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

ACCREDITED
Calibration Laboratory
Certificate #0972-01

Cost Center / Customer: DIV20 / DON BANNON
Mail Stop: B51
Manufacturer/Model: OMEGA / DP465-KC-MDSSD
Description: TEMPERATURE METER
Serial Number: 3130900
Asset Number: 002524
Procedure: DIGITAL THERMOMETERS/MODULES - 10 MAY 10

Work Order: 30309553 1
Date Issued: 9-Aug-2010
Date Calibrated: 9-Aug-2010
*** Date Due :** 9-Feb-2011
**** Results:** AS-LEFT
Temperature: 72.0 °F
Humidity: 44 %RH
Barometer: 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. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: None

Standards Used

Asset #	Manufacturer	Model	Description	Cal Date	Due Date
004164	FLUKE	5500A/SC	CALIBRATOR	19-Oct-2009	19-Oct-2010

Walt Hill
Laboratory Manager

Joe Greagrey
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303095531	Mfr:	Omega	Technician:	blt
Asset No:	002524	Model:	DP465-KC-MDSSD	Type Data:	As-found
Serial No:	3130900	Type:	Temperature Meter	Cal Date:	16-Jul-10
Remarks:					

Function/Range	Test Point	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
Type K	°C	°C	°C	°C	°C		
Ch1	0	1	1	2	1.0	Pass	50%
	-200	-198	2		1.1	Pass?	100%
	320	321	1		1.2	Pass	50%
	840	841	1		1.2	Pass	50%
	1372	1373	1		1.1	Pass	50%
Ch2	1372	1373	1			Pass	50%
Ch3	1372	1373	1			Pass	50%
Ch4	1372	1373	1			Pass	50%
Ch5	1372	1373	1			Pass	50%
Ch6	1372	1373	1			Pass	50%
Ch7	1372	1373	1			Pass	50%
Ch8	1372	1373	1			Pass	50%
Ch9	1372	1373	1			Pass	50%
Ch10	1372	1373	1			Pass	50%

END OF REPORT

Bob Trollinger

From: Don Bannon [dbannon@cnwra.swri.edu]
Sent: Thursday, July 29, 2010 2:02 PM
To: 'Dymekia Brownlee'
Cc: 'Bob Trollinger'
Subject: RE: Asset Number: 002524/Omega DP465-KC-MDSSD Temp meter

Please see info. provided on electronic form, below. --Don

From: Dymekia Brownlee [mailto:dymekia.brownlee@swri.org]
Sent: Friday, July 16, 2010 10:37 AM
To: Don Bannon
Cc: 'Bob Trollinger'
Subject: Asset Number: 002524/Omega DP465-KC-MDSSD Temp meter

Institute Calibration Laboratory Memorandum

July 16, 2010

To: **Don Bannon**
Div 20, Ext 5118

From: **Bob Trollinger**
Institute Calibration Laboratory

Subject: Review of Work Request Number **303095531**

The work you requested is pending your response. Please review the information provided and respond with your approval or further instructions for work to proceed. Return a signed copy via mail to Cal Lab Bldg 64, FAX (522-4834) or reply to this email. If you have questions please call extension 5215.

Unit Received: July 13, 2010
Work Requested: Cal
Manufacturer: Omega
Model: DP465-KC-MDSSD
Description: Temperature Meter
Serial Number: 31330900
Asset Number: 002524
User ID:

Cause of Review: the unit is at 100 % of limit at the low end of the range -200 °C. Adjustment cannot correct the error. Recommend the unit test points be changed to the max used or the limits be extended to ±3°C. How do you wish to proceed.

If no reply is received within 15-working days this unit will be returned as-is without further action.

Approved ( ) Disapproved return unit as-is ( ) Date: __29 JUL 2010_____

Instructions ( ) _Please make -40 C the lowest temperature at which the instrument is calibrated.

This will be sufficient for most measurements in Div. 20.

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Authorized by _Don Bannon (electronic sig.) _____
Print or Type Name Signature

Thank you for your timely response,

Institute Calibration Laboratory
Ext.: 5215
Fax: 522-4834

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303095531	Mfr:	Omega	Technician:	JRG
Asset No:	002524	Model:	DP465-KC-MDSSD	Type Data:	As-left
Serial No:	3130900	Type:	Temperature Meter	Cal Date:	9-Aug-10
Remarks: Test points are per customer request.					

Function/Range	Test Point	TI Reading	Difference	± Limit	± Uncertainty	Result	% Limit
Type K	°C	°C	°C	°C	°C		
Ch1	-40	-39	1	2	1.0	Pass	50%
	100	101	1		1.1	Pass	50%
	320	321	1		1.2	Pass	50%
	840	841	1		1.2	Pass	50%
	1372	1373	1		1.1	Pass	50%
Ch2	1372	1373	1			Pass	50%
Ch3	1372	1373	1			Pass	50%
Ch4	1372	1373	1			Pass	50%
Ch5	1372	1373	1			Pass	50%
Ch6	1372	1373	1			Pass	50%
Ch7	1372	1373	1			Pass	50%
Ch8	1372	1373	1			Pass	50%
Ch9	1372	1373	1			Pass	50%
Ch10	1372	1373	1			Pass	50%

END OF REPORT