

Z540.1

Certificate of Calibration

Beaverton Service Center

Certificate Number: 96111

Data Type: Found-Left
Result Summary: In Tolerance

Calibration Date: 23-Dec-2014

Calibration Due: 23-Dec-2015

Manufacturer: Fluke
Model: 70 III
Serial Number: 72830395
Description: Multimeter

Certificate Date: 23-Dec-2014

Temperature: 22.7 °C

Humidity: 48.0 %

Procedure: Fluke 70-3: (1 year) CAL VER /5520A

Revision: 1.2

Customer: STATE OF WASHINGTON

City: SEATTLE

Country: US

State: WA

Purchase Order: ccs wsp

RMA: 30686267

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), radiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 118 8/2014 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value $((MV-NV)/NV)$, expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, $\mu V/V$, etc.) Descriptions such as $\mu A/A$, $\mu V/V$, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

Where applicable, the expanded uncertainty of measurement at the time of test is given in the following pages. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, such that the confidence level approximates 95%.

Where applicable, the Test Uncertainty Ratio (TUR) is provided in the following pages. Unless otherwise stated, the TUR for a given measurement result is 4:1 or greater.

Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.



NGHIA DUONG
Issued By

Certificate Number: 96111**Date of Calibration:** 23-Dec-2014**Standards Used**

Asset	Description	Cal-Date	Cal-Due
16533	Fluke 5522A Calibrator	12-Jul-2014	12-Jul-2015

Certificate Number: 96111

Date of Calibration: 23-Dec-2014

Calibration Data

Parameter	Nominal Value	Measurement Result	Limits of Error		Test Uncertainty Ratio (TUR)
			Lower Limit	Upper Limit	
DISPLAY TEST					
Display Segments Illuminated Correctly:		Pass			
RESISTANCE TEST					
320Ohms Range					
0.0 Ohm	0.00	0.0	0.0	0.2	
100.0 Ohm	100.00	99.8	99.3	100.7	
3200Ohms Range					
1000 Ohm	1000.0	999	994	1006	
32kOhms Range					
10.00 kOhm	10.000	10.00	9.94	10.06	
320kOhms Range					
100.0 kOhm	100.00	100.0	99.4	100.6	
3.2MOhms Range					
1.000 MOhm	1.0000	1.000	0.994	1.006	
32MOhms Range					
10.00 MOhm	10.000	10.01	9.79	10.21	
DIODE TEST					
Beeper Audible		Pass			
Beeper OFF		Pass			
DC VOLTAGE TEST					
320mV Range					
300.0 mV	300.00	299.7	299.0	301.0	
DC VOLTAGE TEST					
3.2V Range					
2.700 V	2.7000	2.698	2.691	2.709	
32V Range					
27.00 V	27.000	26.98	26.91	27.09	
320V Range					
270.0 V	270.00	269.9	269.1	270.9	
600V Range					
600 V	600.0	600	597	603	
AC VOLTAGE TEST					
3.2V Range					
2.700 V @ 100 Hz	2.7000	2.695	2.644	2.756	
2.700 V @ 500 Hz	2.7000	2.683	2.644	2.756	

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Calibration Data

Parameter	Nominal Value	Measurement Result	Limits of Error		Test Uncertainty Ratio (TUR)
			Lower Limit	Upper Limit	
600V Range					
600 V @ 100 Hz	600.0	599	586	614	
600 V @ 1 kHz	600.0	598	586	614	