Hellenic Accreditation System

Annex F2/3 to the Certificate No. **1035**-2

SCOPE of ACCREDITATION

of the

Calibration Laboratory

MATELEC METROLOGY DIVISION

Measurand / Calibration item	Range of measurement	Uncertainty * (Confidence level 95%)	Remarks
Electrical measurements			
DC Voltage / DC voltage meters	(0 – 0.2] V	4 μV + $17 \cdot 10^{-6} \cdot U$	Calibration using standard multifunction calibrator according to guide EURAMET cg-15 v.3.0 (2015).
	(0.2 - 2] V	8μV + $10.4 \cdot 10^{-6} \cdot U$	
	(2 – 20.2] V	29 μV + $9.2 \cdot 10^{-6} \cdot U$	
	(20.2 - 202] V	280 μV + $14 \cdot 10^{-6} \cdot U$	
	(202 - 1020] V	2.8 mV + $14 \cdot 10^{-6} \cdot U$	
		U: measured voltage	
DC Current / DC current meters	(0 – 0.2] mA	0.02 μA + $2 \cdot 10^{-4} \cdot I$	Calibration using standard multifunction calibrator according to guide EURAMET cg-15 v.3.0 (2015).
	(0.2 – 2] mA	0.04 μA + $6 \cdot 10^{-4} \cdot I$	
	(2 – 20.2] mA	0.3 μA + $0.6 \cdot 10^{-4} \cdot I$	
	(20.2 – 202] mA	3 μA + $0{,}6 \cdot 10^{-4} \cdot I$	
	(0.2 – 2] A	35 μA + $1{,}6 \cdot 10^{-4} \cdot I$	
	(2 – 20.2] A	400 μA + $4 \cdot 10^{-4} \cdot I$	
	(20.2 – 30] A	520 μA + $6 \cdot 10^{-4} \cdot I$	
		I: measured current	
Resistance/Resistance measuring instruments (4 / 2 wire)	(0 – 1] Ω	6 mΩ + $2 \cdot 10^{-4} \cdot R$	Calibration using standard multifunction calibrator according to guide EURAMET cg-15 v.3.0 (2015).
	(1 – 10] Ω	6 mΩ + $2 \cdot 10^{-4} \cdot R$	
	(10 – 100] Ω	6 mΩ + $0.6 \cdot 10^{-4} \cdot R$	
	(0.1 – 1] kΩ	50 mΩ + $0.5 \cdot 10^{-4} \cdot R$	
	(0.1 - 10] kΩ	0.5 Ω + $0.5 \cdot 10^{-4} \cdot R$	
	(10 - 100] kΩ	5 Ω + $0.5 \cdot 10^{-4} \cdot R$	
	(0.1 - 1] MΩ	46 Ω + $2 \cdot 10^{-4} \cdot R$	
	(1 - 10] MΩ	500 Ω + $4 \cdot 10^{-4} \cdot R$	
	(10 - 100] MΩ	5 kΩ + $6 \cdot 10^{-3} \cdot R$	
	(0.1 - 1] GΩ	50 kΩ + $20 \cdot 10^{-3} \cdot R$	

Measurand / Calibration item	Range of measurement	Uncertainty * (Confidence level 95%)	Remarks
		R: measured resistance	
AC Voltage / AC voltage measuring instruments	(0 - 0.2] V / [10 - 44] Hz	19 μV + 10·10^{-4}·U	Calibration using standard multifunction calibrator according to guide EURAMET cg-15 v.3.0 (2015).
	/ [45 - 999] Hz	19 μV + 2·10^{-4}·U	
	/ [1 - 20) kHz	39 μV + 2·10^{-4}·U	
	/ [20 - 100) kHz	46 μV + 20·10^{-4}·U	
	(0.2 - 2] V / [10 - 44] Hz	220 μV + 6·10^{-4}·U	
	/ [45 - 999] Hz	150 μV + 2·10^{-4}·U	
	/ [1 - 20) kHz	220 μV + 2.4·10^{-4}·U	
	/ [20 - 100) kHz	350 μV + 7.6·10^{-4}·U	
	(2 V - 20] V / [10 - 44] Hz	1.9 mV + 8·10^{-4}·U	
	/ [45 - 999] Hz	1.3 mV + 2·10^{-4}·U	
	/ [1 - 20) kHz	1.9 mV + 2.4·10^{-4}·U	
	/ [20 - 100) kHz	3.5 mV + 8·10^{-4}·U	
	(20 V - 202] V / [30 – 44] Hz	25 mV + 6·10^{-4}·U	
	/ [45 – 999] Hz	15 mV + 1.8·10^{-4}·U	
	/ [1 - 10) kHz	19 mV + 2·10^{-4}·U	
	/ [10 – 40] kHz	35 mV + 4·10^{-4}·U	
	(202 - 1020] V / [30 – 44] Hz	240 mV + 6.4·10^{-4}·U	
	/ [45 – 999] Hz	910 mV + 3·10^{-4}·U	
		U: measured voltage	
AC Current / AC current measuring instruments	[20 - 202] μA / [10 – 44] Hz	0.28 μA + 0.3·10^{-2}·I	Calibration using standard multifunction calibrator according to guide EURAMET cg-15 v.3.0 (2015).
	/ [45 – 999] Hz	0.18 μA + 0.12·10^{-2}·I	
	/ [1 – 10] kHz	0.28 μA + 1.0·10^{-2}·I	
	(0.2 - 2] mA / [10 – 44] Hz	0.29 μA + 0.3·10^{-2}·I	
	/ [45 – 999] Hz	0.3 μA + 0.10·10^{-2}·I	
	/ [1 – 10] kHz	0.4 μA + 0.6·10^{-2}·I	
	(2 -20.2] mA / [10 – 44] Hz	4 μA + 0.2·10^{-2}·I	
	/ [45 – 999] Hz	3 μA + 0.10·10^{-2}·I	
	/ [1 – 10] kHz	4 μA + 0.29·10^{-2}·I	
	(20.2 - 202] mA / [10 – 44] Hz	30 μA + 0.3·10^{-2}·I	
	/ [45 – 999] Hz	30 μA + 0.1·10^{-2}·I	
	/ [1 – 10] kHz	50 μA + 0.6·10^{-2}·I	
	(0.2 - 2] A / [10 – 44] Hz	350 μA + 0.3·10^{-2}·I	
	/ [45 – 999] Hz	250 μA + 0.1·10^{-2}·I	
	/ [1 – 10] kHz	460 μA + 0.6·10^{-2}·I	
	(2 -30] A / [30- 44] Hz	3.5 mA + 0.24·10^{-2}·I	
	/ [45 – 99] Hz	2.4 mA + 0.07·10^{-2}·I	
		I: measured current	

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

Site of assessment: **Permanent laboratory premises, Ghorfine-Jbeil-Lebanon, PO-BOX 10 Jbeil**

Approved Signatories: **T. A. Fadel**

This Scope of Accreditation replaces the previous one dated September 9th, 2020.
The Accreditation Certificate No. **1035**, to ELOT EN ISO/IEC 17025:2017, is valid until 19.04.2024.

Athens, October 14th, 2022

Christos Nestoras
CEO of ESYD