

# Certificate of Calibration

## Everett Service Center



ISO 9001:2008 (10100/2)

Certificate Number: 4025334-24231606:1371649137

Result Summary: PASS  
Data Type: AS-LEFT

Date of Calibration: 19 June 2013  
Recommended Due Date: 19 June 2014

Manufacturer: FLUKE  
Model: 190-102  
Serial Number: 24231606  
Description: SCOPEMETER 2CH 100MHZ

Date of Certificate: 19 June 2013  
Received Date: 06 June 2013  
Temperature: 23.3 °C  
Relative Humidity: 42 %RH

Procedure Name: FLUKE 190-XX2:(1 YEAR) ZCAL VER/5520A+SC600

Procedure Revision: 2.0

Customer Name: EDIFICA USA LLC  
City, State: TRABUCO CANYON, CA  
Customer Item ID: 24231606  
PO Number: CCS LUIS VESGA  
RMA Number: 30298340

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/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.

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

Corey Dinardi  
Metrology Technician

Randy Lemon  
Lead Metrologist

|                |
|----------------|
| Standards Used |
|----------------|

|         |                        |                  |                  |
|---------|------------------------|------------------|------------------|
| Asset # | Instrument Model       | Cal Date         | Cal Due          |
| 13677   | FLUKE 5520A CALIBRATOR | 17 November 2012 | 17 November 2013 |

|                     |
|---------------------|
| Calibration Results |
|---------------------|

| Function/Range                         | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|----------------------------------------|---------------|----------------|-----|-------------------------------|-------------|
|                                        |               |                |     | Lower Limit                   | Upper Limit |
| INSTRUMENT FIRMWARE VERIFICATION       |               |                |     |                               |             |
| FLUKE 190-102 ,firmware version V11.10 |               |                |     |                               |             |
|                                        |               |                |     |                               |             |
| DISPLAY TESTS                          |               |                |     |                               |             |
| Backlight test                         |               | PASS           |     |                               |             |
| Maximum darkness                       |               | PASS           |     |                               |             |
| Default brightness                     |               | PASS           |     |                               |             |
| Maximum brightness                     |               | PASS           |     |                               |             |
| VERTICAL ACCURACY                      |               |                |     |                               |             |
| 12mV (Input A, 2 mV/d)                 | 12.000        | 11.88          |     | 11.49                         | 12.51       |
| 12mV (Input B, 2 mV/d)                 | 12.000        | 11.76          |     | 11.49                         | 12.51       |
| 30mV (Input A, 5 mV/d)                 | 30.00         | 29.7           |     | 29.2                          | 30.8        |
| 30mV (Input B, 5 mV/d)                 | 30.00         | 29.7           |     | 29.2                          | 30.8        |
| 60mV (Input A, 10 mV/d)                | 60.00         | 59.4           |     | 58.3                          | 61.7        |
| 60mV (Input B, 10 mV/d)                | 60.00         | 59.2           |     | 58.3                          | 61.7        |
| 120mV (Input A, 20 mV/d)               | 120.00        | 118.8          |     | 116.7                         | 123.3       |
| 120mV (Input B, 20 mV/d)               | 120.00        | 119.2          |     | 116.7                         | 123.3       |
| 300mV (Input A, 50 mV/d)               | 300.0         | 298            |     | 292                           | 308         |
| 300mV (Input B, 50 mV/d)               | 300.0         | 300            |     | 292                           | 308         |
| 600mV (Input A, 100 mV/d)              | 600.0         | 598            |     | 583                           | 617         |
| 600mV (Input B, 100 mV/d)              | 600.0         | 596            |     | 583                           | 617         |
| 1200mV (Input A, 200 mV/d)             | 1200.0        | 1196           |     | 1167                          | 1233        |
| 1200mV (Input B, 200 mV/d)             | 1200.0        | 1196           |     | 1167                          | 1233        |
| 3V (Input A, 500 mV/d)                 | 3.000         | 3.00           |     | 2.92                          | 3.08        |
| 3V (Input B, 500 mV/d)                 | 3.000         | 2.98           |     | 2.92                          | 3.08        |
| 6V (Input A, 1 V/d)                    | 6.000         | 5.98           |     | 5.83                          | 6.17        |
| 6V (Input B, 1 V/d)                    | 6.000         | 5.96           |     | 5.83                          | 6.17        |
| 12V (Input A, 2 V/d)                   | 12.000        | 11.96          |     | 11.67                         | 12.33       |
| 12V (Input B, 2 V/d)                   | 12.000        | 11.88          |     | 11.67                         | 12.33       |
| 30V (Input A, 5 V/d)                   | 30.000        | 29.90          |     | 29.17                         | 30.83       |
| 30V (Input B, 5 V/d)                   | 30.000        | 29.90          |     | 29.17                         | 30.83       |
| 60V (Input A, 10 V/d)                  | 60.000        | 59.60          |     | 58.34                         | 61.66       |
| 60V (Input B, 10 V/d)                  | 60.000        | 59.40          |     | 58.34                         | 61.66       |
| 120V (Input A, 20 V/d)                 | 120.00        | 119.6          |     | 115.9                         | 124.1       |
| 120V (Input B, 20 V/d)                 | 120.00        | 118.8          |     | 115.9                         | 124.1       |
| 300V (Input A, 50 V/d)                 | 300.0         | 298            |     | 290                           | 310         |
| 300V (Input B, 50 V/d)                 | 300.0         | 296            |     | 290                           | 310         |
| 600V (Input A, 100 V/d)                | 600.0         | 594            |     | 579                           | 621         |



Calibration Results

| Function/Range             | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|----------------------------|---------------|----------------|-----|-------------------------------|-------------|
|                            |               |                |     | Lower Limit                   | Upper Limit |
| 600V (Input B, 100 V/d)    | 600.0         | 600            |     | 579                           | 621         |
| INPUT AB V DC TEST         |               |                |     |                               |             |
| 6mV (Input A, 2 mV/d)      | 6.00          | 6.0            |     | 4.9                           | 7.1         |
| 6mV (Input B, 2 mV/d)      | 6.00          | 6.0            |     | 4.9                           | 7.1         |
| -6mV (Input A, 2 mV/d)     | -6.00         | -6.0           |     | -7.1                          | -4.9        |
| -6mV (Input B, 2 mV/d)     | -6.00         | -6.0           |     | -7.1                          | -4.9        |
| 15mV (Input A, 5 mV/d)     | 15.00         | 14.9           |     | 14.3                          | 15.7        |
| 15mV (Input B, 5 mV/d)     | 15.00         | 14.9           |     | 14.3                          | 15.7        |
| -15mV (Input A, 5 mV/d)    | -15.00        | -14.9          |     | -15.7                         | -14.3       |
| -15mV (Input B, 5 mV/d)    | -15.00        | -14.9          |     | -15.7                         | -14.3       |
| 30mV (Input A, 10 mV/d)    | 30.00         | 29.8           |     | 29.1                          | 30.9        |
| 30mV (Input B, 10 mV/d)    | 30.00         | 29.9           |     | 29.1                          | 30.9        |
| -30mV (Input A, 10 mV/d)   | -30.00        | -30.0          |     | -30.9                         | -29.1       |
| -30mV (Input B, 10 mV/d)   | -30.00        | -29.8          |     | -30.9                         | -29.1       |
| 60mV (Input A, 20 mV/d)    | 60.00         | 59.6           |     | 58.6                          | 61.4        |
| 60mV (Input B, 20 mV/d)    | 60.00         | 59.8           |     | 58.6                          | 61.4        |
| -60mV (Input A, 20 mV/d)   | -60.00        | -59.8          |     | -61.4                         | -58.6       |
| -60mV (Input B, 20 mV/d)   | -60.00        | -59.6          |     | -61.4                         | -58.6       |
| 150mV (Input A, 50 mV/d)   | 150.00        | 150.2          |     | 142.7                         | 157.3       |
| 150mV (Input B, 50 mV/d)   | 150.00        | 150.2          |     | 142.7                         | 157.3       |
| -150mV (Input A, 50 mV/d)  | -150.00       | -150.7         |     | -157.3                        | -142.7      |
| -150mV (Input B, 50 mV/d)  | -150.00       | -149.8         |     | -157.3                        | -142.7      |
| 300mV (Input A, 100 mV/d)  | 300.0         | 301            |     | 290                           | 310         |
| 300mV (Input B, 100 mV/d)  | 300.0         | 300            |     | 290                           | 310         |
| -300mV (Input A, 100 mV/d) | -300.0        | -300           |     | -310                          | -290        |
| -300mV (Input B, 100 mV/d) | -300.0        | -300           |     | -310                          | -290        |
| 600mV (Input A, 200 mV/d)  | 600.0         | 599            |     | 586                           | 614         |
| 600mV (Input B, 200 mV/d)  | 600.0         | 600            |     | 586                           | 614         |
| -600mV (Input A, 200 mV/d) | -600.0        | -602           |     | -614                          | -586        |
| -600mV (Input B, 200 mV/d) | -600.0        | -602           |     | -614                          | -586        |
| 1.5V (Input A, 500 mV/d)   | 1.500         | 1.50           |     | 1.43                          | 1.57        |
| 1.5V (Input B, 500 mV/d)   | 1.500         | 1.50           |     | 1.43                          | 1.57        |
| -1.5V (Input A, 500 mV/d)  | -1.500        | -1.50          |     | -1.57                         | -1.43       |
| -1.5V (Input B, 500 mV/d)  | -1.500        | -1.50          |     | -1.57                         | -1.43       |
| 3V (Input A, 1 V/d)        | 3.000         | 3.00           |     | 2.90                          | 3.10        |
| 3V (Input B, 1 V/d)        | 3.000         | 3.01           |     | 2.90                          | 3.10        |
| -3V (Input A, 1 V/d)       | -3.000        | -3.00          |     | -3.10                         | -2.90       |
| -3V (Input B, 1 V/d)       | -3.000        | -3.01          |     | -3.10                         | -2.90       |
| 6V (Input A, 2 V/d)        | 6.000         | 6.00           |     | 5.86                          | 6.14        |
| 6V (Input B, 2 V/d)        | 6.000         | 6.00           |     | 5.86                          | 6.14        |
| -6V (Input A, 2 V/d)       | -6.000        | -6.02          |     | -6.14                         | -5.86       |
| -6V (Input B, 2 V/d)       | -6.000        | -6.02          |     | -6.14                         | -5.86       |

Calibration Results

| Function/Range                             | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|--------------------------------------------|---------------|----------------|-----|-------------------------------|-------------|
|                                            |               |                |     | Lower Limit                   | Upper Limit |
| 15V (Input A, 5 V/d)                       | 15.00         | 15.0           |     | 14.3                          | 15.7        |
| 15V (Input B, 5 V/d)                       | 15.00         | 15.0           |     | 14.3                          | 15.7        |
| -15V (Input A, 5 V/d)                      | -15.00        | -15.1          |     | -15.7                         | -14.3       |
| -15V (Input B, 5 V/d)                      | -15.00        | -15.0          |     | -15.7                         | -14.3       |
| 30V (Input A, 10 V/d)                      | 30.00         | 30.1           |     | 29.1                          | 30.9        |
| 30V (Input B, 10 V/d)                      | 30.00         | 30.0           |     | 29.1                          | 30.9        |
| -30V (Input A, 10 V/d)                     | -30.00        | -30.1          |     | -30.9                         | -29.1       |
| -30V (Input B, 10 V/d)                     | -30.00        | -30.0          |     | -30.9                         | -29.1       |
| 60V (Input A, 20 V/d)                      | 60.00         | 59.9           |     | 58.6                          | 61.4        |
| 60V (Input B, 20 V/d)                      | 60.00         | 60.0           |     | 58.6                          | 61.4        |
| -60V (Input A, 20 V/d)                     | -60.00        | -60.1          |     | -61.4                         | -58.6       |
| -60V (Input B, 20 V/d)                     | -60.00        | -60.1          |     | -61.4                         | -58.6       |
| 150V (Input A, 50 V/d)                     | 150.0         | 150            |     | 143                           | 157         |
| 150V (Input B, 50 V/d)                     | 150.0         | 150            |     | 143                           | 157         |
| -150V (Input A, 50 V/d)                    | -150.0        | -150           |     | -157                          | -143        |
| -150V (Input B, 50 V/d)                    | -150.0        | -150           |     | -157                          | -143        |
| 300V (Input A, 100 V/d)                    | 300.0         | 300            |     | 290                           | 310         |
| 300V (Input B, 100 V/d)                    | 300.0         | 301            |     | 290                           | 310         |
| -300V (Input A, 100 V/d)                   | -300.0        | -301           |     | -310                          | -290        |
| -300V (Input B, 100 V/d)                   | -300.0        | -300           |     | -310                          | -290        |
| INPUT AB V AC TEST                         |               |                |     |                               |             |
| The following tests are performed @ 60 Hz  |               |                |     |                               |             |
| 4mV (Input A, 2 mV/d)                      | 4.00          | 4.0            |     | 2.9                           | 5.1         |
| 4mV (Input B, 2 mV/d)                      | 4.00          | 4.0            |     | 2.9                           | 5.1         |
| The following tests are performed @ 20 kHz |               |                |     |                               |             |
| 10mV (Input A, 5 mV/d)                     | 10.00         | 10.0           |     | 8.2                           | 11.8        |
| 10mV (Input B, 5 mV/d)                     | 10.00         | 9.9            |     | 8.2                           | 11.8        |
| 20mV (Input A, 10 mV/d)                    | 20.00         | 20.0           |     | 18.0                          | 22.0        |
| 20mV (Input B, 10 mV/d)                    | 20.00         | 19.8           |     | 18.0                          | 22.0        |
| 40mV (Input A, 20 mV/d)                    | 40.00         | 39.9           |     | 37.5                          | 42.5        |
| 40mV (Input B, 20 mV/d)                    | 40.00         | 39.6           |     | 37.5                          | 42.5        |
| 100mV (Input A, 50 mV/d)                   | 100.00        | 100.5          |     | 96.0                          | 104.0       |
| 100mV (Input B, 50 mV/d)                   | 100.00        | 99.5           |     | 96.0                          | 104.0       |
| 200mV (Input A, 100 mV/d)                  | 200.0         | 201            |     | 180                           | 220         |
| 200mV (Input B, 100 mV/d)                  | 200.0         | 199            |     | 180                           | 220         |
| 400mV (Input A, 200 mV/d)                  | 400.0         | 401            |     | 375                           | 425         |
| 400mV (Input B, 200 mV/d)                  | 400.0         | 398            |     | 375                           | 425         |
| 900mV (Input A, 500 mV/d)                  | 900.0         | 903            |     | 862                           | 938         |
| 900mV (Input B, 500 mV/d)                  | 900.0         | 896            |     | 862                           | 938         |
| The following tests are performed @ 60 Hz  |               |                |     |                               |             |
| 900mV (Input A, 500 mV/d)                  | 900.0         | 902            |     | 876                           | 924         |
| 900mV (Input B, 500 mV/d)                  | 900.0         | 902            |     | 876                           | 924         |



Calibration Results

| Function/Range                                  | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|-------------------------------------------------|---------------|----------------|-----|-------------------------------|-------------|
|                                                 |               |                |     | Lower Limit                   | Upper Limit |
| The following tests are performed @ 20 kHz      |               |                |     |                               |             |
| 2V (Input A, 1 V/d)                             | 2.000         | 2.00           |     | 1.80                          | 2.20        |
| 2V (Input B, 1 V/d)                             | 2.000         | 1.99           |     | 1.80                          | 2.20        |
| 4V (Input A, 2 V/d)                             | 4.000         | 4.00           |     | 3.75                          | 4.25        |
| 4V (Input B, 2 V/d)                             | 4.000         | 3.99           |     | 3.75                          | 4.25        |
| 9V (Input A, 5 V/d)                             | 9.000         | 9.00           |     | 8.62                          | 9.38        |
| 9V (Input B, 5 V/d)                             | 9.000         | 8.98           |     | 8.62                          | 9.38        |
| 20V (Input A, 10 V/d)                           | 20.00         | 20.0           |     | 18.0                          | 22.0        |
| 20V (Input B, 10 V/d)                           | 20.00         | 19.9           |     | 18.0                          | 22.0        |
| 40V (Input A, 20 V/d)                           | 40.00         | 39.9           |     | 37.5                          | 42.5        |
| 40V (Input B, 20 V/d)                           | 40.00         | 39.9           |     | 37.5                          | 42.5        |
| 90V (Input A, 50 V/d)                           | 90.00         | 89.8           |     | 86.2                          | 93.8        |
| 90V (Input B, 50 V/d)                           | 90.00         | 89.9           |     | 86.2                          | 93.8        |
| 200V (Input A, 100 V/d)                         | 200.0         | 200            |     | 180                           | 220         |
| 200V (Input B, 100 V/d)                         | 200.0         | 200            |     | 180                           | 220         |
| INPUT AB AC COUPLED LF TEST                     |               |                |     |                               |             |
| The following tests are performed @ 60 Hz       |               |                |     |                               |             |
| 900mV (Input A, 500 mV/d)                       | 900.0         | 899            |     | 873                           | 927         |
| 900mV (Input B, 500 mV/d)                       | 900.0         | 900            |     | 873                           | 927         |
| Input A lower frequency limit is 5 Hz (500mV/d) |               | PASS           |     |                               |             |
| Input B lower frequency limit is 5 Hz (500mV/d) |               | PASS           |     |                               |             |
| INPUT AB V PEAK TEST                            |               |                |     |                               |             |
| The following tests are performed @ 1 kHz       |               |                |     |                               |             |
| 600mV (Input A, 100 mV/d)                       | 600.0         | 590            |     | 560                           | 640         |
| 600mV (Input B, 100 mV/d)                       | 600.0         | 590            |     | 560                           | 640         |
| INPUT AB FREQUENCY TEST                         |               |                |     |                               |             |
| 16Hz @ 600mVpp (Input A)                        | 16.000        | 16.00          |     | 15.90                         | 16.10       |
| 16Hz @ 600mVpp (Input B)                        | 16.000        | 16.00          |     | 15.90                         | 16.10       |
| 100MHz @ 600mVpp (Input A)                      | 100.00        | 100.0          |     | 99.3                          | 100.7       |
| 100MHz @ 600mVpp (Input B)                      | 100.00        | 100.0          |     | 99.3                          | 100.7       |
| INPUT AB PHASE TEST                             |               |                |     |                               |             |
| Input A, 10Hz phase zero: 0 deg.                |               | PASS           |     |                               |             |
| Input B, 10Hz phase zero: 0 deg.                |               | PASS           |     |                               |             |
| Input A, 1MHz phase zero: 0 deg.                |               | PASS           |     |                               |             |
| Input B, 1MHz phase zero: 0 deg.                |               | PASS           |     |                               |             |
| Input A, 10MHz phase zero: 0 deg.               |               | PASS           |     |                               |             |
| Input B, 10MHz phase zero: 1 deg.               |               | PASS           |     |                               |             |
| TIME BASE ACCURACY TEST                         |               |                |     |                               |             |
| Time base 10 us/div.                            |               | PASS           |     |                               |             |
| Time base 1 us/div.                             |               | PASS           |     |                               |             |
| VIDEO TRIGGER SENSITIVITY                       |               |                |     |                               |             |
| The signal is triggered on the TV-NTSC pulses   |               | PASS           |     |                               |             |

| Function/Range                    | Nominal Value | Measured Value | TUR  | Manufacturer's Specifications |             |
|-----------------------------------|---------------|----------------|------|-------------------------------|-------------|
|                                   |               |                |      | Lower Limit                   | Upper Limit |
| INPUT A TRIGGER SENSITIVITY TEST  |               |                |      |                               |             |
| Trigger sensitivity @ 5 MHz       |               | PASS           |      |                               |             |
| Trigger sensitivity @ 100 MHz     |               | PASS           |      |                               |             |
| Trigger sensitivity @ 150 MHz     |               | PASS           |      |                               |             |
| INPUT A VAC HF & BANDWIDTH TEST   |               |                |      |                               |             |
| 900 mV @ 1 MHz                    | 900.0         | 900            | 2.65 | 835                           | 965         |
| 900 mV @ 25 MHz                   | 900.0         | 880            |      | 790                           | 1010        |
| Bandwidth Roll-off Test @ 100 MHz |               | PASS           |      |                               |             |
| INPUT B TRIGGER SENSITIVITY TEST  |               |                |      |                               |             |
| Trigger sensitivity @ 5 MHz       |               | PASS           |      |                               |             |
| Trigger sensitivity @ 100 MHz     |               | PASS           |      |                               |             |
| Trigger sensitivity @ 150 MHz     |               | PASS           |      |                               |             |
| INPUT B VAC HF & BANDWIDTH TEST   |               |                |      |                               |             |
| 900 mV @ 1 MHz                    | 900.0         | 883            | 2.65 | 835                           | 965         |
| 900 mV @ 25 MHz                   | 900.0         | 861            |      | 790                           | 1010        |
| Bandwidth Roll-off Test @ 100 MHz |               | PASS           |      |                               |             |
| EXTERNAL TRIGGER LEVEL TEST       |               |                |      |                               |             |
| Triggered @ 1.7V                  |               | PASS           |      |                               |             |
| METER DC VOLTAGE ACCURACY TEST    |               |                |      |                               |             |
| 500mV Range                       |               |                |      |                               |             |
| 0.0 mV                            | 0.00          | 0.2            |      | -0.5                          | 0.5         |
| 500.0 mV                          | 500.00        | 500.0          |      | 497.0                         | 503.0       |
| -500.0 mV                         | -500.00       | -500.1         |      | -503.0                        | -497.0      |
| 5V Range                          |               |                |      |                               |             |
| 5.000 V                           | 5.0000        | 4.999          |      | 4.970                         | 5.030       |
| -5.000 V                          | -5.0000       | -4.998         |      | -5.030                        | -4.970      |
| 50V Range                         |               |                |      |                               |             |
| 50.00 V                           | 50.000        | 49.98          |      | 49.70                         | 50.30       |
| -50.00 V                          | -50.000       | -49.98         |      | -50.30                        | -49.70      |
| 500V Range                        |               |                |      |                               |             |
| 500.0 V                           | 500.00        | 500.1          |      | 497.0                         | 503.0       |
| -500.0 V                          | -500.00       | -500.1         |      | -503.0                        | -497.0      |
| 1100V Range                       |               |                |      |                               |             |
| 1000 V                            | 1000.0        | 1000           |      | 990                           | 1010        |
| -1000 V                           | -1000.0       | -999           |      | -1010                         | -990        |

Calibration Results

| Function/Range                     | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|------------------------------------|---------------|----------------|-----|-------------------------------|-------------|
|                                    |               |                |     | Lower Limit                   | Upper Limit |
| METER AC VOLTAGE ACCURACY TEST     |               |                |     |                               |             |
| 500mV Range                        |               |                |     |                               |             |
| 500.0 mV @ 60 Hz                   | 500.00        | 499.9          |     | 494.0                         | 506.0       |
| 500.0 mV @ 1 kHz                   | 500.00        | 498.9          |     | 486.0                         | 514.0       |
| 500mV @ 3kHz                       |               |                |     |                               |             |
| The Measured Value is > 350mV.     |               | PASS           |     |                               |             |
| 5V Range                           |               |                |     |                               |             |
| 5.000 V @ 60 Hz                    | 5.0000        | 5.001          |     | 4.940                         | 5.060       |
| 5.000 V @ 1 kHz                    | 5.0000        | 4.988          |     | 4.860                         | 5.140       |
| 5.000V @ 3kHz                      |               |                |     |                               |             |
| The Measured Value is > 3.500V.    |               | PASS           |     |                               |             |
| 50V Range                          |               |                |     |                               |             |
| 50.00 V @ 60 Hz                    | 50.000        | 49.96          |     | 49.40                         | 50.60       |
| 50.00 V @ 1 kHz                    | 50.000        | 49.88          |     | 48.60                         | 51.40       |
| 50.00V @ 3kHz                      |               |                |     |                               |             |
| The Measured Value is > 35.00V.    |               | PASS           |     |                               |             |
| 500V Range                         |               |                |     |                               |             |
| 500.0 V @ 60 Hz                    | 500.00        | 499.9          |     | 494.0                         | 506.0       |
| 500.0 V @ 1 kHz                    | 500.00        | 499.0          |     | 486.0                         | 514.0       |
| 500.0V @ 3kHz                      |               |                |     |                               |             |
| The Measured Value is > 350V.      |               | PASS           |     |                               |             |
| 1100V Range                        |               |                |     |                               |             |
| 1000 V @ 60 Hz                     | 1000.0        | 1000           |     | 980                           | 1020        |
| 1000 V @ 1 kHz                     | 1000.0        | 998            |     | 960                           | 1040        |
| 1000V @ 3kHz                       |               |                |     |                               |             |
| The Measured Value is > 700V.      |               | PASS           |     |                               |             |
| CONTINUITY FUNCTION TEST           |               |                |     |                               |             |
| Continuity Beeper On               |               | PASS           |     |                               |             |
| Continuity Beeper Off              |               | PASS           |     |                               |             |
| DIODE FUNCTION: CURRENT TEST       |               |                |     |                               |             |
| 500.0 mV                           | 500.00        | 455.0          |     | 400.0                         | 600.0       |
| METER DIODE FUNCTION: VOLTAGE TEST |               |                |     |                               |             |
| 1.000 V                            | 1.0000        | 1.001          |     | 0.975                         | 1.025       |
| OHMS MEASUREMENT TEST              |               |                |     |                               |             |



Calibration Results

| Function/Range | Nominal Value | Measured Value | TUR | Manufacturer's Specifications |             |
|----------------|---------------|----------------|-----|-------------------------------|-------------|
|                |               |                |     | Lower Limit                   | Upper Limit |
| 0.0 Ohm        | 0.00          | 0.0            |     | -0.5                          | 0.5         |
| 400.0 Ohm      | 400.00        | 399.9          |     | 397.1                         | 402.9       |
| 4.000 kOhm     | 4.0000        | 4.000          |     | 3.971                         | 4.029       |
| 40.00 kOhm     | 40.000        | 40.02          |     | 39.71                         | 40.29       |
| 400.0 kOhm     | 400.00        | 400.0          |     | 397.1                         | 402.9       |
| 4.000 MOhm     | 4.0000        | 3.990          |     | 3.971                         | 4.029       |
| 30.00 MOhm     | 30.000        | 29.96          |     | 29.77                         | 30.23       |

End of Report