Certificate of Calibration

ISO/IEC 17025:2005 and ANSI/NCSL Z540.1-1994

Certificate Number 1[redacted]1

Model Number	34401A
Manufacturer	Keysight Technologies Inc
Description	Digital multimeter, 6.5 digit
Serial Number	[redacted]

Customer
[redacted]
Germany

Date of Calibration	12 Jan 2016
Procedure	STE-50111013-D.01.01
Temperature	(23 ± 5) °C
Humidity	(50 ± 30) %RH

Location of Calibration
Keysight Technologies
Deutschland GmbH
Herrenberger Strasse 130
D-71034 Boeblingen
Germany

This certifies that the equipment has been calibrated using applicable Keysight Technologies procedures and in compliance with ISO/IEC 17025:2005 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
- The equipment was adjusted.

As Completed Conditions
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.

Remarks or Special Requirements

This calibration certificate may refer to instruments manufactured by HP, Agilent and Keysight as being manufactured by Keysight Technologies, Inc.

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

Keysight Technologies
Deutschland GmbH
Herrenberger Strasse 130
D-71034 Boeblingen
Germany

Edgar Leckel - European Operations Manager

Certificate of Calibration

ISO/IEC 17025:2005 and ANSI/NCSL Z540.1-1994

Certificate Number 1[redacted]1

Traceability Information

Technician ID Number[redacted]

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	Certificate Number
3325B	Synthesizer/Function Generator	DE974	31 Mar 2017	1[redacted]1
5720A	Calibrator	DE2173	5 Nov 2016	1[redacted]1
5725A	Amplifier	DE2174	5 Nov 2016	1[redacted]2

Traceability Table

	Model	Model Description	Equipment ID	Certificate Number	Trace Value
W	3325B	Synthesizer/Function Generator	DE974	1[redacted]1	
R	11050A	Converter	DE920	1[redacted]1-UKAS:C 0147	AC Voltage
R	5700A	AC DC CALIBRATOR	DECH0902	1-9[redacted]1-UKAS:C 0147	DC Voltage
R	910R	GPS Controlled Frequency STD	UK15765	1[redacted]1-UKAS:C 0147	Frequency
W,R	5720A	Calibrator	DE2173	1[redacted]1-UKAS:C 0147	AC Current AC Voltage DC Current DC Voltage Resistance
W,R	5725A	Amplifier	DE2174	1[redacted]2-UKAS:C 0147	AC Current AC Voltage DC Current

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.

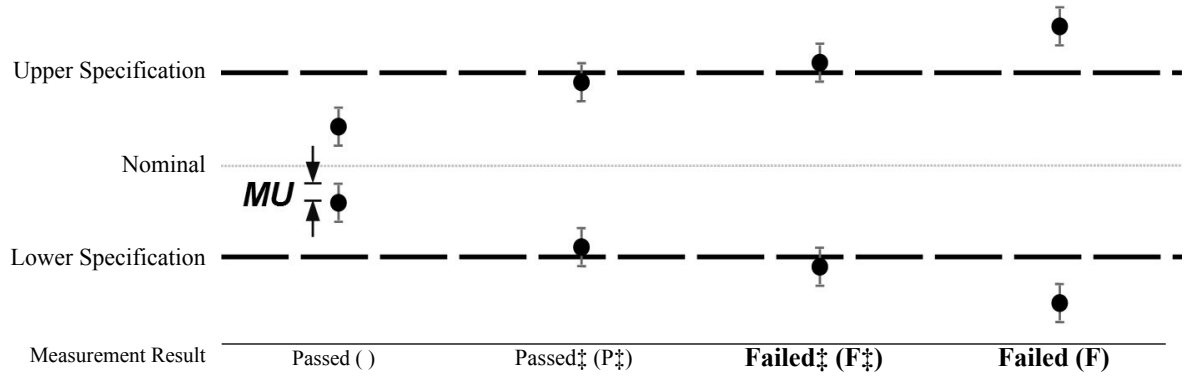
Compliance with Specification

The uncertainty of measurement has been taken into account when determining compliance with specification, as per ILAC-G8:03/2009. 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‡ (P‡) - 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‡ (F‡) - 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.



( ) This result is indicated on the measurement report as a blank space in the column labeled “Status” or “Sts”.
MU = 95% expanded measurement uncertainty.

Uncertainty of Measurement

The uncertainty evaluation has been performed in accordance with ISO/IEC Guide 98-3:2008 (GUM). The reported expanded measurement uncertainty, which corresponds to a coverage probability of approximately 95%, is the standard uncertainty multiplied by the coverage factor k=2. Where this is not the case, coverage factor (k), effective degrees of freedom (veff) and coverage probability (p) are stated.

Certificate of Calibration

ISO/IEC 17025:2005 and ANSI/NCSL Z540.1-1994

Certificate Number 1[redacted]1

Performance Test Results Summary

Test Name	As Received Status	As Completed Status
ZERO OFFSET - FRONT TERMINALS	*Passed‡*	Passed
ZERO OFFSET - REAR TERMINALS	Passed	Passed
DC VOLTS	Passed	Passed
AC VOLTS	Passed	Passed
FREQUENCY	Passed	Passed
OHMS	Passed	Passed
DC CURRENT	Passed	Passed
AC CURRENT	Passed	Passed

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

ZERO OFFSET - FRONT TERMINALS Passed‡

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Range	Input (Front)					
DC Volts Zero Offset						
100 mV	0 V	–3.5 uV	2.5 uV	3.5 uV	1.1 uV	P‡
1 V	0 V	–7 uV	3 uV	7 uV	1.2 uV	
10 V	0 V	–0.05 mV	0.01 mV	0.05 mV	6.6 uV	
100 V	0 V	–0.6 mV	0.1 mV	0.6 mV	0.17 mV	
1000 V	0 V	–10 mV	1 mV	10 mV	0.74 mV	
Range	Input (Front)					
4-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–4.0 mOhm	–2.2 mOhm	4.0 mOhm	1.2 mOhm	
1 kOhm	0 Ohm	–10 mOhm	–2 mOhm	10 mOhm	1.2 mOhm	
10 kOhm	0 Ohm	–0.10 Ohm	–0.02 Ohm	0.10 Ohm	0.014 Ohm	
100 kOhm	0 Ohm	–1.0 Ohm	–0.2 Ohm	1.0 Ohm	0.13 Ohm	
1 MOhm	0 Ohm	–10 Ohm	1 Ohm	10 Ohm	0.68 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	0.011 kOhm	
100 MOhm	0 Ohm	–10.0 kOhm	0.0 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Front)					
2-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–204.0 mOhm	4.2 mOhm	204.0 mOhm	3.0 mOhm	
1 kOhm	0 Ohm	–210 mOhm	4 mOhm	210 mOhm	3.3 mOhm	
10 kOhm	0 Ohm	–0.30 Ohm	0.02 Ohm	0.30 Ohm	8.4 mOhm	
100 kOhm	0 Ohm	–1.2 Ohm	0.2 Ohm	1.2 Ohm	0.068 Ohm	
1 MOhm	0 Ohm	–10 Ohm	1 Ohm	10 Ohm	1.3 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.01 kOhm	0.10 kOhm	7.8 Ohm	
100 MOhm	0 Ohm	–10.0 kOhm	0.0 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Front)					
DC Current Zero Offset						
10 mA	0 A	–2.00 uA	–0.47 uA	2.00 uA	0.16 uA	
100 mA	0 A	–5.0 uA	–0.4 uA	5.0 uA	0.21 uA	
1 A	0 A	–100 uA	–23 uA	100 uA	7.0 uA	
3 A	0 A	–600 uA	–15 uA	600 uA	11 uA	

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

ZERO OFFSET - REAR TERMINALS Passed

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Sts
Range	Input (Rear)					
DC Volts Zero Offset						
100 mV	0 V	–3.5 uV	0.1 uV	3.5 uV	0.88 uV	
1 V	0 V	–7 uV	0 uV	7 uV	0.91 uV	
10 V	0 V	–0.05 mV	0.00 mV	0.05 mV	6.1 uV	
100 V	0 V	–0.6 mV	0.0 mV	0.6 mV	0.074 mV	
1000 V	0 V	–10 mV	0 mV	10 mV	0.61 mV	
Range	Input (Rear)					
4-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–4.0 mOhm	–0.6 mOhm	4.0 mOhm	1.1 mOhm	
1 kOhm	0 Ohm	–10 mOhm	–1 mOhm	10 mOhm	0.82 mOhm	
10 kOhm	0 Ohm	–0.10 Ohm	0.00 Ohm	0.10 Ohm	8.3 mOhm	
100 kOhm	0 Ohm	–1.0 Ohm	–0.1 Ohm	1.0 Ohm	0.16 Ohm	
1 MOhm	0 Ohm	–10 Ohm	0 Ohm	10 Ohm	0.98 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	6.3 Ohm	
100 MOhm	0 Ohm	–10.0 kOhm	–0.1 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Rear)					
2-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–204.0 mOhm	–14.7 mOhm	204.0 mOhm	6.1 mOhm	
1 kOhm	0 Ohm	–210 mOhm	–15 mOhm	210 mOhm	5.8 mOhm	
10 kOhm	0 Ohm	–0.30 Ohm	–0.01 Ohm	0.30 Ohm	7.2 mOhm	
100 kOhm	0 Ohm	–1.2 Ohm	0.0 Ohm	1.2 Ohm	0.068 Ohm	
1 MOhm	0 Ohm	–10 Ohm	0 Ohm	10 Ohm	0.60 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	0.0097 kOhm	
100 MOhm	0 Ohm	–10.0 kOhm	–0.3 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Rear)					
DC Current Zero Offset						
10 mA	0 A	–2.00 uA	0.02 uA	2.00 uA	5.8 nA	
100 mA	0 A	–5.0 uA	0.0 uA	5.0 uA	0.21 uA	
1 A	0 A	–100 uA	0 uA	100 uA	4.7 uA	
3 A	0 A	–600 uA	1 uA	600 uA	8.7 uA	

DC VOLTS Passed

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Range	Input(Front)					
100 mV	100 mV	99.9915 mV	100.0005 mV	100.0085 mV	0.0029 mV	
1 V	1 V	0.999953 V	0.999988 V	1.000047 V	0.0000070 V	

DC VOLTS (cont.)

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
10 V 10 V	9.99960 V	9.99992 V	10.00040 V	0.000043 V	
10 V -10 V	–10.00040 V	–9.99991 V	–9.99960 V	0.000041 V	
100 V 100 V	99.9949 V	99.9992 V	100.0051 V	0.00058 V	
1000 V 1000 V	999.945 V	999.993 V	1000.055 V	0.0084 V	

AC VOLTS

Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Input Freq. (Front)					
------- -------					
100 mV Range					
10 mV 1 kHz	9.9540 mV	9.9994 mV	10.0460 mV	0.0056 mV	
100 mV 1 kHz	99.9000 mV	100.0095 mV	100.1000 mV	0.021 mV	
100 mV 50 kHz	99.8300 mV	99.9767 mV	100.1700 mV	0.035 mV	
Input Freq. (Front)					
------- -------					
1 V Range					
1 V 20 Hz	0.999100 V	0.999892 V	1.000900 V	0.00012 V	
1 V 1 kHz	0.999100 V	1.000065 V	1.000900 V	0.000063 V	
1 V 20 kHz	0.999100 V	1.000090 V	1.000900 V	0.000065 V	
1 V 50 kHz	0.998300 V	1.000050 V	1.001700 V	0.00016 V	
1 V 100 kHz	0.993200 V	1.000104 V	1.006800 V	0.00030 V	
1 V 300 kHz	0.955000 V	1.002524 V	1.045000 V	0.00063 V	
Input Freq. (Front)					
------- -------					
10 V Range					
100 mV 1 kHz	86.94 mV	100.99 mV	113.06 mV	0.20 mV	
1 V 1 kHz	0.99640 V	1.00002 V	1.00360 V	0.00019 V	
10 V 10 Hz	9.99100 V	9.99909 V	10.00900 V	0.0029 V	
10 V 1 kHz	9.99100 V	10.00024 V	10.00900 V	0.00059 V	
10 V 50 kHz	9.98300 V	10.00127 V	10.01700 V	0.0016 V	
Input Freq. (Front)					
------- -------					
100 V Range					
100 V 1 kHz	99.9100 V	99.9896 V	100.0900 V	0.0079 V	
100 V 50 kHz	99.8300 V	99.9802 V	100.1700 V	0.015 V	
Input Freq. (Front)					
------- -------					
750 V Range					
700 V 1 kHz	699.355 V	699.867 V	700.645 V	0.073 V	
700 V 50 kHz	698.785 V	699.637 V	701.215 V	0.45 V	
700 V 45 Hz	699.355 V	699.751 V	700.645 V	0.12 V	

KEYSIGHT TECHNOLOGIES

Measurement Report

Certificate Number 1[redacted]1

Model 34401A **Serial**[redacted] **Firmware Rev** **Test Date** 11 Jan 2016
Options Tested **Condition** As Received

FREQUENCY — Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Input Freq. (Front)					
100 mV Range					
10 mV 100 Hz	99.9000 Hz	100.0014 Hz	100.1000 Hz	0.0048 Hz	
1 V Range					
1 V 100 kHz	99.9900 kHz	100.0006 kHz	100.0100 kHz	0.0013 kHz	

OHMS — Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Sts
4-Wire Ohms					
Range Input(Front)					
100 Ohm 100 Ohm	99.9860 Ohm	100.0006 Ohm	100.0140 Ohm	0.0028 Ohm	
1 kOhm 1 kOhm	0.999890 kOhm	1.000005 kOhm	1.000110 kOhm	0.000012 kOhm	
10 kOhm 10 kOhm	9.99890 kOhm	10.00006 kOhm	10.00110 kOhm	0.00011 kOhm	
100 kOhm 100 kOhm	99.9890 kOhm	100.0001 kOhm	100.0110 kOhm	0.0014 kOhm	
1 MOhm 1 MOhm	0.999890 MOhm	1.000004 MOhm	1.000110 MOhm	0.000022 MOhm	
10 MOhm 10 MOhm	9.99590 MOhm	9.99934 MOhm	10.00410 MOhm	0.00043 MOhm	
100 MOhm 100 MOhm	99.1900 MOhm	100.2157 MOhm	100.8100 MOhm	0.14 MOhm	

DC CURRENT — Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Range Input(Front)					
10 mA 10 mA	9.99300 mA	10.00023 mA	10.00700 mA	0.00042 mA	
100 mA 100 mA	99.9450 mA	100.0031 mA	100.0550 mA	0.0054 mA	
1 A 1 A	0.998900 A	0.999819 A	1.001100 A	0.000097 A	
3 A 2 A	1.99700 A	1.99972 A	2.00300 A	0.00026 A	

AC CURRENT — Passed

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Input Freq. (Front)					
1 Amp Range					
10 mA 1 kHz	8.590 mA	9.951 mA	11.410 mA	0.032 mA	
1 A 1 kHz	0.998600 A	1.000019 A	1.001400 A	0.00033 A	

AC CURRENT (cont.)

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
3 Amp Range					
2 A 1 kHz	1.99520 A	1.99944 A	2.00480 A	0.00065 A	

ZERO OFFSET - FRONT TERMINALS Passed

ZERO OFFSET - FRONT TERMINALS Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Range	Input (Front)					
DC Volts Zero Offset						
100 mV	0 V	–3.5 uV	–0.1 uV	3.5 uV	1.1 uV	
1 V	0 V	–7 uV	0 uV	7 uV	1.2 uV	
10 V	0 V	–0.05 mV	0.00 mV	0.05 mV	6.6 uV	
100 V	0 V	–0.6 mV	0.0 mV	0.6 mV	0.17 mV	
1000 V	0 V	–10 mV	0 mV	10 mV	0.74 mV	
Range	Input (Front)					
4-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–4.0 mOhm	–0.5 mOhm	4.0 mOhm	1.2 mOhm	
1 kOhm	0 Ohm	–10 mOhm	–1 mOhm	10 mOhm	1.2 mOhm	
10 kOhm	0 Ohm	–0.10 Ohm	0.00 Ohm	0.10 Ohm	0.014 Ohm	
100 kOhm	0 Ohm	–1.0 Ohm	0.0 Ohm	1.0 Ohm	0.13 Ohm	
1 MOhm	0 Ohm	–10 Ohm	0 Ohm	10 Ohm	0.68 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	0.011 kOhm	
100 MOhm	0 Ohm	–10.0 kOhm	0.0 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Front)					
2-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–204.0 mOhm	–7.8 mOhm	204.0 mOhm	3.0 mOhm	
1 kOhm	0 Ohm	–210 mOhm	–8 mOhm	210 mOhm	3.3 mOhm	
10 kOhm	0 Ohm	–0.30 Ohm	–0.01 Ohm	0.30 Ohm	8.4 mOhm	
100 kOhm	0 Ohm	–1.2 Ohm	0.0 Ohm	1.2 Ohm	0.068 Ohm	
1 MOhm	0 Ohm	–10 Ohm	0 Ohm	10 Ohm	1.3 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	7.8 Ohm	
100 MOhm	0 Ohm	–10.0 kOhm	0.0 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Front)					
DC Current Zero Offset						
10 mA	0 A	–2.00 uA	–0.03 uA	2.00 uA	0.16 uA	
100 mA	0 A	–5.0 uA	0.0 uA	5.0 uA	0.21 uA	
1 A	0 A	–100 uA	–1 uA	100 uA	7.0 uA	
3 A	0 A	–600 uA	0 uA	600 uA	11 uA	

ZERO OFFSET - REAR TERMINALS — Passed

ZERO OFFSET - REAR TERMINALS Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Sts
Range	Input (Rear)					
DC Volts Zero Offset						
100 mV	0 V	–3.5 uV	–0.9 uV	3.5 uV	0.88 uV	
1 V	0 V	–7 uV	–1 uV	7 uV	0.91 uV	
10 V	0 V	–0.05 mV	0.00 mV	0.05 mV	6.1 uV	
100 V	0 V	–0.6 mV	0.0 mV	0.6 mV	0.074 mV	
1000 V	0 V	–10 mV	0 mV	10 mV	0.61 mV	
Range	Input (Rear)					
4-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–4.0 mOhm	–1.0 mOhm	4.0 mOhm	1.1 mOhm	
1 kOhm	0 Ohm	–10 mOhm	–1 mOhm	10 mOhm	0.82 mOhm	
10 kOhm	0 Ohm	–0.10 Ohm	–0.01 Ohm	0.10 Ohm	8.3 mOhm	
100 kOhm	0 Ohm	–1.0 Ohm	–0.1 Ohm	1.0 Ohm	0.16 Ohm	
1 MOhm	0 Ohm	–10 Ohm	0 Ohm	10 Ohm	0.98 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	6.3 Ohm	
100 MOhm	0 Ohm	–10.0 kOhm	–0.2 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Rear)					
2-Wire Ohms Zero Offset						
100 Ohm	0 Ohm	–204.0 mOhm	7.2 mOhm	204.0 mOhm	6.1 mOhm	
1 kOhm	0 Ohm	–210 mOhm	7 mOhm	210 mOhm	5.8 mOhm	
10 kOhm	0 Ohm	–0.30 Ohm	0.00 Ohm	0.30 Ohm	7.2 mOhm	
100 kOhm	0 Ohm	–1.2 Ohm	–0.1 Ohm	1.2 Ohm	0.068 Ohm	
1 MOhm	0 Ohm	–10 Ohm	0 Ohm	10 Ohm	0.60 Ohm	
10 MOhm	0 Ohm	–0.10 kOhm	0.00 kOhm	0.10 kOhm	0.0097 kOhm	
100 MOhm	0 Ohm	–10.0 kOhm	–0.3 kOhm	10.0 kOhm	0.058 kOhm	
Range	Input (Rear)					
DC Current Zero Offset						
10 mA	0 A	–2.00 uA	–0.02 uA	2.00 uA	5.8 nA	
100 mA	0 A	–5.0 uA	0.0 uA	5.0 uA	0.21 uA	
1 A	0 A	–100 uA	–1 uA	100 uA	4.7 uA	
3 A	0 A	–600 uA	1 uA	600 uA	8.7 uA	

DC VOLTS — Passed

DC VOLTS Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Range	Input(Front)					
100 mV	100 mV	99.9915 mV	99.9992 mV	100.0085 mV	0.0029 mV	
1 V	1 V	0.999953 V	1.000000 V	1.000047 V	0.0000070 V	
10 V	10 V	9.99960 V	10.00000 V	10.00040 V	0.000043 V	
10 V	-10 V	–10.00040 V	–10.00001 V	–9.99960 V	0.000041 V	
100 V	100 V	99.9949 V	100.0000 V	100.0051 V	0.00058 V	
1000 V	1000 V	999.945 V	1000.000 V	1000.055 V	0.0084 V	

AC VOLTS — Passed

AC VOLTS Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Input (Front)	Freq.					
100 mV Range						
10 mV	1 kHz	9.9540 mV	10.0003 mV	10.0460 mV	0.0056 mV	
100 mV	1 kHz	99.9000 mV	99.9996 mV	100.1000 mV	0.021 mV	
100 mV	50 kHz	99.8300 mV	99.9785 mV	100.1700 mV	0.035 mV	
Input (Front)	Freq.					
1 V Range						
1 V	20 Hz	0.999100 V	0.999847 V	1.000900 V	0.00012 V	
1 V	1 kHz	0.999100 V	0.999997 V	1.000900 V	0.000063 V	
1 V	20 kHz	0.999100 V	1.000046 V	1.000900 V	0.000065 V	
1 V	50 kHz	0.998300 V	1.000099 V	1.001700 V	0.00016 V	
1 V	100 kHz	0.993200 V	1.000280 V	1.006800 V	0.00030 V	
1 V	300 kHz	0.955000 V	1.002641 V	1.045000 V	0.00063 V	
Input (Front)	Freq.					
10 V Range						
100 mV	1 kHz	86.94 mV	100.93 mV	113.06 mV	0.20 mV	
1 V	1 kHz	0.99640 V	0.99993 V	1.00360 V	0.00019 V	
10 V	10 Hz	9.99100 V	9.99990 V	10.00900 V	0.0029 V	
10 V	1 kHz	9.99100 V	9.99999 V	10.00900 V	0.00059 V	
10 V	50 kHz	9.98300 V	10.00210 V	10.01700 V	0.0016 V	
Input (Front)	Freq.					
100 V Range						
100 V	1 kHz	99.9100 V	100.0020 V	100.0900 V	0.0079 V	

AC VOLTS (cont.)

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
100 V 50 kHz	99.8300 V	99.9921 V	100.1700 V	0.015 V	
Input Freq. (Front)					
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750 V Range					
700 V 1 kHz	699.355 V	699.974 V	700.645 V	0.073 V	
700 V 50 kHz	698.785 V	699.967 V	701.215 V	0.45 V	
700 V 45 Hz	699.355 V	699.862 V	700.645 V	0.12 V	

FREQUENCY Passed

FREQUENCY Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Input Freq. (Front)					
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100 mV Range					
10 mV 100 Hz	99.9000 Hz	100.0019 Hz	100.1000 Hz	0.0048 Hz	
1 V Range					
1 V 100 kHz	99.9900 kHz	100.0000 kHz	100.0100 kHz	0.0013 kHz	

OHMS Passed

OHMS Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS	MINIMUM	MEASURED	MAXIMUM	UNCERT.	Sts
4-Wire Ohms					
Range Input(Front)					
100 Ohm 100 Ohm	99.9860 Ohm	100.0003 Ohm	100.0140 Ohm	0.0028 Ohm	
1 kOhm 1 kOhm	0.999890 kOhm	1.000001 kOhm	1.000110 kOhm	0.000012 kOhm	
10 kOhm 10 kOhm	9.99890 kOhm	10.00002 kOhm	10.00110 kOhm	0.00011 kOhm	
100 kOhm 100 kOhm	99.9890 kOhm	100.0004 kOhm	100.0110 kOhm	0.0014 kOhm	
1 MOhm 1 MOhm	0.999890 MOhm	1.000005 MOhm	1.000110 MOhm	0.000022 MOhm	
10 MOhm 10 MOhm	9.99590 MOhm	9.99999 MOhm	10.00410 MOhm	0.00043 MOhm	
100 MOhm 100 MOhm	99.1900 MOhm	99.9517 MOhm	100.8100 MOhm	0.14 MOhm	

KEYSIGHT TECHNOLOGIES

Measurement Report

Certificate Number 1[redacted]1

Model 34401A **Serial**[redacted] **Firmware Rev** **Test Date** 12 Jan 2016
Options Tested **Condition** As Completed

DC CURRENT — Passed

DC CURRENT Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Range	Input(Front)					
10 mA	10 mA	9.99300 mA	9.99993 mA	10.00700 mA	0.00042 mA	
100 mA	100 mA	99.9450 mA	100.0002 mA	100.0550 mA	0.0054 mA	
1 A	1 A	0.998900 A	1.000010 A	1.001100 A	0.000097 A	
3 A	2 A	1.99700 A	2.00004 A	2.00300 A	0.00026 A	

AC CURRENT — Passed

AC CURRENT Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.	Status
Input (Front)	Freq.					
1 Amp Range						
10 mA	1 kHz	8.590 mA	9.973 mA	11.410 mA	0.032 mA	
1 A	1 kHz	0.998600 A	1.000068 A	1.001400 A	0.00033 A	
3 Amp Range						
2 A	1 kHz	1.99520 A	1.99951 A	2.00480 A	0.00065 A	