

**GEOSCIENCES AND ENGINEERING DIVISION
NONCONFORMANCE REPORT**

Project No. OHD20.131

NCR No. 2007-11

PART 1: DESCRIPTION OF NONCONFORMANCE

Vaisala HMP77B Temp/%Rh Meter, s/n Y2830017, AN010302 is out of tolerance per SwRI Cal. Lab. Unit fails 20% relative humidity and 40% relative humidity while at a temperature of 70 degrees C.

Initiated by: Don Bannon

Date: 18May07

Action Required by: Miriam Juckett

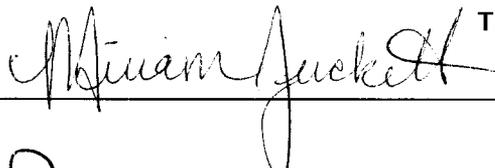
Response Due Date: 01June07

PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION

Disposition: No measurements were affected by this out of tolerance condition.

Basis of Disposition: The hygrometer probe was found to be out of tolerance at 70C. Instrument has not been used for quality affecting data since instrument was last calibrated.

Action to Correct Nonconformance: Adjustment by SwRI calibration lab to meet calibration specifications. Instrument is placed into service. If the instrument is not used and continues to fail calibration, it will be removed from service.

Proposed by: Miriam Juckett  Target date for completion: complete
Date: 5/23/07

PART 3: APPROVAL

Manager: E. C. [Signature] Date: 5/24/2007

Director of QA: [Signature] Date: 5/24/2007

Comments/Instructions:

PART 4: CLOSE OUT

Comments: None

Verified by: [Signature] Date: 5/24/07

Distribution:
Original-CENTER QA Records
ORIGINATOR
PRINCIPAL INVESTIGATOR
MANAGER
ASSISTANT DIRECTOR

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-3692

To: Don Bannon, Div 20, Ext 5118

From: Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Date: Apr. 11, 2007

Subject: Out-of-tolerance Notice

The purpose of this notice is to alert you of a condition, which may have caused erroneous measurements affecting safety or the quality of products or services your organization provides. The attached as-found readings are provided for your evaluation to determine if the instrument listed below had an impact and if further action is required.

When the as-found results are near the specification limit, +/- a margin less than the measurement uncertainty, it is not possible to state in-tolerance or out-of-tolerance with a 95% level of confidence. It is the Institute Calibration Laboratory policy that the client is made aware of this situation because the end-user is taking some of the risk that the instrument listed below may not meet the end-user measurement requirements.

Your review/evaluation should be conducted in accordance with your organizational quality policy and procedural requirements. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

Manufacturer: Vaisala **Model:** HMP77B

Description: Temperature/%Rh Meter

Serial Number: Y2830017

Asset Number: 10302 **User ID Number:**

Last Calibration: April 11, 2006

Date Received for Service: Mar. 30, 2007 **Work Order Number:** 303073844

Service Requested: Scheduled calibration

Remarks: Out of tolerance at 70°C. See Measurement Report

OUT OF TOLERANCE

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303073844	Mfr:	Vaisala	Technician:	blt
Asset No:	010302	Model:	HMP77B w- MI70 Meter	Cal Date:	10-Apr-07
Serial No:	Y2830017	Type:	Temp/Humidity Meter		
Remarks: Calibrated with Vaisala MI70 SN Y2540054					
Per customer Limits set to +/- 1.0°C					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found
Humidity	%RH	%RH	%RH	%RH	%RH	Result
at 25 °C	19.99	20.01	0.02	2.0	0.58	Pass
	40.08	40.55	0.47	2.0	0.58	Pass
	59.99	60.18	0.19	2.0	0.58	Pass
	78.96	79.95	0.99	2.0	0.58	Pass
Temperature	° C	° C	° C	° C	° C	
25 °C at %RH	25.057	24.85	-0.21	1	0.062	Pass
Set Points	25.131	24.95	-0.18	1	0.062	Pass
	25.167	24.98	-0.19	1	0.062	Pass
	25.171	25.00	-0.17	1	0.062	Pass
Humidity	%RH	%RH	%RH	%RH	%RH	
at 50 °C	20.01	19.70	-0.31	2.0	0.58	Pass
	40.00	40.76	0.76	2.0	0.58	Pass
	59.98	61.03	1.05	2.0	0.58	Pass
	79.97	80.00	0.03	2.0	0.58	Pass
Temperature	° C	° C	° C	° C	° C	
50 °C at %RH	48.954	48.27	-0.68	1	0.062	Pass
Set Points	49.016	48.34	-0.68	1	0.062	Pass
	49.071	48.44	-0.63	1	0.062	Pass
	49.142	48.69	-0.45	1	0.062	Pass
Humidity	%RH	%RH	%RH	%RH	%RH	
at 70 °C	20.01	20.13	0.12	2.0	0.58	Pass
	39.59	40.98	1.39	2.0	0.58	Pass
	59.90	60.66	0.76	2.0	0.58	Pass
	79.91	79.27	-0.64	2.0	0.58	Pass
Temperature	° C	° C	° C	° C	° C	
70 °C at %RH	67.975	66.70	-1.27	1	0.062	Fail
Set Points	67.872	66.84	-1.03	1	0.062	Fail
	67.746	66.94	-0.81	1	0.062	Pass
	68.401	67.92	-0.48	1	0.062	Pass

END OF REPORT



SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834



Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Submitted By: DIV20

Address: B57

Contact: DON BANNON

Manufacturer / Model: VAISALA / HMP77B

Description: HUMIDITY/TEMPERATURE PROBE

Serial No: Y2830017

Asset No: 010302

Procedure: HUMIDITY-DEW POINT - 19 MAY 2006

Work Order: 303073844

Date Issued: Apr 11, 2007

Calibration Date: Apr 10, 2007

***Calibration Due:** Apr 10, 2008

Calibration Location: Bldg. 64

Environment: Temp. 73.0°F Hum. 40 %RH

****Data Type:** AS-LEFT

DivID/Location: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

Remarks: CALIBRATED WITH VAISALA MI70 INDICATOR S/N Y2540054, AN 010323

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
009917	604420	HART SCIENTIFIC	5612	RTD	Sep 28, 07
012305	A51826	HART SCIENTIFIC	1502A	TEMPERATURE READOUT	Sep 28, 07
006404	9806123	THUNDER SCIENTIFIC	2500	HUMIDITY GENERATOR	Jun 06, 07

Scott Kuhn

Reviewed by: () wgh (✓) srk () jrg () blt () pwc

Metrology Technician

m:\a2la1.rpt Rev date August 15, 2005

Bob Trolling

Measurements by: Bob Trolling

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303073844	Mfr:	Vaisala	Technician:	blt
Asset No:	010302	Model:	HMP77B	w- MI70 Meter	
Serial No:	Y2830017	Type:	Temp/Humidity Meter	Cal Date:	10-Apr-07
Remarks: Calibrated with Vaisala MI70 SN Y2540054					
Per customer Limits set to +/- 1.0°C					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Left
Humidity	%RH	%RH	%RH	%RH	%RH	Result
at 25 °C	20.00	19.81	-0.19	2.0	0.58	Pass
	40.00	40.38	0.38	2.0	0.58	Pass
	60.06	60.26	0.20	2.0	0.58	Pass
	79.99	79.96	-0.03	2.0	0.58	Pass
Temperature	° C	° C	° C	° C	° C	
25 °C at %RH	25.156	25.17	0.01	1	0.062	Pass
Set Points	25.184	25.20	0.02	1	0.062	Pass
	25.199	25.21	0.01	1	0.062	Pass
	25.196	25.22	0.02	1	0.062	Pass
Humidity	%RH	%RH	%RH	%RH	%RH	
at 50 °C	20.00	19.27	-0.73	2.0	0.58	Pass
	40.00	39.81	-0.19	2.0	0.58	Pass
	60.00	59.89	-0.11	2.0	0.58	Pass
	79.86	78.95	-0.91	2.0	0.58	Pass
Temperature	° C	° C	° C	° C	° C	
50 °C at %RH	48.831	49.09	0.26	1	0.062	Pass
Set Points	48.958	49.24	0.28	1	0.062	Pass
	49.021	49.31	0.29	1	0.062	Pass
	49.092	49.44	0.35	1	0.062	Pass
Humidity	%RH	%RH	%RH	%RH	%RH	
at 70 °C	19.32	19.61	0.29	2.0	0.58	Pass
	40.00	40.63	0.63	2.0	0.58	Pass
	60.12	59.80	-0.32	2.0	0.58	Pass
	79.72	78.07	-1.65	2.0	0.58	Pass
Temperature	° C	° C	° C	° C	° C	
70 °C at %RH	67.978	68.11	0.13	1	0.062	Pass
Set Points	68.139	68.33	0.19	1	0.062	Pass
	68.085	68.68	0.60	1	0.062	Pass
	68.760	68.68	-0.08	1	0.062	Pass

END OF REPORT