VAISALA

Certificate report no. H45-20040026

CALIBRATION CERTIFICATE

Instrument Humidity and Temperature Probe HMP155
Serial number L0550630
Manufacturer Vaisala Oyj, Finland
Calibration date 23rd January 2020

The above instrument was calibrated by comparing the readings of the instrument to working standards of the manufacturer. The reference humidity was calculated from dewpoint temperature and temperature readings with the exception of the driest condition that was measured as relative humidity. Dewpoint temperature was measured with a 373 LHX dewpoint meter. Temperature and relative humidity were measured with two factory working standards. At the time of shipment, the instrument described above met its operating specifications.

The 373 LHX dewpoint meter has been calibrated at The measurement results are traceable to the international system of units (SI) through national metrology institutes (NIST USA, MIKES Finland, or equivalent) or ISO/IEC 17025 accredited calibration laboratories.. The temperature readings of the factory working standards have been calibrated at an ISO/IEC 17025 accredited calibration laboratory (FINAS), Vaisala Measurement Standards Laboratory (MSL) by using MSL working standards traceable to NIST. The relative humidity readings of the factory working standards have been calibrated at the Vaisala factory by using a 373 LHX dewpoint meter.

Humidity calibration results

Reference humidity	Reference temperature	Observed humidity	Observed probe temperature	Additional probe temperature	Humidity difference	Permissible difference
%RH	°C	%RH	°C	°C	%RH	%RH
+ 0.1	+ 22.05	0.0	-	+ 22.06	- 0.1	±1.0
+ 12.6	+ 22.03	+ 12.6	-	+ 22.04	0.0	± 1.0
+ 33.1	+ 22.03	+ 33.1	-	+ 22.03	0.0	± 1.0
+ 54.0	+ 22.02	+ 54.1	-	+ 22.03	+ 0.1	± 1.0
+ 75.0	+ 22.00	+ 75.3	-	+ 22.00	+ 0.3	± 1.0
+ 94.6	+ 22.01	+ 95.1	-	+ 22.00	+ 0.5	± 1.7

Temperature calibration results

Reference temperature	Observed probe temperature	Temperature difference		Additional probe temperature	Temperature difference	Permissible difference
°C	°C	°C		°C	°C	°C
+ 22.00	-	-		+ 22.00	0.00	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
373 LHX	07-1115	2019-06-28	M-19H028
PTU303	H0730005	2019-10-29	K008-C03679
HMT337	G0810118	2019-10-29	K008-C03680
PTU303 / RH	H0730005	2019-10-13	H45-19461011
HMT337 / RH	G0810118	2019-10-13	H45-19461012

Uncertainties (95 % confidence level, k=2)
Humidity ± 0.6%RH @ 0...40%RH, ± 1.0%RH @ 40...97%RH
Temperature ± 0.10 °C.
Ambient conditions / Humidity 28 ± 5%RH, Temperature 23 ± 1 °C, Pressure 1009 ± 1 hPa.

Technician

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Certificate report no. H45-20040017

CALIBRATION CERTIFICATE

before adjustment

Instrument	Humidity and Temperature Probe HMP155
Serial number	L0550630
Manufacturer	Vaisala Oyj, Finland
Calibration date	22nd January 2020

The above instrument was calibrated by comparing the readings of the instrument to working standards of the manufacturer. The reference humidity was calculated from dewpoint temperature and temperature readings with the exception of the driest condition that was measured as relative humidity. Dewpoint temperature was measured with a 373 LHX dewpoint meter. Temperature and relative humidity were measured with two factory working standards. The calibration results below were measured before any adjustments were made to the instrument.

The 373 LHX dewpoint meter has been calibrated at The measurement results are traceable to the international system of units (SI) through national metrology institutes (NIST USA, MIKES Finland, or equivalent) or ISO/IEC 17025 accredited calibration laboratories.. The temperature readings of the factory working standards have been calibrated at an ISO/IEC 17025 accredited calibration laboratory (FINAS), Vaisala Measurement Standards Laboratory (MSL) by using MSL working standards traceable to NIST. The relative humidity readings of the factory working standards have been calibrated at the Vaisala factory by using a 373 LHX dewpoint meter.

Humidity calibration results

Reference humidity	Reference temperature	Observed humidity	Observed probe temperature	Additional probe temperature	Humidity difference	Permissible difference
%RH	°C	%RH	°C	°C	%RH	%RH
+ 0.1	+ 22.01	+ 0.2	-	+ 21.98	+ 0.1	±1.0
+ 12.7	+ 22.00	+ 12.9	-	+ 21.98	+ 0.2	± 1.0
+ 33.1	+ 22.00	+ 33.1	-	+ 21.97	0.0	± 1.0
+ 54.3	+ 22.00	+ 54.3	-	+ 21.96	0.0	± 1.0
+ 75.0	+ 22.00	+ 75.0	-	+ 21.97	0.0	± 1.0
+ 94.6	+ 22.01	+ 94.7	-	+ 21.97	+ 0.1	± 1.7

Temperature calibration results

Reference temperature	Observed probe temperature	Temperature difference		Additional probe temperature	Temperature difference	Permissible difference
°C	°C	°C		°C	°C	°C
+ 22.00	-	-		+ 21.97	- 0.03	± 0.10

Equipment used in calibration

Type	Serial number	Calibration date	Certificate number
373 LHX	07-1115	2019-06-28	M-19H028
PTU303	H0730005	2019-10-29	K008-C03679
HMT337	G0810118	2019-10-29	K008-C03680
PTU303 / RH	H0730005	2019-10-13	H45-19461011
HMT337 / RH	G0810118	2019-10-13	H45-19461012

Uncertainties (95 % confidence level, k=2)
Humidity ± 0.6%RH @ 0...40%RH, ± 1.0%RH @ 40...97%RH
Temperature ± 0.10 °C.
Ambient conditions / Humidity 32 ± 5%RH, Temperature 22 ± 1 °C, Pressure 1012 ± 1 hPa.

Technician

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VAISALA

Service Report
Date
28.1.2020
Case #
00077723
Buyer's reference

STFC Rutherford Appleton Laboratory
Judith Jeffery

	Products	Serial number
1	HMP155	L0550630

Service(s) performed
Humidity Calibration, 6 Points

--Reason for return--
Calibration. Change to 0-5V for T and RH measurements, keeping the measurement range the same.

--Problem(s) found--
Filter dirty.

Action(s) taken
Porous PTFE filter replaced.
Analog output mode changed to 0-5V
Operation tested, adjustment made and calibrated.
Calibration certificates:
H45-20040017 (before adjustment) and
H45-20040026 (after adjustment) issued.

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