# ACCREDITATION CERTIFICATE

## LB-CAL-054

**Emirates International Accreditation Centre**

has accredited

**DUBAI ELECTRICITY AND WATER AUTHORITY PJSC**

Umm-Hurair, Near Karama General Post Office

Dubai-United Arab Emirates

In accordance with the requirements of

**ISO/IEC 17025:2017**

General requirements for the competence of testing and calibration laboratories

to undertake the calibration in the attached accreditation scope

This Accreditation is invalid without the attached accreditation scope and shall remain in force within the validity period printed below, subject to continuing compliance with the requirements of the accreditation criteria.

Validity: 28-06-2022 to 09-08-2023

Initial Accreditation Date: 10/08/2017

CHIEF EXECUTIVE OFFICER
APPROVAL

# Accreditation Scope

## LB-CAL-054

## Dubai Electricity and Water Authority PJSC

## Umm-Hurair, Near Karama General Post Office

## Dubai-United Arab Emirates

**Date: 28-06-2022** **Valid to: 09-08-2023**

| Accreditation History | | | |
|---|---|---|---|
| **Scope** | **Issue No.** | **Details** | **Date** |
| Electrical | 4 | Reissued due to change the laboratory's name (was formerly known as Dewa Metrology Laboratory) | 28-06-2022 |
| Electrical | 3 | Renewal accreditation from EIAC | 08-09-2020 |
| Electrical | 2 | Extension in scope and first issuance under the name of EIAC (which was formerly known as DAC) | 21/10/2019 |

# Accreditation Scope

# Electrical Calibration

# LB-CAL-054

## Dubai Electricity and Water Authority PJSC

## Umm-Hurair, Near Karama General Post Office

## Dubai-nited Arab Emirates

**Issue no.: 04** **Date: 28-06-2022** **Valid to: 09-08-2023**

| Calibration Field/ Measuring Quality | Calibration Method | Range and Specification | Calibration Measurement Capability (CMC)* | Location |
|---|---|---|---|---|
| DC Voltage | MMulti Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *U: Measured Voltage value* | Up to 329.9999 mV | $16\times10^{-6}$ *U* + 0.79 uV | DEWA Metrology Laboratory |
| | | < 330 mV to 3.3 V | $8.4\times10^{-6}$ *U* + 1.9 uV | |
| | | < 3.3 V to 33 V | $9.2\times10^{-6}$ *U* + 19 uV | |
| | | < 33 V to 330 V | $14\times10^{-6}$ *U* + 0.13 mV | |
| | | < 330 V to 1000 V | $14\times10^{-6}$ *U* + 1.4 mV | |
| AC Voltage | Multi Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *U: Measured Voltage value* | **Up to 33 mV** | | |
| | | 45 Hz to 10 kHz | $0.11\times10^{-3}$ *U* + 4.8 uV | |
| | | < 10 kHz to 20 kHz | $0.15\times10^{-3}$ *U* + 4.8 uV | |
| | | < 20 kHz to 50 kHz | $0.77\times10^{-3}$ *U* + 4.8 uV | |
| | | **< 33 mV to 330 mV** | | |
| | | 45 Hz to 10 kHz | $0.11\times10^{-3}$ *U* + 6.3 uV | |
| | | < 10 kHz to 20 kHz | $0.12\times10^{-3}$ *U* + 6.3 uV | |
| | | < 20 kHz to 50 kHz | $0.27\times10^{-3}$ *U* + 6.3 uV | |

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مـركـز الإمـارات الـعـالـمـي لـلاعـتـمـاد
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| Calibration Field/ Measuring Quality | Calibration Method | Range and Specification | Calibration Measurement Capability (CMC)* | Location |
|---|---|---|---|---|
| AC Voltage | Multi Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *U: Measured Voltage value* | **<0.33 V to 3.3 V** | | DEWA Metrology Laboratory |
| | | 45 Hz to 10 kHz | $0.12\times10^{-3}$ *U* + 47 uV | |
| | | < 10 kHz to 20 kHz | $0.15\times10^{-3}$ *U* + 47 uV | |
| | | < 20 kHz to 50 kHz | $0.23\times10^{-3}$ *U* + 39 uV | |
| | | **< 3.3 V to 33 V** | | |
| | | 45 Hz to 10 kHz | $0.12\times10^{-3}$ *U* + 0.47 mV | |
| | | < 10 kHz to 20 kHz | $0.19\times10^{-3}$ *U* + 0.47 mV | |
| | | < 20 kHz to 50 kHz | $0.27\times10^{-3}$ *U* + 0.47 mV | |
| | | **< 33 V to 330 V** | | |
| | | 45 Hz to 10 kHz | $0.16\times10^{-3}$ *U* + 4.7 mV | |
| | | < 10 kHz to 20 kHz | $0.19\times10^{-3}$ *U* + 4.7 mV | |
| | | < 20 kHz to 50 kHz | $0.23\times10^{-3}$ *U* + 4.7 mV | |
| | | **< 330 V to 1020 V** | | |
| | | 45 Hz to 1 kHz | $0.23\times10^{-3}$ *U* + 8.8 mV | |
| | | < 1 kHz to 5 kHz | $0.19\times10^{-3}$ *U* + 9.0 mV | |
| | | < 5 kHz to 10 kHz | $0.23\times10^{-3}$ *U* + 8.8 mV | |

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|---|---|---|---|---|
| DC Current | Multi Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *I: Measured Current value* | Up to 330 uA | $0.12\times10^{-3}$ / + 0.02 uA | DEWA Metrology Laboratory |
| | | < 0.33 mA to 3.3 mA | $1.2\times10^{-6}$ / + 12 uA | |
| | | < 3.3 mA to 33 mA | $1.1\times10^{-6}$ / + 0.12 mA | |
| | | < 33 mA to 330 mA | $1.1\times10^{-6}$ / + 1.2 mA | |
| | | < 330 mA to 1.1 A | $1.9\times10^{-6}$ / + 12 mA | |
| | | < 1.1 A to 3 A | $16\times10^{-6}$ / + 12 mA | |
| | | < 3 A to 11 A | $10\times10^{-6}$ / + 0.12 A | |
| | | < 11 A to 20 A | $85\times10^{-6}$ / + 0.12 A | |
| AC Current | Multi Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *I: Measured Current value* | **29 uA to 330 uA** | | DEWA Metrology Laboratory |
| | | 45 Hz to 1 KHz | $0.97\times10^{-3}$ / + 0.08 uA | |
| | | 1 KHz to 5 KHz | $2.3\times10^{-3}$ / + 0.12 uA | |
| | | 5 KHz to 10 KHz | $6.2\times10^{-3}$ / + 0.16 uA | |

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|---|---|---|---|---|
| AC Current | Multi Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *I: Measured Current value* | **< 0.33 mA to 3.3 mA** | | DEWA Metrology Laboratory |
| | | 45 Hz to 1 KHz | $0.78\times10^{-3}$ / + 0.12 uA | |
| | | 1 KHz to 5 KHz | $1.6\times10^{-3}$ / + 0.16 uA | |
| | | 5 KHz to 10 KHz | $3.9\times10^{-3}$ / + 0.23 uA | |
| | | **< 3.3 mA to 33 mA** | | |
| | | 45 Hz to 1 KHz | $0.31\times10^{-3}$ / + 1.6 uA | |
| | | 1 KHz to 5 KHz | $0.62\times10^{-3}$ / + 1.6 uA | |
| | | 5 KHz to 10 KHz | $1.6\times10^{-3}$ / + 2.3 uA | |
| | | 45 Hz to 1 KHz | $0.31\times10^{-3}$ / + 16 uA | |
| | | **< 33 mA to 330 mA** | | |
| | | 1 KHz to 5 KHz | $0.78\times10^{-3}$ / + 39 uA | |
| | | 5 KHz to 10 KHz | $1.6\times10^{-3}$ / + 78 uA | |
| | | **< 0.33 A to 1.1 A** | | |
| | | 45 Hz to 1 KHz | $0.39\times10^{-3}$ / + 78 uA | |
| | | 1 KHz to 5 KHz | $4.7\times10^{-3}$ / + 0.78 mA | |
| | | 5 KHz to 10 KHz | $19\times10^{-3}$ / + 3.9 mA | |

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|---|---|---|---|---|
| AC Current | Multi Product Calibrator (Fluke-5520A ) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *I: Measured Current value* | **< 1.1 A to 3 A** | | DEWA Metrology Laboratory |
| | | 45 Hz to 1 KHz | $0.47\times10^{-3}$ / + 78 uA | |
| | | 1 KHz to 5 KHz | $4.7\times10^{-3}$ / + 0.78 mA | |
| | | 5 KHz to 10 KHz | $19\times10^{-3}$ / + 3.9 mA | |
| | | **< 3 A to 11 A** | | |
| | | 45 Hz to 100 Hz | $0.47\times10^{-3}$ / + 1.6 mA | |
| | | 100 Hz to 1 KHz | $0.78\times10^{-3}$ / + 1.6 mA | |
| | | 1 KHz to 5 KHz | $23\times10^{-3}$ / + 1.6 mA | |
| | | **< 11 A to 20.5 A** | | |
| | | 45 Hz to 100 Hz | $0.93\times10^{-3}$ / + 3.9 mA | |
| | | 100 Hz to 1 KHz | $1.2\times10^{-3}$ / + 3.9 mA | |
| | | 1 KHz to 5 KHz | $23\times10^{-3}$ / + 3.9 mA | |

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| Calibration Field/ Measuring Quality | Calibration Method | Range and Specification | Calibration Measurement Capability (CMC)* | Location |
|---|---|---|---|---|
| Temperature Simulation | 1- Multi Product Calibrator (Fluke-5520A, TC-K type) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12<br>2- Multi Product Calibrator (Fluke-5520A, TC-J type) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 | -200 °C to -100 °C | 0.33 °C | DEWA Metrology Laboratory |
| | | -100 °C to -25 °C | 0.18 °C | |
| | | -25 °C to 120 °C | 0.16 °C | |
| | | 120 °C to 1000 °C | 0.26 °C | |
| | | 1000 °C to 1372 °C | 0.4 °C | |
| | | -200 °C to -100 °C | 0.27 °C | |
| | | -100 °C to -25 °C | 0.16 °C | |
| | | -25 °C to 120 °C | 0.14 °C | |
| | | 120 °C to 1000 °C | 0.17 °C | |
| | | 1000 °C to 1372 °C | 0.23 °C | |
| Capacitance | Multi Product Calibrator (Fluke-5520A) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *C: Measured Capacitance value* | 1.1 nF to 3.3 nF | $3.9\times10^{-3}\ C$ + 7.8 pF | DEWA Metrology Laboratory |
| | | < 3.3 nF to 11 nF | $1.9\times10^{-3}\ C$ + 78 pF | |
| | | < 11 nF to 33 nF | $1.9\times10^{-3}\ C$ + 78 pF | |
| | | < 33 nF to 110 nF | $1.9\times10^{-3}\ C$ + 78 pF | |

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|---|---|---|---|---|
| Capacitance | Multi Product Calibrator (Fluke-5520A) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *C: Measured Capacitance value* | < 110 nF to 330 nF | $1.9\times10^{-3}\ C$ + 0.23 nF | DEWA Metrology Laboratory |
| | | < 0.33 uF to 1.1 uF | $1.9\times10^{-3}\ C$ + 0.78 nF | |
| | | < 1.1 uF to 3.3 uF | $1.9\times10^{-3}\ C$ + 2.3 nF | |
| | | < 3.3 uF to 11 uF | $1.9\times10^{-3}\ C$ + 7.8 nF | |
| | | < 11 uF to 110 uF | $3.5\times10^{-3}\ C$ + 78 nF | |
| | | < 110 uF to 330 uF | $3.5\times10^{-3}\ C$ + 0.23 uF | |
| | | < 0.33 mF to 1.1 mF | $3.5\times10^{-3}\ C$ + 0.78 uF | |
| | | < 1.1 mF to 3.3 mF | $3.5\times10^{-3}\ C$ + 2.3 uF | |
| | | < 3.3 mF to 11 mF | $3.5\times10^{-3}\ C$ +7.8 uF | |
| | | < 11 mF to 33 mF | $5.8\times10^{-3}\ C$ + 23 uF | |
| | | < 33 mF to 110 mF | $8.5\times10^{-3}\ C$ + 78 uF | |

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|---|---|---|---|---|
| Resistance | Multi Product Calibrator (Fluke-5520A) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *R:* Measured Resistance value | 0 to 11 Ω | $31\times10^{-6}\ R$ + 7.8 mΩ | DEWA Metrology Laboratory |
| | | < 11 Ω to 33 Ω | $23\times10^{-6}\ R$ + 12 mΩ | |
| | | < 33 Ω to 110 Ω | $22\times10^{-6}\ R$ + 12 mΩ | |
| | | < 110 Ω to 330 Ω | $22\times10^{-6}\ R$ + 16 mΩ | |
| | | < 330 Ω to 1.1 kΩ | $22\times10^{-6}\ R$ + 16 mΩ | |
| | | < 1.1 kΩ to 3.3 kΩ | $22\times10^{-6}\ R$ + 0.16 Ω | |
| | | < 3.3 kΩ to 11 kΩ | $22\times10^{-6}\ R$ + 78 mΩ | |
| | | < 11 kΩ to 33 kΩ | $22\times10^{-6}\ R$ + 0.78 Ω | |
| | | < 33 kΩ to 110 kΩ | $22\times10^{-6}\ R$ + 0.78 Ω | |
| | | < 110 kΩ to 330 kΩ | $25\times10^{-6}\ R$ + 7.8 Ω | |
| | | < 330 kΩ to 1.1 MΩ | $25\times10^{-6}\ R$ + 7.8 Ω | |
| | | < 1.1 MΩ to 3.3 MΩ | $47\times10^{-6}\ R$ + 0.12 kΩ | |

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|---|---|---|---|---|
| Resistance | Multi Product Calibrator (Fluke-5520A) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *R:* Measured Resistance value | < 3.3 MΩ to 11 MΩ | $0.10\times10^{-3}\ R + 0.19$ kΩ | DEWA Metrology Laboratory |
| | | < 11 MΩ to 33 MΩ | $0.19\times10^{-3}\ R + 1.9$ kΩ | |
| | | < 33 MΩ to 110 MΩ | $0.39\times10^{-3}\ R + 2.3$ kΩ | |
| | | < 110 MΩ to 330 MΩ | $2.3\times10^{-3}\ R + 78$ kΩ | |
| | | < 330 MΩ to 1100 MΩ | $9.5\times10^{-3}\ R + 63$ kΩ | |
| Frequency | Multi Product Calibrator (Fluke-5520A) Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *f: Measured Frequency value* | 0.01 Hz to 120 Hz | $0.02\times10^{-6}\ f + 12$ mHz | DEWA Metrology Laboratory |
| | | < 120.0 Hz to 1.2 kHz | $0.02\times10^{-6}\ f + 0.12$ Hz | |
| | | < 1.2 kHz to 12 kHz | $0.02\times10^{-6}\ f + 1.2$ Hz | |
| | | < 12 kHz to 120 kHz | $0.02\times10^{-6}\ f + 12$ Hz | |
| | | < 120 kHz to 1200 kHz | $0.02\times10^{-6}\ f + 0.12$ kHz | |
| | | < 1.2 MHz to 2 MHz | $5.2\times10^{-9}\ f + 1.2$ kHz | |

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|---|---|---|---|---|
| DC Current | Multi Product Calibrator Fluke-5522A & Current Coil Fluke-5500A/Coil Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 *I: Measured Current value* | 10 A to 16.5 A | $5.0\times10^{-3}$ / + 20 mA | DEWA Metrology Laboratory |
| | | 16.5 A to 55 A | $5.0\times10^{-3}$ / + 0.14 A | |
| | | 55 A to 150 A | $5.0\times10^{-3}$ / + 0.14 A | |
| | | 150 A to 550 A | $5.0\times10^{-3}$ / + 0.50 A | |
| | | 550 A to 1000 A | $5.0\times10^{-3}$ / + 0.50 A | |
| AC Current | Multi Product Calibrator Fluke-5522A & Current Coil Fluke-5500A/Coil Calibration Procedure # DP/DAM/W&AR(ML)/SOP 12 (/ = Measured Current value) | 10 A to 16.5 A | $5.6\times10^{-3}$ / + 30 mA | DEWA Metrology Laboratory |
| | | (45 Hz to 65 Hz) | | |
| | | 16.5 A to 150 A | $5.6\times10^{-3}$ / + 0.25 A | |
| | | (45 Hz to 65 Hz) | | |
| | | 150 A to 1000 A | $5.6\times10^{-3}$ / + 0.9 A | |
| | | (45 Hz to 65 Hz) | | |

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