



Guaranteed Effortless Control

ISO9001
CERTIFIED

July 3, 2025

DriveSavers, Inc
400 Bel Marin Keys Blvd.
Novato, CA 94949

Doc#: Drivesavers.06.2025.ISO-RPT.R0

Environmental Testing was performed in the following cleanroom areas at
DriveSavers, Inc., on June 25th, 2025.

AREA	CLASSIFICATION	SQ. FOOTAGE	RESULT
Cleanroom A	ISO Class 5	440	Compliant
Cleanroom B	ISO Class 5	630	Compliant

Measurements were made to determine airborne particle concentrations, airflow velocities, room differential air pressure and temperature and humidity.

All measurements are made in accordance with ISO 14644-1 2015, ISO 14644-2: 2015, or ISO 14644-3: 2019 applicable standards, methods, and practices currently in effect. By issuing this report, Advanced Cleanroom Microclean Corporation accepts full responsibility for the accuracy of measurements and reported results at the time the measurements are made. This report and original data on file shall remain proprietary to DriveSavers, Inc

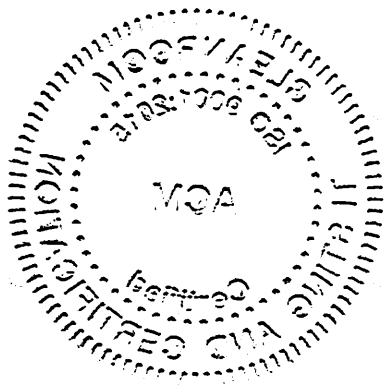
Measurements and data recording are made by Manuel Perezmarcial.

Please feel free to call anytime if you have any questions regarding this report.

Sincerely,
ADVANCED CLEANROOM MICROCLEAN CORPORATION.

Saumolia Amisone





1 ACM Testing Parameters

1.1 Airborne Particle Count

PURPOSE: To measure the particle levels in the cleanroom in order to maintain compliance of ISO 14644-1:2015 and in accordance to ISO 14644-2:2015

INSTRUMENTATION: Particle Counter - Calibration documents on equipment used for certification are attached to the report. DPC must meet ISO 21501-4:2018 calibration requirements per ISO 14644-1:2015

PROCEDURES: Divide the Cleanroom work zone into grids of equal proportion and plot the sample locations according to room class and standard used to classify the cleanroom. Place the particle counter probe and take samples perpendicular to the airflow at working height. Record and report data for each considered particle size for the designated classification. The following procedure is listed in ISO 14644-1:2015 Annex A

Install the particle counter intake at the specified sampling location, and set up the flow rate at 1.0 CFM for a duration of one minute per location. Select the particle size threshold(s) in accordance with ISO 14644-1:2015. A sampling probe should be selected to permit close to isokinetic sampling in areas with unidirectional flow. The sample probe velocity should not differ from sampled air velocity by more than 20 %. If this is not possible, set the sampling probe inlet facing into the predominant direction of the airflow; in locations where sampled airflow being sampled is not controlled or predictable (e.g. non-unidirectional airflow) the inlet of the sampling probe shall be directed vertically upward. The transit tube from the sample probe inlet to the particle counter sensor should be as short as possible. For sampling of particles larger than and equal to $1\mu\text{m}$, the transit tube length should not exceed the manufacturer's recommended length and diameter.

ACCEPTANCE: The particle concentration at each sample location should fall at or below class limit, and the mean of these averages should fall at or below the class limit.

1.2 Airborne Particulate Cleanliness Classes**ISO – 14644-1****AVERAGE, MEAN, STANDARD DEVIATION, STANDARD ERROR :**

CLASS	0.1 MICRON	0.2 MICRON	0.3 MICRON	0.5 MICRON	1.0 MICRON	5.0 MICRONS
ISO 1	10	2	-	-	-	-
ISO 2	100	24	10	4	-	-
ISO 3	1,000	237	102	35	8	-
ISO 4	10,000	2,370	1,020	352	83	-
ISO 5	100,000	23,700	10,200	3,520	832	-
ISO 6	1,000,000	237,000	102,000	35,200	8,320	293
ISO 7	-	-	-	352,000	83,200	2,930
ISO 8	-	-	-	3,520,000	832,000	29,300
ISO 9	-	-	-	35,200,000	8,320,000	293,000

FOR ROOMS WHERE NUMBER OF SAMPLING LOCATIONS IS MORE THAN ONE AND LESS THAN NINE.

AVERAGE PARTICLE CONCENTRATION:

$$A = \frac{C_1 + C_2 + \dots + C_N}{N}$$

Where C_1, C_2, C_N = Individual particle counts
 N = Number of particle counts taken at each location.

MEAN OF AVERAGES:

$$M = \frac{A_1 + A_2 + \dots + A_N}{L}$$

Where A_1, A_2, \dots, A_N = Average particle concentrations at each location.
 L = Number of locations.

STANDARD DEVIATION:

$$SD = \sqrt{\frac{(A_1 - M)^2 + (A_2 - M)^2 \dots (A_N - M)^2}{L-1}}$$

Where A_1, A_2, \dots, A_N = Average particle concentrations at particular locations
 M = Mean of Averages
 L = Number of Locations

STANDARD ERROR:

$$SE = \frac{SD}{\sqrt{L}}$$

Where SD = Standard Deviation and L = Number of Locations

1.3 HEPA Filter Air Flow Velocity

PURPOSE: To determine the volume of air delivered through each HEPA filter and to calculate the average airflow, uniformity range and room air exchange rate, within the Cleanroom.

INSTRUMENTATION: Calibration documents for equipment used for testing will be included in the certification reports.

PROCEDURES:

1. ISO 14644-3:2019 section B-2.3.3

Supply airflow rate calculated from filter face velocity

Evaluation of the supply airflow rate without a flowhood may be done with an anemometer downstream of each final filter. The supply airflow rate is determined from the airflow velocity multiplied by the area of exit. A curtain may be used to exclude disturbances to the unidirectional airflow.

For the number of measuring points and the calculation of supply airflow rate, refer to B.2.2.2 and B.2.2.4, respectively. If it is impossible to divide the plane into grid cells of equal areas, the average air velocity weighted by area may be substituted.

2. ISO 14644-3:2019 section B.2.2.2

Supply airflow velocity

The airflow velocity should be measured at approximately 150 mm to 300 mm from the filter face. The number of measuring points should be sufficient to determine the supply airflow rate in cleanrooms and clean zones, and should be the square root of 10 times of area in square meters but no less than 4. At least one point should be measured for each filter outlet or fan-filter unit. A curtain may be used to exclude disturbances to the unidirectional airflow.

The measuring time at each position should be also sufficient to ensure a repeatable reading. Time-averaged values of measured velocities should be recorded for multiple locations.

3. ISO 14644-3:2019 B.4.2.4

Supply airflow rate measured by filter face velocity

The results of the airflow velocity test carried out in accordance with B.2.2.2 can be used to calculate the total supply airflow rate as follows:

$$Q = \sum (V_n \times A_c)$$

Q is the total airflow rate;

V_n is the airflow velocity at each cell centre;

A_c is the cell area which is defined as the installation area divided by the number of measuring points;

\sum is the summation for all cells.

ACCEPTANCE: The average airflow velocity or the average or total airflow volume for the cleanroom or clean zone should be within the value specified for the cleanroom or clean zone, or within other tolerance limits agreed upon by the buyer and seller.

1.4 Temperature

PURPOSE: To verify the capability of the Cleanroom air handling equipment to maintain temperature within design specification.

INSTRUMENTATION: Calibration documents for equipment used in testing are included in the certification report.

1. **PROCEDURES:** This test is recommended for areas where temperature and moisture levels are primarily controlled for purposes of worker comfort rather than process or equipment requirements. When processes require strict temperature control, a more comprehensive test is performed.
2. Allow room to operate for 24 hours before testing.
3. **ISO 14644-3:2019 Section B.5 Comprehensive temperature test**
This test is recommended for areas having strict environmental control specifications. This test should be performed at least 1 hour after the air-conditioning system has been operated and the conditions have been stabilized. The work zone should be divided into a grid of equal areas. Individual testing areas should be selected by agreement between the customer and supplier. The number of measuring locations should be at least two-The temperature probe should be positioned at work-level height and at a distance of no less than 300 mm from the ceiling, walls, or floor of the installation. The probe position should be selected with due consideration of the presence of heat sources. Measurements should be performed as appropriate for the purpose of application and the measurement time should be at least 5 min with one value recorded at least every minute.

ACCEPTANCE: Temperature and uniformity measurements are for reference only.

1.5 Humidity

PURPOSE: To verify that the system humidity control of the Cleanroom is working at the acceptance level. Humidity control is necessary to:

1. Prevent corrosion and/or oxidation.

2. Prevent condensation on work surfaces.
3. Reduce static electricity.
4. Provide personnel comfort.
5. Prevent product contamination.
6. Compensate for hygroscopic materials.
7. Control microbial growth.

INSTRUMENTATION: Calibration documents for equipment used for testing are included in the certification report.

PROCEDURES: ISO 14644-3:2019 Section B.6 Procedure for humidity test
The test is performed following completion of the airflow uniformity tests and the adjustment of air-conditioning system controls. This test should be performed with the air-conditioning system fully operational and when stable conditions have been achieved. The humidity sensor should be located at least at one location for each humidity control zone, and sufficient time should be allowed for the sensor to stabilize. Measurements should be performed as appropriate for the purpose of application after the sensor has stabilized, and the measurement time should be at least 5 min. The measurement points, frequency, intervals and period for data recording should be agreed between the customer and the supplier. The humidity test should be performed in conjunction with the temperature test.

ACCEPTANCE: Humidity and uniformity measurements are for reference only.

1.6 Room Pressurization

PURPOSE: To verify that a differential pressure should be maintained between the rooms sufficient to assure airflow outward progressively from the cleanest spaces to the least clean during normal operation and during periods of temporary upsets in air balance, as when a door connecting two (2) rooms is suddenly opened.

INSTRUMENTATION: Calibration documents for equipment used in testing are included in certification report.

PROCEDURES: ISO 14644-3:2019 Section B.1.2 Procedure for air pressure difference test. It is advisable to confirm that the supply air volume and installation balancing are within specifications before commencing the measurement of differential pressure between rooms or between rooms and outside areas. With all doors closed, the pressure difference between the cleanroom and any surrounding environment should be measured and recorded. If the installation is subdivided into more than one cleanroom, the pressure differences between the innermost room and the next adjacent room should be measured. The measurement should be continued until the pressure difference between the last enclosure and surrounding ancillary environment and against the external environment is measured. The pressures being measured are very small and incorrect measurement techniques can easily give erroneous readings. The following should be considered:

- a) installation of permanent measuring points is recommended;
- b) take measurements near to the middle of the cleanroom and away from any supply air inlets or return air outlet devices which may influence the local pressure at the measuring point.

ACCEPTANCE: Pressurization and uniformity requirements are a matter for agreement between the buyer and the seller. Units of measurement are in inches of water gauge.

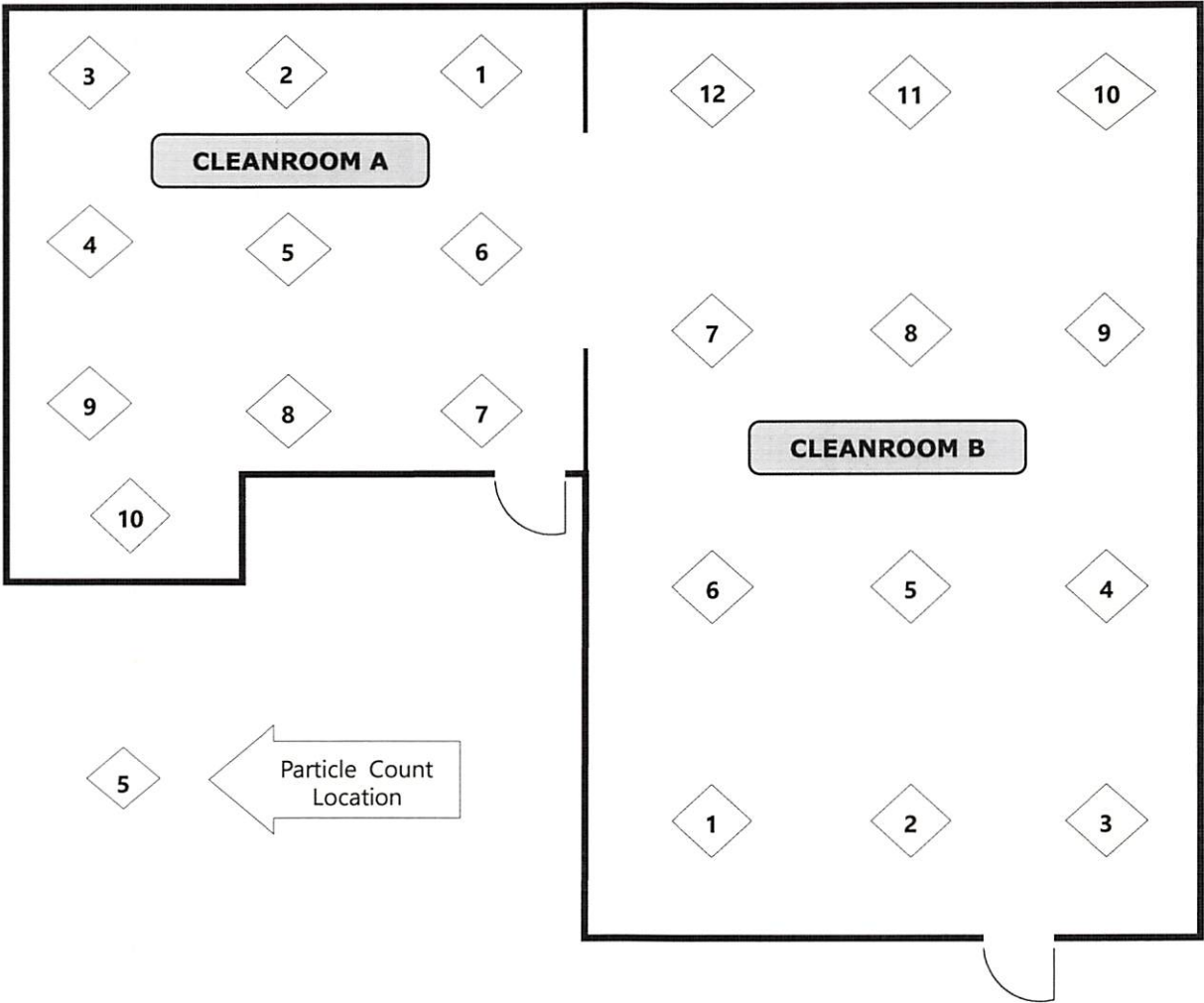
2 Equipment Calibration Summary

Type of Test	Manufacturer	Model	Serial	Cal. Due Date
<i>Non-Viable Particle Counts</i>	Lighthouse	S3100	120304001	01/24/2026
<i>Air Velocity/Volume</i>	TSI Alnor	EBT731	EBT731644029	10/21/2025
<i>Room Diff. Pressure</i>	TSI Alnor	EBT731	EBT731644029	10/21/2025
<i>Temperature & Humidity</i>	Lighthouse	LWS TRH Probe	330475-125610	10/23/2025
<i>Viable Air Sampling</i>	N/A	N/A	N/A	N/A

3 Report Content

Pages are organized by area. Each section may include a sketch of the Cleanroom showing particle count locations, particle count data, temperature, humidity, room air pressure and airflow data. The report sections conclude with summary data and statement of certification, followed by certificates of compliance.

CLEANROOM A & B PARTICLE COUNT
SAMPLING LOCATION DIAGRAM



Initials MP Date 03/20/25

CLEANROOM A AIRBORNE PARTICLE COUNT DATA

SAMPLE LOCATION (ISO Class 5)	0.5 MICRONS (Limit 3,520)	5.0 MICRONS (Limit N/A)
1	0	0
2	0	0
3	71	35
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
AVERAGE COUNT	7.1	3.5
STANDARD DEVIATION	22.5	11.1
STANDARD ERROR	7.1	3.5

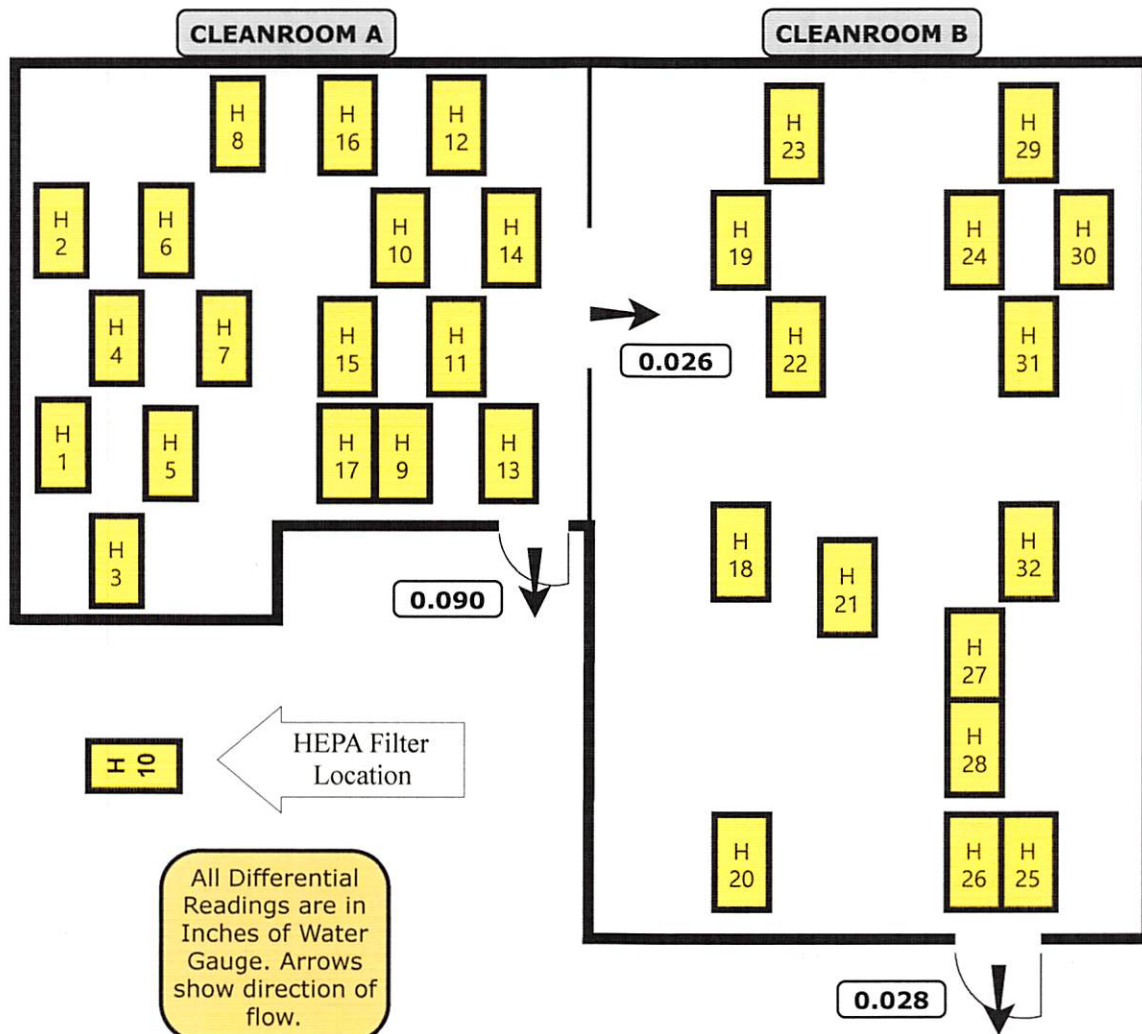
Initials MPJ Date 03 Jul 2025

CLEANROOM B AIRBORNE PARTICLE COUNT DATA

SAMPLE LOCATION (ISO Class 5)	0.5 MICRONS (Limit 3,520)	5.0 MICRONS (Limit N/A)
1	0	0
2	0	0
3	35	0
4	35	0
5	177	0
6	848	141
7	318	106
8	35	0
9	141	0
10	848	35
11	35	0
12	0	0
AVERAGE COUNT	205.9	23.5
STANDARD DEVIATION	314.1	48.3
STANDARD ERROR	90.7	14.0

Initials _____ Date _____

Doc#: Drivesavers.06.2025.ISO-RPT.R0

**CLEANROOM A & B
HEPA FILTER LOCATION DIAGRAM**Initials my Date 03/01/2025

CLEANROOM A VELOCITY COUNT DATA

HEPA FILTER #	VELOCITY #1	VELOCITY #2	AVERAGE VELOCITY
1	125	118	122
2	99	103	101
3	129	121	125
4	99	105	102
5	99	100	100
6	100	105	103
7	103	100	102
8	142	139	141
9	109	110	110
10	107	106	107
11	102	100	101
12	104	108	106
13	115	114	115
14	119	117	118
15	102	105	104
16	106	110	108
17	103	108	106
AVERAGE AIRFLOW VELOCITY (fpm)			109.8
STANDARD DEVIATION			11.0
TOTAL AIR SUPPLIED (cfm)			12,875.4
APPROXIMATE ROOM VOLUME			3,740
THEORETICAL AIR CHANGES PER HOUR			206.6

Initials MP Date 03/04/2025

Room Temperature and Humidity Test

* Average Room Temperature = **69.5°F**
* Average Room Humidity = **36.6%**

CLEANROOM A CERTIFICATE OF COMPLIANCE**Test Mode:** Operational**Airflow Type:** Non-Unidirectional**Test Date:** 06/25/2025**Next Test Date:** 06/2026**Class:**ISO 14644-1: **5** Limit at 0.5 μm = 3,520

CLEANROOM A **Meets** the Requirements Per ISO 14644-1 Class **5**,
at 0.5 μm Particle Size.

Initials MP Date 03 Jul 2025

CLEANROOM B VELOCITY COUNT DATA

HEPA FILTER #	VELOCITY #1	VELOCITY #2	AVERAGE VELOCITY
18	112	110	111
19	121	120	121
20	111	125	118
21	126	128	127
22	104	109	107
23	119	120	120
24	126	128	127
25	129	130	130
26	125	124	125
27	106	108	107
28	108	117	113
29	124	125	125
30	108	110	109
31	112	115	114
32	105	109	107
AVERAGE AIRFLOW VELOCITY (fpm)			117.1
STANDARD DEVIATION			8.2
TOTAL AIR SUPPLIED (cfm)			12,123.3
APPROXIMATE ROOM VOLUME			5,355
THEORETICAL AIR CHANGES PER HOUR			135.8

Initials mf Date 03/04/2025

Room Temperature and Humidity Test

* Average Room Temperature = 71.5°F
* Average Room Humidity = 41.0%

CLEANROOM B CERTIFICATE OF COMPLIANCE**Test Mode:** Operational**Airflow Type:** Non-Unidirectional**Test Date:** 06/25/2025**Next Test Date:** 06/2026**Class:**ISO 14644-1: 5 Limit at 0.5 μm = 3,520CLEANROOM B **Meet** the Requirements Per ISO 14644-1 Class 5,
at 0.5 μm Particle Size.Initials MP Date 03/5/2025

CALIBRATION CERTIFICATE

Certificate Number 45681120304001

Model: S3100 **Customer:** Advanced Cleanroom Microclean
Serial Number: 120304001 **RMA#:** US-74157
Sensor ID: 120304-002
Calibration Location: 300 W. Antelope Rd. White City, OR 97503
Date of Calibration: January 24, 2025
Calibration Due Date: January 24, 2026

Calibration Method Calibration of this instrument has been accomplished as defined in ISO 21501-4: Light scattering airborne particle counter for clean spaces. All work performed is in accordance with Lighthouse Worldwide Solutions Quality Manual P/N 714252800-1 and 17025 SOP 0.1.1. Reproduction of this certificate and accompanying documentation is prohibited without the expressed written permission of Lighthouse Worldwide Solutions. All records of work performed are maintained by Lighthouse Worldwide Solutions.

Traceability The Standards of the Compliant Calibration Laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Uncertainty The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, which provides a confidence level of approximately 95%. The values and test criteria are applied using Simple Acceptance; Shared Risk approach.

Results This certifies the above named instrument conforms to the original specifications in effect at date of manufacture and test.

Environmental Conditions All reported values are established with room air at these conditions unless otherwise indicated.

Ambient temperature 75.0 °F Relative humidity 35.0 %

Test Equipment

<u>Standards</u>	<u>Model</u>	<u>Manufacturer</u>	<u>Serial Number</u>	<u>Cal Date</u>	<u>Cal Due</u>
Flow meter	4045	TSI	40452116001	11/8/2024	5/8/2025
DMM	Fluke 179	Fluke	28150637	5/14/2024	5/14/2025
MCA	8000D	Amptek	1937	11/4/2024	11/4/2025
Test Standard	Solair	LWS	231199001	12/4/2024	6/4/2025

Particle Size Standards

<u>Nominal Size</u>	<u>Particle Size</u>	<u>Tolerance (nm)</u>	<u>Lot No.</u>	<u>Manufacturer</u>	<u>Expiration Date</u>
0.30µm	0.30µm	+/- 2.5	281235	Thermo Scientific	6/1/2027
0.40µm	0.40µm	+/- 3	283679	Thermo Scientific	8/1/2027
0.50µm	0.51µm	+/- 3.5	279810	Thermo Scientific	5/1/2027
1.00µm	1.03µm	+/- 9	280490	Thermo Scientific	5/1/2027
3.00µm	3.02µm	+/- 30	280082	Thermo Scientific	5/1/2027
5.00µm	4.97µm	+/-30	283472	Thermo Scientific	8/1/2027
10.00µm	9.69µm	+/-60	280503	Thermo Scientific	5/1/2027

Counting Efficiency Particle Size Standards

<u>Nominal Size</u>	<u>Particle Size</u>	<u>Tolerance (nm)</u>	<u>Lot No.</u>	<u>Manufacturer</u>	<u>Expiration Date</u>
0.30µm	0.30µm	+/- 2.5	281235	Thermo Scientific	6/1/2027
0.50µm	0.51µm	+/- 3.5	279810	Thermo Scientific	5/1/2027

CALIBRATION RESULTS AS LEFT

Certificate Number

45681120304001

Size Calibrations as Left

<u>Channel</u>	<u>Channel Size</u>	<u>Threshold</u>	<u>Size Error</u>	<u>Expanded Uncertainty</u>	<u>Result</u>
1	0.30µm	46mV	0%	0.009 µm	Pass
2	0.50µm	507mV	0%	0.010 µm	Pass
3	1.00µm	1356mV	0%	0.019 µm	Pass
4	3.00µm	3705mV	0%	0.061 µm	Pass
5	5.00µm	5023mV	0%	0.060 µm	Pass
6	10.00µm	7857mV	0%	0.120 µm	Pass

Measurements as Left

Nominal Flow Rate: 28.30 L/min	Measured 28.30 L/min	Tolerance ± 5% of nominal	Expanded Uncertainty 0.82 L/min	Result Pass
False Count Rate:				
JIS B 9921 Observed Counts:	0	≤ 1 ct max / 5 min.	21 particles/m³	Pass
ISO21501-4 False Count Rate:	0	Upper confidence level	21 particles/m³	Pass
Counting Efficiency 50%:				
Size 0.300 µm	48.1%	30% - 70%	3.4%	Pass
Counting Efficiency 100%:				
Size 0.51 µm	100.3%	90% - 110%	5.2%	Pass
Size Resolution:				
Size 0.401 µm	5.97%	15%	1.6%	Pass

CALIBRATION RESULTS AS FOUND

Certificate Number

45681120304001


Size Calibrations as Found

Channel	Channel Size	Threshold Settings	As Received Size	Percent Size Error	Size Error Tolerance	Expanded Uncertainty	Pass/Fail
1	0.30µm	46mV	0.30µm	0.0%	+/-10%	0.009 µm	Pass
2	0.50µm	510mV	0.50µm	-0.2%	+/-10%	0.010 µm	Pass
3	1.00µm	1335mV	0.98µm	-1.9%	+/-10%	0.019 µm	Pass
4	3.00µm	3701mV	2.97µm	-1.1%	+/-10%	0.061 µm	Pass
5	5.00µm	4937mV	4.84µm	-3.1%	+/-10%	0.060 µm	Pass
6	10.00µm	8239mV	10.60µm	6.0%	+/-10%	0.120 µm	Pass

Measurements as Found

Nominal Flow Rate:	Measured	Tolerance	Expanded Uncertainty	Result
28.30 L/min	28.30 L/min	± 5% of nominal	0.82 L/min	Pass
False Count Rate:				
JIS B 9921 Observed Counts:	0	≤ 1 count / 5 min.	21 particles/m³	Pass
ISO21501-4 False Count Rate:	0	Upper confidence level	21 particles/m³	Pass
Counting Efficiency 50%:				
Size 0.300 µm	50.2%	30% - 70%	3.4%	Pass
Counting Efficiency 100%:				
Size 0.51 µm	103.7%	90% - 110%	5.5%	Pass
Size Resolution:				
Size 0.401 µm	5.97%	15%	1.6%	Pass

 Signature:
 Metrology Manager


 David Voeller

Metrology Manager acknowledges that the calibration methodology employed is in accordance with ISO 17025 and Lighthouse Worldwide Solutions Quality Management System to comply to ISO 21501-4 calibration requirements.

 Signature:
 Calibration Tech/Engineer:


 Bryce Fry



Manufacturer Calibration Certificate

CALIBRATION CERTIFICATE

Certificate Number 45681125621

Model: LWS TRH Probe
Paired Unit Wand
Wand SN: 330474
TRH Sensor S/N: 125621
Temp Range: 0-150°F

RMA # US-74157
Customer Advanced Cleanroom Microclean

Calibration Location 300 W. Antelope Rd, White City, OR 97503

Calibration Date: January 24, 2025

Calibration Due: January 24, 2026

Calibration Method All work performed is in accordance with Lighthouse Worldwide Solutions. Quality Manual P/N 714252800-1. Reproduction of this certificate and accompanying documentation is prohibited without the expressed written permission of Lighthouse Worldwide Solutions. All records of work performed are maintained by Lighthouse Worldwide Solutions.

Traceability The Standards of the Compliant Calibration Laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory.

Results This certifies the above named instrument conforms to the original specifications in effect at date of manufacture and test.

Environmental Conditions Ambient Temperature 75 °F Relative Humidity 35%

As Received						
Reference		Unit Under Test		Relative Humidity, %RH		Result
				Error	Tolerance %	
26.00%		25.40%		-0.60%	+/- 3.0%	Pass
Reference *		Unit Under Test *		Temperature, °F/[°C]		
				Error	Tolerance *	
72.4°F	22.44°C	71.3°F	21.83°C	-1.1°F	-0.61°C	Pass
As Calibrated						
Reference		Unit Under Test		Relative Humidity, %RH		Result
				Error	Tolerance %	
26.00%		25.40%		-0.60%	+/- 3.0%	Pass
Reference *		Unit Under Test *		Temperature, °F/[°C]		
				Error	Tolerance *	
72.4°F	22.44°C	71.3°F	21.83°C	-1.1°F	-0.61°C	Pass

Instrument & Model	Manufacturer	Serial No.	Cal Date	Cal Due	Uncertainty
TRH Indicator	Vaisala	N0810674	8/1/2024	8/1/2025	1.00%

* Tolerance $\pm 1.8^\circ\text{F}$ at 77°F (2.3%)

* Refer to model specific spec sheet for temperature ranges

Signature:
Metrology Manager

David Voeller

David Voeller

The Metrology Manager acknowledges that the calibration has been carried out in accordance with Lighthouse Worldwide Solutions Quality Management system to comply with the applicable calibration parameters.

Signature:
Calibration Tech/Engineer:

Bryce Fry
Bryce Fry



Manufacturer Calibration Certificate

CALIBRATION CERTIFICATE

Certificate Number 45588125610

Model: LWS TRH Probe RMA # US-73276
Paired Unit Wand
Wand SN: 330475 Customer Advanced Cleanroom Microclean
TRH Sensor S/N: 125610
Temp Range: 0-150°F

Calibration Location 300 W. Antelope Rd, White City, OR 97503

Calibration Date: October 23, 2024

Calibration Due: October 23, 2025

Calibration Method All work performed is in accordance with Lighthouse Worldwide Solutions. Quality Manual P/N 714252800-1. Reproduction of this certificate and accompanying documentation is prohibited without the expressed written permission of Lighthouse Worldwide Solutions. All records of work performed are maintained by Lighthouse Worldwide Solutions.

Traceability The Standards of the Compliant Calibration Laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory.

Results This certifies the above named instrument conforms to the original specifications in effect at date of manufacture and test.

Environmental
Conditions Ambient Temperature 71 °F Relative Humidity 38%

As Received						
Reference		Unit Under Test		Relative Humidity, %RH		
				Error	Tolerance %	Result
36.98%		37.90%		0.92%	+/- 3.0%	Pass
Reference *		Unit Under Test *		Temperature, °F/[°C]		
73.7°F	23.17°C	73.3°F	22.94°C	-0.4°F	-0.22°C	+/- 2.3%
						Pass
As Calibrated						
Reference		Unit Under Test		Relative Humidity, %RH		
				Error	Tolerance %	Result
36.98%		37.90%		0.92%	+/- 3.0%	Pass
Reference *		Unit Under Test *		Temperature, °F/[°C]		
73.7°F	23.17°C	73.3°F	22.94°C	-0.4°F	-0.22°C	+/- 2.3%
						Pass

Instrument & Model	Manufacturer	Serial No.	Cal Date	Cal Due	Uncertainty
TRH Indicator	Vaisala	T1610164	8/1/2024	8/1/2025	1.00%

* Tolerance ±1.5 °F at 77 °F (2.3%)

* Refer to model specific spec sheet for temperature ranges

Signature:
Metrology Manager

The Metrology Manager acknowledges that the calibration has been carried out in accordance with Lighthouse Worldwide Solutions Quality Management system to comply with the applicable calibration parameters.

Signature:
Calibration Tech/Engineer:

Caleb Lange

PME Services, Inc.
1584 N. Batavia St. Suite 1
Orange, CA 92867
Phone: (714) 418-1444

Calibration Certificate

Certificate Number
147318

ACM (9519)
3250 S. Susan St. Suite A
Santa Ana, CA 92704

Asset Number: 2324401
Manufacturer: Alnor Products
Model Number: EBT731
Description: Balometer
Serial Number: EBT731644029
PO Number:
Cal. Interval: 12 MONTHS

Ambient Temperature: 73 °F
Ambient Humidity: 46 %
Condition As Found: In Tolerance
Condition As Left: In Tolerance
Cal Date: 10/21/2024
Cal. Due Date: 10/21/2025
Calibration Location: At Vendor

Calibration Remarks:

Calibrated by Dick Munns Company. Certificate includes 1 page attached.

Procedures Used In This Event:

Procedure	Description	Revision
Vendor Procedure		

Calibration Performed By

Quality Review Sign -Off

Brandy Brown
Brandy Brown - 10/29/2024

Johnathan Brown
Johnathan Brown - 10/29/2024

All instruments used in this calibration are traceable to the International System of Units (SI), through a recognized National Metrology Institute (NMI), such as the National Institute of Standards and Technology (NIST), a natural physical constant, or radiometric techniques, and were performed in accordance with ISO17025:2017. This report may not be reproduced, except in full, without written permission of PME Services, Inc. The results stated in this certificate relate only to the item(s) calibrated.

CERTIFICATE OF CALIBRATION

CUSTOMER: PRECISION MEASUREMENT EQUIPMENT, INC. : ORANGE, CA **CALIBRATION DATE:** 10/21/2024
PO NUMBER: B5397-10258 **CALIBRATION DUE:** 10/21/2025
INST. MANUFACTURER: TSI | ALNOR **PROCEDURE:** NAVAIR 17-20MG-02
INST. DESCRIPTION: BALOMETER **CALIBRATION FLUID:** AIR @ 14.7 PSI 70°F
MODEL NUMBER: EBT-731 **RECEIVED CONDITIONS:** WITHIN MFG. SPECS
SERIAL NUMBER: EBT731644029 ID# 2324401 **LEFT CONDITIONS:** WITHIN MFG. SPECS
RATED ACCURACY: SEE NOTES** **AMBIENT CONDITIONS:** 763mmHGA 46% RH 73°F
UNCERTAINTY GIVEN: ± 0.69% RD k=2 **CERTIFICATE FILE #:** 536820.2024

NOTES: VEL: ± 3% RD + ± 7 FT/MIN **** PRESS: ± 2% RD; ± .01" H₂O **** VOL ± 3% + ± 7 FT/MIN **** TEMP: ± 0.5 °F **** RH% : ± 3% RD.

Q.MANUAL IM 2.0 REV 2020.2 DATED 7-27-2020

DECISION RULE: SIMPLE ACCEPTANCE. MEASUREMENT UNCERTAINTIES NOT TAKEN INTO CONSIDERATION WHEN DETERMINING PASS/FAIL

CALIBRATED WITH DMC ACCESORIES					
AIRFOIL	DM STD	GRID	DM STD.	EBT 731	DM STD.
INDICATED	ACTUAL	INDICATED	ACTUAL	INDICATED	ACTUAL
FT/MIN	FT/MIN	FT/MIN	FT/MIN	"H ₂ O	"H ₂ O
140	142	87	89	0.00	0.000
561	568	233	236	1.20	1.201
1029	1039	562	567	5.13	5.135
1507	1521	1570	1584	10.02	10.036
2545	2571	2049	2068	12.31	12.338
4992	5045	2491	2516	14.97	15.016
UUT IND.	DM STD.	UUT	DM STD		
PITOT	ACTUAL	IND.	ACTUAL		
FT/MIN	FT/MIN	°F	°F		
2551	2566	73.3	73.0		
6438	6485	99.2	98.9		

STANDARDS USED:

A69 12INCH AIR FLOW 50 - 8000FPM +/- 0.69 % RD TRACE#1649766843,06290041521,1616396227	DUE	04/02/25
A24 TEMP.STD.:HART SCIENTIFIC +/- .025 F (+/- .04 C) TRACE# 1683031933	DUE	06/24/25
A321 PRESSURE STD. CEC 600PSIA .011%RD TRACE # 1553509490,1553248617	DUE	02/10/25

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

Dick Munns Company • 11133 Winners Circle, Los Alamitos, CA 90720
Phone: 714-827-1215 • www.dickmunns.com

This Calibration Certificate shall not be reproduced except, in full, without approval by Dick Munns Company. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Issuing Date:

Approved By:

Cal. Technician:

Calibrated at: ☒ Lab
☐ On-Site (Customer's)

Page 1 of 1

10/21/2024

[Signature]

A. V.