HELLENIC ACCREDITATION SYSTEM

# Annex F2/9 to the Certificate No. **1116**-4

# SCOPE of ACCREDITATION

of the

# Calibration Laboratory

of

# Hellenic Aerospace Industry (H.A.I.) S.A.

| Measured Quantity Instrument or Gauge | Range | Expanded Measurement Uncertainty (k=2)* | Remarks |
|---|---|---|---|
| Dimensional Measurements | | | |
| Length/ Gauge blocks of orthogonal cross-section made of Steel | [0,5 εως 25] mm | 0,12 μm | Calibration using Master Gauge Blocks & Mechanical Comparator<br>Procedure C0249 Calibration of Gaugeblocks |
| | (25 εως 50] mm | 0,17 μm | |
| | (50 εως 75] mm | 0,23 μm | |
| | (75 εως 100] mm | 0,28 μm | |
| Length/ Vernier Micrometers division 0,001 in or 0,0001 in | [0 to 5] in | 660 μin (division 0,001 in)<br>150 μin (division 0,0001 in) | Calibration using Master Gauge Blocks & Optical Flats<br>Procedure C0177 Calibration of Micrometers |
| Length/ Digital Micrometers division 0,00005 in | [0 to 1] in | 40 μin | |
| | (1 to 4] in | 110 μin | |
| | (4 to 5] in | 140 μin | |
| Length/ Digital calipers division 0,0005 in or 0,010 mm | [0 to 6] in | 0,00033 in ή 0,0060 mm | Calibration using Master Gauge Blocks<br>Procedure C0181 Calibration of Calipers |
| Length/ Vernier calipers division 0,001 in or 0,025 mm | | 0,00067 in ή 0,011 mm | |
| Length/ Dial calipers division 0,001 in | | 0,00042 in | |

| Measured Quantity | Range | Expanded Measurement | Remarks |
|---|---|---|---|

| Instrument or Gauge | | | Uncertainty (k=2)* | |
|---|---|---|---|---|
| Electrical Measurements | | | | |
| DC Voltage (Generation)/ DC Voltage Measuring Equipment | [0 to 100] mV | | $6{,}6 \cdot 10^{-7}$ V | According to Euramet Guideline cg-15 v.3.0: 2015, using a standard multifunction calibrator. |
| | (0,1 to 1] V | | $4{,}0 \cdot 10^{-6}$ V | |
| | (1 to 10] V | | $36 \cdot 10^{-6}$ V | |
| | (10 to 100] V | | $410 \cdot 10^{-6}$ V | |
| | (100 to 1000] V | | $7{,}5 \cdot 10^{-3}$ V | |
| DC Voltage (Measurement)/ DC Voltage Calibrators | [0 to 100] mV | | $600 \cdot 10^{-9}$ V/ | According Internal Procedure: C0250, using Standard Multimeter (Transfer Standard). |
| | (0,1 to 1] V | | $3{,}3 \cdot 10^{-6}$ V | |
| | (1 to 10] V | | $30 \cdot 10^{-6}$ V | |
| | 19 V | | $60 \cdot 10^{-6}$ V | |
| | (10 to 100] V | | $370 \cdot 10^{-6}$ V | |
| | (100 to 1000] V | | $7{,}0 \cdot 10^{-3}$ V | |
| AC Voltage (Generation) / AC Voltage Measuring Equipment | [0 to 100] mV | / | | According to Euramet Guideline cg-15 v.3.0: 2015, using a standard multifunction calibrator. |
| | | [40 to 1000] Hz | $17 \cdot 10^{-6}$ V | |
| | | (1 to 20] kHz | $16 \cdot 10^{-6}$ V | |
| | | (20 to 100] kHz | $70 \cdot 10^{-6}$ V | |
| | (0,1 to 1] V | / | | |
| | | [40 to 1000] Hz | $55 \cdot 10^{-6}$ V | |
| | | (1 to 20] kHz | $54 \cdot 10^{-6}$ V | |
| | | (20 to 100] kHz | $57 \cdot 10^{-6}$ V | |
| | (1 to 10] V | / | | |
| | | [40 to 1000] Hz | $600 \cdot 10^{-6}$ V | |
| | | (1 to 20] kHz | $600 \cdot 10^{-6}$ V | |
| | | (20 to 100] kHz | $700 \cdot 10^{-6}$ V | |
| | (10 to 100] V | / | | |
| | | [40 to 1000] Hz | $4{,}5 \cdot 10^{-3}$ V | |
| | | (1 to 20] kHz | $4{,}0 \cdot 10^{-3}$ V | |
| | | (20 to 100] kHz | $11 \cdot 10^{-3}$ V | |
| | (100 to 600] V | / | | |
| | | [40 to 1000] Hz | $120 \cdot 10^{-3}$ V | |
| AC Voltage (Measurement)/ AC Voltage Calibrators | (0 to 1] mV | / | | According Internal Procedure: C0250, using Standard Multimeter (Transfer Standard). |
| | | [1 to 10) kHz | $3{,}50 \cdot 10^{-6}$ V | |
| | | [10 to 20] kHz | $3{,}50 \cdot 10^{-6}$ V | |
| | (1 to 10] mV | / | | |
| | | [40 to 1000) Hz | $3{,}0 \cdot 10^{-6}$ V | |
| | | [1 to 10) kHz | $3{,}0 \cdot 10^{-6}$ V | |
| | | [10 to 20] kHz | $3{,}3 \cdot 10^{-6}$ V | |
| | | (20 to 100] kHz | $6{,}0 \cdot 10^{-6}$ V | |
| | | (100 to 300] kHz | $8{,}0 \cdot 10^{-6}$ V | |
| | | (0,3 to 1] MHz | $13 \cdot 10^{-6}$ V | |
| | (10 to 100] mV | / | | |
| | | [40 to 1000) Hz | $13{,}0 \cdot 10^{-6}$ V | |
| | | [1 to 10) kHz | $10{,}5 \cdot 10^{-6}$ V | |
| | | [10 to 20] kHz | $14 \cdot 10^{-6}$ V | |
| | | (20 to 100] kHz | $40 \cdot 10^{-6}$ V | |
| | | (100 to 300] kHz | $62 \cdot 10^{-6}$ V | |
| | | (0,3 to 1] MHz | $106 \cdot 10^{-6}$ V | |
| | (0,1 to 1] V | / | | |
| | | [40 to 1000) Hz | $30 \cdot 10^{-6}$ V | |
| | | [1 to 10) kHz | $29 \cdot 10^{-6}$ V | |
| | | [10 to 20] kHz | $29 \cdot 10^{-6}$ V | |
| | | (20 to 100] kHz | $55 \cdot 10^{-6}$ V | |
| | | (100 to 300] kHz | $130 \cdot 10^{-6}$ V | |
| | | (0,3 to 1] MHz | $630 \cdot 10^{-6}$ V | |
| | (1 to 10] V | / | | |
| | | [40 to 1000) Hz | $0{,}30 \cdot 10^{-3}$ V | |
| | | [1 to 10) kHz | $0{,}30 \cdot 10^{-3}$ V | |

| | | | | |
|---|---|---|---|---|
| | | [10 to 20] kHz | $0{,}30 \cdot 10^{-3}$ V | |
| | | (20 to 100] kHz | $0{,}48 \cdot 10^{-3}$ V | |
| | | (100 to 300] kHz | $1{,}3 \cdot 10^{-3}$ V | |
| | | (0,3 to 1] MHz | $6{,}4 \cdot 10^{-3}$ V | |
| | 19 V | / | | |
| | | 1 kHz | $0{,}54 \cdot 10^{-3}$ V | |
| | (10 to 100] V | / | | |
| | | [40 to 1000) Hz | $4{,}1 \cdot 10^{-3}$ V | |
| | | [1 to 10) kHz | $3{,}3 \cdot 10^{-3}$ V | |
| | | [10 to 20] kHz | $3{,}3 \cdot 10^{-3}$ V | |
| | | (20 to 100] kHz | $9{,}3 \cdot 10^{-3}$ V | |
| | (100 to 1000] V | / | | |
| | | [40 to 1000) Hz | $112 \cdot 10^{-3}$ V | |
| | | [1 to 20] kHz | $112 \cdot 10^{-3}$ V | |
| | | (20 to 30] kHz | $112 \cdot 10^{-3}$ V | |
| DC Current (Generation) / DC Current Measuring Equipment | (10 to 100] μA | | $7{,}0 \cdot 10^{-9}$ A | According to Euramet Guideline cg-15 v.3.0: 2015, using a standard multifunction calibrator. |
| | (0,1 to 1] mA | | $35 \cdot 10^{-9}$ A | |
| | (1 to 10] mA | | $22 \cdot 10^{-8}$ A | |
| | (10 to 100] mA | | $3{,}0 \cdot 10^{-6}$ A | |
| | (0,1 to 1] A | | $43 \cdot 10^{-6}$ A | |
| | (1 to 2] A | | $93 \cdot 10^{-6}$ A | |
| DC Current (Measurement) / DC Current Calibrators up to 10A | (10 to 100] μA | | $3{,}5 \cdot 10^{-9}$ A | According Internal Procedure: C0250, using Standard Multimeter (Transfer Standard). |
| | (0,1 to 1] mA | | $22 \cdot 10^{-9}$ A | |
| | (1 to 10] mA | | $190 \cdot 10^{-9}$ A | |
| | (10 to 100] mA | | $2{,}4 \cdot 10^{-6}$ A | |
| | (0,1 to 1] A | | $38 \cdot 10^{-6}$ A | |
| | (1 to 10] A | | $0{,}90 \cdot 10^{-3}$ A | |
| AC Current (Generation) / AC Current Measuring Equipment | (0 to 10] mA | / | | According to Euramet Guideline cg-15 v.3.0: 2015, using a standard multifunction calibrator. |
| | | [40 εως 1000] Hz | $1{,}5 \cdot 10^{-6}$ A | |
| | (10 to 100] mA | / | | |
| | | [40 εως 1000] Hz | $13 \cdot 10^{-6}$ A | |
| | (0,1 to 1] A | / | | |
| | | [40 εως 1000] Hz | $320 \cdot 10^{-6}$ A | |
| AC Current (Measurement) / AC Current Calibrators up to 10 A | (0 to 100] μA | / | | According Internal Procedure: C0250, using Standard Multimeter (Transfer Standard). |
| | | [40 έως 1000] Hz | $12{,}5 \cdot 10^{-9}$ A | |
| | (0,1 to 1] mA | / | | |
| | | [40 έως 1000] Hz | $120 \cdot 10^{-9}$ A | |
| | (1 to 10] mA | / | | |
| | | [40 έως 1000] Hz | $1{,}2 \cdot 10^{-6}$ A | |
| | (10 to 100] mA | / | | |
| | | [40 έως 1000] Hz | $12 \cdot 10^{-6}$ A | |
| | (0,1 to 1] A | / | | |
| | | [40 έως 1000] Hz | $145 \cdot 10^{-6}$ A | |
| | (1 to 10] A | / | | |
| | | [40 έως 1000] Hz | $4{,}0 \cdot 10^{-3}$ A | |
| Current shunt | 0,001 Ω | | $0{,}2 \cdot 10^{-6}$ Ω | Comparative calibration method using standard current shunt and digital multimeter. Procedure C0192 Calibration of Current Shunts |
| | 0,01 Ω | | $0{,}50 \cdot 10^{-6}$ Ω | |
| | 0,1 Ω | | $2{,}8 \cdot 10^{-6}$ Ω | |
| | 1 Ω | | $15 \cdot 10^{-3}$ Ω | |
| | 10 Ω | | $3{,}0 \cdot 10^{-2}$ Ω | |

| | | | |
|---|---|---|---|
| Resistance/ Calibration of Resistors | 100 Ω | $3{,}0 \cdot 10^{-2}$ Ω | Comparative calibration method using standard resistors and Ratio bridge. Procedures C0185 & C0186 Calibration of Resistors ≥ 1 Ω |
| | 1 kΩ | $3{,}0 \cdot 10^{-2}$ Ω | |
| | 10 kΩ | $3{,}0 \cdot 10^{-2}$ Ω | |
| | 100 kΩ | $24 \cdot 10^{-2}$ Ω | |
| | 1 MΩ | 2,6 Ω | |
| | 10 MΩ | 30 Ω | |
| Resistance (Generation) / Resistance Measuring Equipment | 10 Ω | $0{,}5 \cdot 10^{-3}$ Ω | According to Euramet Guideline cg-15 v.3.0: 2015, using a standard multifunction calibrator. |
| | 100 Ω | $1{,}0 \cdot 10^{-3}$ Ω | |
| | 1 kΩ | $7{,}5 \cdot 10^{-3}$ Ω | |
| | 10 kΩ | $80 \cdot 10^{-3}$ Ω | |
| | 100 kΩ | 2,5 Ω | |
| | 1 MΩ | 20 Ω | |
| | 10 MΩ | 400 Ω | |
| Resistance (Measurement) / Resistance Calibrators | (0 to 10] Ω | $150 \cdot 10^{-6}$ Ω | According Internal Procedure: C0250, using Standard Multimeter (Transfer Standard). |
| | (10 to100] Ω | $0{,}9 \cdot 10^{-3}$ Ω | |
| | (0,1 to 1] kΩ | $5{,}5 \cdot 10^{-3}$ Ω | |
| | (1 to 10] kΩ | $55 \cdot 10^{-3}$ Ω | |
| | (10 to 100] kΩ | $950 \cdot 10^{-3}$ Ω | |
| | (0,1 to 1] MΩ | 16 Ω | |
| | (1 to 10] MΩ | 270 Ω | |

** Where expanded uncertainty (with a probability of 95% coverage) 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: **P.O. Box 23, GR 320 09, Schimatari Viotoias.**
Approved Signatories: **K. Vechlivanos, D. Grimanelis**

This Scope of Accreditation replaces the previous one dated 24.02.2026.
The Accreditation Certificate No. **1116**-4, to ELOT EN ISO/IEC 17025:2017, is valid until 26.02.2031.

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