

Certificate of Calibration



Keysight Calibration
Certificate Number 1-9838128207-1

Model Number 34410A
Manufacturer Keysight Technologies Inc
Description Digital multimeter, 6.5 digit
Serial Number MY53004023
Options Installed 220

Date of Calibration 16 Mar 2018
Procedure AGT_3441XA Part No. 5011-4409
Temperature (23 ± 5) °C
Humidity (50 ± 30) %RH

Customer
Russian Federation
300044 TULA
Arsenalnaya St 3
Micron Service OOO

Location of Calibration
Russian Federation
115054 Moscow
KOSMODAMIANSKAYA NABEREZHANAYA
52/3
Keysight Technologies OOO

This certifies that the equipment has been calibrated using applicable Keysight Technologies procedures in compliance with a quality management system registered to ISO 9001:2015.

As Received Conditions

One or more measured values of the equipment were observed out of specification at the points tested.

Action Taken

- The equipment was adjusted.

As Completed Conditions

The measured values of the equipment were observed in specification at the points tested.

Keysight considers the uncertainties of measurements during the development of performance tests. In this report, conformance statements of "Passed" or "Failed" are determined by simple comparison of observed measurements to the warranted specifications.

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.

Based on the customer's request, the next calibration is due on 16 Mar 2019.

Russian Federation
115054 Moscow
KOSMODAMIANSKAYA
NABEREZHANAYA 52/3
Keysight Technologies OOO

A handwritten signature in black ink that reads "Edgar Leckel".

Edgar Leckel - European Operations Manager

Certificate of Calibration



Keysight Calibration
Certificate Number 1-9838128207-1

Traceability Information

Technician ID Number 00826312

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.

This certificate shall not be reproduced, except in full, without prior written approval of the laboratory.

Calibration Equipment Used

<u>Model Number</u>	<u>Model Description</u>	<u>Equipment ID</u>	<u>Cal Due Date</u>	<u>Certificate Number</u>
16380C	C Standard Set	RU0112	21 Nov 2018	1-9408747296-1
5720A	Calibrator	RU0104	11 Jul 2018	1-8006517894-1

Measurement Report

Keysight Technologies 000
KOSMODAMIANSKAYA NABEREZHANAYA 52/3
Moscow
Russia115054

As Received and As Completed Data

Report Number: 1-9838128207-1

Customer: MICRON SERVICE 000

Model Number: 34410A

Serial Number: MY53004023

Tested Options:

Test Date: 16 Mar 2018

Tested By: Paul Denisov

Temperature: (23.0±5) °C

Humidity: (20 to 80)% RH

Test Program Name: AGT_3441XA Part No. 5011-4409

Test Program Version: B.01.08

Test Executive: STE/9000 C.08.96W (MENDOR B.06.34)

Specification Limits:

Unless indicated otherwise, the units for minimum and/or maximum specification limits are the same as the units stated for the measured value.

Measurement Report (As Completed)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

Result Status Flags:

Each measurement result stated will contain a result status flag.

The status flags are defined as follows:

- ' ' **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.
- 'U' **Undetermined.** The expanded measurement uncertainty intervals about one or more measured values were in as well as out of specification. Consequently, neither compliance nor non-compliance with specification can be declared based on the stated coverage probability.
- 'F' **Failed.** 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.

Traceability information is on the certificate.

Report Number: 1-9838128207-1
 Model Number: 34410A

Test Date: 16 Mar 2018
 Serial Number: MY53004023

PERFORMANCE TEST RESULTS SUMMARY

<u>Test Name</u>	<u>As Received</u>	<u>As Completed</u>
INITIAL SETUP	DONE	DONE
ZERO OFFSET - FRONT TERMINALS	FAILED	PASSED
ZERO OFFSET - REAR TERMINALS	PASSED	PASSED
DC VOLTS	FAILED	PASSED
AC VOLTS	PASSED	PASSED
FREQUENCY	PASSED	PASSED
OHMS	PASSED	PASSED
DC CURRENT	PASSED	PASSED
AC CURRENT	PASSED	PASSED
CAPACITANCE	PASSED	PASSED

Measurement Report (As Received)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

ZERO OFFSET - FRONT TERMINALS

FAILED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>	
Range	Input					
-----	-----					
DC Volts Zero Offset						
100 mV	0 V	-3.5	4.2 μ V	3.5	0.53 μ V	F
1 V	0 V	-7	4 μ V	7	0.95 μ V	
10 V	0 V	-0.05	0.00 mV	0.05	5.9 μ V	
100 V	0 V	-0.6	0.0 mV	0.6	82 μ V	
1000 V	0 V	-6	0 mV	6	0.58 mV	
4-Wire Ohms Zero Offset						
100 Ω	0 Ω	-4.0	1.0 m Ω	4.0	0.37 m Ω	
1 k Ω	0 Ω	-10	2 m Ω	10	0.80 m Ω	
10 k Ω	0 Ω	-0.10	0.01 Ω	0.10	7.1 m Ω	
100 k Ω	0 Ω	-1.0	0.1 Ω	1.0	0.11 Ω	
1 M Ω	0 Ω	-10	0 Ω	10	0.60 Ω	
10 M Ω	0 Ω	-0.10	0.00 k Ω	0.10	6.2 Ω	
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω	
2-Wire Ohms Zero Offset						
100 Ω	0 Ω	-204.0	57.0 m Ω	204.0	4.2 m Ω	
1 k Ω	0 Ω	-210	56 m Ω	210	3.9 m Ω	
10 k Ω	0 Ω	-0.30	0.10 Ω	0.30	12 m Ω	
100 k Ω	0 Ω	-1.2	0.5 Ω	1.2	88 m Ω	
1 M Ω	0 Ω	-10.2	1.1 Ω	10.2	0.61 Ω	
10 M Ω	0 Ω	-0.10	0.01 k Ω	0.10	6.2 Ω	
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω	
DC Current Zero Offset						
100 μ A	0 A	-25.0	-3.2 nA	25.0	1.9 nA	
1 mA	0 A	-0.060	-0.003 μ A	0.060	0.58 nA	
10 mA	0 A	-2.00	-0.37 μ A	2.00	0.25 μ A	
100 mA	0 A	-5.0	-0.4 μ A	5.0	0.32 μ A	
1 A	0 A	-100	-3 μ A	100	4.8 μ A	
3 A	0 A	-0.60	0.00 mA	0.60	9.4 μ A	

ZERO OFFSET - REAR TERMINALS

PASSED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
Range	Input				
-----	-----				
DC Volts Zero Offset					
100 mV	0 V	-3.5	2.2 μ V	3.5	1.1 μ V
1 V	0 V	-7	2 μ V	7	1.5 μ V

Report Number: 1-9838128207-1
 Model Number: 34410A

Test Date: 16 Mar 2018
 Serial Number: MY53004023

ZERO OFFSET - REAR TERMINALS

CONTINUED

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
10 V	0 V	-0.05	0.00 mV	0.05	6.1 μ V
100 V	0 V	-0.6	0.0 mV	0.6	80 μ V
1000 V	0 V	-6	0 mV	6	0.60 mV
4-Wire Ohms Zero Offset					
100 Ω	0 Ω	-4.0	0.1 m Ω	4.0	0.34 m Ω
1 k Ω	0 Ω	-10	0 m Ω	10	0.75 m Ω
10 k Ω	0 Ω	-0.10	0.00 Ω	0.10	7.0 m Ω
100 k Ω	0 Ω	-1.0	0.0 Ω	1.0	73 m Ω
1 M Ω	0 Ω	-10	0 Ω	10	0.59 Ω
10 M Ω	0 Ω	-0.10	0.00 k Ω	0.10	7.2 Ω
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω
2-Wire Ohms Zero Offset					
100 Ω	0 Ω	-204.0	37.3 m Ω	204.0	4.6 m Ω
1 k Ω	0 Ω	-210	37 m Ω	210	4.5 m Ω
10 k Ω	0 Ω	-0.30	0.06 Ω	0.30	9.5 m Ω
100 k Ω	0 Ω	-1.2	0.3 Ω	1.2	80 m Ω
1 M Ω	0 Ω	-10.2	0.5 Ω	10.2	0.60 Ω
10 M Ω	0 Ω	-0.10	0.01 k Ω	0.10	6.6 Ω
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω
DC Current Zero Offset					
100 μ A	0 A	-25	-2 nA	25	2.0 nA
1 mA	0 A	-0.060	-0.002 μ A	0.060	0.58 nA
10 mA	0 A	-2.00	-0.26 μ A	2.00	0.19 μ A
100 mA	0 A	-5.0	-0.1 μ A	5.0	0.24 μ A
1 A	0 A	-100	-2 μ A	100	3.7 μ A
3 A	0 A	-0.60	0.00 mA	0.60	6.7 μ A

DC VOLTS

FAILED

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Range	Input				
-----	-----				
100 mV	100 mV	99.9915	100.0038 mV	100.0085	1.8 μ V
100 mV	-100 mV	-100.0085	-99.9949 mV	-99.9915	1.8 μ V
1 V	1 V	0.999958	0.999981 V	1.000042	6.6 μ V
10 V	10 V	9.99965	9.99961 V	10.00035	47 μ V
10 V	-10 V	-10.00035	-9.99960 V	-9.99965	50 μ V
100 V	100 V	99.9954	99.9980 V	100.0046	0.86 mV
1000 V	1000 V	999.944	999.961 V	1000.056	9.5 mV

U
F

Measurement Report (As Received)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

AC VOLTS

PASSED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
Input	Freq.				
100 mV Range					
100 mV	1 kHz	99.9100	99.9918 mV	100.0900	16 µV
100 mV	50 kHz	99.8500	99.9945 mV	100.1500	28 µV
100 mV	300 kHz	98.3000	100.0966 mV	101.7000	0.12 mV
1 V Range					
1 V	10 Hz	0.999070	0.999955 V	1.000930	0.30 mV
1 V	1 kHz	0.999100	0.999938 V	1.000900	55 µV
1 V	20 kHz	0.999100	0.999959 V	1.000900	55 µV
1 V	50 kHz	0.998500	1.000018 V	1.001500	0.11 mV
1 V	100 kHz	0.995200	1.000194 V	1.004800	0.18 mV
1 V	300 kHz	0.983000	1.000787 V	1.017000	0.66 mV
10 V Range					
10 V	10 Hz	9.99097	9.99939 V	10.00903	2.9 mV
0.1 V	1 kHz	0.09694	0.10002 V	0.10306	17 µV
1 V	1 kHz	0.99640	0.99998 V	1.00360	55 µV
10 V	1 kHz	9.99100	9.99951 V	10.00900	0.52 mV
10 V	50 kHz	9.98500	10.00002 V	10.01500	0.90 mV
10 V	300 kHz	9.83000	10.00916 V	10.17000	5.2 mV
100 V Range					
100 V	1 kHz	99.9100	99.9949 V	100.0900	6.1 mV
100 V	50 kHz	99.8500	99.9980 V	100.1500	9.5 mV
50 V	300 kHz	48.9000	50.0530 V	51.1000	79 mV
750 V Range					
750 V	1 kHz	749.010	749.834 V	750.990	59 mV
210 V	50 kHz	209.415	210.001 V	210.585	21 mV
70 V	300 kHz	65.410	70.048 V	74.590	95 mV

FREQUENCY

PASSED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
Input	Freq.				
100 mV Range					
10 mV	40 Hz	39.97200	39.99958 Hz	40.02800	3.0 mHz
10 V Range					
10 V	10 kHz	9.99930	10.00000 kHz	10.00070	35 mHz

Measurement Report (As Received)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

FREQUENCY

CONTINUED

OHMS

PASSED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
<u>Range</u>	<u>Input</u>				
100 Ω	100 Ω	99.9860	100.0074 Ω	100.0140	1.2 mΩ
1 kΩ	1 kΩ	0.999890	1.000052 kΩ	1.000110	8.6 mΩ
10 kΩ	10 kΩ	9.99890	10.00019 kΩ	10.00110	86 mΩ
100 kΩ	100 kΩ	99.9890	100.0007 kΩ	100.0110	1.2 Ω
1 MΩ	1 MΩ	0.999870	1.000034 MΩ	1.000130	21 Ω
10 MΩ	10 MΩ	9.99590	9.99972 MΩ	10.00410	0.41 kΩ
100 MΩ	100 MΩ	99.1990	99.9514 MΩ	100.8010	21 kΩ

Note: The 1 GOhm range is verified by testing the 100 MOhm range.

DC CURRENT

PASSED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
<u>Range</u>	<u>Input</u>				
100 μA	100 μA	99.9250	99.9947 μA	100.0750	11 nA
1 mA	1 mA	0.999440	0.999969 mA	1.000560	44 nA
10 mA	10 mA	9.99300	9.99968 mA	10.00700	0.44 μA
100 mA	100 mA	99.9450	99.9985 mA	100.0550	5.4 μA
1 A	1 A	0.998900	0.999993 A	1.001100	99 μA
3 A	2 A	1.99640	1.99998 A	2.00360	0.27 mA

AC CURRENT

PASSED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
<u>Input</u>	<u>Freq.</u>				
100 uA Range					
100 μA	1 kHz	99.8600	100.0090 μA	100.1400	21 nA
100 μA	5 kHz	99.8600	100.0140 μA	100.1400	41 nA

Measurement Report (As Received)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

AC CURRENT

CONTINUED

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
1 mA Range					
1 mA	10 Hz	0.998600	1.000044 mA	1.001400	0.30 μA
1 mA	1 kHz	0.998600	0.999993 mA	1.001400	0.17 μA
1 mA	5 kHz	0.998600	0.999995 mA	1.001400	0.32 μA
10 mA Range					
10 mA	1 kHz	9.98600	10.00032 mA	10.01400	1.7 μA
10 mA	5 kHz	9.98600	10.00092 mA	10.01400	2.7 μA
100 mA Range					
1 mA	1 kHz	0.9590	0.9999 mA	1.0410	0.20 μA
10 mA	1 kHz	9.9500	10.0001 mA	10.0500	1.7 μA
100 mA	1 kHz	99.8600	99.9991 mA	100.1400	16 μA
100 mA	5 kHz	99.8600	99.9977 mA	100.1400	25 μA
1 A Range					
1 A	1 kHz	0.998600	0.999974 A	1.001400	0.31 mA
1 A	5 kHz	0.998600	1.000018 A	1.001400	0.54 mA
3 A Range					
2 A	1 kHz	1.99520	1.99993 A	2.00480	0.57 mA
2 A	5 kHz	1.99520	2.00005 A	2.00480	1.0 mA

CAPACITANCE

PASSED

The Input value under TEST CONDITIONS column is the Nominal input. The test limits for each Test point are calculated based on real expected value. Expected value can be extracted from below formula, Expected Value=(Minimum+Maximum)/2

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
Range	Input				
-----	-----				
1 μF	1 μF	0.9950	1.0002 μF	1.0050	0.57 nF
10 μF	1 μF	0.986	1.000 μF	1.014	0.75 nF

Report Number: 1-9838128207-1
 Model Number: 34410A

Test Date: 16 Mar 2018
 Serial Number: MY53004023

ZERO OFFSET - FRONT TERMINALS

PASSED

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

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Range	Input				
-----	-----				
DC Volts Zero Offset					
100 mV	0 V	-3.5	-0.6 μ V	3.5	0.53 μ V
1 V	0 V	-7	-1 μ V	7	0.95 μ V
10 V	0 V	-0.05	0.00 mV	0.05	5.9 μ V
100 V	0 V	-0.6	0.0 mV	0.6	82 μ V
1000 V	0 V	-6	0 mV	6	0.58 mV
4-Wire Ohms Zero Offset					
100 Ω	0 Ω	-4.0	0.3 m Ω	4.0	0.37 m Ω
1 k Ω	0 Ω	-10	0 m Ω	10	0.80 m Ω
10 k Ω	0 Ω	-0.10	0.00 Ω	0.10	7.1 m Ω
100 k Ω	0 Ω	-1.0	0.0 Ω	1.0	0.11 Ω
1 M Ω	0 Ω	-10	0 Ω	10	0.60 Ω
10 M Ω	0 Ω	-0.10	0.00 k Ω	0.10	6.2 Ω
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω
2-Wire Ohms Zero Offset					
100 Ω	0 Ω	-204.0	5.5 m Ω	204.0	4.2 m Ω
1 k Ω	0 Ω	-210	5 m Ω	210	3.9 m Ω
10 k Ω	0 Ω	-0.30	0.00 Ω	0.30	12 m Ω
100 k Ω	0 Ω	-1.2	0.0 Ω	1.2	88 m Ω
1 M Ω	0 Ω	-10.2	0.2 Ω	10.2	0.61 Ω
10 M Ω	0 Ω	-0.10	0.00 k Ω	0.10	6.2 Ω
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω
DC Current Zero Offset					
100 μ A	0 A	-25.0	0.4 nA	25.0	1.9 nA
1 mA	0 A	-0.060	0.001 μ A	0.060	0.58 nA
10 mA	0 A	-2.00	-0.15 μ A	2.00	0.25 μ A
100 mA	0 A	-5.0	0.0 μ A	5.0	0.32 μ A
1 A	0 A	-100	1 μ A	100	4.8 μ A
3 A	0 A	-0.60	0.00 mA	0.60	9.4 μ A

ZERO OFFSET - REAR TERMINALS

PASSED

Report Number: 1-9838128207-1
 Model Number: 34410A

Test Date: 16 Mar 2018
 Serial Number: MY53004023

ZERO OFFSET - REAR TERMINALS

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

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Range	Input				
-----	-----				
DC Volts	Zero Offset				
100 mV	0 V	-3.5	0.5 μ V	3.5	1.1 μ V
1 V	0 V	-7	0 μ V	7	1.5 μ V
10 V	0 V	-0.05	0.00 mV	0.05	6.1 μ V
100 V	0 V	-0.6	0.1 mV	0.6	80 μ V
1000 V	0 V	-6	0 mV	6	0.60 mV
4-Wire Ohms	Zero Offset				
100 Ω	0 Ω	-4.0	0.5 m Ω	4.0	0.34 m Ω
1 k Ω	0 Ω	-10	0 m Ω	10	0.75 m Ω
10 k Ω	0 Ω	-0.10	0.01 Ω	0.10	7.0 m Ω
100 k Ω	0 Ω	-1.0	0.1 Ω	1.0	73 m Ω
1 M Ω	0 Ω	-10	0 Ω	10	0.59 Ω
10 M Ω	0 Ω	-0.10	0.00 k Ω	0.10	7.2 Ω
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω
2-Wire Ohms	Zero Offset				
100 Ω	0 Ω	-204.0	14.7 m Ω	204.0	4.6 m Ω
1 k Ω	0 Ω	-210	15 m Ω	210	4.5 m Ω
10 k Ω	0 Ω	-0.30	0.01 Ω	0.30	9.5 m Ω
100 k Ω	0 Ω	-1.2	0.0 Ω	1.2	80 m Ω
1 M Ω	0 Ω	-10.2	0.3 Ω	10.2	0.60 Ω
10 M Ω	0 Ω	-0.10	0.00 k Ω	0.10	6.6 Ω
100 M Ω	0 Ω	-1.0	0.0 k Ω	1.0	58 Ω
DC Current	Zero Offset				
100 μ A	0 A	-25	0 nA	25	2.0 nA
1 mA	0 A	-0.060	-0.001 μ A	0.060	0.58 nA
10 mA	0 A	-2.00	0.00 μ A	2.00	0.19 μ A
100 mA	0 A	-5.0	0.0 μ A	5.0	0.24 μ A
1 A	0 A	-100	-1 μ A	100	3.7 μ A
3 A	0 A	-0.60	0.00 mA	0.60	6.7 μ A

DC VOLTS

PASSED

Measurement Report (As Completed)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

DC VOLTS

DC VOLTS Adjustments DONE
 Post-Repair/Adjustment Data:

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
Range	Input				
100 mV	100 mV	99.9915	100.0005 mV	100.0085	1.8 μ V
100 mV	-100 mV	-100.0085	-100.0011 mV	-99.9915	1.8 μ V
1 V	1 V	0.999958	1.000001 V	1.000042	6.6 μ V
10 V	10 V	9.99965	10.00001 V	10.00035	47 μ V
10 V	-10 V	-10.00035	-10.00001 V	-9.99965	50 μ V
100 V	100 V	99.9954	100.0000 V	100.0046	0.86 mV
1000 V	1000 V	999.944	999.998 V	1000.056	9.5 mV

AC VOLTS

PASSED

AC VOLTS Adjustments DONE
 Post-Repair/Adjustment Data:

<u>TEST CONDITIONS</u>		<u>MINIMUM</u>	<u>MEASURED</u>	<u>MAXIMUM</u>	<u>UNCERT.</u>
Input	Freq.				
100 mV Range					
100 mV	1 kHz	99.9100	99.9973 mV	100.0900	16 μ V
100 mV	50 kHz	99.8500	100.0036 mV	100.1500	28 μ V
100 mV	300 kHz	98.3000	99.9961 mV	101.7000	0.12 mV
1 V Range					
1 V	10 Hz	0.999070	0.999999 V	1.000930	0.30 mV
1 V	1 kHz	0.999100	0.999991 V	1.000900	55 μ V
1 V	20 kHz	0.999100	1.000014 V	1.000900	55 μ V
1 V	50 kHz	0.998500	1.000018 V	1.001500	0.11 mV
1 V	100 kHz	0.995200	1.000033 V	1.004800	0.18 mV
1 V	300 kHz	0.983000	0.999854 V	1.017000	0.66 mV
10 V Range					
10 V	10 Hz	9.99097	9.99991 V	10.00903	2.9 mV
0.1 V	1 kHz	0.09694	0.10001 V	0.10306	17 μ V
1 V	1 kHz	0.99640	1.00002 V	1.00360	55 μ V
10 V	1 kHz	9.99100	10.00001 V	10.00900	0.52 mV
10 V	50 kHz	9.98500	10.00030 V	10.01500	0.90 mV
10 V	300 kHz	9.83000	9.99590 V	10.17000	5.2 mV
100 V Range					
100 V	1 kHz	99.9100	100.0003 V	100.0900	6.1 mV

Measurement Report (As Completed)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

AC VOLTS

CONTINUED

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
100 V	50 kHz	99.8500	100.0022 V	100.1500	9.5 mV
50 V	300 kHz	48.9000	49.9990 V	51.1000	79 mV
750 V Range					
750 V	1 kHz	749.010	749.870 V	750.990	59 mV
210 V	50 kHz	209.415	209.998 V	210.585	21 mV
70 V	300 kHz	65.410	69.972 V	74.590	95 mV

FREQUENCY

PASSED

FREQUENCY Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Input	Freq.				

100 mV Range					
10 mV	40 Hz	39.97200	40.00018 Hz	40.02800	3.0 mHz
10 V Range					
10 V	10 kHz	9.99930	10.00000 kHz	10.00070	35 mHz

OHMS

PASSED

OHMS Adjustments DONE
Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Range	Input				

100 Ω	100 Ω	99.9860	100.0014 Ω	100.0140	1.2 m Ω
1 k Ω	1 k Ω	0.999890	1.000001 k Ω	1.000110	8.6 m Ω
10 k Ω	10 k Ω	9.99890	10.00001 k Ω	10.00110	86 m Ω
100 k Ω	100 k Ω	99.9890	100.0001 k Ω	100.0110	1.2 Ω
1 M Ω	1 M Ω	0.999870	1.000001 M Ω	1.000130	21 Ω
10 M Ω	10 M Ω	9.99590	10.00008 M Ω	10.00410	0.41 k Ω
100 M Ω	100 M Ω	99.1990	100.0007 M Ω	100.8010	21 k Ω

Note: The 1 GOhm range is verified by testing the 100 MOhm range.

Measurement Report (As Completed)

Report Number: 1-9838128207-1
Model Number: 34410A

Test Date: 16 Mar 2018
Serial Number: MY53004023

DC CURRENT

PASSED

DC CURRENT Adjustments DONE
 Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Range	Input				
100 μ A	100 μ A	99.9250	99.9995 μ A	100.0750	11 nA
1 mA	1 mA	0.999440	0.999999 mA	1.000560	44 nA
10 mA	10 mA	9.99300	9.99988 mA	10.00700	0.44 μ A
100 mA	100 mA	99.9450	99.9997 mA	100.0550	5.4 μ A
1 A	1 A	0.998900	1.000001 A	1.001100	99 μ A
3 A	2 A	1.99640	2.00001 A	2.00360	0.27 mA

AC CURRENT

PASSED

AC CURRENT Adjustments DONE
 Post-Repair/Adjustment Data:

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Input	Freq.				
100 μ A Range					
100 μ A	1 kHz	99.8600	100.0020 μ A	100.1400	21 nA
100 μ A	5 kHz	99.8600	100.0054 μ A	100.1400	41 nA
1 mA Range					
1 mA	10 Hz	0.998600	1.000062 mA	1.001400	0.30 μ A
1 mA	1 kHz	0.998600	1.000003 mA	1.001400	0.17 μ A
1 mA	5 kHz	0.998600	1.000007 mA	1.001400	0.32 μ A
10 mA Range					
10 mA	1 kHz	9.98600	9.99971 mA	10.01400	1.7 μ A
10 mA	5 kHz	9.98600	10.00060 mA	10.01400	2.7 μ A
100 mA Range					
1 mA	1 kHz	0.9590	1.0005 mA	1.0410	0.20 μ A
10 mA	1 kHz	9.9500	10.0004 mA	10.0500	1.7 μ A
100 mA	1 kHz	99.8600	100.0004 mA	100.1400	16 μ A
100 mA	5 kHz	99.8600	100.0012 mA	100.1400	25 μ A
1 A Range					
1 A	1 kHz	0.998600	1.000000 A	1.001400	0.31 mA
1 A	5 kHz	0.998600	0.999991 A	1.001400	0.54 mA

Report Number: 1-9838128207-1
 Model Number: 34410A

Test Date: 16 Mar 2018
 Serial Number: MY53004023

AC CURRENT

CONTINUED

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
3 A Range					
2 A	1 kHz	1.99520	2.00004 A	2.00480	0.57 mA
2 A	5 kHz	1.99520	1.99999 A	2.00480	1.0 mA

CAPACITANCE

PASSED

The Input value under TEST CONDITIONS column is the Nominal input. The test limits for each Test point are calculated based on real expected value. Expected value can be extracted from below formula, Expected Value=(Minimum+Maximum)/2

TEST CONDITIONS		MINIMUM	MEASURED	MAXIMUM	UNCERT.
Range	Input				
1 µF	1 µF	0.9950	1.0000 µF	1.0050	0.57 nF
10 µF	1 µF	0.986	1.000 µF	1.014	0.75 nF