

## Certificate of Calibration Everett Service Center



ISO 9001:2008 (10100/2)

**Certificate Number:** 649084-70530850:1386799138

**Result Summary:** PASS  
**Data Type:** FOUND-LEFT

**Date of Calibration:** 11 December 2013  
**Recommended Due Date:** 11 December 2014

**Manufacturer:** FLUKE  
**Model:** 70 III  
**Serial Number:** 70530850  
**Description:** MULTIMETER

**Date of Certificate:** 11 December 2013  
**Received Date:** 09 December 2013  
**Temperature:** 21.6 °C  
**Relative Humidity:** 32 %RH

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

**Procedure Revision:** 1.0

**Customer Name:** STATE OF WASHINGTON  
**City, State:** SEATTLE, WA  
**Customer Item ID:**  
**PO Number:** WSP-CCS  
**RMA Number:** 30427174

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes, 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 Rev 116 08/12 and Fluke Customer Support Services QAM 400 Rev. 002 03/22/2012.

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/NCCL 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.

Measured values (MV) greater than the Manufacturer's specification (Spec) are indicated by "I".

Corey Dinardi  
Metrology Technician

Randy Lemon  
Lead Metrologist



Certificate Number:  
649084-70530850:1386799138

Calibration Date:  
11-Dec-13

### Standards Used

| Asset # | Instrument Model                | Cal Date       | Cal Due     |
|---------|---------------------------------|----------------|-------------|
| 15267   | FLUKE 5520A/1GHZ 120 CALIBRATOR | 20 August 2013 | 20 May 2014 |

### Calibration Results

| Function/Range                | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|-------------------------------|---------------|----------------|-----|-------------------------------|-------------|
|                               |               |                |     | Lower Limit                   | Upper Limit |
| <b>DISPLAY TEST</b>           |               |                |     |                               |             |
| Result of Operator Evaluation |               | PASS           |     |                               |             |
| <b>RESISTANCE TEST</b>        |               |                |     |                               |             |
| <b>320Ohm Range</b>           |               |                |     |                               |             |
| 0.0 Ohm                       | 0.00          | 0.0            |     | 0.0                           | 0.2         |
| 100.0 Ohm                     | 100.00        | 99.9           |     | 99.3                          | 100.7       |
| <b>3200Ohm Range</b>          |               |                |     |                               |             |
| 1000 Ohm                      | 1000.0        | 999            |     | 994                           | 1006        |
| <b>32kOhm Range</b>           |               |                |     |                               |             |
| 10.00 kOhm                    | 10.000        | 10.00          |     | 9.94                          | 10.06       |
| <b>320kOhm Range</b>          |               |                |     |                               |             |
| 100.0 kOhm                    | 100.00        | 100.0          |     | 99.4                          | 100.6       |
| <b>3.2MOhm Range</b>          |               |                |     |                               |             |
| 1.000 MOhm                    | 1.0000        | 0.999          |     | 0.994                         | 1.006       |
| <b>32MOhm Range</b>           |               |                |     |                               |             |
| 10.00 MOhm                    | 10.000        | 10.02          |     | 9.79                          | 10.21       |
| <b>DIODE TEST</b>             |               |                |     |                               |             |
| Beeper Audible                |               | PASS           |     |                               |             |
| Beeper OFF                    |               | PASS           |     |                               |             |
| <b>DC VOLTAGE TEST</b>        |               |                |     |                               |             |
| <b>320mV Range</b>            |               |                |     |                               |             |
| 300.0 mV                      | 300.00        | 299.9          |     | 299.0                         | 301.0       |
| <b>DC VOLTAGE TEST</b>        |               |                |     |                               |             |
| <b>3.2V Range</b>             |               |                |     |                               |             |
| 2.700 V                       | 2.7000        | 2.699          |     | 2.691                         | 2.709       |
| <b>32V Range</b>              |               |                |     |                               |             |
| 27.00 V                       | 27.000        | 26.98          |     | 26.91                         | 27.09       |
| <b>320V Range</b>             |               |                |     |                               |             |
| 270.0 V                       | 270.00        | 269.9          |     | 269.1                         | 270.9       |
| <b>600V Range</b>             |               |                |     |                               |             |
| 600 V                         | 600.0         | 600            |     | 597                           | 603         |
| <b>AC VOLTAGE TEST</b>        |               |                |     |                               |             |
| <b>3.2V Range</b>             |               |                |     |                               |             |
| 2.700 V @ 100 Hz              | 2.7000        | 2.700          |     | 2.644                         | 2.756       |
| 2.700 V @ 500 Hz              | 2.7000        | 2.688          |     | 2.644                         | 2.756       |
| <b>600V Range</b>             |               |                |     |                               |             |
| 600 V @ 100 Hz                | 600.0         | 600            |     | 586                           | 614         |
| 600 V @ 1 kHz                 | 600.0         | 599            |     | 586                           | 614         |

End of Report