Mesa Laboratories, Inc.
12100 West 6th Ave., Lakewood, CO 80228

Certificate of Conformance

Customer: Mesa Laboratories, Inc.
Item: Thunder Scientific 2500 Humidity Generator
ID Number: TE10228
Serial Number: 9709106
Procedure: Thunder Scientific User Manual Section 4
Calibration Date: July 18, 2016
Cert. Number: 1022818JUL2016

This certifies that the above product was calibrated in compliance with ISO/IEC 17025 using applicable Mesa Laboratories procedures. This calibration is traceable to the National Institute of Standards and Technology.

On the date tested, the instrument met its published operating specifications.
The environment in which this instrument was calibrated is maintained within the operating specification of the instrument and the standards.

U (Measurement Uncertainty) is the RSS (root sum square) of the standard deviation of the UUT's errors over the test range, the UUT's resolution and the uncertainty of the standard used, with a coverage factor of k=2.

Lab Manager

Quality Manager

REPORT OF CALIBRATION

Item: Thunder Scientific 2500 Humidity Generator S/N 9709106 , ID# TE10228
Low Range Pressure Transducer, S/N 565342
High Range Pressure Transducer, S/N 564872

Low Pressure Calibration Required: As Received @ ambient, 30 & 50 psiA,
As Left @ ambient, 20, 30, 40 & 50 psiA.

High Pressure Calibration Required: As Received @ 50, 100 & 150 psiA,
As Left @ 50, 75, 100, 125 & 150 psiA.

Calibration Date: 21-June-2016 @ 10 :00 AM/PM
Ambient Conditions: 21.18 °C and 33.39 %RH
Test Medium: Air

Standards Used: TE 10572 calibration expires: 12-January -2017
±0.025% of reading uncertainty

As Received Data:

Low Pressure Transducer				High Pressure Transducer			
Test psiA	2500 psiA	Error psiA	*U* ± psiA	Test psiA	2500 psiA	Error psiA	*U* ± psiA
12.00	11.97	0.03	0.01	50.00	50.01	0.01	0.11
30.00	29.98	0.02	0.01	100.00	100.00	0.00	0.11
50.00	49.98	0.02	0.02	146.00	146.00	0.00	0.12

As Left Data:

Low Pressure Transducer				High Pressure Transducer			
Test psiA	2500 psiA	Error psiA	*U* ± psiA	Test psiA	2500 psiA	Error psiA	*U* ± psiA
12.00	12.00	0.00	0.01	50.00	49.99	0.01	0.02
20.00	19.99	0.01	0.01	75.00	74.99	0.01	0.02
30.00	30.00	0.00	0.01	100.00	99.99	0.01	0.03
40.00	40.00	0.00	0.01	125.00	124.99	0.01	0.04
50.00	50.00	0.00	0.02	146.00	146.00	0.00	0.04

Adjustments: New calibration coefficients were calculated and saved to memory

Manufacturer's specifications: ± 0.15% of full scale

As Received: Within Tolerance: YES
Operational Failure: NONE
Physical Damage: NONE

As Left: Within Tolerance: YES
Limited Range: NONE

Calibration Technician

Lab Manager

REPORT OF CALIBRATION

Item: Thunder Scientific 2500 Humidity Generator S/N 9709106, ID# TE 10228

Temperature Calibration Required: As Received @ 0, 35 & 70 °C
As Left @ 0,20,35,50 & 70 °C

Calibration Date: 8-June-2016 @ 9:22 AM/PM
Ambient Conditions: 23.56 °C and 30.50 %RH
Test Medium: Dimethyl Silicone Fluid

Standards Used: Hart TE 10344 calibration expires: 7/30/2016
Hart TE calibration expires:
±0.018 °C uncertainty

As Received Data:

Actual °C	Saturation °C	Error °C	Exp Valve °C	Error °C	Chamber °C	Error °C	*U* ± °C
70.314	70.340	0.026	70.350	0.036	70.340	0.026	0.04
35.335	35.340	0.005	35.340	0.005	35.340	0.005	0.04
0.317	0.3450	0.028	0.3360	0.019	0.3650	0.048	0.04

As Left Data:

Actual °C	Saturation °C	Error °C	Exp Valve °C	Error °C	Chamber °C	Error °C	*U* ± °C
70.328	70.32	0.0080	70.32	0.0080	70.32	0.0080	0.03
60.336	60.33	0.0060	60.33	0.0060	60.33	0.0060	0.03
50.332	50.33	0.0020	50.33	0.0020	50.33	0.0020	0.03
40.335	40.35	0.0150	40.35	0.0150	40.35	0.0150	0.03
30.333	30.32	0.0130	30.32	0.0130	30.32	0.0130	0.03
20.328	20.32	0.0080	20.32	0.0080	20.32	0.0080	0.03
10.323	10.330	0.0070	10.330	0.0070	10.330	0.0070	0.03
0.317	0.3098	0.0072	0.3101	0.0069	0.3530	0.0360	0.03

Adjustments: New calibration coefficients were calculated and saved to memory
Note: As per manufacturer's instructions the Presat temperature was not calibrated.

Manufacturer's specifications: ± 0.06 °C

As Received: Within Tolerance: YES
Operational Failure: NONE
Physical Damage: NONE

As Left: Within Tolerance: YES
Limited Range: NONE

Calibration Technician

Lab Manager

Setpoints° C			
70	0.000676	0.001296	0.000676
30	2.5E-05	2.5E-05	2.5E-05
0	0.000784	0.000361	0.002304
	0.022249	0.023678	0.031649

Setpoints° C			
70	6.4E-05	6.4E-05	6.4E-05
60	3.6E-05	3.6E-05	3.6E-05
50	4E-06	4E-06	4E-06
40	0.000225	0.000225	0.000225
30	0.000169	0.000169	0.000169
20	6.4E-05	6.4E-05	6.4E-05
10.000	4.9E-05	4.9E-05	4.9E-05
0.0000	5.18E-05	4.76E-05	0.001296
	0.009102	0.009073	0.015439