	IB5725
Calibrate date 5725A AMP	2019-08-17 00:00:00	Calibrated days ago	Debug
CAL CONST, Amp ACAL temperature	24.0	CAL CONST, Amp CalCheck temperature	23.0

Total uncertainty of each calibration point calculated with RSS



Meter Info	HP3458A	Last calibration date	7/24/2018
CALSTR?	"MM-JAN-4-2017,TEMP?36.5,A=24.7"	Test date	29 December 2019 23:10
DUT Internal TEMP?	37.5	DUT Calibrations number?	189
Self-test result?	0,"NO ERROR"	ACAL ALL result?	0,"NO ERROR"
Firmware	9,2	Options	0,0
CAL? 72	0.982331367	CAL? 1,1	39999.2479
CAL? 2,1	7.07034404	CAL? Res 73	0.982497521
CAL 0 TEMP	39.48	CAL 10V TEMP	37.49
CAL 10KOhm TEMP	39.53	CAL? DCI	0.981091772

Service information

CAL DUMP

[(1, 39999.2479), (1, 7.07034404), (1, -9.41468498e-07), (1, -2.65767071e-08), (1, -1.2065662e-06), (1, -9.26026421e-08), (1, -1.73274947e-06), (1, -5.70388316e-07), (1, -0.000105302723), (1, -0.000105302723), (1, -0.000162183655), (1, -0.000162183655), (1, 0.315242153), (1, 0.314206162), (1, 0.31396707), (1, 0.302155118), (1, 0.27791135), (1, -0.0682746823), (1, -3.09027374), (1, -2.55127251), (1, -2.55127251), (1, 0.306735045), (1, 0.306950373), (1, 0.306800872), (1, 0.307699761), (1, 0.29795977), (1, 0.222791069), (1, -0.107800247), (1, -0.179667078), (1, -0.179667078), (1,



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	<b>-0.22 µV</b>	0.75 µV	-0.910 µV	0.910 µV	N/A	0.16 µV	PASS
Short 0.0 VDC	0.000000E+00	<b>0.00 µV</b>	0.75 µV	-0.900 µV	0.900 µV	N/A	0.15 µV	PASS
Short 00.0 VDC	0.000000E+00	<b>0.54 µV</b>	0.75 µV	-1.070 µV	1.070 µV	N/A	0.32 µV	PASS
Short 000.0 VDC	0.000000E+00	<b>21.54 µV</b>	0.75 µV	-14.750 µV	14.750 µV	N/A	14.00 µV	FAIL
Short 0000.0 VDC	0.000000E+00	<b>71.80 µV</b>	0.75 µV	-41.750 µV	41.750 µV	N/A	41.00 µV	FAIL
DCV Test	0.1V-1000V	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
0.019 VDC (0.10 Range)	0.0190000	<b>0.019000008</b>	7.27 ppm	0.018999514	0.019000486	0.424 ppm	18.29 ppm	PASS 1.08 %
0.1 VDC (0.10 Range)	0.1000000	<b>0.10000006</b>	7.27 ppm	0.099998723	0.10000128	0.576 ppm	5.50 ppm	PASS 3.16 %
0.11 VDC (0.10 Range)	0.1100000	<b>0.11000009</b>	7.27 ppm	0.10999863	0.11000137	0.780 ppm	5.23 ppm	PASS 4.35 %
-0.019 VDC (0.10 Range)	-0.0190000	<b>-0.019000106</b>	7.27 ppm	-0.019000486	-0.018999514	5.598 ppm	18.29 ppm	PASS 14.22 %
-0.1 VDC (0.10 Range)	-0.1000000	<b>-0.10000022</b>	7.27 ppm	-0.10000128	-0.099998723	2.167 ppm	5.50 ppm	PASS 11.89 %
-0.11 VDC (0.10 Range)	-0.1100000	<b>-0.11000027</b>	7.27 ppm	-0.11000137	-0.10999863	2.442 ppm	5.23 ppm	PASS 13.64 %
0.19 VDC (1.00 Range)	0.1900000	<b>0.19000035</b>	7.27 ppm	0.18999803	0.19000197	1.831 ppm	3.08 ppm	PASS 11.59 %
1.0 VDC (1.00 Range)	1.0000000	<b>1.0000001</b>	3.86 ppm	0.99999434	1.0000057	0.098 ppm	1.80 ppm	PASS 1.15 %
1.1 VDC (1.00 Range)	1.1000000	<b>1.1000003</b>	3.86 ppm	1.0999938	1.1000062	0.232 ppm	1.77 ppm	PASS 2.73 %
-0.19 VDC (1.00 Range)	-0.1900000	<b>-0.19000013</b>	7.27 ppm	-0.19000197	-0.18999803	0.661 ppm	3.08 ppm	PASS 4.19 %
-1.0 VDC (1.00 Range)	-1.0000000	<b>-0.99999984</b>	3.86 ppm	-1.0000057	-0.99999434	-0.165 ppm	1.80 ppm	PASS 1.94 %
-1.1 VDC (1.00 Range)	-1.1000000	<b>-1.0999997</b>	3.86 ppm	-1.1000062	-1.0999938	-0.257 ppm	1.77 ppm	PASS 3.03 %
1.9 VDC (10.00 Range)	1.9000000	<b>1.9000002</b>	3.86 ppm	1.8999912	1.9000088	0.079 ppm	0.76 ppm	PASS 1.00 %
10.0 VDC (10.00 Range)	10.0000000	<b>10</b>	2.77 ppm	9.9999668	10.000033	0.037 ppm	0.55 ppm	PASS 0.66 %
11.0 VDC (10.00 Range)	11.0000000	<b>11.000001</b>	2.73 ppm	10.999964	11.000036	0.085 ppm	0.55 ppm	PASS 1.52 %
-1.9 VDC (10.00 Range)	-1.9000000	<b>-1.8999987</b>	3.86 ppm	-1.9000088	-1.8999912	-0.665 ppm	0.76 ppm	PASS 8.45 %
-10.0 VDC (10.00 Range)	-10.0000000	<b>-9.999996</b>	2.77 ppm	-10.000033	-9.9999668	-0.402 ppm	0.55 ppm	PASS 7.11 %
-11.0 VDC (10.00 Range)	-11.0000000	<b>-10.999997</b>	2.73 ppm	-11.000036	-10.999964	-0.237 ppm	0.55 ppm	PASS 4.26 %
19 VDC (100.00 Range)	19.0000000	<b>19.000043</b>	2.77 ppm	18.99987	19.00013	2.266 ppm	4.08 ppm	PASS 22.98 %
100 VDC (100.00 Range)	100.0000000	<b>100.00003</b>	3.73 ppm	99.999347	100.00065	0.296 ppm	2.80 ppm	PASS 3.17 %
110 VDC (100.00 Range)	110.0000000	<b>110.00001</b>	3.73 ppm	109.99928	110.00072	0.106 ppm	2.77 ppm	PASS 1.14 %
-19 VDC (100.00 Range)	-19.0000000	<b>-18.99997</b>	2.77 ppm	-19.00013	-18.99987	-1.578 ppm	4.08 ppm	PASS 16.00 %
-100 VDC (100.00 Range)	-100.0000000	<b>-99.999969</b>	3.73 ppm	-100.00065	-99.999347	-0.314 ppm	2.80 ppm	PASS 3.37 %
-110 VDC (100.00 Range)	-110.0000000	<b>-109.99996</b>	3.73 ppm	-110.00072	-109.99928	-0.327 ppm	2.77 ppm	PASS 3.52 %
190 VDC (1000.00 Range)	190.0000000	<b>189.99995</b>	3.73 ppm	189.99872	190.00128	-0.244 ppm	3.03 ppm	PASS 2.54 %
500 VDC (1000.00 Range)	500.0000000	<b>500.00125</b>	3.73 ppm	499.99678	500.00322	2.495 ppm	2.70 ppm	PASS 33.44 %
1000 VDC (1000.00 Range)	1000.0000000	<b>1000.0036</b>	5.45 ppm	999.97995	1000.02	3.629 ppm	2.60 ppm	PASS 13.77 %
-190 VDC (1000.00 Range)	-190.0000000	<b>-190.00011</b>	3.73 ppm	-190.00128	-189.99872	0.563 ppm	3.03 ppm	PASS 5.86 %
-500 VDC (1000.00 Range)	-500.0000000	<b>-500.00122</b>	3.73 ppm	-500.00322	-499.99678	2.446 ppm	2.70 ppm	PASS 9.73 %
-1000 VDC (1000.00 Range)	-1000.0000000	<b>-1000.0039</b>	5.45 ppm	-1000.02	-999.97995	3.917 ppm	2.60 ppm	PASS 14.86 %

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	0.9997928 Ω	<b>0.9997762 Ω</b>	32.0 ppm	9.9972581E-01	9.9985979E-01	-16.604 ppm	35.0 ppm	PASS, 17.50 % of 94.86 ppm
1.9 Ω	1.8998366 Ω	<b>1.8998095 Ω</b>	25.0 ppm	1.8997496E+00	1.8999236E+00	-14.250 ppm	20.8 ppm	PASS, 21.91 % of 65.03 ppm
10 Ω	10.000584 Ω	<b>10.000584 Ω</b>	5.0 ppm	1.0000454E+01	1.0000714E+01	-0.032 ppm	8.0 ppm	PASS, 0.17 % of 18.87 ppm
19 Ω	19.000245 Ω	<b>19.000312 Ω</b>	4.0 ppm	1.8999812E+01	1.9000678E+01	3.514 ppm	18.8 ppm	PASS, 9.15 % of 38.42 ppm
100 Ω	99.99666 Ω	<b>99.996984 Ω</b>	1.7 ppm	9.9995890E+01	9.9997430E+01	3.237 ppm	6.0 ppm	PASS, 25.96 % of 12.47 ppm
190 Ω	189.99422 Ω	<b>189.9949 Ω</b>	1.7 ppm	1.8999332E+02	1.8999512E+02	3.600 ppm	3.1 ppm	PASS, 51.51 % of 6.99 ppm
1.0 kΩ	1000.025 Ω	<b>1000.028 Ω</b>	1.7 ppm	1.0000211E+03	1.0000289E+03	3.021 ppm	2.2 ppm	PASS, 54.34 % of 5.56 ppm
1.9 kΩ	1899.903 Ω	<b>1899.9118 Ω</b>	1.7 ppm	1.8998940E+03	1.8999120E+03	4.617 ppm	3.1 ppm	PASS, 66.06 % of 6.99 ppm
10 kΩ	9999.784 Ω	<b>9999.8319 Ω</b>	1.6 ppm	9.9997460E+03	9.9998220E+03	4.790 ppm	2.2 ppm	PASS, 88.03 % of 5.44 ppm
19 kΩ	18999.247 Ω	<b>18999.313 Ω</b>	1.7 ppm	1.8999157E+04	1.8999337E+04	3.450 ppm	3.1 ppm	PASS, 49.37 % of 6.99 ppm
100 kΩ	99994.5 Ω	<b>99994.251 Ω</b>	2.0 ppm	9.9994080E+04	9.9994920E+04	-2.492 ppm	2.2 ppm	PASS, 41.91 % of 5.95 ppm
190 kΩ	189988.68 Ω	<b>189989.25 Ω</b>	2.0 ppm	1.8998540E+05	1.8999196E+05	2.995 ppm	15.3 ppm	PASS, 9.73 % of 30.79 ppm
1.0 MΩ	999979.8 Ω	<b>999976.54 Ω</b>	2.5 ppm	9.9996630E+05	9.9999330E+05	-3.263 ppm	11.0 ppm	PASS, 14.46 % of 22.56 ppm
1.9 MΩ	1899973.9 Ω	<b>1899963.2 Ω</b>	3.0 ppm	1.8998232E+06	1.9001246E+06	-5.621 ppm	76.3 ppm	PASS, 3.68 % of 152.75 ppm
10 MΩ	9999063 Ω	<b>9998626.1 Ω</b>	10.0 ppm	9.9984131E+06	9.9997129E+06	-43.689 ppm	55.0 ppm	PASS, 39.08 % of 111.80 ppm
19 MΩ	18998631 Ω	<b>18999187 Ω</b>	20.0 ppm	1.8987752E+07	1.9009510E+07	29.285 ppm	552.6 ppm	PASS, 2.65 % of 1105.99 ppm
100 MΩ	1.0000492E+08 Ω	<b>99992772 Ω</b>	50.0 ppm	9.9948917E+07	1.0006092E+08	-121.479 ppm	510.0 ppm	PASS, 11.85 % of 1024.89 ppm

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

OHM ZERO 4W	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
10 Ω	Range 0.0000037 Ω	5.000e-05 Ω	-5e-05	5e-05	N/A	8.0000e-06 Ω	PASS
100 Ω	Range 0.0001014 Ω	5.500e-04 Ω	-0.00055	0.00055	N/A	2.2000e-06 Ω	PASS
1.0 kΩ	Range -0.0000521 Ω	5.500e-03 Ω	-0.0055	0.0055	N/A	2.2000e-06 Ω	PASS
10 kΩ	Range -0.0003594 Ω	5.500e-02 Ω	-0.055	0.055	N/A	2.2000e-06 Ω	PASS
100 kΩ	Range -0.0025150 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range 0.0467143 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range 1.8685377 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range 1.2217363 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range 1.1498695 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
OHM ZERO 2W	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
100 kΩ	Range 0.4307902 Ω	5.500e-01 Ω	-0.55	0.55	N/A	2.2000e-06 Ω	PASS
1.0 MΩ	Range 0.6072855 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
10 MΩ	Range 1.6888597 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
100 MΩ	Range 1.2935948 Ω	5.500e+00 Ω	-5.5	5.5	N/A	2.2000e-06 Ω	PASS
1 GΩ	Range 1.1139289 Ω	5.500e+01 Ω	-55	55	N/A	2.2000e-06 Ω	PASS



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	0.0099979696	0.0312 %	0.009991	0.010009	-0.0203 %	0.0600 %	PASS 15.01 %
0.01 V AC+DC @ 20 Hz	0.0099979698	0.0312 %	0.009991	0.010009	-0.0203 %	0.0600 %	PASS 15.01 %
0.01 V AC+DC @ 40 Hz	0.009997988	0.0312 %	0.009991	0.010009	-0.0201 %	0.0600 %	PASS 14.87 %
0.01 V AC+DC @ 100 Hz	0.0099978284	0.0312 %	0.009994	0.010006	-0.0217 %	0.0310 %	PASS 24.68 %
0.01 V AC+DC @ 1.0 kHz	0.0099977626	0.0312 %	0.009994	0.010006	-0.0224 %	0.0310 %	PASS 25.42 %
0.01 V AC+DC @ 10.0 kHz	0.0099993351	0.0312 %	0.009993	0.010007	-0.0066 %	0.0410 %	PASS 6.45 %
0.01 V AC+DC @ 20.0 kHz	0.0099982005	0.0312 %	0.009993	0.010007	-0.0180 %	0.0410 %	PASS 17.46 %
0.01 V AC+DC @ 50.0 kHz	0.0099963609	0.0447 %	0.009984	0.010016	-0.0364 %	0.1110 %	PASS 15.20 %
0.01 V AC+DC @ 100.0 kHz	0.0099779972	0.0773 %	0.009941	0.010059	-0.2200 %	0.5110 %	PASS 21.29 %
0.01 V AC+DC @ 300.0 kHz	0.0098338925	0.1500 %	0.009583	0.010417	-1.6611 %	4.0200 %	PASS 20.65 %
0.01 V AC+DC @ 500.0 kHz	0.0096115661	0.2500 %	0.007470	0.012530	-3.8843 %	25.0500 %	PASS 7.75 %
0.01 V AC+DC @ 1.0 MHz	0.0087749149	0.4000 %	0.007455	0.012545	-12.2509 %	25.0500 %	PASS 24.45 %
0.03 V AC+DC @ 10 Hz	0.030000601	0.0121 %	0.029989	0.030011	0.0020 %	0.0233 %	PASS 3.81 %
0.03 V AC+DC @ 20 Hz	0.030000453	0.0121 %	0.029989	0.030011	0.0015 %	0.0233 %	PASS 2.87 %
0.03 V AC+DC @ 40 Hz	0.030000347	0.0121 %	0.029989	0.030011	0.0012 %	0.0233 %	PASS 2.20 %
0.03 V AC+DC @ 100 Hz	0.029999641	0.0121 %	0.029992	0.030008	-0.0012 %	0.0137 %	PASS 3.28 %
0.03 V AC+DC @ 1.0 kHz	0.030000654	0.0121 %	0.029992	0.030008	0.0022 %	0.0137 %	PASS 5.97 %
0.03 V AC+DC @ 10.0 kHz	0.030001523	0.0121 %	0.029990	0.030010	0.0051 %	0.0207 %	PASS 10.59 %
0.03 V AC+DC @ 20.0 kHz	0.029999996	0.0121 %	0.029990	0.030010	-0.0000 %	0.0207 %	PASS 0.03 %
0.03 V AC+DC @ 50.0 kHz	0.030000574	0.0256 %	0.029981	0.030019	0.0019 %	0.0367 %	PASS 2.14 %
0.03 V AC+DC @ 100.0 kHz	0.02999119	0.0591 %	0.029956	0.030044	-0.0294 %	0.0867 %	PASS 14.00 %
0.03 V AC+DC @ 300.0 kHz	0.029934953	0.0964 %	0.029871	0.030129	-0.2168 %	0.3333 %	PASS 31.24 %
0.03 V AC+DC @ 500.0 kHz	0.029884343	0.1500 %	0.029645	0.030355	-0.3855 %	1.0333 %	PASS 18.46 %
0.03 V AC+DC @ 1.0 MHz	0.029884533	0.3000 %	0.029600	0.030400	-0.3849 %	1.0333 %	PASS 17.89 %
0.1 V AC+DC @ 10 Hz	0.099995344	0.0121 %	0.099974	0.100026	-0.0047 %	0.0140 %	PASS 12.56 %
0.1 V AC+DC @ 20 Hz	0.099992976	0.0121 %	0.099974	0.100026	-0.0070 %	0.0140 %	PASS 18.95 %
0.1 V AC+DC @ 40 Hz	0.099992766	0.0121 %	0.099974	0.100026	-0.0072 %	0.0140 %	PASS 19.52 %
0.1 V AC+DC @ 100 Hz	0.099992264	0.0121 %	0.099979	0.100021	-0.0077 %	0.0090 %	PASS 25.60 %
0.1 V AC+DC @ 1.0 kHz	0.099994776	0.0121 %	0.099979	0.100021	-0.0052 %	0.0090 %	PASS 17.29 %
0.1 V AC+DC @ 10.0 kHz	0.099995739	0.0121 %	0.099972	0.100028	-0.0043 %	0.0160 %	PASS 10.61 %
0.1 V AC+DC @ 20.0 kHz	0.099992141	0.0121 %	0.099972	0.100028	-0.0079 %	0.0160 %	PASS 19.57 %
0.1 V AC+DC @ 50.0 kHz	0.099990112	0.0256 %	0.099942	0.100058	-0.0099 %	0.0320 %	PASS 12.06 %
0.1 V AC+DC @ 100.0 kHz	0.099957876	0.0591 %	0.099859	0.100141	-0.0421 %	0.0820 %	PASS 20.84 %
0.1 V AC+DC @ 300.0 kHz	0.099771446	0.0964 %	0.099594	0.100406	-0.2286 %	0.3100 %	PASS 35.20 %
0.1 V AC+DC @ 500.0 kHz	0.099616053	0.1500 %	0.098840	0.101160	-0.3839 %	1.0100 %	PASS 18.80 %
0.1 V AC+DC @ 1.0 MHz	0.099578836	0.3000 %	0.098690	0.101310	-0.4212 %	1.0100 %	PASS 19.99 %
0.3 V AC+DC @ 10 Hz	0.3000081	0.0050 %	0.299918	0.300082	0.0027 %	0.0223 %	PASS 5.90 %
0.3 V AC+DC @ 20 Hz	0.30000309	0.0050 %	0.299918	0.300082	0.0010 %	0.0223 %	PASS 2.25 %
0.3 V AC+DC @ 40 Hz	0.30000138	0.0050 %	0.299918	0.300082	0.0005 %	0.0223 %	PASS 1.00 %
0.3 V AC+DC @ 100 Hz	0.30000175	0.0050 %	0.299944	0.300056	0.0006 %	0.0137 %	PASS 2.00 %
0.3 V AC+DC @ 1.0 kHz	0.30000663	0.0050 %	0.299944	0.300056	0.0022 %	0.0137 %	PASS 7.60 %
0.3 V AC+DC @ 10.0 kHz	0.29999937	0.0050 %	0.299923	0.300077	-0.0002 %	0.0207 %	PASS 0.49 %
0.3 V AC+DC @ 20.0 kHz	0.29998448	0.0050 %	0.299923	0.300077	-0.0052 %	0.0207 %	PASS 12.17 %
0.3 V AC+DC @ 50.0 kHz	0.30001671	0.0085 %	0.299864	0.300136	0.0056 %	0.0367 %	PASS 7.40 %
0.3 V AC+DC @ 100.0 kHz	0.30005724	0.0138 %	0.299699	0.300301	0.0191 %	0.0867 %	PASS 10.87 %
0.3 V AC+DC @ 300.0 kHz	0.30039492	0.0425 %	0.298872	0.301128	0.1316 %	0.3333 %	PASS 19.59 %
0.3 V AC+DC @ 500.0 kHz	0.30101371	0.1100 %	0.296570	0.303430	0.3379 %	1.0333 %	PASS 16.26 %
0.3 V AC+DC @ 1.0 MHz	0.30283586	0.1800 %	0.296360	0.303640	0.9453 %	1.0333 %	PASS 45.06 %
1.0 V AC+DC @ 10 Hz	1.0000099	0.0050 %	0.999820	1.000180	0.0010 %	0.0130 %	PASS 3.57 %
1.0 V AC+DC @ 20 Hz	0.99999413	0.0050 %	0.999820	1.000180	-0.0006 %	0.0130 %	PASS 2.11 %
1.0 V AC+DC @ 40 Hz	0.99998652	0.0050 %	0.999820	1.000180	-0.0013 %	0.0130 %	PASS 4.85 %
1.0 V AC+DC @ 100 Hz	0.99997941	0.0050 %	0.999860	1.000140	-0.0021 %	0.0090 %	PASS 10.02 %

1.0 V AC+DC @ 1.0 kHz	0.9999793	0.0050 %	0.999860	1.000140	-0.0002 %	0.0090 %	PASS 1.01 %
1.0 V AC+DC @ 10.0 kHz	0.99996733	0.0050 %	0.999790	1.000210	-0.0033 %	0.0160 %	PASS 9.75 %
1.0 V AC+DC @ 20.0 kHz	0.99993854	0.0050 %	0.999790	1.000210	-0.0061 %	0.0160 %	PASS 18.35 %
1.0 V AC+DC @ 50.0 kHz	1.0000197	0.0085 %	0.999595	1.000405	0.0020 %	0.0320 %	PASS 2.97 %
1.0 V AC+DC @ 100.0 kHz	1.0001048	0.0138 %	0.999042	1.000958	0.0105 %	0.0820 %	PASS 6.30 %
1.0 V AC+DC @ 300.0 kHz	1.0013011	0.0425 %	0.996475	1.003525	0.1301 %	0.3100 %	PASS 20.79 %
1.0 V AC+DC @ 500.0 kHz	1.003364	0.1100 %	0.988800	1.011200	0.3364 %	1.0100 %	PASS 16.56 %
1.0 V AC+DC @ 1.0 MHz	1.0095869	0.1800 %	0.988100	1.011900	0.9587 %	1.0100 %	PASS 46.72 %
3.0 V AC+DC @ 10 Hz	3.0001484	0.0048 %	2.999245	3.000755	0.0049 %	0.0203 %	PASS 11.84 %
3.0 V AC+DC @ 20 Hz	3.0000924	0.0048 %	2.999245	3.000755	0.0031 %	0.0203 %	PASS 7.37 %
3.0 V AC+DC @ 40 Hz	3.000071	0.0048 %	2.999245	3.000755	0.0024 %	0.0203 %	PASS 5.66 %
3.0 V AC+DC @ 100 Hz	3.0000649	0.0048 %	2.999445	3.000555	0.0022 %	0.0137 %	PASS 7.46 %
3.0 V AC+DC @ 1.0 kHz	3.000098	0.0048 %	2.999445	3.000555	0.0033 %	0.0137 %	PASS 11.27 %
3.0 V AC+DC @ 10.0 kHz	2.9999558	0.0048 %	2.999235	3.000765	-0.0015 %	0.0207 %	PASS 3.47 %
3.0 V AC+DC @ 20.0 kHz	2.9999554	0.0048 %	2.999235	3.000765	-0.0015 %	0.0207 %	PASS 3.50 %
3.0 V AC+DC @ 50.0 kHz	2.999986	0.0085 %	2.998644	3.001356	-0.0005 %	0.0367 %	PASS 0.62 %
3.0 V AC+DC @ 100.0 kHz	2.9993445	0.0121 %	2.997036	3.002964	-0.0219 %	0.0867 %	PASS 12.48 %
3.0 V AC+DC @ 300.0 kHz	2.9967974	0.0336 %	2.988991	3.011009	-0.1068 %	0.3333 %	PASS 15.93 %
3.0 V AC+DC @ 500.0 kHz	3.0010491	0.1100 %	2.965700	3.034300	0.0350 %	1.0333 %	PASS 1.68 %
3.0 V AC+DC @ 1.0 MHz	3.0247868	0.1700 %	2.963900	3.036100	0.8262 %	1.0333 %	PASS 39.45 %
10.0 V AC+DC @ 10 Hz	10.000251	0.0048 %	9.998418	10.001582	0.0025 %	0.0110 %	PASS 10.45 %
10.0 V AC+DC @ 20 Hz	10.000113	0.0048 %	9.998418	10.001582	0.0011 %	0.0110 %	PASS 4.72 %
10.0 V AC+DC @ 40 Hz	10.000054	0.0048 %	9.998418	10.001582	0.0005 %	0.0110 %	PASS 2.26 %
10.0 V AC+DC @ 100 Hz	10	0.0048 %	9.998618	10.001382	0.0000 %	0.0090 %	PASS 0.01 %
10.0 V AC+DC @ 1.0 kHz	10.000151	0.0048 %	9.998618	10.001382	0.0015 %	0.0090 %	PASS 7.38 %
10.0 V AC+DC @ 10.0 kHz	9.999669	0.0048 %	9.997918	10.002082	-0.0033 %	0.0160 %	PASS 9.91 %
10.0 V AC+DC @ 20.0 kHz	9.9996631	0.0048 %	9.997918	10.002082	-0.0034 %	0.0160 %	PASS 10.08 %
10.0 V AC+DC @ 50.0 kHz	9.9996379	0.0085 %	9.995946	10.004054	-0.0036 %	0.0320 %	PASS 5.47 %
10.0 V AC+DC @ 100.0 kHz	9.9969862	0.0121 %	9.990586	10.009414	-0.0301 %	0.0820 %	PASS 18.18 %
10.0 V AC+DC @ 300.0 kHz	9.9891072	0.0336 %	9.965636	10.034364	-0.1089 %	0.3100 %	PASS 17.47 %
10.0 V AC+DC @ 500.0 kHz	10.003006	0.1100 %	9.888000	10.112000	0.0301 %	1.0100 %	PASS 1.48 %
10.0 V AC+DC @ 1.0 MHz	10.083501	0.1700 %	9.882000	10.118000	0.8350 %	1.0100 %	PASS 40.76 %
30 V AC+DC @ 10 Hz	30.001146	0.0060 %	29.988195	30.011805	0.0038 %	0.0333 %	PASS 5.64 %
30 V AC+DC @ 20 Hz	30.000539	0.0060 %	29.988195	30.011805	0.0018 %	0.0333 %	PASS 2.65 %
30 V AC+DC @ 40 Hz	30.000231	0.0060 %	29.988195	30.011805	0.0008 %	0.0333 %	PASS 1.14 %
30 V AC+DC @ 100 Hz	30.000191	0.0060 %	29.990195	30.009805	0.0006 %	0.0267 %	PASS 1.17 %
30 V AC+DC @ 1.0 kHz	30.000599	0.0060 %	29.990195	30.009805	0.0020 %	0.0267 %	PASS 3.65 %
30 V AC+DC @ 10.0 kHz	30.000177	0.0060 %	29.990195	30.009805	0.0006 %	0.0267 %	PASS 1.08 %
30 V AC+DC @ 20.0 kHz	29.999713	0.0060 %	29.990195	30.009805	-0.0010 %	0.0267 %	PASS 1.75 %
30 V AC+DC @ 50.0 kHz	30.001023	0.0060 %	29.985695	30.014305	0.0034 %	0.0417 %	PASS 4.05 %
30 V AC+DC @ 100.0 kHz	29.996652	0.0174 %	29.956791	30.043209	-0.0112 %	0.1267 %	PASS 4.36 %
30 V AC+DC @ 300.0 kHz	29.997541	0.0991 %	29.840273	30.159727	-0.0082 %	0.4333 %	PASS 0.92 %
30 V AC+DC @ 500.0 kHz	30.040885	0.5200 %	29.384000	30.616000	0.1363 %	1.5333 %	PASS 4.21 %
100.0 V AC+DC @ 10 Hz	100.00146	0.0060 %	99.969982	100.030018	0.0015 %	0.0240 %	PASS 2.96 %
100.0 V AC+DC @ 20 Hz	99.999353	0.0060 %	99.969982	100.030018	-0.0006 %	0.0240 %	PASS 1.31 %
100.0 V AC+DC @ 40 Hz	99.999179	0.0060 %	99.969982	100.030018	-0.0008 %	0.0240 %	PASS 1.66 %
100.0 V AC+DC @ 100 Hz	99.998407	0.0060 %	99.971982	100.028018	-0.0016 %	0.0220 %	PASS 3.49 %
100.0 V AC+DC @ 1.0 kHz	100.00019	0.0060 %	99.971982	100.028018	0.0002 %	0.0220 %	PASS 0.41 %
100.0 V AC+DC @ 10.0 kHz	100.0003	0.0060 %	99.971982	100.028018	0.0003 %	0.0220 %	PASS 0.66 %
100.0 V AC+DC @ 20.0 kHz	99.998861	0.0060 %	99.971982	100.028018	-0.0011 %	0.0220 %	PASS 2.50 %
100.0 V AC+DC @ 50.0 kHz	100.00085	0.0095 %	99.953455	100.046545	0.0008 %	0.0370 %	PASS 1.11 %
100.0 V AC+DC @ 100.0 kHz	99.982447	0.0174 %	99.860636	100.139364	-0.0176 %	0.1220 %	PASS 7.12 %
300.0 V AC+DC @ 40 Hz	300.00462	0.0079 %	299.056408	300.943592	0.0015 %	0.3067 %	PASS 0.25 %
300.0 V AC+DC @ 100 Hz	300.00302	0.0079 %	299.836408	300.163592	0.0010 %	0.0467 %	PASS 1.06 %
300.0 V AC+DC @ 1.0 kHz	300.00679	0.0079 %	299.836408	300.163592	0.0023 %	0.0467 %	PASS 2.39 %
300.0 V AC+DC @ 10.0 kHz	300.00684	0.0110 %	299.766865	300.233135	0.0023 %	0.0667 %	PASS 1.69 %
300.0 V AC+DC @ 20.0 kHz	300.00095	0.0110 %	299.766865	300.233135	0.0003 %	0.0667 %	PASS 0.23 %
300.0 V AC+DC @ 50.0 kHz	300.15182	0.0245 %	299.546599	300.453401	0.0506 %	0.1267 %	PASS 19.61 %
300.0 V AC+DC @ 100.0 kHz	300.53642	0.0660 %	298.882000	301.118000	0.1788 %	0.3067 %	PASS 28.50 %

750.0 V AC+DC @ 40 Hz	<b>750.04757</b>	0.0079 %	747.671020	752.328980	0.0063 %	0.3027 %	PASS 1.05 %
750.0 V AC+DC @ 100 Hz	<b>750.04168</b>	0.0079 %	749.621020	750.378980	0.0056 %	0.0427 %	PASS 6.40 %
750.0 V AC+DC @ 1.0 kHz	<b>750.04795</b>	0.0079 %	749.621020	750.378980	0.0064 %	0.0427 %	PASS 7.37 %
750.0 V AC+DC @ 10.0 kHz	<b>750.0144</b>	0.0110 %	749.447162	750.552838	0.0019 %	0.0627 %	PASS 1.51 %
750.0 V AC+DC @ 20.0 kHz	<b>749.97537</b>	0.0110 %	749.447162	750.552838	-0.0033 %	0.0627 %	PASS 2.58 %
750.0 V AC+DC @ 50.0 kHz	<b>750.31131</b>	0.0245 %	748.896498	751.103503	0.0415 %	0.1227 %	PASS 16.59 %
750.0 V AC+DC @ 75.0 kHz	<b>750.7738</b>	0.0660 %	747.235000	752.765000	0.1032 %	0.3027 %	PASS 16.65 %



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	-1.3355629E-11						INFO
50 nADC	5E-08	4.9965583E-08						INFO
100 nADC	1.00000E-07 A	9.9920898E-08 A	71.82 ppm	9.995182E-08	1.000482E-07	-791.020 ppm	410 ppm	PASS 95.02 %
-100 nADC	-1.00000E-07 A	-1.0008759E-07 A	71.82 ppm	-1.000482E-07	-9.995182E-08	875.863 ppm	410 ppm	FAIL 105.21 %
-50 nADC	-5E-08	-5.0039599E-08						INFO
Zero µADC	0	-4.6513051E-11						INFO
0.5 µADC	5.00000E-07 A	4.9995228E-07 A	71.82 ppm	4.999191E-07	5.000809E-07	-95.442 ppm	90 ppm	PASS 41.44 %
1.0 µADC	1.00000E-06 A	9.9994850E-07 A	71.82 ppm	9.998782E-07	1.000122E-06	-51.499 ppm	50 ppm	PASS 29.42 %
-1.0 µADC	-1.00000E-06 A	-1.0000037E-06 A	71.82 ppm	-1.000122E-06	-9.998782E-07	3.697 ppm	50 ppm	PASS 2.11 %
-0.5 µADC	-5.00000E-07 A	-5.0001295E-07 A	71.82 ppm	-5.000809E-07	-4.999191E-07	25.897 ppm	90 ppm	PASS 11.25 %
Zero 00 µADC	0	3.2182722E-11						INFO
5 µADC	5.00000E-06 A	5.0000013E-06 A	71.82 ppm	4.999521E-06	5.000479E-06	0.262 ppm	24 ppm	PASS 0.17 %
10 µADC	1.00000E-05 A	1.0000042E-05 A	71.82 ppm	9.999112E-06	1.000089E-05	4.237 ppm	17 ppm	PASS 2.87 %
-10 µADC	-1.00000E-05 A	-9.9999261E-06 A	71.82 ppm	-1.000089E-05	-9.999112E-06	-7.392 ppm	17 ppm	PASS 5.01 %
-5 µADC	-5.00000E-06 A	-4.9999980E-06 A	71.82 ppm	-5.000479E-06	-4.999521E-06	-0.408 ppm	24 ppm	PASS 0.27 %
Zero 000 µADC	0	-1.2664683E-13						INFO
50 µADC	5.00000E-05 A	4.9999618E-05 A	71.82 ppm	4.999531E-05	5.000469E-05	-7.637 ppm	22 ppm	PASS 5.08 %
100 µADC	1.00000E-04 A	9.9999425E-05 A	71.82 ppm	9.999122E-05	0.0001000088	-5.751 ppm	16 ppm	PASS 3.91 %
-100 µADC	-1.00000E-04 A	-9.9999825E-05 A	71.82 ppm	-0.0001000088	-9.999122E-05	-1.753 ppm	16 ppm	PASS 1.19 %
-50 µADC	-5.00000E-05 A	-4.9999889E-05 A	71.82 ppm	-5.000469E-05	-4.999531E-05	-2.211 ppm	22 ppm	PASS 1.47 %
Zero mADC	0	-4.7835629E-11						INFO
0.5 mADC	5.00000E-04 A	4.9999727E-04 A	33.64 ppm	0.0004999742	0.0005000258	-5.467 ppm	18 ppm	PASS 7.16 %
1.0 mADC	1.00000E-03 A	9.9999393E-04 A	33.64 ppm	0.0009999524	0.001000048	-6.072 ppm	14 ppm	PASS 8.33 %
-1.0 mADC	-1.00000E-03 A	-9.9999206E-04 A	33.64 ppm	-0.001000048	-0.0009999524	-7.943 ppm	14 ppm	PASS 10.90 %
-0.5 mADC	-5.00000E-04 A	-4.9999540E-04 A	33.64 ppm	-0.0005000258	-0.0004999742	-9.208 ppm	18 ppm	PASS 12.07 %
Zero 00 mADC	0	2.9418936E-11						INFO
5 mADC	5.00000E-03 A	4.9999692E-03 A	32.27 ppm	0.004999749	0.005000251	-6.160 ppm	18 ppm	PASS 8.34 %
10 mADC	1.00000E-02 A	9.9999358E-03 A	32.27 ppm	0.009999537	0.01000046	-6.419 ppm	14 ppm	PASS 9.12 %
-10 mADC	-1.00000E-02 A	-9.9999222E-03 A	32.27 ppm	-0.01000046	-0.009999537	-7.776 ppm	14 ppm	PASS 11.05 %
-5 mADC	-5.00000E-03 A	-4.9999560E-03 A	32.27 ppm	-0.005000251	-0.004999749	-8.808 ppm	18 ppm	PASS 11.92 %
Zero 000 mADC	0	-2.3386379E-11						INFO
50 mADC	5.00000E-02 A	5.0000188E-02 A	53.32 ppm	0.04999568	0.05000432	3.768 ppm	33 ppm	PASS 3.00 %
100 mADC	1.00000E-01 A	9.9998542E-02 A	53.32 ppm	0.09999177	0.1000082	-14.583 ppm	29 ppm	PASS 12.01 %
-100 mADC	-1.00000E-01 A	-9.9998843E-02 A	53.32 ppm	-0.1000082	-0.09999177	-11.572 ppm	29 ppm	PASS 9.53 %
-50 mADC	-5.00000E-02 A	-4.9999740E-02 A	53.32 ppm	-0.05000432	-0.04999568	-5.195 ppm	33 ppm	PASS 4.14 %
Zero ADC	0	2.6361777E-11						INFO
0.5 ADC	5.00000E-01 A	5.0000050E-01 A	115.22 ppm	0.4998824	0.5001176	1.001 ppm	120 ppm	PASS 0.30 %
1.0 ADC	1.00000E+00 A	9.9999394E-01 A	115.22 ppm	0.9997748	1.000225	-6.059 ppm	110 ppm	PASS 1.90 %
-1.0 ADC	-1.00000E+00 A	-9.9998849E-01 A	115.22 ppm	-1.000225	-0.9997748	-11.509 ppm	110 ppm	PASS 3.61 %
-0.5 ADC	-5.00000E-01 A	-4.9999269E-01 A	115.22 ppm	-0.5001176	-0.4998824	-14.612 ppm	120 ppm	PASS 4.39 %

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	1.0012317E-05 A	0.0160 %	9.9623955e-06	1.00376045e-05	0.1232 %	0.3600 %	INFO
100 µA AC @ 50 Hz	0.0001	9.9984778E-05 A	0.0160 %	9.9893955e-05	0.000100106045	-0.0152 %	0.0900 %	PASS 8.33 %
1.0 mA AC @ 50 Hz	0.001	9.9998211E-04 A	0.0160 %	0.00099903955	0.00100096045	-0.0018 %	0.0800 %	PASS 1.10 %
10 mA AC @ 50 Hz	0.01	9.9998584E-03 A	0.0160 %	0.0099903955	0.0100096045	-0.0014 %	0.0800 %	PASS 0.87 %
100 mA AC @ 50 Hz	0.1	1.0000319E-01 A	0.0133 %	0.099906682	0.100093318	0.0032 %	0.0800 %	PASS 1.97 %
1.0 A AC @ 50 Hz	1.0	9.9998151E-01 A	0.0133 %	0.99886682	1.00113318	-0.0018 %	0.1000 %	PASS 0.92 %
10 µA AC @ 60 Hz	1e-05	1.0022459E-05 A	0.0133 %	9.9626682e-06	1.00373318e-05	0.2246 %	0.3600 %	INFO
100 µA AC @ 60 Hz	0.0001	9.9982101E-05 A	0.0133 %	9.9896682e-05	0.000100103318	-0.0179 %	0.0900 %	PASS 9.84 %
1.0 mA AC @ 60 Hz	0.001	1.0000076E-03 A	0.0129 %	0.00099907136	0.00100092864	0.0008 %	0.0800 %	PASS 0.47 %
10 mA AC @ 60 Hz	0.01	1.0000217E-02 A	0.0129 %	0.0099907136	0.0100092864	0.0022 %	0.0800 %	PASS 1.34 %
100 mA AC @ 60 Hz	0.1	1.0000667E-01 A	0.0288 %	0.099891182	0.100108818	0.0067 %	0.0800 %	PASS 3.92 %
1.0 A AC @ 60 Hz	1.0	1.0000196E+00 A	0.0288 %	0.99871182	1.00128818	0.0020 %	0.1000 %	PASS 0.94 %
10 µA AC @ 1.0 kHz	1e-05	1.0011901E-05 A	0.0160 %	9.9623955e-06	1.00376045e-05	0.1190 %	0.3600 %	INFO
100 µA AC @ 1.0 kHz	0.0001	9.9980085E-05 A	0.0160 %	9.9893955e-05	0.000100106045	-0.0199 %	0.0900 %	PASS 10.89 %
1.0 mA AC @ 1.0 kHz	0.001	1.0000679E-03 A	0.0160 %	0.00099933955	0.00100066045	0.0068 %	0.0500 %	PASS 6.47 %
10 mA AC @ 1.0 kHz	0.01	1.0000653E-02 A	0.0160 %	0.0099933955	0.0100066045	0.0065 %	0.0500 %	PASS 6.21 %
100 mA AC @ 1.0 kHz	0.1	1.0001248E-01 A	0.0133 %	0.099936682	0.100063318	0.0125 %	0.0500 %	PASS 12.06 %
1.0 A AC @ 1.0 kHz	1.0	1.0001120E+00 A	0.0133 %	0.99866682	1.00133318	0.0112 %	0.1200 %	PASS 4.64 %

Test completed

Test date	30 December 2019 13:12
UUT Internal TEMP?	37.4
Destructive overloads?	310, DESTRUCTIVE OVERLOADS valid 2941

Lab temperature maintained +24°C ±2°C

Internal use only

Not validated

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