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~~ Control Company Model 4085

Equipment Type THERMOHYGROMETER 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
6/25	1.0	cal
6/26	1.0	cal
6/27	1.0	cal

Date	Hours	Part Name	Part Number	Failure Description	Cost
n/a					

WORK SUMMARY

Failure Description n/a

Repair Action n/a

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

Standards Used CAL

Date Picked Up 7/10/2002 Picked Up By

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 Temperature	25	24.35	-0.65	1.5	0.5
	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 Temperature	25	25.79	0.79	1.5	0.5
	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

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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 Temperature	25	26.37	1.37	1.5	0.5
	90	100.00	10.00	1.5	0.5

A/N: 9502
W/N: 49110

Special Instructions for Calibration.

Calibrations of Thermohygrometers 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/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: 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