SOUTHWEST RESEARCH INSTITUTE®

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

Certificate of Calibration

A2LA ACCREDITED
Calibration Laboratory
Certificate #0972-01

Submitted By:	DIV20	**Work Order:**	303081685
Address:	B51	**Date Issued:**	Jun 24, 2008
Contact:	DON BANNON	**Calibration Date:**	Jun 24, 2008
Manufacturer / Model:	FISHER SCIENTIFIC / 15-078-39	***Calibration Due:**	Jun 24, 2009
Description:	DIGITAL THERMOMETER	**Calibration Location:**	Bldg. 64
Serial No:	41523645	**Environment:**	Temp. 74.0°F Hum. 40 %RH
Asset No:	011675	****Data Type:**	FOUND-LEFT
Procedure:	DIGITAL THERMOMETERS - 17 MAR 08	**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: ( ) srk (✓) mar ( ) wgh

Measurements by: Bob Trollinger
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303081685	Mfr:	Fisher Scientific	Technician:	blt
Asset No:	011675	Model:	15-078-39		
Serial No:	41523645	Type:	Thermocouple Thermometer	Cal Date:	24-Jun-08
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
T1 Input Type K	°C	°C	°C	°C	°C	Result
	-20	-20.3	-0.3	1.1	0.14	Pass
	0	0.2	0.2	1.0	0.14	Pass
	100	100.4	0.4	1.3	0.14	Pass
	700	702	2	3.1	0.60	Pass
	1150	1152	2	4.5	0.64	Pass
T2 Input Type K	°C	°C	°C	°C	°C	
	-20	-20.2	-0.2	1.1	0.14	Pass
	0	0.0	0.0	1.0	0.14	Pass
	100	100.3	0.3	1.3	0.14	Pass
	700	702	2	3.1	0.60	Pass
	1150	1152	2	4.5	0.64	Pass
T1 Input Type K	°F	°F	°F	°F	°F	
	-20	-20.3	-0.3	1.6	0.22	Pass
	32	32.3	0.3	1.6	0.20	Pass
	250	252	2	2.3	0.60	Pass
	700	699	-1	3.6	0.60	Pass
	1900	1902	2	7.2	0.80	Pass
T2 Input Type K	°F	°F	°F	°F	°F	
	-20	-20.3	-0.3	1.6	0.22	Pass
	32	32.3	0.3	1.6	0.20	Pass
	250	252	2	2.3	0.60	Pass
	700	699	-1	3.6	0.60	Pass
	1900	1902	2	7.2	0.80	Pass
Difference	°F	°F	°F	°F	°F	
T1-T2	0	0.0	0.0	1.5	.012	Pass
	°C	°C	°C	°C	°C	
T1-T2	0	0.0	0.0	1.0	.012	Pass

END OF REPORT