TRIDENT CALIBRATION LABS

ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-1986

Calibration Certificate

Certificate #: 176800
Date Printed: 2/15/2022

Customer Information

Customer:
CUSTOMER NAME
CUSTOMER ADDRESS
CITY, STATE ZIP CODE

Purchase Order : 17010012

Equipment Information

Asset :	**T1356 2532**	Serial Number:	36870033
Description:	DIGITAL MULTIMETER	Model Number:	87 V
Manufacturer:	FLUKE	Cal. Interval:	12 MONTHS
Accuracy:	Manufacturer Specifications		

Event Information

Service Requested:	ACCREDITED 17025	Cal Date:	2/15/2022
Condition Received:	IN TOLERANCE	Cal Due Date:	2/15/2023
Condition Returned:	LEFT AS FOUND	Temp./RH:	23 C / 28 %
Cal Procedure:	FLUKE 87 SERIES V SERVICE MANUAL	Technician:	T FINK
		QA Approval:	Craig Fink, QA Manager

Calibration Notes:

See attached data readings.

This instrument has been processed and calibrated in accordance with the Trident Calibration Labs Quality Assurance Manual and is traceable to SI units through the National Institute of Standards and Technology (NIST), or other NMI's. The Trident Calibration Labs quality system is ANAB accredited to ISO/IEC 17025:2017 & ANSI/NCSL Z540-1-1994.
ISO/IEC 17025:2017 accredited calibrations are per ANAB certificate # AC-1986 and are within the scope for which the lab is accredited. This report may not be reproduced, except in full, without the written approval of Trident Calibration Labs.
Unless stated otherwise; the expanded measurement uncertainty of the measurement process does not exceed 25% of the tolerance allowed for the individual characteristics measured, the measurement uncertainties for this calibration are based upon approximately 95% (k=2) confidence limits, no sampling plan or other process was used for this calibration, the results reported herein apply only to the calibration of the item described above, and no limitations of use apply to the calibrated unit.
Although the item calibrated meets the specifications and performance at the time of calibration, due to any number of factors, the recommended due date of the item calibrated does not imply continuing conformance to specifications during the recommended interval.

Standards

I.D.	Mfg	Model #	Description	Cal. Due Date	NIST Traceability #
10-0425	FLUKE	5522A/SC600	MULTI-PRODUCT CALIBRATOR	5/18/2022	EVL712664

Calibration Data Sheet

1725 E Robin Lane
Phoenix, AZ 85024
(480) 686-9365

ID	T1356 2532	*Manufacturer*	Fluke
Serial Number	36870033	*Model Number*	87 V
Temperature	23 °C	*Humidity*	28 %
Procedure Name	Fluke 87 V: (1 year) VER /5522A		

Standards Used

Description	Service Date	Due Date	ID
Calibrator, Fluke 5522A	5/18/2021	5/18/2022	10-0425

Fluke 87 V: (1 year) VER /5522A

MET/CAL Results **Pass** **In Tolerance**

Test Description	True Value	Lower Limit	Test Results	Upper Limit	Status	UNC
Root Difference Square guardbanding method used.						
UUT IDENTIFICATION						
Firmware Level: 3.03						
BACKLIGHT TEST					Pass	
F2 A INPUT FUSE					Pass	
F1 mA µA INPUT FUSE					Pass	
1 kΩ INPUT RESISTOR					Pass	
DISPLAY TEST					Pass	
PUSHBUTTON SWITCH TEST					Pass	
AC VOLTS						
600 mV Range						
330.0 mV @ 60 Hz	330.00 mV	327.3 mV	329.8 mV	332.7 mV	Pass	1.0e-004 V
600.0 mV @ 13 kHz	600.00 mV	586.0 mV	603.1 mV	614.0 mV	Pass	1.5e-004 V
6 V Range						
3.300 V @ 60 Hz	3.3000 V	3.275 V	3.299 V	3.325 V	Pass	1.0e-003 V
3.300 V @ 20 kHz	3.3000 V	3.214 V	3.286 V	3.386 V	Pass	1.2e-003 V
60 V Range						

Test Description	True Value	Lower Limit	Test Results	Upper Limit	Status	UNC
33.00 V @ 60 Hz	33.000 V	32.75 V	32.99 V	33.25 V	Pass	8.6e-003 V
33.00 V @ 20 kHz	33.000 V	32.14 V	32.83 V	33.86 V	Pass	1.2e-002 V
600 V Range						
330.0 V @ 60 Hz	330.00 V	327.5 V	329.9 V	332.5 V	Pass	1.0e-001 V
330.0 V @ 2.5 kHz	330.00 V	323.0 V	330.1 V	337.0 V	Pass	9.2e-002 V
1000 V Range						
500 V @ 60 Hz	500.0 V	491 V	500 V	509 V	Pass	5.9e-001 V
1000 V @ 1 kHz	1000.0 V	986 V	1002 V	1014 V	Pass	6.3e-001 V
FREQUENCY						
199.99 kHz Range						
99.95 kHz @ 150 mV	99.950 kHz	99.94 kHz	99.95 kHz	99.96 kHz	Pass	5.8e+000 Hz
199.50 kHz @ 150 mV	199.500 kHz	199.48 kHz	199.50 kHz	199.52 kHz	Pass	5.8e+000 Hz
FREQUENCY SENSITIVITY						
6 V AC Range						
99.95 kHz @ 0.7 V	99.950 kHz	99.93 kHz	99.95 kHz	99.97 kHz	Pass	5.8e+000 Hz
60 V AC Range						
99.95 kHz @ 7 V	99.950 kHz	99.93 kHz	99.95 kHz	99.97 kHz	Pass	5.8e+000 Hz
TRIGGER LEVEL						
6 V DC Range						
1000.0 Hz @ 3.4 V	1000.00 Hz	999.8 Hz	1000.0 Hz	1000.2 Hz	Pass	5.8e-002 Hz
DUTY CYCLE						
6 V DC Range						
50.0 % @ 1 kHz	50.00 %	49.7 %	50.1 %	50.3 %	Pass	6.0e-002 %
DC VOLTS						
6 V Range						
3.300 V	3.3000 V	3.297 V	3.300 V	3.303 V	Pass	5.8e-004 V
60 V Range						
33.00 V	33.000 V	32.97 V	33.00 V	33.03 V	Pass	5.8e-003 V
600 V Range						
330.0 V	330.00 V	329.7 V	330.0 V	330.3 V	Pass	5.8e-002 V
1000 V Range						
1000 V	1000.0 V	998 V	1000 V	1002 V	Pass	5.8e-001 V
DC MILLIVOLTS						
600 mV Range						
33.0 mV	33.00 mV	32.9 mV	33.0 mV	33.1 mV	Pass	5.8e-005 V
330.0 mV	330.00 mV	329.6 mV	330.0 mV	330.4 mV	Pass	5.8e-005 V

Test Description	True Value	Lower Limit	Test Results	Upper Limit	Status	UNC
RESISTANCE						
600 Ω Range						
330.0 Ohms	330.00 Ohms	329.1 Ohms	330.1 Ohms	330.9 Ohms	Pass	5.8e-002 Ohms
6 kΩ Range						
3.300 kOhms	3.3000 kOhms	3.292 kOhms	3.298 kOhms	3.308 kOhms	Pass	5.8e-001 Ohms
60 kΩ Range						
33.00 kOhms	33.000 kOhms	32.92 kOhms	33.00 kOhms	33.08 kOhms	Pass	5.8e+000 Ohms
600 kΩ Range						
330.0 kOhms	330.00 kOhms	327.9 kOhms	330.1 kOhms	332.1 kOhms	Pass	5.9e+001 Ohms
6 MΩ Range						
3.300 MOhms	3.3000 MOhms	3.279 MOhms	3.301 MOhms	3.321 MOhms	Pass	6.9e+002 Ohms
50 MΩ Range						
30.00 MOhms	30.000 MOhms	29.67 MOhms	30.04 MOhms	30.33 MOhms	Pass	9.7e+003 Ohms
CONDUCTANCE						
60 nS Range						
0.00 ns	0.000 ns	-0.30 ns	-0.04 ns	0.30 ns	Pass	
10.00 ns	10.000 ns	9.60 ns	9.96 ns	10.40 ns	Pass	7.1e-012 s
DIODE TEST						
3.000 V	3.0000 V	2.939 V	2.999 V	3.061 V	Pass	5.8e-004 V
AC AMPS						
6 A Range						
3.000 A @ 60 Hz	3.0000 A	2.968 A	3.000 A	3.032 A	Pass	3.0e-003 A
DC AMPS						
6 A Range						
3.000 A	3.0000 A	2.990 A	3.001 A	3.010 A	Pass	1.7e-003 A
10 A Range						
10.00 A	10.000 A	9.96 A	10.00 A	10.04 A	Pass	7.2e-003 A
AC MILLIAMPS						
60 mA Range						
33.00 mA @ 60 Hz	33.000 mA	32.65 mA	32.98 mA	33.35 mA	Pass	2.6e-005 A
400 mA Range						
330.0 mA @ 60 Hz	330.00 mA	326.5 mA	330.0 mA	333.5 mA	Pass	2.1e-004 A
DC MILLIAMPS						
60 mA Range						

Test Description	True Value	Lower Limit	Test Results	Upper Limit	Status	UNC
33.00 mA	33.000 mA	32.89 mA	33.00 mA	33.11 mA	Pass	7.3e-006 A
400 mA Range						
330.0 mA	330.00 mA	329.1 mA	329.9 mA	330.9 mA	Pass	1.0e-004 A
AC MICROAMPS						
600 µA Range						
330.0 µA @ 60 Hz	330.00 µA	326.5 µA	329.9 µA	333.5 µA	Pass	3.8e-007 A
6000 µA Range						
3300 µA @ 60 Hz	3300.0 µA	3265 µA	3300 µA	3335 µA	Pass	2.6e-006 A
DC MICROAMPS						
600 µA Range						
330.0 µA	330.00 µA	328.9 µA	330.1 µA	331.1 µA	Pass	8.6e-008 A
6000 µA Range						
3300 µA	3300.0 µA	3291 µA	3300 µA	3309 µA	Pass	7.3e-007 A
CAPACITANCE						
10 nF Range						
0.26 nF	0.260 nF	0.21 nF	0.26 nF	0.31 nF	Pass	
100 nF Range						
5.0 nF	5.00 nF	4.8 nF	4.9 nF	5.2 nF	Pass	6.0e-011 F
100 µF Range						
9.5 µF	9.50 µF	9.2 µF	9.5 µF	9.8 µF	Pass	6.3e-008 F
LOW PASS FILTER						
400 V @ 400 Hz	400.0 V	372 V	390 V	408 V	Pass	5.9e-001 V
Filter Rolloff					Pass	
PEAK MIN/MAX: 6 Vpp, 2 kHz Square Wave, DC offset 1 V						
+4.000 Vp (Max)	4.0000 Vp	3.897 Vp	4.028 Vp	4.103 Vp	Pass	3.1e-002 Vp
-2.000 Vp (Min)	-2.0000 Vp	-2.102 Vp	-1.998 Vp	-1.898 Vp	Pass	1.6e-002 Vp
TEMPERATURE						
0.0 °C	0.00 °C	-1.0 °C	0.0 °C	1.0 °C	Pass	1.4e-001 °C
100.0 °C	100.00 °C	98.0 °C	100.0 °C	102.0 °C	Pass	1.4e-001 °C

-- End of measurement results--