

Certificate of Calibration

Customer: DMMCHECK PLUS
1129 HIDDEN HILLS DR
WAKE FOREST, NC 27587
919-528-1787

P.O. Number:

ID Number: MY45042794



Description: 8 ½ DIGIT MULTIMETER

Manufacturer: AGILENT

Model Number: 3458A

Serial Number: MY45042794

Technician: JIM HYATT

On-Site Calibration: ☐

Comments:

Calibration Date: 05/29/2025

Calibration Due: 05/29/2026

Procedure: METCAL AGILENT 3458A

Rev: 4/21/2023

Temperature: 75 °F

Humidity: 40 % RH

As Found Condition: IN TOLERANCE

Calibration Results: IN TOLERANCE

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement unless otherwise noted.

TMI's Quality System is accredited to ISO/IEC 17025:2017 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2017 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration complies with all the requirements of ANSI/NCSL Z540-1-1994 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

This certificate shall not be reproduced, except in full, without the written permission of Technical Maintenance, Inc.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk.

WALLY GYNN, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

<u>Asset Number</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Date Calibrated</u>	<u>Cal Due</u>
2823A21486	AGILENT	3458A	10/15/2024	10/15/2025
3546A10827	HEWLETT PACKARD	53131A	5/15/2024	11/3/2025
3710A00892	HEWLETT PACKARD	58503A	5/8/2024	5/8/2026
3975022	FLUKE	5450A	1/30/2025	7/30/2025
4348013	FLUKE	5725A	10/2/2024	10/2/2025
4775501	FLUKE	5730A/03	4/1/2025	10/1/2025
5096039	FLUKE	742A-10K	8/10/2023	8/10/2025



Technical Maintenance, Inc.

12530 TELECOM DRIVE, TEMPLE TERRACE, FL 33637

ANSI/NCSL Z540-1-1994

Certificate Number

A6105243

Issue Date: 05/29/25

5436902

Certificate of Calibration

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FLUKE

5790B/3

3/25/2025

3/25/2026

952383

FLUKE

732B

3/28/2025

3/28/2026



Technical Maintenance, Inc.

12530 TELECOM DRIVE, TEMPLE TERRACE, FL 33637

ANSI/NCSL Z540-1-1994

Rev. 5.1
12/03/2024

Phone: 813-978-3054
www.tmicalibration.com

Instrument Data Sheet

ID Number: MY45042794
Serial Number: MY45042794Test Run: FOUND-LEFT
Date Tested: 5/29/2025

Test Results

Test Description	True Value	Test Result	Lower limit	Upper limit	Units	Results	TUR
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IDENTIFICATION & FIRMWARE REVISION

Model: HP3458A
Firmware Level: 9,2

SELF TESTS

Self Test Pass

CALIBRATION INFORMATION

Calibration String = "20220311133650~35.8~MY45042794"

Artifact Calibrations = 35

ACAL Temperatures

Internal Temperature: 33.6°C

0.00 °C @ Zero	-0.61	-5.00	5.00 °C	Pass
0.00 °C @ 10 Volt	-0.49	-5.00	5.00 °C	Pass
0.00 °C @ 10 kOhm	-0.45	-5.00	5.00 °C	Pass

FRONT PANEL DCV ZERO VERIFICATION

0.00000 mV	0.00020	-0.00100	0.00100 mV	Pass
0.00000000 V	0.00000022	-0.00000100	0.00000100 V	Pass
0.0000000 V	0.00000006	-0.00000020	0.00000020 V	Pass
0.000000 V	-0.0000003	-0.0000030	0.0000030 V	Pass
0.00000 V	0.000002	-0.00010	0.00010 V	Pass

FRONT PANEL RESISTANCE ZERO VERIFICATION

0.00000 Ohm @ 4 -Wire	-0.00000	-0.00005	0.00005 Ω	Pass
0.00000 Ohm @ 2 -Wire	0.01871	-0.25005	0.25005 Ω	Pass

FRONT PANEL DCI ZERO VERIFICATION

0.00000 μA	0.00022	-0.00080	0.00080 μA	Pass
0.0000000 mA	0.0000012	-0.0000050	0.0000050 mA	Pass
0.000000 mA	0.000012	-0.000050	0.000050 mA	Pass
0.00000 mA	0.00012	-0.00050	0.00050 mA	Pass
0.0000000 A	-0.0000008	-0.0000100	0.0000100 A	Pass

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Serial Number: MY45042794Test Run: FOUND-LEFT
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=====							
REAR PANEL DCI ZERO VERIFICATION							
=====							
0.00000 μ A		0.00029	-0.00080	0.00080	μ A	Pass	
0.0000000 mA		0.0000015	-0.0000050	0.0000050	mA	Pass	
0.000000 mA		0.000017	-0.000050	0.000050	mA	Pass	
0.00000 mA		0.00016	-0.00050	0.00050	mA	Pass	
0.0000000 A		-0.0000007	-0.0000100	0.0000100	A	Pass	
=====							
REAR PANEL DCV ZERO VERIFICATION							
=====							
0.00000 mV		0.00001	-0.00100	0.00100	mV	Pass	
0.00000000 V		0.00000006	-0.00000100	0.00000100	V	Pass	
0.0000000 V		0.0000003	-0.0000020	0.0000020	V	Pass	
0.000000 V		0.000005	-0.000030	0.000030	V	Pass	
0.00000 V		0.00003	-0.00010	0.00010	V	Pass	
=====							
REAR PANEL RESISTANCE ZERO VERIFICATION							
=====							
0.00000 Ohm @ 4 -Wire		0.00000	-0.00005	0.00005	Ω	Pass	
0.00000 Ohm @ 2 -Wire		-0.01233	-0.25005	0.25005	Ω	Pass	
=====							
DCV ACCURACY VERIFICATION							
=====							
100.00000 mV		100.00035	99.99790	100.00210	mV	Pass	1.79
-100.00000 mV		-99.99970	-100.00210	-99.99790	mV	Pass	1.79
1.00000000 V		0.9999988	0.99998900	1.00001100	V	Pass	1.93
-1.00000000 V		-0.99999870	-1.00001100	-0.99998900	V	Pass	1.93
1.0000000 V @ 10 V Rar		1.0000000	0.9999882	1.0000118	V	Pass	2.07
-1.0000000 V @ 10 V Rar		-0.9999982	-1.0000118	-0.9999882	V	Pass	2.07
10.0000000 V		9.9999982	9.9998980	10.0001020	V	Pass	2.68
-10.0000000 V		-9.9999967	-10.0001020	-9.9998980	V	Pass	2.68
100.000000 V		100.000071	99.998770	100.001230	V	Pass	2.28
-100.000000 V		-100.000016	-100.001230	-99.998770	V	Pass	2.28
1000.00000 V		1000.00003	999.97590	1000.02410	V	Pass	3.44
-1000.00000 V		-1000.00051	-1000.02410	-999.97590	V	Pass	3.44
=====							
RESISTANCE ACCURACY VERIFICATION							
=====							
10.000000 Ohm	10.0017600	10.001707	10.001530	10.001990	Ω	Pass	2.40
100.00000 Ohm	100.007500	100.00740	100.00550	100.00950	Ω	Pass	
1000.0000 Ohm	1000.07000	1000.0683	1000.0565	1000.0835	Ω	Pass	3.75
10.000000 kOhm	10.0003500	10.000306	10.000215	10.000485	k Ω	Pass	3.86
100.00000 kOhm	100.004400	100.00431	100.00305	100.00575	k Ω	Pass	3.86
1.0000000 MOhm	1.00003200	1.0000301	1.0000120	1.0000520	M Ω	Pass	4.00
10.000000 MOhm	10.0002400	10.000366	9.999610	10.000870	M Ω	Pass	3.50
100.00000 MOhm	100.010900	100.01345	99.95959	100.06221	M Ω	Pass	

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DCI ACCURACY VERIFICATION							
100.00000 μ A	100.000756	100.00007	99.99746	100.00406 μ A		Pass	
-100.00000 μ A	-100.001644	-100.00096	-100.00494	-99.99834 μ A		Pass	
1.0000000 mA	0.99999804	0.9999973	0.9999680	1.0000280 mA		Pass	
-1.0000000 mA	-1.00000148	-1.0000014	-1.0000315	-0.9999715 mA		Pass	
10.000000 mA	10.0000218	9.999964	9.999722	10.000322 mA		Pass	
-10.000000 mA	-10.0000249	-9.999980	-10.000325	-9.999725 mA		Pass	
100.00000 mA	100.001235	100.00078	99.99674	100.00574 mA		Pass	
-100.00000 mA	-100.001046	-100.00072	-100.00555	-99.99655 mA		Pass	
1.0000000 A		0.9999992	0.9998750	1.0001250 A		Pass	1.74
-1.0000000 A		-1.0000049	-1.0001250	-0.9998750 A		Pass	1.74
ACI ACCURACY VERIFICATION							
10.00000 μ A @ 1 kHz		10.02429	9.96395	10.03605 μ A		Pass	
100.00000 μ A @ 1 kHz		99.98438	99.90950	100.09050 μ A		Pass	
1.000000 mA @ 1 kHz		1.000087	0.999495	1.000505 mA		Pass	3.69
10.00000 mA @ 1 kHz		10.00087	9.99495	10.00505 mA		Pass	3.69
100.0000 mA @ 1 kHz		100.0142	99.9495	100.0505 mA		Pass	3.91
1.000000 A @ 1 kHz		1.000117	0.998795	1.001205 A		Pass	
ACV ACCURACY VERIFICATION							
- Sync Mode -							
10.00000 mV @ 1 kHz	9.997600	9.99788	9.99448	10.00072 mV		Pass	1.70
10.00000 mV @ 20 kHz	9.997100	9.99777	9.99298	10.00122 mV		Pass	2.25
10.00000 mV @ 100 kHz	10.000100	9.98360	9.94987	10.05213 mV		Pass	
10.00000 mV @ 300 kHz	9.996700	9.94851	9.59483	10.39857 mV		Pass	
100.00000 mV @ 1 kHz	99.993500	99.99791	99.98430	100.00270 mV		Pass	2.30
100.00000 mV @ 20 kHz	99.993800	99.99042	99.97760	100.01000 mV		Pass	
100.00000 mV @ 100 kHz	99.996600	99.96853	99.91440	100.07880 mV		Pass	
100.00000 mV @ 300 kHz	100.001500	99.87248	99.69130	100.31170 mV		Pass	
100.00000 mV @ 1000 kHz	99.845700	99.43617	98.83706	100.85434 mV		Pass	
1.0000000 V @ 1 kHz	1.00001050	1.0000475	0.9999185	1.0001025 V		Pass	
1.0000000 V @ 20 kHz	1.00001320	0.9999562	0.9998512	1.0001752 V		Pass	
1.0000000 V @ 50 kHz	1.00001790	1.0000239	0.9996959	1.0003399 V		Pass	
1.0000000 V @ 100 kHz	1.00002440	1.0000193	0.9992024	1.0008464 V		Pass	
1.0000000 V @ 300 kHz	0.99997830	1.0010726	0.9968764	1.0030802 V		Pass	
1.0000000 V @ 500 kHz	1.00008720	1.0023654	0.9899843	1.0101901 V		Pass	
1.0000000 V @ 1000 kHz	1.00045210	1.0040116	0.9903455	1.0105587 V		Pass	
3.000000 V @ 100 kHz	3.0001160	2.998809	2.997506	3.002726 V		Pass	
10.000000 V @ 20 Hz	10.0000640	10.000409	9.998944	10.001184 V		Pass	2.20
10.000000 V @ 40 Hz	10.0000160	10.000491	9.999096	10.000936 V		Pass	
10.000000 V @ 1 kHz	9.9999660	10.000533	9.999046	10.000886 V		Pass	
10.000000 V @ 10 kHz	10.0000090	9.999816	9.998389	10.001629 V		Pass	
10.000000 V @ 20 kHz	10.0000170	9.999271	9.998397	10.001637 V		Pass	
10.000000 V @ 50 kHz	10.0000140	9.999133	9.996794	10.003234 V		Pass	
10.000000 V @ 100 kHz	10.0001450	9.996576	9.991925	10.008365 V		Pass	
10.000000 V @ 300 kHz	10.0012080	9.989571	9.970184	10.032232 V		Pass	
10.000000 V @ 500 kHz	10.0010820	9.995714	9.900051	10.102113 V		Pass	

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10.000000 V @ 1000 kHz	10.0064190	10.034556	9.905334	10.107504	V	Pass	
100.00000 V @ 1 kHz	100.000250	100.00636	99.97805	100.02245	V	Pass	
100.00000 V @ 20 kHz	100.002250	99.99715	99.98005	100.02445	V	Pass	
100.00000 V @ 50 kHz	100.005410	100.00506	99.96821	100.04261	V	Pass	
100.00000 V @ 100 kHz	100.004740	100.00297	99.88273	100.12675	V	Pass	
700.0000 V @ 1 kHz	700.02300	699.9784	699.7216	700.3244	V	Pass	

- Analog Mode -

100.00000 mV @ 1 kHz	99.995100	99.98926	99.96490	100.02530 mV	Pass	
1.0000000 V @ 1 kHz	1.00000760	1.0000093	0.9997056	1.0003096 V	Pass	
1.0000000 V @ 50 kHz	1.00001600	1.0001044	0.9981140	1.0019180 V	Pass	
1.0000000 V @ 1000 kHz	1.00045080	1.0127984	0.9304172	1.0704844 V	Pass	
10.000000 V @ 10 Hz	10.0002040	9.978060	9.958183	10.042225 V	Pass	
10.000000 V @ 20 Hz	10.0001450	9.993934	9.983125	10.017165 V	Pass	
10.000000 V @ 200 Hz	10.0000540	10.000266	9.997034	10.003074 V	Pass	
10.000000 V @ 500 Hz	10.0000320	10.000266	9.997012	10.003052 V	Pass	
10.00000 V @ 1 kHz	9.999979	10.00024	9.99696	10.00300 V	Pass	
10.000000 V @ 20 kHz	10.0000370	10.000135	9.997017	10.003057 V	Pass	
10.000000 V @ 50 kHz	10.0000160	10.000116	9.980996	10.019036 V	Pass	
10.000000 V @ 100 kHz	10.0000130	10.000098	9.931993	10.068033 V	Pass	
10.000000 V @ 1000 kHz	10.0063960	10.116787	9.305928	10.706864 V	Pass	
100.00000 V @ 1 kHz	100.000170	100.00526	99.95997	100.04037 V	Pass	
700.0000 V @ 1 kHz	700.02040	699.8773	699.3990	700.6418 V	Pass	

- Sync Mode - High Frequency -

10.00000 mV @ 1 MHz	9.95590	9.87500	10.12500 mV	Pass	1.37
10.00000 mV @ 4 MHz	9.65759	9.29300	10.70700 mV	Pass	
100.0000 mV @ 4 MHz	99.8164	95.9300	104.0700 mV	Pass	
100.0000 mV @ 8 MHz	100.1772	95.9200	104.0800 mV	Pass	
100.0000 mV @ 10 MHz	98.1508	84.9000	115.1000 mV	Pass	
1.000000 V @ 4 MHz	1.001148	0.959300	1.040700 V	Pass	
1.000000 V @ 8 MHz	1.000633	0.959200	1.040800 V	Pass	
1.000000 V @ 10 MHz	0.969946	0.849000	1.151000 V	Pass	
3.00000 V @ 2 MHz	3.02140	2.87300	3.12700 V	Pass	
3.00000 V @ 4 MHz	3.05639	2.87300	3.12700 V	Pass	
3.00000 V @ 8 MHz	2.99389	2.87200	3.12800 V	Pass	
3.00000 V @ 10 MHz	2.88476	2.54000	3.46000 V	Pass	

FREQUENCY ACCURACY VERIFICATION

20.00000 Hz		19.999780	19.990000	20.010000 Hz	Pass
100.00000 Hz	99.997000	99.99882	99.98700	100.00700 Hz	Pass
1000000.00 Hz	999987.000	999988.77	999887.00	1000087.00 Hz	Pass

***** End of Certificate *****