SOUTHWEST RESEARCH INSTITUTE®

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Institute Quality Systems
Institute Calibration Laboratory
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Certificate of Calibration

ACCREDITED
Calibration Laboratory
Certificate #0972-01

Submitted By: DIV20
Address: B57
Contact: DON BANNON
Manufacturer / Model: OMEGA / HH22
Description: THERMOCOUPLE THERMOMETER
Serial No: T-94140
Asset No: 001997
Procedure: DIGITAL THERMOMETERS - 29 AUG 07

Work Order: 303077010
Date Issued: Oct 17, 2007
Calibration Date: Oct 17, 2007
***Calibration Due:** Apr 17, 2008
Calibration Location: Bldg. 64
Environment: Temp. 72.0°F Hum. 45 %RH
****Data Type:** FOUND-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: None

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
004164	6380025	FLUKE	5500A/SC300	CALIBRATOR	Aug 24, 08

Reviewed by: ( ) wgh ( ) srk ( ) jrg ( ) blt ( ) pwc
Metrology Technician

Measurements by: Joe Greagrey
Metrology Technician

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

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Calibration Laboratory
Measurement Report

Work Order	303077010	Mfr.	OMEGA	Technician	JRG
Asset No.	001997	Model	HH22		
Serial No.	T-94140	Type	Digital Thermometer	Cal Date	17-Oct-07
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
T1 Input	°F	°F	°F	°F	°F	Result
Type J	-300	-301.2	1.2	1.3	0.57	Pass
	110	109.5	0.5	1.1	0.31	Pass
	525	525.1	0.1	1.5	0.37	Pass
	940	940.4	0.4	1.9	0.37	Pass
	1350	1350.2	0.2	2.4	0.37	Pass
Type J	°C	°C	°C	°C	°C	
	-200	-200.6	-0.6	0.8	0.33	Pass
	40	39.8	-0.2	0.6	0.21	Pass
	275	275.2	0.2	0.9	0.32	Pass
	510	510.2	0.2	1.1	0.32	Pass
	750	750.0	0.0	1.4	0.32	Pass
Type K	°F	°F	°F	°F	°F	
	-300	-299.8	0.2	1.3	0.70	Pass
	390	390.2	0.2	1.4	0.55	Pass
	1075	1075.8	0.8	2.1	0.55	Pass
	1760	1761.0	1.0	2.8	0.55	Pass
	2450	2451.3	1.3	3.5	0.84	Pass
Type K	°C	°C	°C	°C	°C	
	-150	-150.0	0.0	0.8	0.40	Pass
	210	210.1	0.1	0.8	0.32	Pass
	575	575.5	0.5	1.2	0.32	Pass
	940	940.6	0.6	1.5	0.32	Pass
	1300	1300.8	0.8	1.9	0.47	Pass
T1Input -T2 Input		0.0	0.0	1.0	0.40	Pass
T2 Input	°F	°F	°F	°F	°F	
Type J	-300	-300.8	0.8	1.3	0.57	Pass
	110	109.8	0.2	1.1	0.31	Pass
	525	525.3	0.3	1.5	0.37	Pass
	940	940.5	0.5	1.9	0.37	Pass
	1350	1350.2	0.2	2.4	0.37	Pass
Type J	°C	°C	°C	°C	°C	
	-200	-200.4	-0.4	0.8	0.33	Pass
	40	39.9	-0.1	0.6	0.21	Pass
	275	275.2	0.2	0.9	0.32	Pass
	510	510.3	0.3	1.1	0.32	Pass
	750	750.1	0.1	1.4	0.32	Pass

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order	303077010	Mfr.	OMEGA	Technician	JRG
Asset No.	001997	Model	HH22		
Serial No.	T-94140	Type	Digital Thermometer	Cal Date	17-Oct-07

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
Type K	°F	°F	°F	°F	°F	Result
	-300	-299.6	0.4	1.3	0.70	Pass
	390	390.3	0.3	1.4	0.55	Pass
	1075	1076.0	1.0	2.1	0.55	Pass
	1760	1761.3	1.3	2.8	0.55	Pass
	2450	2451.6	1.6	3.5	0.84	Pass
Type K	°C	°C	°C	°C	°C	
	-150	-149.7	0.3	0.8	0.40	Pass
	210	210.2	0.2	0.8	0.32	Pass
	575	575.6	0.6	1.2	0.32	Pass
	940	940.6	0.6	1.5	0.32	Pass
	1300	1300.9	0.9	1.9	0.47	Pass

END OF REPORT