

# SOUTHWEST RESEARCH INSTITUTE

## Calibration Laboratory

### WORK ORDER

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

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Arrived 6/24/02

Work Order **444049109**

Asset No. 009503 Manufacturer COLE-PARMER

Model 4085

Equipment Type THERMOHYGROMETER <sup>Control Comp</sup>

Serial No. 21334995

Accessory No.

Interval 12 M

Calibration Procedure \_\_\_\_\_ 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.

### WORK NOTES

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

Date	Hours	Part Name	Part Number	Failure Description	Cost
<u>N/A</u>					

### WORK SUMMARY

Failure Description \_\_\_\_\_

Repair Action \_\_\_\_\_

Tech R. Myken Cal Hrs. 3.0 Repair Hrs \_\_\_\_\_ Parts Cost \_\_\_\_\_ Temp 76 F Hum. 54 %

Standards Used GA09

Date Picked Up 7/10/2002

Picked Up By [Signature]

**444049109**

Southwest Research Institute  
Calibration Laboratory  
Calibration Data Sheet

Work Order: 444049109	Manufacturer: Control Company	Technician: R Dykstra
Asset Number: 009503	Model: 4085	Procedure: Per Customer
Serial Number: 21334995	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	25.12	0.02	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	27.58	2.58	1.5	0.5
	90	95.18	5.18	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
49.24	47.60	-1.64	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	25.27	0.27	1.5	0.5
	50	53.99	3.99	1.5	0.5
	75	92.01	17.01	1.5	0.5
	90	100.00	10.00	1.5	0.5

Southwest Research Institute  
 Calibration Laboratory  
 Calibration Data Sheet

Work Order: 444049109	Manufacturer: Control Company	Technician: R Dykstra
Asset Number: 009503	Model: 4085	Procedure: Per Customer
Serial Number: 21334995	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	68.70	0.10	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	28.03	3.03	1.5	0.5
Temperature	90	100.00	10.00	1.5	0.5

A/N: 9503

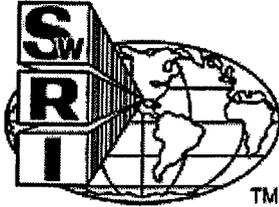
W/N: 49109

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
<del>70</del> <del>80</del>		25	90		

Per phone consult



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:** 21334995  
**Asset Number:** 009503  
**Work Order Number:** 444049109

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