

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by AANDERSON, 6/24/02 11:30:55AM

|||||

Arrived 6/24/02

Work Order **444049110**

Asset No. 009502 Manufacturer COLE-PARMER

Model 4085

Equipment Type THERMOHYGROMETER

Control Company

Serial No. 21330180

Accessory No.

Interval 12 M

Calibration Procedure *Justin Ben*

Location

Div/Client DIV20

Custodian DARRELL DUNN

Mail Stop B57

Tel 6090

IN LINE

Special Instructions

Calibrate at 25°, 50°, 80° See Attached

Notify before adjustments or repairs. () Provide data with certificate () Certificate Typ. _____

Charge/Project No. 01402.561 1.20

Requester / Telephone JUSTIN LANDRY X2293

This information is correct for the work requested.

Justin Landry

WORK NOTES

Date	Hours	Remarks/Notes
<u>6/25</u>	<u>1.0</u>	<u><i>cal</i></u>
<u>6/26</u>	<u>1.0</u>	<u><i>cal</i></u>
<u>6/27</u>	<u>1.0</u>	<u><i>cal</i></u>

Date	Hours	Part Name	Part Number	Failure Description	Cost
<u>n/a</u>					

444049110

WORK SUMMARY

Failure Description n/a

Repair Action n/a

Tech R. Dyker Cal Hrs. 3.0 Repair Hrs. Parts Cost Temp 76 F Hum. 54 %

Standards Used CA04

Date Picked Up 7/10/2002

Picked Up By *Darrell Dunn*

Southwest Research Institute
Calibration Laboratory
Calibration Data Sheet

Work Order: 444049110	Manufacturer: Control Company	Technician: R Dykstra
Asset Number: 009502	Model: 4085	Procedure: Per Customer
Serial Number: 21330180	Type: Thermo-hygrometer	Calibration Date: 6/27/02

Remarks: The calibration points for this calibration were requested by the customer.

The measurement uncertainty for temperatures in the chamber that exceed +/- 10 C from ambient in the room cannot be determined. This is stated in the operations manual for the humidity standard. Ambient temperature for this test was 24.4 Degree C.

Temperature Tolerance: 0.2
Range: -40 to 60 Degree C

Applied Value Deg C	As Found Ind. Value (Deg C)	Difference	Instrument Tolerance	Measurement Uncertainty
25.1	25.10	0.00	0.2	0.2

Humidity Tolerance: 1.5
Range: 10 to 95 % RH

	Applied Value % RH	As Found Ind. Value (% RH)	Difference	Instrument Tolerance	Measurement Uncertainty
@ above	25	24.35	-0.65	1.5	0.5
Temperature	90	90.81	0.81	1.5	0.5

Temperature Tolerance: 0.2
Range: -40 to 60 Degree C

Applied Value Deg C	As Found Ind. Value (Deg C)	Difference	Instrument Tolerance	Measurement Uncertainty
48.9	47.68	-1.22	0.2	See Remarks

Humidity Tolerance: 1.5
Range: 10 to 95 % RH

	Applied Value % RH	As Found Ind. Value (% RH)	Difference	Instrument Tolerance	Measurement Uncertainty
@ above	25	25.79	0.79	1.5	0.5
Temperature	50	47.68	-2.32	1.5	0.5
	75	91.91	16.91	1.5	0.5
	90	100.00	10.00	1.5	0.5

Southwest Research Institute
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 Calibration Data Sheet

Work Order: 444049110	Manufacturer: Control Company	Technician: R Dykstra
Asset Number: 009502	Model: 4085	Procedure: Per Customer
Serial Number: 21330180	Type: Thermo-hygrometer	Calibration Date: 6/27/02

Temperature Tolerance: 0.2
 Range: -40 to 60 Degree C

Applied Value Deg C	As Found Ind. Value (Deg C)	Difference	Instrument Tolerance	Measurement Uncertainty
68.6	67.67	-0.93	0.2	See Remarks

Humidity Tolerance: 1.5
 Range: 10 to 95 % RH

	Applied Value % RH	As Found Ind. Value (% RH)	Difference	Instrument Tolerance	Measurement Uncertainty
@ above	25	26.37	1.37	1.5	0.5
Temperature	90	100.00	10.00	1.5	0.5

A/N: 9502
W/N: 49110

Special Instructions for Calibration.

Calibrations of Thermo hygrometers are to be done at these specific temperatures and humidity points.

TEMPERATURE (C)		% HUMIDITY	% HUMIDITY	% HUMIDITY	% HUMIDITY
25		25	90		
50		25	50	75	90
70 80		25	90		



Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

27 June 2002

Issued to: DARRELL DUNN DIV20 B57
Manufacturer/Model: CONTROL COMPANY 4085
Description: THERMOHYGROMETER
Serial Number: 21330180
Asset Number: 009502
Work Order Number: 444049110

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NC SL 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: 76.0 Degrees Fahrenheit Humidity: 54 % RH

Calibration Date: 27 Jun 02 **Calibration Procedure:** PER CUSTOMER

Condition as Received: SEE ATTACHED DATA

Condition as Returned: SEE ATTACHED DATA

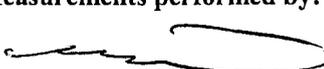
Remarks: SEE ATTACHED DATA SHEET FOR DATA AND UNCERTAINTY.

Approved by:



Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:



Roger Dykstra, Technician