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Certificate #L2216

Calibration Certificate

#2190116

(Level 3) ISO/IEC 17025:2017 Accredited Calibration with Measurement Uncertainty

Customer

*Illiana Instrumentation Service LLC
 (7954)
 1831 Govert Drive
 Schererville, Indiana 46375
 PO Number: 4227*

Instrument Profile

*Manufacturer: Rotronic
 Model: HYGROPALM HP22-A
 Asset ID: 1653
 Serial: 61626838
 Description: Thermohygrometer*

Calibration Information

†Requested Interval: 2 Years	Batch #: 1911834
Calibration Date: 08/19/2021	Calibration Location: Indiana Thermodynamics Lab
†Due Date: 08/19/2023	Calibration Procedure: CP-0225
Temperature: 72.7 °F (22.6 °C)	Relative Humidity: 41.8 %

Previously Limited: Yes

Instrument Condition

*As Received: In Tolerance - Previously Limited Calibration
 As Returned: In Tolerance - Limited Calibration - See Technician Remarks for details.
 Tolerance(s): Manufacturer specification(s) unless otherwise specified.
 Phys. Damage: No apparent evidence of physical or cosmetic damage noted during this calibration.*

Quality & Traceability Statements

Level 3 Calibration

The results reported herein apply only to the calibration of the item described above. All calibration standards used in this calibration are traceable to the International System of Units (SI) through NIST or equivalent National Measurement Institute signatories to the CIPM MRA. Supporting documentation relating to this traceability is initiated by the Trace Number listed in the Calibration Standards section of this certificate. Additional documentation is available for review by a scheduled appointment. Our Quality System is accredited to ISO/IEC 17025:2017, ANSI/NCSL Z540-1:1994 and ANSI/NCSL Z540.3:2006 via the ANSI-ASQ National Accreditation Board. Details of our scope of accreditation are available at www.anab.org.

†Per the requirements of ISO-17025:2017, Cal Lab does not make recommendations for recall therefore the listed Due Date is dictated by the owner of this equipment. Although the item calibrated meets the conditions or specifications at the time of the calibration, due to a number of factors the due date of the item calibrated does not imply continuing conformance during the calibration interval.

The parameters of this calibration are directly or indirectly covered under our current scope of accreditation unless otherwise noted. The reported expanded uncertainty of measurement is reported at a coverage factor of k=2, which for a normal distribution corresponds to a coverage of approximately 95%. The EMU does include the resolution of the instrument calibrated, which in some cases, may be a dominate source of error, but does not include Type A contributors (repeatability/reproducibility studies) of the instrument calibrated unless specifically requested by the customer. The uncertainty values reflect the measurement processes uncertainty and may not reflect the measurement uncertainty listed on our scope of accreditation. The reported measurement uncertainty is not considered (i.e. measured value ± EMU) when making statements of compliance to specification (i.e. In tolerance, OOT, Pass/Fail, etc.) unless requested by the customer.

For purposes of determining conformance with the listed specifications (tolerances), the observed value or a calculated value has been rounded "to the nearest unit" in the last right-hand digit used in expressing the specification limit, in accordance with the rounding method of ASTM Practice E 29 for Using Significant Digits in Test Data to Determine Conformance with Specifications.

This certificate may contain calibration data with results listed as either Pass or Fail. These attributes are typically listed as a functional check based on an applied measurand or verification, however, this is strictly Qualitative and should not be interpreted as a Quantitative measurement.

Airel Estrella

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E. Guess

Review & Approval
 Esther Guess
 Quality Manager
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Calibration Standard(s)

Description	Manufacturer	Model	ID#	Due Date	Traceability #
Thermohygrometer, (Environmental Only)	Dickson	TM320	2316	08/31/2021	2186366
Dual-Pressure Humidity Generator	Thunder Scientific	2500 LT	2494	09/30/2021	2185706

Indicates that this equipment is only used to monitor & record environmental conditions as listed in the Calibration Information Section.

Technician Remarks

Limited Calibration: Single point temperature calibration at 25 °C. Relative Humidity is calibrated throughout its range.

The meter and probe are calibrated as a system.

Calibration Data (Custom*)

>>> For quick review, any Function/Attribute with an Out-of-Tolerance reading (OOT) has been highlighted. <<<

Function / Attribute	Nominal Value	As Found	OOT	As Left	OOT	Tolerance*
Temperature	25.00 °C	24.90		24.90		24.66 to 25.34 °C [EMU 0.14 °C]
Humidity	10.00 %RH	11.10		11.10		8.79 to 11.21 %RH [EMU 0.59 %RH]
Humidity	50.00 %RH	50.00		50.00		48.79 to 51.21 %RH [EMU 0.70 %RH]
Humidity	80.00 %RH	78.80		78.80		78.79 to 81.21 %RH [EMU 0.78 %RH]

*Custom Datasheet:

Due to various reasons, the Tolerance(s) and/or Nominal(s) listed have been defined by the representative of Illiana Instrumentation Service LLC (7954). Objective evidence is maintained on file if provided by the client or provided verbally at the time of calibration in which this record maintains historically.

*Tolerance Reference:

Custom test points of 25 °C, 10 %RH, 50 %RH, and 80 %RH at manufacturer's specifications.