

Certificate of Calibration

ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994

Certificate Number 1-5113983928-6

Model Number	B2912A	Customer	Keysight Technologies Deutschland GmbH
Manufacturer	Keysight Technologies Inc		Herrenberger Strasse 130
Description	Precision Source/Measure Unit, 2ch, 10fA resolution, 210V, 3A DC/10.5A pulse		71034 BOEBLINGEN
Serial Number	HERE SN		Germany
Customer Asset No.	- HERE ASSET ID -	Location of Calibration	Keysight Technologies
Options Installed	- HERE OPTIONS -		Deutschland GmbH
Date of Calibration	1 Mar 2021		Herrenberger Strasse 130
Procedure	STE-50114579-A.02.03		D-71034 Boeblingen
Temperature	(23 ± 5) °C		GERMANY
Humidity	(50 ± 30) %RH		

This certifies that the equipment has been calibrated using applicable Keysight Technologies procedures and in compliance with ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994 (R2002). The quality management system is registered to ISO 9001:2015.

As Received Conditions

The measured values of the equipment were observed in specification at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values exceeded specification. Consequently, compliance with specification cannot be declared based on the stated coverage probability.

Action Taken

- No corrective actions were necessary.

As Completed Conditions

The measured values of the equipment were observed in specification at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values exceeded specification. Consequently, compliance with specification cannot be declared based on the stated coverage probability.

Remarks or Special Requirements

This calibration report shall not be reproduced, except in full. The documented results relate to the equipment calibrated only.

The test limits stated in the report correspond to the published specifications of the equipment, at the points tested.

This calibration report may refer to equipment manufactured by HP, Agilent and Keysight as being manufactured by Keysight Technologies.

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Traceability Information

Technician ID 00126591

Measurements are traceable to the International System of Units (SI) via national metrology institutes (www.keysight.com/find/NMI) that are signatories to the CIPM Mutual Recognition Arrangement.

Calibration Equipment Used

Model Number	Model Description	Equipment ID	Cal Due Date
16353A	Standard resistor set for calibrating 4155/56/4070	UK16429	8 May 2021
16353J	Standard resistor, 10m Ohm	UK16238	12 Nov 2021
3458A	Digital multimeter, 8.5 digit	DE982R0900	7 Apr 2021

Traceability Table

	Model	Model Description	Equipment ID	Certificate Number	Trace Value
W,R	16353A	Standard resistor set for calibrating 4155/56/4070	UK16429	1-xxxxxxxxxx-1-JCSS:0048	DC Current Resistance
W,R	16353J	Standard resistor, 10m Ohm	UK16238	1-xxxxxxxxxx-1-UKAS:C 0147	Resistance
W,R	3458A	Digital multimeter, 8.5 digit	DE982R0900	1-xxxxxxxxxx-1-ANAB:AC-1498.03	DC Current DC Voltage Resistance

Legend

W - Working Standard The calibration equipment used for the calibration of the Model indicated on the first page of the Certificate of calibration.

R - Reference Standard The Reference Standard (Accredited or NMI-calibrated ETE) used to provide traceability to the SI-Units for the calibration parameters listed.

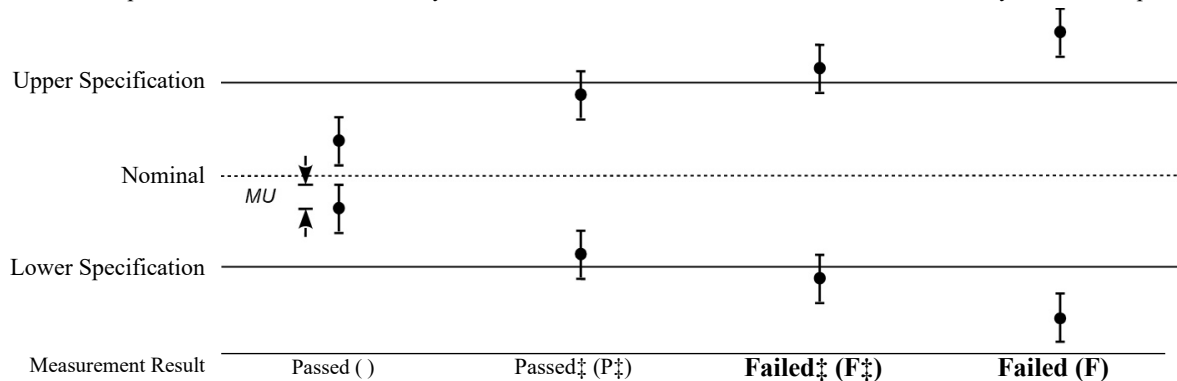
Compliance with Specification

The uncertainty of measurement has been taken into account when determining compliance with specification, as per ILAC-G8:09/2019. If the expanded measurement uncertainty intervals centered about one or more measured values were both in as well as out of specification (upper or lower), it is not possible to state compliance or non-compliance based on a 95% coverage probability for the expanded measurement uncertainty.

An overall statement of compliance for all tests performed as received, and as completed (if any adjustments / repairs were performed) is included at the beginning of this report. Statements of compliance apply only to warranted specifications. When functional verification tests are performed, results are reported in the “Functional Test” section, and do not affect these statements of compliance. The status summaries relate to the tested item only. A final decision about whether the item's performance actually satisfies requirements of the user can only be made by the user.

Measurement results are reported as:

- Passed () - The measured values of the equipment were observed in specification at the points tested. Additionally, the expanded measurement uncertainty intervals about the measured values were in specification.
- Passed $\ddagger$ (P $\ddagger$) - The measured values of the equipment were observed in specification at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values exceeded specification. Consequently, compliance with specification cannot be declared based on the stated coverage probability.
- Failed $\ddagger$ (F $\ddagger$) - One or more measured values of the equipment were observed out of specification at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values were in specification. Consequently, non-compliance with specification cannot be declared based on the stated coverage probability.
- Failed (F) - One or more measured values of the equipment were observed out of specification at the points tested. Additionally, the expanded measurement uncertainty intervals about one or more measured values were entirely outside the specification.



MU = 95% expanded measurement uncertainty.

() This result is indicated on the measurement report as a blank space in the column labeled “Status” or “Sts”.

Note: For more information on the level of risk such as false accept and false reject and statistical assumptions of these statements of conformity, please visit: www.keysight.com/find/decisionrules.

Uncertainty of Measurement

The uncertainty evaluation has been performed in accordance with ISO/IEC Guide 98-3:2008 (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95%. This probability corresponds to a coverage factor of k=2 for a normal distribution.

Certificate of Calibration

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Certificate Number 1-5113983928-6

Calibration Test Results Summary

Test Name	As Received Status
CH1 VOLT MEAS AND OUTP ACCY	Passed
CH1 LOW CURR MEAS AND OUTP ACCY	Passed
CH1 MIDD CURR MEAS AND OUTP ACCY	Passed
CH1 HIGH CURR MEAS AND OUTP ACCY	Passed
CH2 VOLT MEAS AND OUTP ACCY	Passed
CH2 LOW CURR MEAS AND OUTP ACCY	Passed
CH2 MIDD CURR MEAS AND OUTP ACCY	Passed‡
CH2 HIGH CURR MEAS AND OUTP ACCY	Passed

Functional Test Results Summary

The following functional test results are not part of an accredited delivery, even if they are part of an otherwise accredited calibration report.

The following tests document the functional verification of the instruments' non-warranted performance. Neither a statement of conformance or decision rule is used for a Functional Test, measurement uncertainties are only provided by exception. For a "Functional Test" the test results are reported as "As Expected" when showing expected performance and "Not As Expected" otherwise. "As Expected" results of individual test points are indicated in the measurement report by a blank space in the column labeled "Status" to allow easier recognition of any "Not As Expected" points. If a functional test result is reported as "Not As Expected", repair and/or adjustment is recommended. Test results reported as "Done" are possible if no limits are applied. For qualitative or quantitative "Functional Tests" the test results are not warranted, and no judgment is made. The "actual" measured results are helpful to users for some applications.

Test Name	As Received Status
SELF CAL AND TEST	As Expected
CH1 CURRENT CMR	As Expected
CH1 VOLTAGE CMR	As Expected
CH1 HIGH CAP CURR ACCY	As Expected
CH2 CURRENT CMR	As Expected
CH2 VOLTAGE CMR	As Expected
CH2 HIGH CAP CURR ACCY	As Expected

‡ Some of the measured values are within one expanded uncertainty of the specification.

Model B2912A Serial HERE SN
 Options Tested

Test Date 12 Dec 2019
 Condition As Received

CH1 VOLT MEAS AND OUTP ACCY

Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Voltage Measure Range 0.2 V</i>					
-0.21 V	-0.2102565 V	-0.2099900 V	-0.2097435 V	0.000014 V	
-0.1 V	-0.1002400 V	-0.0999946 V	-0.0997600 V	0.000014 V	
0 V	-0.0002250 V	0.0000035 V	0.0002250 V	0.0000032 V	
0.1 V	0.0997600 V	0.1000033 V	0.1002400 V	0.000014 V	
0.21 V	0.2097435 V	0.2100105 V	0.2102565 V	0.000014 V	
<i>Voltage Measure Range 2 V</i>					
-2.1 V	-2.100770 V	-2.099940 V	-2.099230 V	0.000064 V	
-1 V	-1.000550 V	-1.000003 V	-0.999450 V	0.000061 V	
0 V	-0.000350 V	-0.000013 V	0.000350 V	0.0000033 V	
1 V	0.999450 V	0.999983 V	1.000550 V	0.000061 V	
2.1 V	2.099230 V	2.100061 V	2.100770 V	0.000064 V	
<i>Voltage Measure Range 20 V</i>					
-21 V	-21.00815 V	-20.99880 V	-20.99185 V	0.00061 V	
-10 V	-10.00650 V	-9.99975 V	-9.99350 V	0.00056 V	
0 V	-0.00500 V	-0.00017 V	0.00500 V	0.000073 V	
10 V	9.99350 V	9.99949 V	10.00650 V	0.00056 V	
21 V	20.99185 V	21.00021 V	21.00815 V	0.00061 V	
<i>Voltage Measure Range 200 V</i>					
-210 V	-210.0815 V	-209.9850 V	-209.9185 V	0.011 V	
-100 V	-100.0650 V	-99.9971 V	-99.9350 V	0.011 V	
0 V	-0.0500 V	-0.0013 V	0.0500 V	0.00050 V	
100 V	99.9350 V	99.9948 V	100.0650 V	0.011 V	
210 V	209.9185 V	210.0006 V	210.0815 V	0.011 V	
<i>Voltage Source Range 0.2 V</i>					
-0.21 V	-0.2102565 V	-0.2100098 V	-0.2097435 V	0.000014 V	
-0.1 V	-0.1002400 V	-0.1000051 V	-0.0997600 V	0.000014 V	
0 V	-0.0002250 V	-0.0000042 V	0.0002250 V	0.0000033 V	
0.1 V	0.0997600 V	0.0999973 V	0.1002400 V	0.000014 V	
0.21 V	0.2097435 V	0.2099899 V	0.2102565 V	0.000014 V	
<i>Voltage Source Range 2 V</i>					
-2.1 V	-2.100770 V	-2.100061 V	-2.099230 V	0.000064 V	
-1 V	-1.000550 V	-0.999997 V	-0.999450 V	0.000061 V	
0 V	-0.000350 V	0.000013 V	0.000350 V	0.0000062 V	
1 V	0.999450 V	1.000017 V	1.000550 V	0.000061 V	
2.1 V	2.099230 V	2.099939 V	2.100770 V	0.000064 V	
<i>Voltage Source Range 20 V</i>					
-21 V	-21.00815 V	-21.00120 V	-20.99185 V	0.00061 V	
-10 V	-10.00650 V	-10.00025 V	-9.99350 V	0.00056 V	
0 V	-0.00500 V	0.00017 V	0.00500 V	0.00011 V	
10 V	9.99350 V	10.00051 V	10.00650 V	0.00056 V	

Model B2912A Serial HERE SN
 Options Tested

Test Date 12 Dec 2019
 Condition As Received

CH1 VOLT MEAS AND OUTP ACCY (cont.)

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
21 V	20.99185 V	20.99979 V	21.00815 V	0.00061 V	
<i>Voltage Source Range 200 V</i>					
-210 V	-210.0815 V	-210.0150 V	-209.9185 V	0.011 V	
-100 V	-100.0650 V	-100.0029 V	-99.9350 V	0.011 V	
0 V	-0.0500 V	0.0013 V	0.0500 V	0.00088 V	
100 V	99.9350 V	100.0052 V	100.0650 V	0.011 V	
210 V	209.9185 V	209.9994 V	210.0815 V	0.011 V	

CH1 LOW CURR MEAS AND OUTP ACCY

Passed

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 10 nA</i>					
-10.5 nA	-10.56050 nA	-10.49123 nA	-10.43950 nA	0.0052 nA	
-5 nA	-5.05500 nA	-4.99581 nA	-4.94500 nA	0.0025 nA	
0 nA	-0.05000 nA	0.00005 nA	0.05000 nA	0.00022 nA	
5 nA	4.94500 nA	4.99600 nA	5.05500 nA	0.0025 nA	
10.5 nA	10.43950 nA	10.49184 nA	10.56050 nA	0.0052 nA	
<i>Current Measure Range 100 nA</i>					
-105 nA	-105.1630 nA	-104.9935 nA	-104.8370 nA	0.0074 nA	
-50 nA	-50.1300 nA	-49.9958 nA	-49.8700 nA	0.0037 nA	
0 nA	-0.1000 nA	0.0010 nA	0.1000 nA	0.00078 nA	
50 nA	49.8700 nA	50.0016 nA	50.1300 nA	0.0037 nA	
105 nA	104.8370 nA	105.0029 nA	105.1630 nA	0.0074 nA	
<i>Current Measure Range 1 uA</i>					
-1.05 uA	-1.050763 uA	-1.050010 uA	-1.049238 uA	0.000062 uA	
-0.5 uA	-0.500625 uA	-0.500003 uA	-0.499375 uA	0.000032 uA	
0 uA	-0.000500 uA	0.000009 uA	0.000500 uA	0.0000051 uA	
0.5 uA	0.499375 uA	0.500060 uA	0.500625 uA	0.000032 uA	
1.05 uA	1.049238 uA	1.050083 uA	1.050763 uA	0.000062 uA	
<i>Current Measure Range 10 uA</i>					
-10.5 uA	-10.50413 uA	-10.50039 uA	-10.49588 uA	0.00039 uA	
-5 uA	-5.00275 uA	-5.00015 uA	-4.99725 uA	0.00020 uA	
0 uA	-0.00150 uA	0.00009 uA	0.00150 uA	0.000056 uA	
5 uA	4.99725 uA	5.00067 uA	5.00275 uA	0.00020 uA	
10.5 uA	10.49588 uA	10.50099 uA	10.50413 uA	0.00039 uA	
<i>Current Source Range 10 nA</i>					
-10.5 nA	-10.56050 nA	-10.50876 nA	-10.43950 nA	0.0052 nA	
-5 nA	-5.05500 nA	-5.00419 nA	-4.94500 nA	0.0025 nA	
0 nA	-0.05000 nA	-0.00006 nA	0.05000 nA	0.00022 nA	
5 nA	4.94500 nA	5.00399 nA	5.05500 nA	0.0025 nA	
10.5 nA	10.43950 nA	10.50814 nA	10.56050 nA	0.0052 nA	
<i>Current Source Range 100 nA</i>					
-105 nA	-105.1630 nA	-105.0065 nA	-104.8370 nA	0.0074 nA	

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 Condition As Received

CH1 LOW CURR MEAS AND OUTP ACCY (cont.)

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
-50 nA	-50.1300 nA	-50.0043 nA	-49.8700 nA	0.0037 nA	
0 nA	-0.1000 nA	-0.0011 nA	0.1000 nA	0.00078 nA	
50 nA	49.8700 nA	49.9983 nA	50.1300 nA	0.0037 nA	
105 nA	104.8370 nA	104.9970 nA	105.1630 nA	0.0074 nA	

Current Source Range 1 uA

-1.05 uA	-1.050763 uA	-1.049990 uA	-1.049238 uA	0.000062 uA	
-0.5 uA	-0.500625 uA	-0.499998 uA	-0.499375 uA	0.000032 uA	
0 uA	-0.000500 uA	-0.000009 uA	0.000500 uA	0.0000051 uA	
0.5 uA	0.499375 uA	0.499940 uA	0.500625 uA	0.000032 uA	
1.05 uA	1.049238 uA	1.049917 uA	1.050763 uA	0.000062 uA	

Current Source Range 10 uA

-10.5 uA	-10.50413 uA	-10.49961 uA	-10.49588 uA	0.00038 uA	
-5 uA	-5.00275 uA	-4.99986 uA	-4.99725 uA	0.00020 uA	
0 uA	-0.00150 uA	-0.00008 uA	0.00150 uA	0.000081 uA	
5 uA	4.99725 uA	4.99933 uA	5.00275 uA	0.00020 uA	
10.5 uA	10.49588 uA	10.49901 uA	10.50413 uA	0.00038 uA	

CH1 MIDD CURR MEAS AND OUTP ACCY

Passed

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 100 uA</i>					
-105 uA	-105.0460 uA	-105.0136 uA	-104.9540 uA	0.0047 uA	
-50 uA	-50.0350 uA	-50.0062 uA	-49.9650 uA	0.0032 uA	
0 uA	-0.0250 uA	0.0001 uA	0.0250 uA	0.0013 uA	
50 uA	49.9650 uA	50.0098 uA	50.0350 uA	0.0032 uA	
105 uA	104.9540 uA	105.0167 uA	105.0460 uA	0.0047 uA	

Current Measure Range 1 mA

-1.05 mA	-1.050410 mA	-1.050065 mA	-1.049590 mA	0.000043 mA	
-0.5 mA	-0.500300 mA	-0.500030 mA	-0.499700 mA	0.000030 mA	
0 mA	-0.000200 mA	0.000005 mA	0.000200 mA	0.0000091 mA	
0.5 mA	0.499700 mA	0.500072 mA	0.500300 mA	0.000030 mA	
1.05 mA	1.049590 mA	1.050113 mA	1.050410 mA	0.000043 mA	

Current Measure Range 10 mA

-10.5 mA	-10.50460 mA	-10.50060 mA	-10.49540 mA	0.00043 mA	
-5 mA	-5.00350 mA	-5.00033 mA	-4.99650 mA	0.00028 mA	
0 mA	-0.00250 mA	0.00008 mA	0.00250 mA	0.000095 mA	
5 mA	4.99650 mA	5.00070 mA	5.00350 mA	0.00028 mA	
10.5 mA	10.49540 mA	10.50086 mA	10.50460 mA	0.00043 mA	

Current Measure Range 100 mA

-105 mA	-105.0410 mA	-104.9976 mA	-104.9590 mA	0.0061 mA	
-50 mA	-50.0300 mA	-49.9986 mA	-49.9700 mA	0.0037 mA	
0 mA	-0.0200 mA	-0.0001 mA	0.0200 mA	0.00094 mA	
50 mA	49.9700 mA	50.0030 mA	50.0300 mA	0.0038 mA	
105 mA	104.9590 mA	105.0030 mA	105.0410 mA	0.0061 mA	

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CH1 MIDD CURR MEAS AND OUTP ACCY (cont.)

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 1 A</i>					
-1.05 A	-1.051815 A	-1.049989 A	-1.048185 A	0.00016 A	
-0.5 A	-0.501650 A	-0.499997 A	-0.498350 A	0.000082 A	
0 A	-0.001500 A	0.000010 A	0.001500 A	0.000019 A	
0.5 A	0.498350 A	0.500028 A	0.501650 A	0.000082 A	
1.05 A	1.048185 A	1.050058 A	1.051815 A	0.00016 A	
<i>Current Source Range 100 uA</i>					
-105 uA	-105.0460 uA	-104.9864 uA	-104.9540 uA	0.0047 uA	
-50 uA	-50.0350 uA	-49.9938 uA	-49.9650 uA	0.0032 uA	
0 uA	-0.0250 uA	-0.0001 uA	0.0250 uA	0.0013 uA	
50 uA	49.9650 uA	49.9902 uA	50.0350 uA	0.0032 uA	
105 uA	104.9540 uA	104.9833 uA	105.0460 uA	0.0047 uA	
<i>Current Source Range 1 mA</i>					
-1.05 mA	-1.050410 mA	-1.049935 mA	-1.049590 mA	0.000043 mA	
-0.5 mA	-0.500300 mA	-0.499970 mA	-0.499700 mA	0.000030 mA	
0 mA	-0.000200 mA	-0.000005 mA	0.000200 mA	0.0000098 mA	
0.5 mA	0.499700 mA	0.499928 mA	0.500300 mA	0.000030 mA	
1.05 mA	1.049590 mA	1.049887 mA	1.050410 mA	0.000043 mA	
<i>Current Source Range 10 mA</i>					
-10.5 mA	-10.50460 mA	-10.49940 mA	-10.49540 mA	0.00043 mA	
-5 mA	-5.00350 mA	-4.99967 mA	-4.99650 mA	0.00028 mA	
0 mA	-0.00250 mA	-0.00008 mA	0.00250 mA	0.00010 mA	
5 mA	4.99650 mA	4.99930 mA	5.00350 mA	0.00028 mA	
10.5 mA	10.49540 mA	10.49914 mA	10.50460 mA	0.00043 mA	
<i>Current Source Range 100 mA</i>					
-105 mA	-105.0410 mA	-105.0030 mA	-104.9590 mA	0.0061 mA	
-50 mA	-50.0300 mA	-50.0016 mA	-49.9700 mA	0.0037 mA	
0 mA	-0.0200 mA	0.0000 mA	0.0200 mA	0.0011 mA	
50 mA	49.9700 mA	49.9970 mA	50.0300 mA	0.0038 mA	
105 mA	104.9590 mA	104.9971 mA	105.0410 mA	0.0061 mA	
<i>Current Source Range 1 A</i>					
-1.05 A	-1.051815 A	-1.050010 A	-1.048185 A	0.00016 A	
-0.5 A	-0.501650 A	-0.500011 A	-0.498350 A	0.000082 A	
0 A	-0.001500 A	-0.000010 A	0.001500 A	0.000018 A	
0.5 A	0.498350 A	0.499970 A	0.501650 A	0.000082 A	
1.05 A	1.048185 A	1.049933 A	1.051815 A	0.00016 A	

CH1 HIGH CURR MEAS AND OUTP ACCY

Passed

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 1.5 A</i>					
-1.515 A	-1.519258 A	-1.514896 A	-1.510743 A	0.00037 A	
-0.75 A	-0.753875 A	-0.749966 A	-0.746125 A	0.00033 A	

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 Options Tested

Test Date 12 Dec 2019
 Condition As Received

CH1 HIGH CURR MEAS AND OUTP ACCY (cont.)

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
0 A	-0.003500 A	0.000027 A	0.003500 A	0.00032 A	
0.75 A	0.746125 A	0.750071 A	0.753875 A	0.00033 A	
1.515 A	1.510743 A	1.514910 A	1.519258 A	0.00037 A	

Current Measure Range 3 A

-3.03 A	-3.04912 A	-3.02991 A	-3.01088 A	0.00050 A	
-1.5 A	-1.51300 A	-1.50011 A	-1.48700 A	0.00038 A	
0 A	-0.00700 A	0.00002 A	0.00700 A	0.00032 A	
1.5 A	1.48700 A	1.50022 A	1.51300 A	0.00038 A	
3.03 A	3.01088 A	3.03014 A	3.04912 A	0.00050 A	

Current Measure Range 10 A

-10.5 A	-10.56700 A	-10.50166 A	-10.43300 A	0.0069 A	
-5 A	-5.04500 A	-5.00327 A	-4.95500 A	0.0087 A	
0 A	-0.02500 A	0.00013 A	0.02500 A	0.0016 A	
5 A	4.95500 A	5.00076 A	5.04500 A	0.0087 A	
10.5 A	10.43300 A	10.50646 A	10.56700 A	0.0069 A	

Current Source Range 1.5 A

-1.515 A	-1.519258 A	-1.515104 A	-1.510743 A	0.00038 A	
-0.75 A	-0.753875 A	-0.750035 A	-0.746125 A	0.00033 A	
0 A	-0.003500 A	-0.000027 A	0.003500 A	0.00032 A	
0.75 A	0.746125 A	0.749929 A	0.753875 A	0.00033 A	
1.515 A	1.510743 A	1.515090 A	1.519258 A	0.00038 A	

Current Source Range 3 A

-3.03 A	-3.04912 A	-3.03009 A	-3.01088 A	0.00052 A	
-1.5 A	-1.51300 A	-1.49989 A	-1.48700 A	0.00038 A	
0 A	-0.00700 A	-0.00002 A	0.00700 A	0.00032 A	
1.5 A	1.48700 A	1.49978 A	1.51300 A	0.00038 A	
3.03 A	3.01088 A	3.02986 A	3.04912 A	0.00052 A	

Current Source Range 10 A

-10.5 A	-10.56700 A	-10.49860 A	-10.43300 A	0.0060 A	
-5 A	-5.04500 A	-4.99697 A	-4.95500 A	0.0085 A	
0 A	-0.02500 A	-0.00006 A	0.02500 A	0.0016 A	
5 A	4.95500 A	4.99933 A	5.04500 A	0.0085 A	
10.5 A	10.43300 A	10.49387 A	10.56700 A	0.0060 A	

CH2 VOLT MEAS AND OUTP ACCY

Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Voltage Measure Range 0.2 V</i>					
-0.21 V	-0.2102565 V	-0.2099840 V	-0.2097435 V	0.000014 V	
-0.1 V	-0.1002400 V	-0.0999872 V	-0.0997600 V	0.000014 V	
0 V	-0.0002250 V	0.0000140 V	0.0002250 V	0.0000032 V	
0.1 V	0.0997600 V	0.1000157 V	0.1002400 V	0.000014 V	
0.21 V	0.2097435 V	0.2100271 V	0.2102565 V	0.000014 V	

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CH2 VOLT MEAS AND OUTP ACCY (cont.)

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Voltage Measure Range 2 V</i>					
-2.1 V	-2.100770 V	-2.099957 V	-2.099230 V	0.000064 V	
-1 V	-1.000550 V	-0.999994 V	-0.999450 V	0.000061 V	
0 V	-0.000350 V	0.000011 V	0.000350 V	0.0000033 V	
1 V	0.999450 V	1.000021 V	1.000550 V	0.000061 V	
2.1 V	2.099230 V	2.100124 V	2.100770 V	0.000064 V	
<i>Voltage Measure Range 20 V</i>					
-21 V	-21.00815 V	-20.99932 V	-20.99185 V	0.00061 V	
-10 V	-10.00650 V	-9.99995 V	-9.99350 V	0.00056 V	
0 V	-0.00500 V	0.00000 V	0.00500 V	0.000073 V	
10 V	9.99350 V	10.00004 V	10.00650 V	0.00056 V	
21 V	20.99185 V	21.00130 V	21.00815 V	0.00061 V	
<i>Voltage Measure Range 200 V</i>					
-210 V	-210.0815 V	-209.9901 V	-209.9185 V	0.011 V	
-100 V	-100.0650 V	-99.9995 V	-99.9350 V	0.011 V	
0 V	-0.0500 V	-0.0010 V	0.0500 V	0.00050 V	
100 V	99.9350 V	99.9989 V	100.0650 V	0.011 V	
210 V	209.9185 V	210.0104 V	210.0815 V	0.011 V	
<i>Voltage Source Range 0.2 V</i>					
-0.21 V	-0.2102565 V	-0.2100159 V	-0.2097435 V	0.000014 V	
-0.1 V	-0.1002400 V	-0.1000127 V	-0.0997600 V	0.000014 V	
0 V	-0.0002250 V	-0.0000139 V	0.0002250 V	0.0000033 V	
0.1 V	0.0997600 V	0.0999842 V	0.1002400 V	0.000014 V	
0.21 V	0.2097435 V	0.2099731 V	0.2102565 V	0.000014 V	
<i>Voltage Source Range 2 V</i>					
-2.1 V	-2.100770 V	-2.100043 V	-2.099230 V	0.000064 V	
-1 V	-1.000550 V	-1.000006 V	-0.999450 V	0.000061 V	
0 V	-0.000350 V	-0.000012 V	0.000350 V	0.0000062 V	
1 V	0.999450 V	0.999979 V	1.000550 V	0.000061 V	
2.1 V	2.099230 V	2.099876 V	2.100770 V	0.000064 V	
<i>Voltage Source Range 20 V</i>					
-21 V	-21.00815 V	-21.00068 V	-20.99185 V	0.00061 V	
-10 V	-10.00650 V	-10.00005 V	-9.99350 V	0.00056 V	
0 V	-0.00500 V	0.00000 V	0.00500 V	0.00011 V	
10 V	9.99350 V	9.99996 V	10.00650 V	0.00056 V	
21 V	20.99185 V	20.99870 V	21.00815 V	0.00061 V	
<i>Voltage Source Range 200 V</i>					
-210 V	-210.0815 V	-210.0099 V	-209.9185 V	0.011 V	
-100 V	-100.0650 V	-100.0005 V	-99.9350 V	0.011 V	
0 V	-0.0500 V	0.0010 V	0.0500 V	0.00088 V	
100 V	99.9350 V	100.0011 V	100.0650 V	0.011 V	
210 V	209.9185 V	209.9896 V	210.0815 V	0.011 V	

Model B2912A Serial HERE SN
 Options Tested

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CH2 LOW CURR MEAS AND OUTP ACCY

Passed

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 10 nA</i>					
-10.5 nA	-10.56050 nA	-10.48804 nA	-10.43950 nA	0.0052 nA	
-5 nA	-5.05500 nA	-4.99513 nA	-4.94500 nA	0.0025 nA	
0 nA	-0.05000 nA	-0.00130 nA	0.05000 nA	0.00022 nA	
5 nA	4.94500 nA	4.99241 nA	5.05500 nA	0.0025 nA	
10.5 nA	10.43950 nA	10.48478 nA	10.56050 nA	0.0052 nA	
<i>Current Measure Range 100 nA</i>					
-105 nA	-105.1630 nA	-105.0004 nA	-104.8370 nA	0.0074 nA	
-50 nA	-50.1300 nA	-50.0036 nA	-49.8700 nA	0.0037 nA	
0 nA	-0.1000 nA	-0.0075 nA	0.1000 nA	0.00078 nA	
50 nA	49.8700 nA	49.9927 nA	50.1300 nA	0.0037 nA	
105 nA	104.8370 nA	104.9900 nA	105.1630 nA	0.0074 nA	
<i>Current Measure Range 1 uA</i>					
-1.05 uA	-1.050763 uA	-1.050103 uA	-1.049238 uA	0.000062 uA	
-0.5 uA	-0.500625 uA	-0.500061 uA	-0.499375 uA	0.000032 uA	
0 uA	-0.000500 uA	0.000003 uA	0.000500 uA	0.0000051 uA	
0.5 uA	0.499375 uA	0.500025 uA	0.500625 uA	0.000032 uA	
1.05 uA	1.049238 uA	1.050087 uA	1.050763 uA	0.000062 uA	
<i>Current Measure Range 10 uA</i>					
-10.5 uA	-10.50413 uA	-10.50092 uA	-10.49588 uA	0.00039 uA	
-5 uA	-5.00275 uA	-5.00061 uA	-4.99725 uA	0.00020 uA	
0 uA	-0.00150 uA	0.00001 uA	0.00150 uA	0.000056 uA	
5 uA	4.99725 uA	5.00030 uA	5.00275 uA	0.00020 uA	
10.5 uA	10.49588 uA	10.50085 uA	10.50413 uA	0.00039 uA	
<i>Current Source Range 10 nA</i>					
-10.5 nA	-10.56050 nA	-10.51195 nA	-10.43950 nA	0.0052 nA	
-5 nA	-5.05500 nA	-5.00488 nA	-4.94500 nA	0.0025 nA	
0 nA	-0.05000 nA	0.00129 nA	0.05000 nA	0.00022 nA	
5 nA	4.94500 nA	5.00759 nA	5.05500 nA	0.0025 nA	
10.5 nA	10.43950 nA	10.51522 nA	10.56050 nA	0.0052 nA	
<i>Current Source Range 100 nA</i>					
-105 nA	-105.1630 nA	-104.9996 nA	-104.8370 nA	0.0074 nA	
-50 nA	-50.1300 nA	-49.9965 nA	-49.8700 nA	0.0037 nA	
0 nA	-0.1000 nA	0.0074 nA	0.1000 nA	0.00078 nA	
50 nA	49.8700 nA	50.0072 nA	50.1300 nA	0.0037 nA	
105 nA	104.8370 nA	105.0099 nA	105.1630 nA	0.0074 nA	
<i>Current Source Range 1 uA</i>					
-1.05 uA	-1.050763 uA	-1.049897 uA	-1.049238 uA	0.000062 uA	
-0.5 uA	-0.500625 uA	-0.499939 uA	-0.499375 uA	0.000032 uA	
0 uA	-0.000500 uA	-0.000003 uA	0.000500 uA	0.0000051 uA	
0.5 uA	0.499375 uA	0.499975 uA	0.500625 uA	0.000032 uA	

Model B2912A Serial HERE SN
Options Tested

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Condition As Received

CH2 LOW CURR MEAS AND OUTP ACCY (cont.)

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
1.05 uA	1.049238 uA	1.049913 uA	1.050763 uA	0.000062 uA	

Current Source Range 10 uA

-10.5 uA	-10.50413 uA	-10.49908 uA	-10.49588 uA	0.00038 uA	
-5 uA	-5.00275 uA	-4.99939 uA	-4.99725 uA	0.00020 uA	
0 uA	-0.00150 uA	-0.00001 uA	0.00150 uA	0.000081 uA	
5 uA	4.99725 uA	4.99970 uA	5.00275 uA	0.00020 uA	
10.5 uA	10.49588 uA	10.49915 uA	10.50413 uA	0.00038 uA	

CH2 MIDD CURR MEAS AND OUTP ACCY

Passed‡

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
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Current Measure Range 100 uA

-105 uA	-105.0460 uA	-105.0093 uA	-104.9540 uA	0.0047 uA	
-50 uA	-50.0350 uA	-50.0049 uA	-49.9650 uA	0.0032 uA	
0 uA	-0.0250 uA	-0.0022 uA	0.0250 uA	0.0013 uA	
50 uA	49.9650 uA	50.0033 uA	50.0350 uA	0.0032 uA	
105 uA	104.9540 uA	105.0081 uA	105.0460 uA	0.0047 uA	

Current Measure Range 1 mA

-1.05 mA	-1.050410 mA	-1.050374 mA	-1.049590 mA	0.000043 mA	P‡
-0.5 mA	-0.500300 mA	-0.500185 mA	-0.499700 mA	0.000030 mA	
0 mA	-0.000200 mA	-0.000020 mA	0.000200 mA	0.0000091 mA	
0.5 mA	0.499700 mA	0.500176 mA	0.500300 mA	0.000030 mA	
1.05 mA	1.049590 mA	1.050390 mA	1.050410 mA	0.000043 mA	P‡

Current Measure Range 10 mA

-10.5 mA	-10.50460 mA	-10.50353 mA	-10.49540 mA	0.00043 mA	
-5 mA	-5.00350 mA	-5.00186 mA	-4.99650 mA	0.00028 mA	
0 mA	-0.00250 mA	-0.00019 mA	0.00250 mA	0.000095 mA	
5 mA	4.99650 mA	5.00183 mA	5.00350 mA	0.00028 mA	
10.5 mA	10.49540 mA	10.50390 mA	10.50460 mA	0.00043 mA	

Current Measure Range 100 mA

-105 mA	-105.0410 mA	-105.0027 mA	-104.9590 mA	0.0061 mA	
-50 mA	-50.0300 mA	-50.0019 mA	-49.9700 mA	0.0037 mA	
0 mA	-0.0200 mA	-0.0018 mA	0.0200 mA	0.00094 mA	
50 mA	49.9700 mA	50.0012 mA	50.0300 mA	0.0038 mA	
105 mA	104.9590 mA	105.0043 mA	105.0410 mA	0.0061 mA	

Current Measure Range 1 A

-1.05 A	-1.051815 A	-1.050016 A	-1.048185 A	0.00016 A	
-0.5 A	-0.501650 A	-0.500036 A	-0.498350 A	0.000082 A	
0 A	-0.001500 A	-0.000023 A	0.001500 A	0.000019 A	
0.5 A	0.498350 A	0.500013 A	0.501650 A	0.000082 A	
1.05 A	1.048185 A	1.050014 A	1.051815 A	0.00016 A	

Current Source Range 100 uA

-105 uA	-105.0460 uA	-104.9907 uA	-104.9540 uA	0.0047 uA	
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‡ This measured value is within one expanded uncertainty of the specification.

Model B2912A Serial HERE SN
Options Tested

Test Date 12 Dec 2019
Condition As Received

CH2 MIDD CURR MEAS AND OUTP ACCY (cont.)

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
-50 uA	-50.0350 uA	-49.9951 uA	-49.9650 uA	0.0032 uA	
0 uA	-0.0250 uA	0.0022 uA	0.0250 uA	0.0013 uA	
50 uA	49.9650 uA	49.9967 uA	50.0350 uA	0.0032 uA	
105 uA	104.9540 uA	104.9919 uA	105.0460 uA	0.0047 uA	

Current Source Range 1 mA

-1.05 mA	-1.050410 mA	-1.049626 mA	-1.049590 mA	0.000043 mA	P‡
-0.5 mA	-0.500300 mA	-0.499815 mA	-0.499700 mA	0.000030 mA	
0 mA	-0.000200 mA	0.000020 mA	0.000200 mA	0.0000098 mA	
0.5 mA	0.499700 mA	0.499824 mA	0.500300 mA	0.000030 mA	
1.05 mA	1.049590 mA	1.049610 mA	1.050410 mA	0.000043 mA	P‡

Current Source Range 10 mA

-10.5 mA	-10.50460 mA	-10.49647 mA	-10.49540 mA	0.00043 mA	
-5 mA	-5.00350 mA	-4.99814 mA	-4.99650 mA	0.00028 mA	
0 mA	-0.00250 mA	0.00019 mA	0.00250 mA	0.00010 mA	
5 mA	4.99650 mA	4.99817 mA	5.00350 mA	0.00028 mA	
10.5 mA	10.49540 mA	10.49610 mA	10.50460 mA	0.00043 mA	

Current Source Range 100 mA

-105 mA	-105.0410 mA	-104.9972 mA	-104.9590 mA	0.0061 mA	
-50 mA	-50.0300 mA	-49.9983 mA	-49.9700 mA	0.0037 mA	
0 mA	-0.0200 mA	0.0017 mA	0.0200 mA	0.0011 mA	
50 mA	49.9700 mA	49.9988 mA	50.0300 mA	0.0038 mA	
105 mA	104.9590 mA	104.9957 mA	105.0410 mA	0.0061 mA	

Current Source Range 1 A

-1.05 A	-1.051815 A	-1.049979 A	-1.048185 A	0.00016 A	
-0.5 A	-0.501650 A	-0.499973 A	-0.498350 A	0.000082 A	
0 A	-0.001500 A	0.000023 A	0.001500 A	0.000018 A	
0.5 A	0.498350 A	0.499986 A	0.501650 A	0.000082 A	
1.05 A	1.048185 A	1.049983 A	1.051815 A	0.00016 A	

CH2 HIGH CURR MEAS AND OUTP ACCY

Passed

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 1.5 A</i>					
-1.515 A	-1.519258 A	-1.514943 A	-1.510743 A	0.00037 A	
-0.75 A	-0.753875 A	-0.750048 A	-0.746125 A	0.00033 A	
0 A	-0.003500 A	-0.000029 A	0.003500 A	0.00032 A	
0.75 A	0.746125 A	0.750004 A	0.753875 A	0.00033 A	
1.515 A	1.510743 A	1.514896 A	1.519258 A	0.00037 A	

Current Measure Range 3 A

-3.03 A	-3.04912 A	-3.02970 A	-3.01088 A	0.00050 A	
-1.5 A	-1.51300 A	-1.50018 A	-1.48700 A	0.00038 A	
0 A	-0.00700 A	-0.00010 A	0.00700 A	0.00032 A	
1.5 A	1.48700 A	1.49999 A	1.51300 A	0.00038 A	
3.03 A	3.01088 A	3.02954 A	3.04912 A	0.00050 A	

‡ This measured value is within one expanded uncertainty of the specification.

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 Options Tested

Test Date 12 Dec 2019
 Condition As Received

CH2 HIGH CURR MEAS AND OUTP ACCY (cont.)

TEST COND.	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
<i>Current Measure Range 10 A</i>					
-10.5 A	-10.56700 A	-10.50072 A	-10.43300 A	0.0069 A	
-5 A	-5.04500 A	-5.00134 A	-4.95500 A	0.0087 A	
0 A	-0.02500 A	-0.00138 A	0.02500 A	0.0016 A	
5 A	4.95500 A	5.00389 A	5.04500 A	0.0087 A	
10.5 A	10.43300 A	10.50544 A	10.56700 A	0.0069 A	
<i>Current Source Range 1.5 A</i>					
-1.515 A	-1.519258 A	-1.515049 A	-1.510743 A	0.00038 A	
-0.75 A	-0.753875 A	-0.749952 A	-0.746125 A	0.00033 A	
0 A	-0.003500 A	0.000029 A	0.003500 A	0.00032 A	
0.75 A	0.746125 A	0.749997 A	0.753875 A	0.00033 A	
1.515 A	1.510743 A	1.515103 A	1.519258 A	0.00038 A	
<i>Current Source Range 3 A</i>					
-3.03 A	-3.04912 A	-3.03030 A	-3.01088 A	0.00052 A	
-1.5 A	-1.51300 A	-1.49982 A	-1.48700 A	0.00038 A	
0 A	-0.00700 A	0.00010 A	0.00700 A	0.00032 A	
1.5 A	1.48700 A	1.50001 A	1.51300 A	0.00038 A	
3.03 A	3.01088 A	3.03046 A	3.04912 A	0.00052 A	
<i>Current Source Range 10 A</i>					
-10.5 A	-10.56700 A	-10.49919 A	-10.43300 A	0.0060 A	
-5 A	-5.04500 A	-4.99874 A	-4.95500 A	0.0085 A	
0 A	-0.02500 A	0.00144 A	0.02500 A	0.0016 A	
5 A	4.95500 A	4.99638 A	5.04500 A	0.0085 A	
10.5 A	10.43300 A	10.49446 A	10.56700 A	0.0060 A	

SELF CAL AND TEST

As Expected

TEST CONDITIONS	RESULT	Status
Self Calibration	DONE	
Self Test	DONE	

CH1 CURRENT CMR

As Expected

TEST CONDITIONS	RESULT	Status
200 V Range	DONE	

NOTE:

This test is a function check, and result status reported here is for information only.

Model B2912A Serial HERE SN
 Options Tested

Test Date 12 Dec 2019
 Condition As Received

CH1 VOLTAGE CMR

As Expected

TEST CONDITIONS	RESULT	Status
100 uA Range	DONE	

NOTE:

This test is a function check, and result status reported here is for information only.

CH1 HIGH CAP CURR ACCY

As Expected

TEST COND.	MINIMUM	MEASURED	MAXIMUM	Status
<i>Current Measure Range 1 uA</i>				
-1 uA	-1.000750 uA	-1.000020 uA	-0.999250 uA	
-0.1 uA	-0.100525 uA	-0.099997 uA	-0.099475 uA	
0.1 uA	0.099475 uA	0.100002 uA	0.100525 uA	
1 uA	0.999250 uA	1.000060 uA	1.000750 uA	
<i>Current Source Range 1 uA</i>				
-1 uA	-1.000750 uA	-0.999854 uA	-0.999250 uA	
-0.1 uA	-0.100525 uA	-0.099988 uA	-0.099475 uA	
0.1 uA	0.099475 uA	0.099991 uA	0.100525 uA	
1 uA	0.999250 uA	0.999886 uA	1.000750 uA	

CH2 CURRENT CMR

As Expected

TEST CONDITIONS	RESULT	Status
200 V Range	DONE	

NOTE:

This test is a function check, and result status reported here is for information only.

CH2 VOLTAGE CMR

As Expected

TEST CONDITIONS	RESULT	Status
100 uA Range	DONE	

Model B2912A Serial HERE SN
Options Tested

Test Date 12 Dec 2019
Condition As Received

CH2 VOLTAGE CMR (cont.)

TEST CONDITIONS	RESULT	Status
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NOTE:

*This test is a function check, and result status
reported
here is for information only.*

CH2 HIGH CAP CURR ACCY

As Expected

TEST COND.	MINIMUM	MEASURED	MAXIMUM	Status
<i>Current Measure Range 1 uA</i>				
-1 uA	-1.000750 uA	-1.000098 uA	-0.999250 uA	
-0.1 uA	-0.100525 uA	-0.100039 uA	-0.099475 uA	
0.1 uA	0.099475 uA	0.099968 uA	0.100525 uA	
1 uA	0.999250 uA	1.000057 uA	1.000750 uA	
<i>Current Source Range 1 uA</i>				
-1 uA	-1.000750 uA	-0.999864 uA	-0.999250 uA	
-0.1 uA	-0.100525 uA	-0.100005 uA	-0.099475 uA	
0.1 uA	0.099475 uA	0.099973 uA	0.100525 uA	
1 uA	0.999250 uA	0.999865 uA	1.000750 uA	