Hellenic Accreditation System

Annex F2/10 to the Certificate No. **966**-4

SCOPE of ACCREDITATION

of the

Calibration Laboratory
Hellenic Armed Forces Calibration Agency (YPHD)

Calibration item / Parameters	Range of measurement	Expanded measurement uncertainty (k=2)*	Remarks
Dimensional Measurements			
Calipers, analog / digital (external, internal and depth measurements)	0 mm to 500 mm (0 in to 20 in)	$\sqrt{0.44^2 + 0.015^2 L^2 + \frac{d^2}{3}}(\mu m)$ *L:* length in mm *d:* resolution in μm	Comparative calibration using gauge blocks, standard bars and standard rings. Calibration according to: VDI/VDE/DGQ 2618 part 9.1: 2006
External micrometers, analog / digital	0 mm to 500 mm (0 in to 20 in)	$\sqrt{0.44^2 + 0.015^2 L^2 + \frac{d^2}{3}}(\mu m)$ *L*: length in mm *d*: resolution in μm	Comparative calibration using gauge blocks and standard bars. Calibration according to: VDI/VDE/DGQ 2618 part 10.1: 2001
Mass Measurements			
Non-automatic weighing instruments, electronic / mechanical	1 mg	3,1 μg	According to Guide: EURAMET/cg-18/v.04 (2015) Using standard weights OIML Class E2 in range 1 mg ... 20 kg. Total max grouped load 300 kg.
	2 mg	3,8 μg	
	5 mg	3,0 μg	
	10 mg	3,8 μg	
	20 mg	3,0 μg	
	50 mg	4,2 μg	
	100 mg	5,0 μg	
	200 mg	6,2 μg	
	500 mg	9,1 μg	
	1 g	10 μg	
	2 g	13 μg	
	5 g	19 μg	
	10 g	26 μg	
	20 g	28 μg	
	50 g	47 μg	
	100 g	77 μg	

Calibration item / Parameters	Range of measurement	Expanded measurement uncertainty (k=2)*	Remarks
	200 g	0,15 mg	
	500 g	0,34 mg	
	1 kg	0,63 mg	
	2 kg	1,2 mg	
	5 kg	2.9 mg	
	10 kg	5.6 mg	
	20 kg	11mg	
	42 kg	24 mg	
	42 kg to 300 kg	$7{,}4 \times 10^{-6}$	
	42 kg to 300 kg	$\sqrt{3.4 \cdot 10^{-13} I^2 + 4(n - \frac{1}{2})\frac{d^2}{3}}$ (kg) *I*: load indication in kg *d*: resolution in kg *n*: number of substitute weights of reference mass m_{cl}	Using substitute weights, each approximately equal to a reference mass m_{cl}
Standard weights			Calibration capability according to OIML R-111:2004 up to class:
	1 mg	2,0 µg	E2
	2 mg	2,0 µg	E2
	5 mg	2,0 µg	E2
	10 mg	2,5 µg	E2
	20 mg	3,0 µg	E2
	50 mg	4,0 µg	E2
	100 mg	5,0 µg	E2
	200 mg	6,0 µg	E2
	500 mg	8,0 µg	E2
	1 g	10 µg	E2
	2 g	12 µg	E2
	5 g	16 µg	E2
	10 g	20 µg	E2
	20 g	25 µg	E2
	50 g	30 µg	E2
	100 g	50 µg	E2
	200 g	0,10 mg	E2
	500 g	0,25 mg	E2
	1 kg	0,5 mg	E2
	2 kg	1,0 mg	E2
	5 kg	2,5 mg	E2
	10 kg	5,0 mg	E2
	20 kg	10 mg	E2
	100g to 30kg	$5{,}0 \times 10^{-7}$	Standard Weights not classified according to OIML R-111:2004

Calibration item / Parameters	Range of measurement	Expanded measurement uncertainty (k=2)*	Remarks
Temperature Measurements			
Thermometers with analog or digital reading / Analog or digital temperature data loggers	-80 °C to -30 °C	0,030 °C	Using bath and platinum resistance thermometer. Devices under calibration must be equipped with external sensor. Calibration according to: DKD-R 5-1:2018.
	-30 °C to 150 °C	0,022 °C	
	150 °C to 250 °C	0,028 °C	
Electrical measurements			
Resistance measuring instruments (Ohmmeters) (4/2 Wire) (Generate)	0 Ω	50 µΩ	Using multifunction calibrator. According to guide: Euramet/cg-15/v.3.0.(02/2015)
	1 Ω	$11 \cdot 10^{-5}$	
	1,9 Ω	$11 \cdot 10^{-5}$	
	10 Ω	$29 \cdot 10^{-6}$	
	19 Ω	$29 \cdot 10^{-6}$	
	100 Ω	$14 \cdot 10^{-6}$	
	190 Ω	$14 \cdot 10^{-6}$	
	1 kΩ	$11 \cdot 10^{-6}$	
	1,9 kΩ	$11 \cdot 10^{-6}$	
	10 kΩ	$11 \cdot 10^{-6}$	
	19 kΩ	$11 \cdot 10^{-6}$	
	100 kΩ	$15 \cdot 10^{-6}$	
	190 kΩ	$15 \cdot 10^{-6}$	
	1 MΩ	$27 \cdot 10^{-6}$	
	1,9 MΩ	$28 \cdot 10^{-6}$	
	10 MΩ	$52 \cdot 10^{-6}$	
	19 MΩ	$60 \cdot 10^{-6}$	
	100 MΩ	$24 \cdot 10^{-5}$	
	1 mΩ	$36 \cdot 10^{-6}$	Using current shunt. According to guide: Euramet/cg-15/v.3.0.(02/2015)
	10 mΩ	$10 \cdot 10^{-6}$	
	100 mΩ	$3,9 \cdot 10^{-6}$	
	1 Ω	$1,1 \cdot 10^{-6}$	
	10 Ω	$1,8 \cdot 10^{-6}$	
	100 Ω	$0,7 \cdot 10^{-6}$	
	1 kΩ	$5,9 \cdot 10^{-6}$	
	10 kΩ	$7,7 \cdot 10^{-6}$	
	0,01 Ω	$24 \cdot 10^{-5}$	Using decade resistance. According to guide: Euramet/cg-15/v.3.0.(02/2015)
	0,1 Ω	$64 \cdot 10^{-6}$	
	1 Ω	$20 \cdot 10^{-6}$	
	10 Ω	$3,9 \cdot 10^{-6}$	
	100 Ω	$1,0 \cdot 10^{-6}$	
	1 kΩ	$3,5 \cdot 10^{-6}$	
	10 kΩ	$4,2 \cdot 10^{-6}$	
	100 kΩ	$16 \cdot 10^{-6}$	

Calibration item / Parameters	Range of measurement	Expanded measurement uncertainty (k=2)*	Remarks
Standard resistors & current shunts (4 / 2 wire) (Measure)	1 mΩ	$114 \cdot 10^{-6}$	Using resistance measurement system. Max applied current 2 A.
	10 mΩ	$11 \cdot 10^{-6}$	
	100 mΩ	$3,6 \cdot 10^{-6}$	
	1 Ω	$0,8 \cdot 10^{-6}$	
	10 Ω	$1,1 \cdot 10^{-6}$	
	100 Ω	$0,8 \cdot 10^{-6}$	
	1 kΩ	$1,4 \cdot 10^{-6}$	
	10 kΩ	$1,4 \cdot 10^{-6}$	
	100 kΩ	$4,8 \cdot 10^{-6}$	
	1 MΩ	$9,6 \cdot 10^{-6}$	
	10 MΩ	$15 \cdot 10^{-6}$	
	100 MΩ	$15 \cdot 10^{-6}$	
Resistance (2-wire) (Measure)	10 Ω	$25 \cdot 10^{-3}$	Using digital multimeter 8 ½ digit.
	100 Ω	$2,5 \cdot 10^{-3}$	
	1 kΩ	$0,26 \cdot 10^{-3}$	
	10 kΩ	$36 \cdot 10^{-6}$	
	100 kΩ	$13 \cdot 10^{-6}$	
	1 MΩ	$17 \cdot 10^{-6}$	
	10 MΩ	$60 \cdot 10^{-6}$	
	100 MΩ	$51 \cdot 10^{-5}$	
	1GΩ	$5,0 \cdot 10^{-3}$	

* *Where uncertainty is accompanied by the corresponding unit, it is absolute, while where it is not accompanied by a unit, it is relative*

The Calibration & Measurement Capability (CMC), includes the measured quantity, measurement range and measurement uncertainty and expresses the smallest measurement uncertainty that can be achieved during a calibration.

Permanent laboratory premises address: **Hellenic Air Force Police Military Camp, 16233 Vyronas**
Approved Signatories: **E. Artsitas, N. Andrianakis, T. Anagnostopoulos**

This scope of Accreditation replaces the previous one dated 06.03.2023.
The Accreditation Certificate No. **966**-4, to ELOT EN ISO/IEC 17025:2017, is valid until 22.01.2028.

Athens, 25.04.2025

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