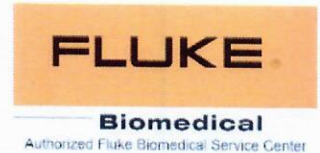




**aljeel Medical & Trading Co.**  
Authorized Service Provider



## Certificate of Calibration

ASSET NUMBER: **J939**  
MANUFACTURER: **Fluke Biomedical**  
MODEL NUMBER: **ESA 615**  
SERIAL NUMBER: **6731068**  
DESCRIPTION: **Electrical Safety Analyzer**

CUSTOMER INFORMATION  
**ALJEEL CO.**

PROCEDURE USED: **ESA615 VER - Exp Unc WW Rev18**  
CALIBRATED BY: **Joori Alsanounah**  
TEMPERATURE: **23 °C**  
HUMIDITY: **40 %rh**

CALIBRATION DATE: **24 Feb 2025**  
REQUESTED RECALIBRATION DATE: **24 Feb 2026**

AS-FOUND STATUS: **In Tolerance**  
AS-LEFT STATUS: **In Tolerance**

**Report Number: 2025000107**

The issuing organization certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure unless otherwise noted. It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Physical Laboratory or other national metrology institutes.

Although the item calibrated may meet specification and performance criteria at the time of calibration, due to any number of factors the recommended due date of this item does not imply continuing conformance to specifications during the recommended interval.

This report may contain results of tests for which no traceable calibration standard exists, such as oxygen saturation (SpO<sub>2</sub>). These tests are conducted using in-house performance standards and accepted test procedures.

Any Test Uncertainty Ratio (TUR) that is less than four-to-one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four-to-one, the field is left blank. Test status is PASS unless noted otherwise.

Al-Jeel Medical & Trading Co. Ltd. is not liable for any damage caused by or resulting from improper or negligent use.

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REMARKS:

APPROVED BY:

Technical Manager

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**STANDARDS USED**

| ID  | Description                                  | Due Date    |
|-----|----------------------------------------------|-------------|
| J35 | 6-1/2 Digit Precision Multimeter             | 24 Jul 2025 |
| J49 | AC/DC Current Source                         | 22 May 2025 |
| J50 | 1 K Ohm Decade Resistor                      | 09 May 2025 |
| J52 | AC/DC Differential Amplifier                 | 11 Oct 2025 |
| J58 | current Shunt                                | 10 May 2025 |
| J59 | High Voltage - High Resistance Decade Substi | 09 May 2025 |
| J60 | Digital Oscilloscope                         | 04 May 2025 |
| J65 | Calibrator                                   | 09 May 2025 |
| J88 | AC+DC Power Source                           | 17 May 2027 |

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MODEL NUMBER: **ESA 615** SERIAL NUMBER: **6731068**TEST RESULTS: **IN TOLERANCE**

| Test Description                                                | Expected Value | Measured Value | Lower Limit | Upper Limit | Units | Status | TUR |
|-----------------------------------------------------------------|----------------|----------------|-------------|-------------|-------|--------|-----|
| UUT is ESA615, UI-3.01.03, MTR-3.01.03, VNC-1.09.01, SN-6731068 |                |                |             |             |       |        |     |
| As-Found NOMINAL: 230                                           |                |                |             |             |       |        |     |
| Measured line voltage = 231.13 V                                |                |                |             |             |       |        |     |
| UUT Current Draw: 0 A                                           |                |                |             |             |       |        |     |
| FUNCTIONAL TESTS                                                |                |                |             |             |       |        |     |
| Warning LED ON/OFF Test                                         |                |                |             |             |       |        |     |
| UUT Beeper ON/OFF Test                                          |                |                |             |             |       |        |     |
| UUT Keypad Tests                                                |                |                |             |             |       |        |     |
| UUT USB Host Port Device Connect Test                           |                |                |             |             |       |        |     |
| UUT USB Host Port Device Disconnect Test                        |                |                |             |             |       |        |     |
| UUT Detects SD Card Removed                                     |                |                |             |             |       |        |     |
| UUT Detects SD Card Inserted                                    |                |                |             |             |       |        |     |
| EQUIPMENT OUTLET POLARITY TESTS                                 |                |                |             |             |       |        |     |
| Normal Polarity, Closed Neutral, Closed Earth                   |                |                |             |             |       |        |     |
| Normal Polarity, Closed Neutral, Open Earth                     |                |                |             |             |       |        |     |
| Normal Polarity, Open Neutral, Closed Earth                     |                |                |             |             |       |        |     |
| Reversed Polarity, Closed Neutral, Closed Earth                 |                |                |             |             |       |        |     |
| Reversed Polarity, Open Neutral, Closed Earth                   |                |                |             |             |       |        |     |
| Reversed Polarity, Closed Neutral, Open Earth                   |                |                |             |             |       |        |     |
| EQUIPMENT OUTLET GROUND TO NULL JACK RESISTANCE TEST            |                |                |             |             |       |        |     |
| EO Ground to NULL Jack Open (>1 GOhm)                           |                |                |             |             |       |        |     |
| 0.000 Ohm                                                       | 0.000          | 1.1438         | -2.5000     | 2.5000      | Ohm   |        |     |
| MAINS VOLTAGE ACCURACY                                          |                |                |             |             |       |        |     |
| Measure L1-L2                                                   | 231.12         | 230.9          | 226.3       | 235.9       | V     |        |     |
| Measure L1-GND                                                  | 231.13         | 230.9          | 226.3       | 236.0       | V     |        |     |
| GFI VERIFICATION                                                |                |                |             |             |       |        |     |
| 5 mA Trip Point                                                 |                |                |             |             |       |        |     |
| 4.5 mA Test (No Trip)                                           |                |                |             |             |       |        |     |
| 5.5 mA Test (Tripped)                                           |                |                |             |             |       |        |     |
| GFI Error Test                                                  |                |                |             |             |       |        |     |
| 10 mA Trip Point                                                |                |                |             |             |       |        |     |
| 9 mA Test (No Trip)                                             |                |                |             |             |       |        |     |
| 11 mA Test (Tripped)                                            |                |                |             |             |       |        |     |
| 25 mA Trip Point                                                |                |                |             |             |       |        |     |
| 22.5 mA Test (No Trip)                                          |                |                |             |             |       |        |     |
| 27.5 mA Test (Tripped)                                          |                |                |             |             |       |        |     |
| POINT-TO-POINT VOLTAGE VERIFICATION                             |                |                |             |             |       |        |     |
| 1.000 V                                                         | 1.0000         | 0.997          | 0.780       | 1.220       | V     |        |     |
| 8.000 V                                                         | 8.0000         | 7.974          | 7.640       | 8.360       | V     |        |     |
| 25.00 V                                                         | 25.000         | 24.94          | 24.30       | 25.70       | V     |        |     |
| 80.00 V                                                         | 80.000         | 79.72          | 78.20       | 81.80       | V     |        |     |
| 240.0 V                                                         | 240.00         | 239.2          | 235.0       | 245.0       | V     |        |     |



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MODEL NUMBER: **ESA 615** SERIAL NUMBER: **6731068**TEST RESULTS: **IN TOLERANCE**

| Test Description                                        | Expected Value | Measured Value | Lower Limit | Upper Limit | Units   | Status | TUR |
|---------------------------------------------------------|----------------|----------------|-------------|-------------|---------|--------|-----|
| <b>POINT-TO-POINT RESISTANCE VERIFICATION</b>           |                |                |             |             |         |        |     |
| <b>Red/Black Jack Input</b>                             |                |                |             |             |         |        |     |
| 0.000 Ohm                                               | 0.0000         | 0.000          | -0.015      | 0.015       | Ohm     |        |     |
| 0.200 Ohm                                               | 0.2000         | 0.200          | 0.181       | 0.219       | Ohm     |        |     |
| 1.800 Ohm                                               | 1.8000         | 1.804          | 1.749       | 1.851       | Ohm     |        |     |
| <b>Red Jack/EO Ground Terminal</b>                      |                |                |             |             |         |        |     |
| 0.000 Ohm                                               | 0.0000         | 0.001          | -0.015      | 0.015       | Ohm     |        |     |
| 1.800 Ohm                                               | 1.8000         | 1.801          | 1.749       | 1.851       | Ohm     |        |     |
| <b>INSULATION RESISTANCE VERIFICATION</b>               |                |                |             |             |         |        |     |
| 250 V Source                                            | 250.0          | 262.63         | 250.00      | 300.00      | V       |        |     |
| 500 V Source                                            | 500.0          | 525.34         | 500.00      | 600.00      | V       |        |     |
| 2 mA Current Limit                                      | 2.000          | 1.9370         | 1.7500      | 2.2500      | mA      |        |     |
| Mains-PE (500V)                                         | 10.0000        | 9.989          | 9.600       | 10.400      | MOhm    |        |     |
| AP-PE (500V)                                            | 10.0000        | 9.993          | 9.600       | 10.400      | MOhm    |        |     |
| AP-NE (500V)                                            | 10.0000        | 9.989          | 9.600       | 10.400      | MOhm    |        |     |
| Mains-NE (500V)                                         | 10.0000        | 9.989          | 9.600       | 10.400      | MOhm    |        |     |
| Mains-AP (RA) (500V)                                    | 10.0000        | 9.992          | 9.600       | 10.400      | MOhm    |        |     |
| Mains-AP (LL) (500V)                                    | 10.0000        | 9.991          | 9.600       | 10.400      | MOhm    |        |     |
| Mains-AP (LA) (500V)                                    | 10.0000        | 9.986          | 9.600       | 10.400      | MOhm    |        |     |
| Mains-AP (RL) (500V)                                    | 10.0000        | 9.986          | 9.600       | 10.400      | MOhm    |        |     |
| Mains-AP (V1) (500V)                                    | 10.0000        | 9.996          | 9.600       | 10.400      | MOhm    |        |     |
| <b>INSULATION RESISTANCE RANGE VERIFICATION</b>         |                |                |             |             |         |        |     |
| Mains-AP (V1) (250V)                                    | 0.70000        | 0.7090         | 0.4860      | 0.9140      | MOhm    |        |     |
| Mains-AP (V1) (500V)                                    | 1.00000        | 1.0073         | 0.7800      | 1.2200      | MOhm    |        |     |
| Mains-AP (V1) (250V)                                    | 6.50000        | 6.4987         | 6.1700      | 6.8300      | MOhm    |        |     |
| Mains-AP (V1) (500V)                                    | 18.0000        | 17.969         | 17.440      | 18.560      | MOhm    |        |     |
| Mains-AP (V1) (250V)                                    | 22.0000        | 21.958         | 20.150      | 23.850      | MOhm    |        |     |
| Mains-AP (V1) (500V)                                    | 60.0000        | 59.933         | 55.300      | 64.700      | MOhm    |        |     |
| Mains-AP (V1) (250V)                                    | 100.000        | 100.69         | 92.30       | 107.70      | MOhm    |        |     |
| <b>DC LEAKAGE VERIFICATION</b>                          |                |                |             |             |         |        |     |
| <b>AAMI Load Resistance Test</b>                        |                |                |             |             |         |        |     |
| 1.000 kOhm                                              | 1.000          | 0.9988         | 0.9800      | 1.0200      | kOhm    |        |     |
| <b>DC Leakage Current Tests</b>                         |                |                |             |             |         |        |     |
| 10.0 $\mu$ A                                            | 10.00          | 10.0           | 8.9         | 11.1        | $\mu$ A |        |     |
| 50.0 $\mu$ A                                            | 50.00          | 50.1           | 48.5        | 51.5        | $\mu$ A |        |     |
| 100.0 $\mu$ A                                           | 100.00         | 100.2          | 98.0        | 102.0       | $\mu$ A |        |     |
| 500 $\mu$ A                                             | 500.0          | 501            | 494         | 506         | $\mu$ A |        |     |
| 1600 $\mu$ A                                            | 1600.0         | 1605           | 1583        | 1617        | $\mu$ A |        |     |
| 7.000 mA                                                | 7.000          | 7.02           | 6.92        | 7.08        | mA      |        |     |
| <b>AC LEAKAGE FILTER FREQUENCY RESPONSE (AAMI Load)</b> |                |                |             |             |         |        |     |
| 1000 $\mu$ A, 60 Hz                                     | 998.00         | 1001.0         | 987.0       | 1009.0      | $\mu$ A |        |     |
| 1000 $\mu$ A, 1 kHz                                     | 691.00         | 692.3          | 683.1       | 698.9       | $\mu$ A |        |     |
| 1000 $\mu$ A, 10 kHz                                    | 95.60          | 95.8           | 92.7        | 98.5        | $\mu$ A |        | 2.2 |
| 1000 $\mu$ A, 30 kHz                                    | 33.10          | 33.4           | 31.4        | 34.8        | $\mu$ A |        | 2.3 |

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MODEL NUMBER: **ESA 615** SERIAL NUMBER: **6731068**TEST RESULTS: **IN TOLERANCE**

| Test Description                                            | Expected Value | Measured Value | Lower Limit | Upper Limit | Units | Status | TUR |
|-------------------------------------------------------------|----------------|----------------|-------------|-------------|-------|--------|-----|
| <b>DIFFERENTIAL LEAKAGE VERIFICATION - NORMAL POLARITY</b>  |                |                |             |             |       |        |     |
| <b>(75 to 199)uA Range</b>                                  |                |                |             |             |       |        |     |
| 76 uA @ 50 Hz                                               | 80.4           | 83             | 52          | 108         | µA    |        |     |
| 160 uA @ 50 Hz                                              | 162.6          | 167            | 126         | 199         | µA    |        |     |
| <b>(200 to 1999)uA Range</b>                                |                |                |             |             |       |        |     |
| 500 uA @ 50 Hz                                              | 503.0          | 507            | 433         | 573         | µA    |        |     |
| 1600 uA @ 50 Hz                                             | 1608.5         | 1613           | 1428        | 1789        | µA    |        |     |
| <b>(2 to 20)mA Range</b>                                    |                |                |             |             |       |        |     |
| 5.00 mA @ 50 Hz                                             | 5.023          | 5.02           | 4.50        | 5.55        | mA    |        |     |
| 16.00 mA @ 50 Hz                                            | 16.063         | 16.04          | 14.44       | 17.69       | mA    |        |     |
| <b>DIFFERENTIAL LEAKAGE VERIFICATION - REVERSE POLARITY</b> |                |                |             |             |       |        |     |
| <b>(2 to 20)mA Range</b>                                    |                |                |             |             |       |        |     |
| 16.00 mA @ 50 Hz                                            | 16.063         | 16.05          | 14.44       | 17.69       | mA    |        |     |
| <b>ECG LEAKAGE FUNCTIONALITY VERIFICATION</b>               |                |                |             |             |       |        |     |
| Applied Part (RA), 101 uA Detected                          |                |                |             |             |       |        |     |
| Applied Part (RA) Open Measures > 1 Gigaohm                 |                |                |             |             |       |        |     |
| Applied Part (LL), 101 uA Detected                          |                |                |             |             |       |        |     |
| Applied Part (LL) Open Measures > 1 Gigaohm                 |                |                |             |             |       |        |     |
| Applied Part (LA), 101 uA Detected                          |                |                |             |             |       |        |     |
| Applied Part (LA) Open Measures > 1 Gigaohm                 |                |                |             |             |       |        |     |
| Applied Part (RL), 101 uA Detected                          |                |                |             |             |       |        |     |
| Applied Part (RL) Open Measures > 1 Gigaohm                 |                |                |             |             |       |        |     |
| Applied Part (V1), 101 uA Detected                          |                |                |             |             |       |        |     |
| Applied Part (V1) Open Measures > 1 Gigaohm                 |                |                |             |             |       |        |     |
| <b>DIRECT APPLIED PART LEAKAGE - STD 353 VERIFICATION</b>   |                |                |             |             |       |        |     |
| <b>GND to RA</b>                                            |                |                |             |             |       |        |     |
| 1.000 mA @ 50 Hz                                            | 0.9142         | 0.906          | 0.875       | 0.954       | mA    |        |     |
| <b>RED to RA</b>                                            |                |                |             |             |       |        |     |
| 1.000 mA @ 50 Hz                                            | 0.9138         | 0.906          | 0.874       | 0.953       | mA    |        |     |
| <b>ALTERNATIVE EQUIPMENT LEAKAGE</b>                        |                |                |             |             |       |        |     |
| <b>RED to HOT</b>                                           |                |                |             |             |       |        |     |
| 1.000 mA @ 50 Hz                                            | 0.9272         | 0.926          | 0.887       | 0.967       | mA    |        |     |
| <b>ALTERNATIVE EQUIPMENT, APPLIED PART LEAKAGE</b>          |                |                |             |             |       |        |     |
| <b>RA to HOT (SAF)</b>                                      |                |                |             |             |       |        |     |
| 1.000 mA @ 50 Hz                                            | 0.9310         | 0.925          | 0.891       | 0.971       | mA    |        |     |
| <b>ALTERNATIVE APPLIED PART PATIENT LEAKAGE</b>             |                |                |             |             |       |        |     |
| <b>RA to NEUTRAL (SPAT)</b>                                 |                |                |             |             |       |        |     |
| 1.000 mA @ 50 Hz                                            | 0.9228         | 0.913          | 0.883       | 0.963       | mA    |        |     |
| <b>PATIENT AUXILIARY LEAKAGE - STD 601</b>                  |                |                |             |             |       |        |     |
| <b>RA to RL</b>                                             |                |                |             |             |       |        |     |
| 0.1000 mA @ 100 Hz                                          | 0.10026        | 0.0998         | 0.0983      | 0.1023      | mA    |        |     |

Report Number: **2025000107**



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MODEL NUMBER: **ESA 615** SERIAL NUMBER: **6731068**TEST RESULTS: **IN TOLERANCE**

| Test Description                                     | Expected Value | Measured Value | Lower Limit | Upper Limit | Units   | Status | TUR |
|------------------------------------------------------|----------------|----------------|-------------|-------------|---------|--------|-----|
| <b>DIRECT EQUIPMENT, PATIENT LEAKAGE - STD 353</b>   |                |                |             |             |         |        |     |
| <b>GND to RA</b>                                     |                |                |             |             |         |        |     |
| 0.1000 mA @ 100 Hz                                   | 0.10132        | 0.0998         | 0.0993      | 0.1033      | mA      |        |     |
| <b>DIRECT EQUIPMENT, PATIENT LEAKAGE - STD 601</b>   |                |                |             |             |         |        |     |
| <b>GND to RA</b>                                     |                |                |             |             |         |        |     |
| 0.1000 mA @ 100 Hz                                   | 0.10140        | 0.0998         | 0.0994      | 0.1034      | mA      |        |     |
| <b>DIRECT EQUIPMENT, ENCLOSURE LEAKAGE - STD 353</b> |                |                |             |             |         |        |     |
| <b>GND to RED</b>                                    |                |                |             |             |         |        |     |
| 0.1000 mA @ 100 Hz                                   | 0.10177        | 0.0998         | 0.0998      | 0.1038      | mA      |        |     |
| <b>DIRECT EQUIPMENT, ENCLOSURE LEAKAGE - STD 601</b> |                |                |             |             |         |        |     |
| <b>GND to RED</b>                                    |                |                |             |             |         |        |     |
| 0.1000 mA @ 100 Hz                                   | 0.10176        | 0.0998         | 0.0997      | 0.1038      | mA      |        |     |
| <b>FILTER TESTS</b>                                  |                |                |             |             |         |        |     |
| <b>Apply 100Hz, Measure DC</b>                       |                |                |             |             |         |        |     |
| 0.00 $\mu$ A @ 100 Hz                                | 0.000          | 0.00           | 0.00        | 1.00        | $\mu$ A |        |     |
| <b>Apply DC, Measure AC</b>                          |                |                |             |             |         |        |     |
| 0.00 $\mu$ A                                         | 0.000          | 0.00           | 0.00        | 1.00        | $\mu$ A |        |     |
| <b>MAP VOLTAGE AND CURRENT LIMIT TESTS</b>           |                |                |             |             |         |        |     |
| 120.0 V @ 60 Hz                                      | 120.59         | 119.8          | 112.1       | 129.0       | V       |        |     |
| 230.0 V @ 50 Hz                                      | 231.15         | 231.3          | 215.0       | 247.3       | V       |        |     |
| 3.50 mA @ 50 Hz                                      | 3.424          | 3.42           | 2.57        | 4.28        | mA      |        |     |
| 7.50 mA @ 50 Hz                                      | 7.118          | 7.11           | 5.34        | 8.90        | mA      |        |     |
| 1.00 mA @ 60 Hz                                      | 1.029          | 1.02           | 0.77        | 1.29        | mA      |        |     |
| <b>ECG WAVEFORM TESTS - 2 Hz SQUAREWAVE</b>          |                |                |             |             |         |        |     |
| 2.000 Hz                                             | 2.000          | 2.0000         | 1.9600      | 2.0400      | Hz      |        |     |
| <b>EQUIPMENT CURRENT VERIFICATION</b>                |                |                |             |             |         |        |     |
| Test 1                                               | 1.5225         | 1.267          | 1.246       | 1.799       | A       |        | 3.7 |
| Test 2                                               | 3.6099         | 3.500          | 3.229       | 3.990       | A       |        |     |

**WIRELESS COMMUNICATIONS TEST (Zigbee)**

UUT Communicates Over Wireless Interface

Cal Info SN: 6731068, CAL DATE: 24 February 2025

\*\*\* End of Procedure \*\*\*

\*\*\* END\_OF\_REPORT \*\*\*