VAISALA Certificate of Calibration

Certificate #:	161130-HMP110-M7654321
Calibration Date:	November 30, 2016
Type:	Vaisala Humidity & Temperature Transmitter
Model #:	HMT120/HMP110
Serial #:	M1234567/M7654321
SR #:	NA
Asset #:	123

ACCREDITED

Calibration - Certificate No: 2083.01

Customer:
Sample Inc.
123 Sample Rd.
Sample, MA 01234

Condition: The instrument was operational upon receipt.

Action Taken: The instrument was adjusted and calibrated.

Date Received: November 29, 2016
Due Date: * November 30, 2017

RH Calibrated By:

Dan Soave
Quality Manager

Approved By:

The measurement results on the certificate are traceable to the SI via NIST or another National Metrology Institute. The results of this calibration relate only to the items being calibrated. This certificate may not be reproduced, except in full, without the prior written approval of the issuing laboratory. The certificate and all measurements (unless otherwise specified) comply with the requirements of ISO/IEC 17025:2005.

The calibration laboratory is controlled at 22 °C ± 3 °C and 40 %RH ± 20 %RH.

Special Limitations: None.

*Any due date given is based on a customer provided calibration interval. A number of factors may cause drift prior to the due date. Monitor all devices and calibrate when measurement error is suspected.

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Accredited Relative Humidity Calibration

Procedure #: PI213878 Rev. I
Instrument Range: 0 to 100 %RH
Lab Environment: Relative Humidity 36.6 %RH, Temperature 22.4 °C

As Found Data

Out Of Tolerance As Received: NO

Relative Humidity, %RH				
Reference Mean	**Unit Under Test Mean**	**Error**	**± Tolerance**	**± Uncertainty**
11.50	11.53	0.03	1.70	0.42
30.14	29.99	-0.15	1.70	0.60
50.15	49.94	-0.21	1.70	0.77
80.11	79.42	-0.69	1.70	0.79
Temperature, °C				
Reference Mean	**Unit Under Test Mean**	**Error**	**± Tolerance**	**± Uncertainty**
22.03	21.97	-0.06	0.20	0.13

As Left Data

Relative Humidity, %RH				
Reference Mean	**Unit Under Test Mean**	**Error**	**± Tolerance**	**± Uncertainty**
11.50	11.65	0.15	1.70	0.42
30.10	30.17	0.07	1.70	0.60
50.10	50.35	0.25	1.70	0.77
80.10	80.25	0.15	1.70	0.79
Temperature, °C				
Reference Mean	**Unit Under Test Mean**	**Error**	**± Tolerance**	**± Uncertainty**
22.05	22.02	-0.03	0.20	0.13

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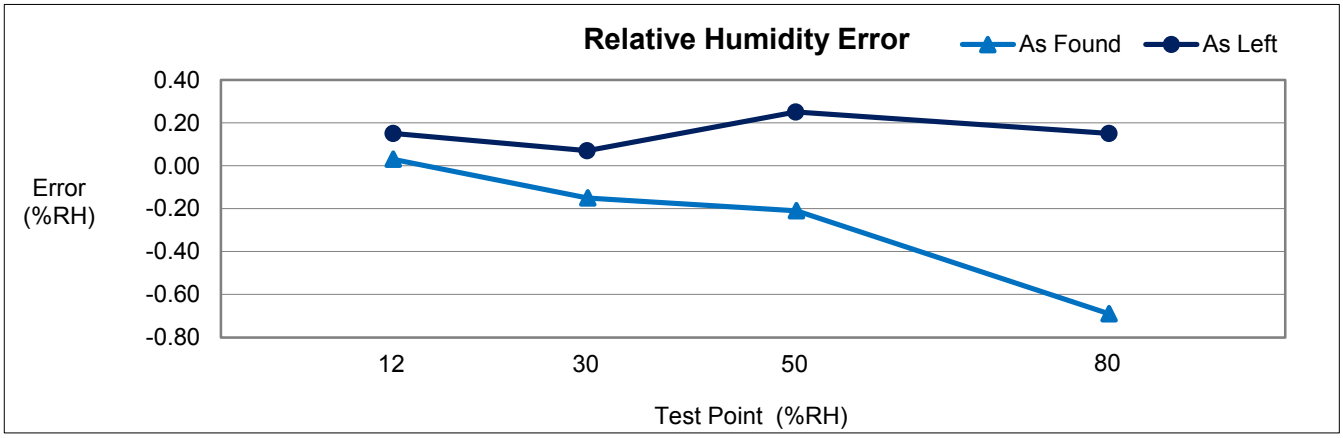
Accredited Relative Humidity Calibration



Reference Standards Calibration Information				
Model	**Serial Number**	**Asset Number**	**Calibration Date**	**Due Date**
Thunder Scientific 2500	1007799	5011-0089	Jun. 02, 2016	Jun. 02, 2017
Agilent 34970A	MY44081004	3011-0377	Jun. 01, 2016	Jun. 01, 2017

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Description

The calibration was performed in the Calibration Standards Laboratory of Vaisala, Inc. The instrument was first allowed to equilibrate to the laboratory environmental conditions for a period of at least 8 hours.

Relative Humidity Calibration: The sensor of the instrument was placed in the chamber of a Thunder Scientific 2500. The instrument was allowed to stabilize at each testpoint.

References

The Thunder Scientific 1200/2500 Two-Pressure Humidity Generator saturates a continuous stream of air with water vapor at a controlled pressure and temperature. The saturated high-pressure air then passes through an expansion valve to generate a specific humidity at the chamber pressure and temperature.

Measurement results

At least ten consecutive pairs of reference and unit under test measurements were recorded at each testpoint. Each measurement result on the certificate is the average of this set of readings.

In or Out of Tolerance Decision Rule

Out of tolerance conditions are determined by the product specification only. The calibration uncertainty is not tied in with the instrument's accuracy.

Uncertainty

The reported expanded uncertainty of the measurement is stated as the standard uncertainty of the measurement multiplied by the coverage factor of k=2, which corresponds to a coverage probability of approximately 95%. The standard uncertainty of the measurement has been determined in accordance with the ISO Guide to the Expression of Uncertainty in Measurement.

DOC228428 Rev. D