



Southwest Research Institute
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Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

31 May 2002

Issued to: CYNTHIA DINWIDDIE DIV20 B189
Manufacturer/Model: VAISALA HM34C
Description: HUMIDTY/ TEMPERATURE METER
Serial Number: X2020010
Asset Number: 009456
Work Order Number: 444048797

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 75.0 Degrees Fahrenheit Humidity: 53 % RH

Calibration Date: 31 May 02 **Calibration Procedure:** CL-13, 5/99

Condition as Received: IN TOLERANCE

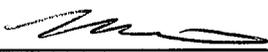
Condition as Returned: IN TOLERANCE

Remarks:

Approved by:


Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:


Roger Dykstra, Technician

Southwest Research Institute
Calibration laboratory
Calibration Sheet.

Work Order: 444048797

Mfr. Vaisala

Technician R Dykstra

Asset No. 009456

Model HM34

Procedure CL-13, 5/99

Serial No. X2020010

Type. Humidity / Temp meter

Cal Date. 5/31/02

Remarks: The reported uncertainty is based on a standard uncertainty multiplied by a coverage Factor of k=2, which provides a level of confidence of approximately 95 %. The test limits are specified in the Manual. The Difference is equal to TI reading - Std reading.

The results can be Pass, Fail, or if blank "not determinable". If "not determinable" it is up to the end user to determine if results meet their needs.

Test Point %RH	TI Reading %RH	Difference %RH	Tolerance %RH	Uncertainty %RH	Results
35.0	35.5	0.5	2	0.5	Pass
50.0	50.0	0.0	2	0.5	Pass
79.9	79.4	-0.5	2	0.5	Pass

Test Point Degree C	TI Reading Degree C	Difference Degree C	Tolerance Degree C	Uncertainty Degree C	Results
21.6	21.6	0.0	2	0.2	Pass
15.7	15.6	-0.1	2	0.2	Pass
24.6	24.8	0.2	2	0.2	Pass



CALIBRATION CERTIFICATE

Instrument HM34C Humidity and temperature meter
Serial number X2020010
Manufacturer Vaisala Oyj, Finland
Calibration date 15th May 2002
Test procedure Doc210426-A

The above instrument was calibrated by comparing the relative humidity and temperature readings to two HMP233 factory working standards. At the time of shipment, the instrument described above met its operating specifications.

The relative humidity readings of the two HMP233 factory working standards have been calibrated at the Vaisala factory by using Hygro M-3 dewpoint meter. Hygro M-3 dewpoint meter has been calibrated at the NIST laboratories by using the NIST primary standard. The temperature readings of the two HMP233 factory working standards have been calibrated at Vaisala Measurement Standards Laboratory (MSL) by using the MSL working standard traceable to the NIST. MSL has been accredited by the FINAS according to the ISO/IEC 17025 (K008).

Calibration results

Reference humidity* % RH	Observed humidity % RH	Difference %RH	Permissible difference %RH
0.9	0.9	0.0	± 2.0
41.4	41.5	+ 0.1	± 2.0
69.9	69.9	0.0	± 2.0
Reference temperature* °C	Observed temperature °C	Difference °C	Permissible difference °C
+ 23.40	+ 23.50	+ 0.10	± 0.2

*Average of two references.

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
HMP233 / RH	623075	2002-04-10	H06-02150045
HMP233 / RH	P1740019	2002-04-10	H06-02150046
HMP233 / T	623075	2002-01-29	K008-K01291
HMP233 / T	P1740019	2002-01-29	K008-K01294
HYGRO M-3	0351095	2001-12-07	266299-02

Uncertainties (95 % confidence level, k=2)

Humidity ±1.0%RH @ 0...15%RH, ±1.5%RH @ 15...78%RH

Temperature ± 0.13 °C

Ambient conditions / Humidity 40 ± 5%RH, Temperature 23 ± 1 °C, Pressure 1009 ± 1 hPa.

For Vaisala Oyj

Hannele Jäppinen
Hannele Jäppinen

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Doc210425-A