cal equipment

HULK-PV

Manufacturer	KEITHLEY INSTRUMENTS	Calibration date	August 30 2018
Model Number	Model 182	Ambient Temperature	26.13 °C
Serial	MFD	Relative Humidity	45.74 %
ID Number	MMnVM	Pressure	1008.86
Notes	Initial	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	HULK	5720A	03/HLK	E2E6	XC01	08/01/2018	09/01/2018
AVMS	Wavetek	4920M	80	29336	XA01	07/11/2017	07/11/2018
DMM	Keithley	2002	MEM2	0603805	XD4	02/25/2018	02/25/2019
STDR	ESI	SR104	10000.0012 KΩ	±1.00 ppm	XR04	06/30/2018	12/30/2018
STDR	xDevs.com/Fluke	SL935	1.00005942 Ω	±0.17 ppm	XR03	05/31/2018	05/31/2019
STDR	xDevs.com/Fluke	SL935	9999.9755 kΩ	±0.33 ppm	XR02	05/31/2018	05/31/2019
DC STD	Wavetek	7000	10.0000007 VDC	±0.9 ppm	XD02	06/07/2018	12/08/2018
DC STD	xDevs.com	792X[2]	10.000009 VDC	±2.2 ppm	XD01	02/16/2018	08/16/2018
Divider	Keithley	262	None	0000	XZ02	08/01/2018	09/01/2018

MFC last calibrated	0.0 days ago	MFC since DCV ZERO	0.0 days ago
MFC since WBFLAT	11198.0 days ago	MFC since WBGAIN	158.0 days ago
MFC Confidence level	**24h 95% REL**	MFC Calibrate date	2018-08-30 00:00:00
MFC Calibrate date Zero	2018-08-30 00:00:00	Calibrate date WB Flatness	1988-10-01 00:00:00
Calibrate date WB Gain	2018-03-25 00:00:00	CAL CONST 6.5V reference voltage	6.54040204583
CAL CONST 13V reference voltage	13.0696428765	CAL CONST 22V range positive zero	398.18317
CAL CONST 22V range negative zero	398.17461	CAL CONST DAC Linearity	-0.378248036448
CAL CONST 10KOHM true output resistance	9999.93125606	CAL CONST 10KOHM standard resistance	9998.60633988
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	182B1F0G0I0J0K0M000N0O0P2R5S2T06V0Y0Z1	Test date start	30 August 2018 11:05
Test specification interval	**24 hour DUT spec**	Line frequency	110V 60 Hz
Next calibration date	05/15/2018	Last calibration date	05/15/2019
Firmware version	REVA01 ,B03 ,A04	Stored message	MSG'Cal 01-04-1995 Keithley Instruments '

Service information

Stored message
MSG'Cal 01-04-1995 Keithley Instruments '
All CAL values
CAL+4.826807E-01,+4.826799E-01,-9.076328E-08,+4.852204E-01,+4.852256E-01,-1.119968E-07,+4.811109E-01,+4.811101E-01,-1.787662E-07,+4.801337E-01,+4.801334E-01,-6.059525E-06,+4.364354E-01,+4.364365E-01,-6.957729E-04,+1.009763E+00,+3.343400E+00,+2.700000E+01
Reference
Custom cable used, direct to MFC
DUT Condition
Simtes

Test procedure : $Id: k182.py | Rev 867 | 2018/08/30 09:26:28 clu $

Source procedure : $Id: f5720a.py | Rev 852 | 2018/08/27 07:51:13 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	**0.00 µV**	0.00 µV	-1.200 µV	1.200 µV	N/A	1.20 µV	PASS
Short 00 mVDC	0.0000000E+00	**0.00 µV**	0.00 µV	-4.000 µV	4.000 µV	N/A	4.00 µV	PASS
Short 000 mVDC	0.0000000E+00	**0.00 µV**	0.00 µV	-80.000 µV	80.000 µV	N/A	80.00 µV	PASS
Short 0.0 VDC	0.0000000E+00	**9.00 µV**	0.00 µV	-600.000 µV	600.000 µV	N/A	0.60 mV	PASS
Short 00.0 VDC	0.0000000E+00	**-10.00 µV**	0.00 µV	-6000.000 µV	6000.000 µV	N/A	6.00 mV	PASS
DCV Test	**0.003V-30V**	**DUT**	**Source unc.**	**Low Limit**	**Hi limit**	**Measured**	**24h spec**	**Result**
0.001 VDC (0.003 Range)	0.0010000	**0.00099996**	404.00 ppm	0.00099956	0.00100044	-40.000 ppm	36.00 ppm	PASS 9.09 %
0.002 VDC (0.003 Range)	0.0020000	**0.00199998**	204.00 ppm	0.00199952	0.00200048	-10.000 ppm	36.00 ppm	PASS 4.17 %
0.003 VDC (0.003 Range)	0.0030000	**0.002999999**	137.33 ppm	0.00299948	0.00300052	-0.333 ppm	36.00 ppm	PASS 0.19 %
-0.001 VDC (0.003 Range)	-0.0010000	**-0.001000045**	404.00 ppm	-0.00100044	-0.00099956	45.000 ppm	36.00 ppm	PASS 10.23 %
-0.002 VDC (0.003 Range)	-0.0020000	**-0.0020000605**	204.00 ppm	-0.00200048	-0.00199952	30.250 ppm	36.00 ppm	PASS 12.60 %
-0.003 VDC (0.003 Range)	-0.0030000	**-0.0030000495**	137.33 ppm	-0.00300052	-0.00299948	16.500 ppm	36.00 ppm	PASS 9.52 %
0.01 VDC (0.030 Range)	0.0100000	**0.01000026**	44.00 ppm	0.0099993	0.0100007	26.000 ppm	26.00 ppm	PASS 37.14 %
0.02 VDC (0.030 Range)	0.0200000	**0.02000046**	24.00 ppm	0.019999	0.020001	23.000 ppm	26.00 ppm	PASS 46.00 %
0.03 VDC (0.030 Range)	0.0300000	**0.03000067**	17.33 ppm	0.0299987	0.0300013	22.333 ppm	26.00 ppm	PASS 51.54 %
-0.01 VDC (0.030 Range)	-0.0100000	**-0.01000008**	44.00 ppm	-0.0100007	-0.0099993	8.000 ppm	26.00 ppm	PASS 11.43 %
-0.02 VDC (0.030 Range)	-0.0200000	**-0.02000024**	24.00 ppm	-0.020001	-0.019999	12.000 ppm	26.00 ppm	PASS 24.00 %
-0.03 VDC (0.030 Range)	-0.0300000	**-0.03000036**	17.33 ppm	-0.0300013	-0.0299987	12.000 ppm	26.00 ppm	PASS 27.69 %
0.1 VDC (0.300 Range)	0.1000000	**0.100005**	27.00 ppm	0.0999952	0.1000048	50.000 ppm	21.00 ppm	FAIL 104.17 %
0.2 VDC (0.300 Range)	0.2000000	**0.2000103**	14.50 ppm	0.1999929	0.2000071	51.500 ppm	21.00 ppm	FAIL 145.07 %
0.3 VDC (0.300 Range)	0.3000000	**0.3000186**	10.33 ppm	0.2999906	0.3000094	62.000 ppm	21.00 ppm	FAIL 197.89 %
-0.1 VDC (0.300 Range)	-0.1000000	**-0.1000058**	27.00 ppm	-0.1000048	-0.0999952	58.000 ppm	21.00 ppm	FAIL 120.83 %
-0.2 VDC (0.300 Range)	-0.2000000	**-0.2000113**	14.50 ppm	-0.2000071	-0.1999929	56.500 ppm	21.00 ppm	FAIL 159.15 %
-0.3 VDC (0.300 Range)	-0.3000000	**-0.30002**	10.33 ppm	-0.3000094	-0.2999906	66.667 ppm	21.00 ppm	FAIL 212.79 %
1.0 VDC (3.000 Range)	1.0000000	**1.00002**	4.50 ppm	0.9999815	1.0000185	20.000 ppm	14.00 ppm	FAIL 108.11 %
2 VDC (3.000 Range)	2.0000000	**2.000028**	3.25 ppm	1.9999655	2.0000345	14.000 ppm	14.00 ppm	PASS 81.16 %
3 VDC (3.000 Range)	3.0000000	**3.000057**	2.83 ppm	2.9999495	3.0000505	19.000 ppm	14.00 ppm	FAIL 112.89 %
-1 VDC (3.000 Range)	-1.0000000	**-1.000002**	4.50 ppm	-1.0000185	-0.9999815	2.000 ppm	14.00 ppm	PASS 10.81 %
-2 VDC (3.000 Range)	-2.0000000	**-2.000013**	3.25 ppm	-2.0000345	-1.9999655	6.500 ppm	14.00 ppm	PASS 37.68 %
-3 VDC (3.000 Range)	-3.0000000	**-3.000043**	2.83 ppm	-3.0000505	-2.9999495	14.333 ppm	14.00 ppm	PASS 85.17 %
10 VDC (30.000 Range)	10.0000000	**10.0001**	7.00 ppm	9.99979	10.00021	10.000 ppm	14.00 ppm	PASS 47.62 %
20 VDC (30.000 Range)	20.0000000	**20.00016**	5.00 ppm	19.99962	20.00038	8.000 ppm	14.00 ppm	PASS 42.11 %
30 VDC (30.000 Range)	30.0000000	**30.00028**	4.33 ppm	29.99945	30.00055	9.333 ppm	14.00 ppm	PASS 50.92 %
-10 VDC (30.000 Range)	-10.0000000	**-9.99997**	7.00 ppm	-10.00021	-9.99979	-3.000 ppm	14.00 ppm	PASS 14.29 %
-20 VDC (30.000 Range)	-20.0000000	**-19.99998**	5.00 ppm	-20.00038	-19.99962	-1.000 ppm	14.00 ppm	PASS 5.26 %
-30 VDC (30.000 Range)	-30.0000000	**-30.00001**	4.33 ppm	-30.00055	-29.99945	0.333 ppm	14.00 ppm	PASS 1.82 %

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	3 mV Range	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
3.00000 mV	0.003000	**0.0030000**	137.33 ppm	0.002999525	0.003000475	-1.33 ppm	21.00 ppm	PASS 0.84 %
2.75000 mV	0.002750	**0.0027500**	149.45 ppm	0.002749531	0.002750469	-15.45 ppm	21.00 ppm	PASS 9.07 %
2.50000 mV	0.002500	**0.0024999**	164.00 ppm	0.002499538	0.002500462	-53.40 ppm	21.00 ppm	PASS 28.86 %
2.25000 mV	0.002250	**0.0022497**	181.78 ppm	0.002249544	0.002250456	-120.00 ppm	21.00 ppm	PASS 59.18 %
2.00000 mV	0.002000	**0.0019996**	204.00 ppm	0.00199955	0.00200045	-179.75 ppm	21.00 ppm	PASS 79.89 %
1.75000 mV	0.001750	**0.00174958**	232.57 ppm	0.001749556	0.001750444	-242.29 ppm	21.00 ppm	PASS 95.55 %
1.50000 mV	0.001500	**0.0014995**	270.67 ppm	0.001499562	0.001500438	-310.67 ppm	21.00 ppm	FAIL 106.51 %
1.25000 mV	0.001250	**0.0012495**	324.00 ppm	0.001249569	0.001250431	-394.40 ppm	21.00 ppm	FAIL 114.32 %
1.00000 mV	0.001000	**0.0009995**	404.00 ppm	0.000999575	0.001000425	-532.00 ppm	21.00 ppm	FAIL 125.18 %
0.75000 mV	0.000750	**0.0007495**	537.33 ppm	0.0007495813	0.0007504187	-711.33 ppm	21.00 ppm	FAIL 127.40 %
0.50000 mV	0.000500	**0.0004995**	804.00 ppm	0.0004995875	0.0005004125	-1064.00 ppm	21.00 ppm	FAIL 128.97 %
0.25000 mV	0.000250	**0.0002495**	1604.00 ppm	0.0002495937	0.0002504063	-2062.00 ppm	21.00 ppm	FAIL 126.89 %
0.10000 mV	0.000100	**0.0000995**	4004.00 ppm	9.95975E-05	0.0001004025	-5065.00 ppm	21.00 ppm	FAIL 125.84 %
-0.10000 mV	-0.000100	**-0.0001005**	4004.00 ppm	-0.0001004025	-9.95975E-05	5235.00 ppm	21.00 ppm	FAIL 130.06 %
-0.25000 mV	-0.000250	**-0.0002505**	1604.00 ppm	-0.0002504063	-0.0002495937	2028.00 ppm	21.00 ppm	FAIL 124.80 %
-0.50000 mV	-0.000500	**-0.0005005**	804.00 ppm	-0.0005004125	-0.0004995875	972.00 ppm	21.00 ppm	FAIL 117.82 %
-0.75000 mV	-0.000750	**-0.0007505**	537.33 ppm	-0.0007504187	-0.0007495813	666.67 ppm	21.00 ppm	FAIL 119.40 %
-1.00000 mV	-0.001000	**-0.0010005**	404.00 ppm	-0.001000425	-0.000999575	483.00 ppm	21.00 ppm	FAIL 113.65 %
-1.25000 mV	-0.001250	**-0.0012505**	324.00 ppm	-0.001250431	-0.001249569	376.00 ppm	21.00 ppm	FAIL 108.99 %
-1.50000 mV	-0.001500	**-0.0015005**	270.67 ppm	-0.001500438	-0.001499562	304.33 ppm	21.00 ppm	FAIL 104.34 %
-1.75000 mV	-0.001750	**-0.00175044**	232.57 ppm	-0.001750444	-0.001749556	253.14 ppm	21.00 ppm	PASS 99.83 %
-2.00000 mV	-0.002000	**-0.00200045**	204.00 ppm	-0.00200045	-0.00199955	223.50 ppm	21.00 ppm	PASS 99.33 %
-2.25000 mV	-0.002250	**-0.00225043**	181.78 ppm	-0.002250456	-0.002249544	193.33 ppm	21.00 ppm	PASS 95.34 %
-2.50000 mV	-0.002500	**-0.00250042**	164.00 ppm	-0.002500462	-0.002499538	168.00 ppm	21.00 ppm	PASS 90.81 %
-2.75000 mV	-0.002750	**-0.00275040**	149.45 ppm	-0.002750469	-0.002749531	145.09 ppm	21.00 ppm	PASS 85.12 %
-3.00000 mV	-0.003000	**-0.00300038**	137.33 ppm	-0.003000475	-0.002999525	127.00 ppm	21.00 ppm	PASS 80.21 %
DCV Linearity	**30 mV Range**	**DUT**	**Source unc.**	**Low Limit**	**Hi limit**	**Measured**	**24h spec**	**Result**
30.00000 mV	0.030000	**0.0300005**	17.33 ppm	0.02999885	0.03000115	15.33 ppm	21.00 ppm	PASS 40.00 %
27.50000 mV	0.027500	**0.0275004**	18.55 ppm	0.02749891	0.02750109	14.55 ppm	21.00 ppm	PASS 36.78 %
25.00000 mV	0.025000	**0.0250004**	20.00 ppm	0.02499897	0.02500103	14.80 ppm	21.00 ppm	PASS 36.10 %
22.50000 mV	0.022500	**0.0225003**	21.78 ppm	0.02249904	0.02250096	15.11 ppm	21.00 ppm	PASS 35.32 %
20.00000 mV	0.020000	**0.0200003**	24.00 ppm	0.0199991	0.0200009	14.50 ppm	21.00 ppm	PASS 32.22 %
17.50000 mV	0.017500	**0.0175002**	26.86 ppm	0.01749916	0.01750084	14.29 ppm	21.00 ppm	PASS 29.85 %
15.00000 mV	0.015000	**0.0150002**	30.67 ppm	0.01499922	0.01500078	10.67 ppm	21.00 ppm	PASS 20.64 %
12.50000 mV	0.012500	**0.0125001**	36.00 ppm	0.01249929	0.01250071	10.40 ppm	21.00 ppm	PASS 18.25 %
10.00000 mV	0.010000	**0.0100001**	44.00 ppm	0.00999935	0.01000065	8.00 ppm	21.00 ppm	PASS 12.31 %
7.50000 mV	0.007500	**0.0075000**	57.33 ppm	0.007499413	0.007500587	4.00 ppm	21.00 ppm	PASS 5.11 %
5.00000 mV	0.005000	**0.0050000**	84.00 ppm	0.004999475	0.005000525	-4.00 ppm	21.00 ppm	PASS 3.81 %
2.50000 mV	0.002500	**0.0024999**	164.00 ppm	0.002499538	0.002500462	-28.00 ppm	21.00 ppm	PASS 15.14 %
1.00000 mV	0.001000	**0.0009999**	404.00 ppm	0.000999575	0.001000425	-130.00 ppm	21.00 ppm	PASS 30.59 %
-1.00000 mV	-0.001000	**-0.0010002**	404.00 ppm	-0.001000425	-0.000999575	220.00 ppm	21.00 ppm	PASS 51.76 %
-2.50000 mV	-0.002500	**-0.0025002**	164.00 ppm	-0.002500462	-0.002499538	88.00 ppm	21.00 ppm	PASS 47.57 %
-5.00000 mV	-0.005000	**-0.0050003**	84.00 ppm	-0.005000525	-0.004999475	50.00 ppm	21.00 ppm	PASS 47.62 %
-7.50000 mV	-0.007500	**-0.0075003**	57.33 ppm	-0.007500587	-0.007499413	38.67 ppm	21.00 ppm	PASS 49.36 %
-10.00000 mV	-0.010000	**-0.0100003**	44.00 ppm	-0.01000065	-0.00999935	30.00 ppm	21.00 ppm	PASS 46.15 %
-12.50000 mV	-0.012500	**-0.0125004**	36.00 ppm	-0.01250071	-0.01249929	31.20 ppm	21.00 ppm	PASS 54.74 %
-15.00000 mV	-0.015000	**-0.0150004**	30.67 ppm	-0.01500078	-0.01499922	27.33 ppm	21.00 ppm	PASS 52.90 %
-17.50000 mV	-0.017500	**-0.0175004**	26.86 ppm	-0.01750084	-0.01749916	24.57 ppm	21.00 ppm	PASS 51.34 %
-20.00000 mV	-0.020000	**-0.0200005**	24.00 ppm	-0.0200009	-0.0199991	23.50 ppm	21.00 ppm	PASS 52.22 %
-22.50000 mV	-0.022500	**-0.0225005**	21.78 ppm	-0.02250096	-0.02249904	22.22 ppm	21.00 ppm	PASS 51.95 %
-25.00000 mV	-0.025000	**-0.0250005**	20.00 ppm	-0.02500103	-0.02499897	21.20 ppm	21.00 ppm	PASS 51.71 %
-27.50000 mV	-0.027500	**-0.0275006**	18.55 ppm	-0.02750109	-0.02749891	20.73 ppm	21.00 ppm	PASS 52.41 %
-30.00000 mV	-0.030000	**-0.0300006**	17.33 ppm	-0.03000115	-0.02999885	20.67 ppm	21.00 ppm	PASS 53.92 %
DCV Linearity	**300 mV Range**	**DUT**	**Source unc.**	**Low Limit**	**Hi limit**	**Measured**	**24h spec**	**Result**
0.300000 V	0.3000000	**0.3000225**	10.33 ppm	0.2999906	0.3000094	75.00 ppm	21.00 ppm	FAIL 239.39 %
0.275000 V	0.2750000	**0.2750209**	11.09 ppm	0.2749912	0.2750088	76.00 ppm	21.00 ppm	FAIL 236.83 %
0.250000 V	0.2500000	**0.2500190**	12.00 ppm	0.2499918	0.2500082	76.00 ppm	21.00 ppm	FAIL 230.30 %
0.225000 V	0.2250000	**0.2250175**	13.11 ppm	0.2249923	0.2250077	77.78 ppm	21.00 ppm	FAIL 228.02 %
0.200000 V	0.2000000	**0.2000155**	14.50 ppm	0.1999929	0.2000071	77.50 ppm	21.00 ppm	FAIL 218.31 %
0.175000 V	0.1750000	**0.1750135**	16.29 ppm	0.1749935	0.1750065	77.14 ppm	21.00 ppm	FAIL 206.87 %
0.150000 V	0.1500000	**0.1500113**	18.67 ppm	0.149994	0.150006	75.33 ppm	21.00 ppm	FAIL 189.90 %
0.125000 V	0.1250000	**0.1250097**	22.00 ppm	0.1249946	0.1250054	77.60 ppm	21.00 ppm	FAIL 180.47 %

0.100000 V	0.1000000	**0.1000079**	27.00 ppm	0.0999952	0.1000048	79.00 ppm	21.00 ppm	FAIL 164.58 %
0.075000 V	0.0750000	**0.0750059**	35.33 ppm	0.07499578	0.07500422	78.67 ppm	21.00 ppm	FAIL 139.65 %
0.050000 V	0.0500000	**0.0500042**	52.00 ppm	0.04999635	0.05000365	84.00 ppm	21.00 ppm	FAIL 115.07 %
0.025000 V	0.0250000	**0.0250024**	102.00 ppm	0.02499692	0.02500308	96.00 ppm	21.00 ppm	PASS 78.05 %
0.010000 V	0.0100000	**0.0100010**	252.00 ppm	0.00999727	0.01000273	100.00 ppm	21.00 ppm	PASS 36.63 %
-0.010000 V	-0.0100000	**-0.0100011**	252.00 ppm	-0.01000273	-0.00999727	110.00 ppm	21.00 ppm	PASS 40.29 %
-0.025000 V	-0.0250000	**-0.0250023**	102.00 ppm	-0.02500308	-0.02499692	92.00 ppm	21.00 ppm	PASS 74.80 %
-0.050000 V	-0.0500000	**-0.0500041**	52.00 ppm	-0.05000365	-0.04999635	82.00 ppm	21.00 ppm	FAIL 112.33 %
-0.075000 V	-0.0750000	**-0.0750060**	35.33 ppm	-0.07500422	-0.07499578	80.00 ppm	21.00 ppm	FAIL 142.02 %
-0.100000 V	-0.1000000	**-0.1000079**	27.00 ppm	-0.1000048	-0.0999952	79.00 ppm	21.00 ppm	FAIL 164.58 %
-0.125000 V	-0.1250000	**-0.1250102**	22.00 ppm	-0.1250054	-0.1249946	81.60 ppm	21.00 ppm	FAIL 189.77 %
-0.150000 V	-0.1500000	**-0.1500121**	18.67 ppm	-0.150006	-0.149994	80.67 ppm	21.00 ppm	FAIL 203.34 %
-0.175000 V	-0.1750000	**-0.1750141**	16.29 ppm	-0.1750065	-0.1749935	80.57 ppm	21.00 ppm	FAIL 216.07 %
-0.200000 V	-0.2000000	**-0.2000160**	14.50 ppm	-0.2000071	-0.1999929	80.00 ppm	21.00 ppm	FAIL 225.35 %
-0.225000 V	-0.2250000	**-0.2250180**	13.11 ppm	-0.2250077	-0.2249923	80.00 ppm	21.00 ppm	FAIL 234.54 %
-0.250000 V	-0.2500000	**-0.2500198**	12.00 ppm	-0.2500082	-0.2499918	79.20 ppm	21.00 ppm	FAIL 240.00 %
-0.275000 V	-0.2750000	**-0.2750218**	11.09 ppm	-0.2750088	-0.2749912	79.27 ppm	21.00 ppm	FAIL 247.03 %
-0.300000 V	-0.3000000	**-0.3000237**	10.33 ppm	-0.3000094	-0.2999906	79.00 ppm	21.00 ppm	FAIL 252.15 %

DCV Linearity	3 V Range	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
3.000000 V	3.000000	**3.0000780**	2.83 ppm	2.999929	3.000071	26.00 ppm	21.00 ppm	FAIL 109.11 %
2.750000 V	2.750000	**2.7500710**	2.91 ppm	2.749934	2.750066	25.82 ppm	21.00 ppm	FAIL 107.98 %
2.500000 V	2.500000	**2.5000670**	3.00 ppm	2.49994	2.50006	26.80 ppm	21.00 ppm	FAIL 111.67 %
2.250000 V	2.250000	**2.2500610**	3.11 ppm	2.249946	2.250054	27.11 ppm	21.00 ppm	FAIL 112.45 %
2.000000 V	2.000000	**2.0000585**	3.25 ppm	1.999952	2.000049	29.25 ppm	21.00 ppm	FAIL 120.62 %
1.750000 V	1.750000	**1.7500510**	3.43 ppm	1.749957	1.750043	29.14 ppm	21.00 ppm	FAIL 119.29 %
1.500000 V	1.500000	**1.5000470**	3.67 ppm	1.499963	1.500037	31.33 ppm	21.00 ppm	FAIL 127.01 %
1.250000 V	1.250000	**1.2500400**	4.00 ppm	1.249969	1.250031	32.00 ppm	21.00 ppm	FAIL 128.00 %
1.000000 V	1.000000	**1.0000350**	4.50 ppm	0.9999745	1.000026	35.00 ppm	21.00 ppm	FAIL 137.25 %
0.750000 V	0.750000	**0.7500290**	5.33 ppm	0.7499803	0.7500197	38.67 ppm	21.00 ppm	FAIL 146.85 %
0.500000 V	0.500000	**0.5000230**	7.00 ppm	0.499986	0.500014	46.00 ppm	21.00 ppm	FAIL 164.29 %
0.250000 V	0.250000	**0.2500180**	12.00 ppm	0.2499918	0.2500082	72.00 ppm	21.00 ppm	FAIL 218.18 %
0.100000 V	0.100000	**0.1000140**	27.00 ppm	0.0999952	0.1000048	140.00 ppm	21.00 ppm	FAIL 291.67 %
-0.100000 V	-0.100000	**-0.0999970**	27.00 ppm	-0.1000048	-0.0999952	-30.00 ppm	21.00 ppm	PASS 62.50 %
-0.250000 V	-0.250000	**-0.2500015**	12.00 ppm	-0.2500082	-0.2499918	6.00 ppm	21.00 ppm	PASS 18.18 %
-0.500000 V	-0.500000	**-0.5000060**	7.00 ppm	-0.500014	-0.499986	12.00 ppm	21.00 ppm	PASS 42.86 %
-0.750000 V	-0.750000	**-0.7500120**	5.33 ppm	-0.7500197	-0.7499803	16.00 ppm	21.00 ppm	PASS 60.77 %
-1.000000 V	-1.000000	**-1.0000200**	4.50 ppm	-1.000026	-0.9999745	20.00 ppm	21.00 ppm	PASS 78.43 %
-1.250000 V	-1.250000	**-1.25002600**	4.00 ppm	-1.250031	-1.249969	20.80 ppm	21.00 ppm	PASS 83.20 %
-1.500000 V	-1.500000	**-1.50003100**	3.67 ppm	-1.500037	-1.499963	20.67 ppm	21.00 ppm	PASS 83.77 %
-1.750000 V	-1.750000	**-1.75003700**	3.43 ppm	-1.750043	-1.749957	21.14 ppm	21.00 ppm	PASS 86.54 %
-2.000000 V	-2.000000	**-2.00004600**	3.25 ppm	-2.000049	-1.999952	23.00 ppm	21.00 ppm	PASS 94.85 %
-2.250000 V	-2.250000	**-2.25005100**	3.11 ppm	-2.250054	-2.249946	22.67 ppm	21.00 ppm	PASS 94.01 %
-2.500000 V	-2.500000	**-2.50005800**	3.00 ppm	-2.50006	-2.49994	23.20 ppm	21.00 ppm	PASS 96.67 %
-2.750000 V	-2.750000	**-2.75006500**	2.91 ppm	-2.750066	-2.749934	23.64 ppm	21.00 ppm	PASS 98.86 %
-3.000000 V	-3.000000	**-3.00007000**	2.83 ppm	-3.000071	-2.999929	23.33 ppm	21.00 ppm	PASS 97.92 %

DCV Linearity	30 V Range	DUT	Source unc.	Low Limit	Hi limit	Measured	24h spec	Result
30.0000 V	30.0000	**30.00072**	4.33 ppm	29.99924	30.00076	24.00 ppm	21.00 ppm	PASS 94.75 %
27.5000 V	27.5000	**27.50068**	4.45 ppm	27.4993	27.5007	24.73 ppm	21.00 ppm	PASS 97.16 %
25.0000 V	25.0000	**25.00062**	4.60 ppm	24.99936	25.00064	24.80 ppm	21.00 ppm	PASS 96.88 %
22.5000 V	22.5000	**22.50056**	4.78 ppm	22.49942	22.50058	24.89 ppm	21.00 ppm	PASS 96.54 %
20.0000 V	20.0000	**20.00053**	5.00 ppm	19.99948	20.00052	26.50 ppm	21.00 ppm	FAIL 101.92 %
17.5000 V	17.5000	**17.50044**	5.29 ppm	17.49954	17.50046	25.14 ppm	21.00 ppm	PASS 95.64 %
15.0000 V	15.0000	**15.00037**	5.67 ppm	14.9996	15.0004	24.67 ppm	21.00 ppm	PASS 92.49 %
12.5000 V	12.5000	**12.50032**	6.20 ppm	12.49966	12.50034	25.60 ppm	21.00 ppm	PASS 94.12 %
10.0000 V	10.0000	**10.00027**	7.00 ppm	9.99972	10.00028	27.00 ppm	21.00 ppm	PASS 96.43 %
7.5000 V	7.5000	**7.50020**	8.33 ppm	7.49978	7.50022	26.67 ppm	21.00 ppm	PASS 90.92 %
5.0000 V	5.0000	**5.00017**	11.00 ppm	4.99984	5.00016	34.00 ppm	21.00 ppm	FAIL 106.25 %
2.5000 V	2.5000	**2.50003**	19.00 ppm	2.4999	2.5001	12.00 ppm	21.00 ppm	PASS 30.00 %
1.0000 V	1.0000	**1.00001**	43.00 ppm	0.999936	1.000064	10.00 ppm	21.00 ppm	PASS 15.63 %
-1.0000 V	-1.0000	**-1.00009**	43.00 ppm	-1.000064	-0.999936	95.00 ppm	21.00 ppm	FAIL 148.44 %
-2.5000 V	-2.5000	**-2.50011**	19.00 ppm	-2.5001	-2.4999	44.00 ppm	21.00 ppm	FAIL 110.00 %
-5.0000 V	-5.0000	**-5.00017**	11.00 ppm	-5.00016	-4.99984	34.00 ppm	21.00 ppm	FAIL 106.25 %
-7.5000 V	-7.5000	**-7.50018**	8.33 ppm	-7.50022	-7.49978	24.00 ppm	21.00 ppm	PASS 81.83 %
-10.0000 V	-10.0000	**-10.00023**	7.00 ppm	-10.00028	-9.99972	23.00 ppm	21.00 ppm	PASS 82.14 %
-12.5000 V	-12.5000	**-12.50026**	6.20 ppm	-12.50034	-12.49966	20.80 ppm	21.00 ppm	PASS 76.47 %
-15.0000 V	-15.0000	**-15.00032**	5.67 ppm	-15.0004	-14.9996	21.33 ppm	21.00 ppm	PASS 79.99 %
-17.5000 V	-17.5000	**-17.50035**	5.29 ppm	-17.50046	-17.49954	20.00 ppm	21.00 ppm	PASS 76.07 %
-20.0000 V	-20.0000	**-20.00039**	5.00 ppm	-20.00052	-19.99948	19.50 ppm	21.00 ppm	PASS 75.00 %
-22.5000 V	-22.5000	**-22.50047**	4.78 ppm	-22.50058	-22.49942	20.89 ppm	21.00 ppm	PASS 81.03 %

-25.0000 V	-25.0000	**-25.00050**	4.60 ppm	-25.00064	-24.99936	20.00 ppm	21.00 ppm	PASS 78.12 %
-27.5000 V	-27.5000	**-27.50059**	4.45 ppm	-27.5007	-27.4993	21.45 ppm	21.00 ppm	PASS 84.30 %
-30.0000 V	-30.0000	**-30.00061**	4.33 ppm	-30.00076	-29.99924	20.33 ppm	21.00 ppm	PASS 80.27 %

Test completed

Test date	30 August 2018 13:52

Lab temperature maintained +24°C ±2°C

Internal use only

Not validated