

BIOSCIENCE INTERNATIONAL

Innovative Microbiology Products
 11333 Woodglen Drive • Rockville, Maryland 20852
 301.231.7400 • www.biosci-intl.com • fax: 301.231.7277

CERTIFICATE OF CALIBRATION

Model:	SAS Duo 360 - Right Head
Air Sampler Serial #:	21-D-17136
Air Sampler Head Serial #:	52444
Customer:	Aerobiology Laboratory Associates
Customer Asset ID #:	n/a
Calibration performed at:	Woodglen site (see address above)

Cal. Date:	14 Jul 2022
Cal. Due:	14 Jul 2023 (12 months)
Procedure:	EOP-030
Certificate #:	21-D-17136-2756
Volume sampled (L):	1000
Calibrated w/media type:	BBL TSA w/L&P80
Plate Lot #:	2070125
Plate Exp Date:	8/23/2022

	As Found	In Tolerance	As Left	In Tolerance	Acceptable Range
Battery output (Volts):	13.7	n/a	13.5	n/a	>13.0
Temperature (F°):	74.7	n/a	74.8	n/a	59 - 95
Barometric pressure (in. HG):	30.00	n/a	30.00	n/a	n/a
Time to sample 1000 Liters (min)	5.49	n/a	5.54	n/a	n/a
Temp. & Pressure Standardization Factor:	0.99	n/a	0.99	n/a	n/a
Air velocity reading (ft/min)	102.0	n/a	101.0	n/a	n/a
Air velocity reading (m/sec)	0.518	n/a	0.513	n/a	n/a
Standardized air velocity reading (m/sec)	0.515	n/a	0.510	n/a	n/a
Standardized Air Flow (L/min)	182.2	Yes	180.4	Yes	171 - 189

Additional heads inspected and determined to be within +/-2%:	n/a
Additional service, preventative maintenance, or calibration notes:	n/a

Bioscience International certifies that the above described instrument conforms to the original manufacturer's tolerances for the parameters listed (not applicable to As Found data) & has been calibrated in accordance with ISO 17025:2017 guidelines using standards whose accuracies are traceable to the U.S. National Institute of Standards & Technology, have been verified with respect to instrumentation whose accuracy is traceable to NIST, or are derived from accepted values of physical constants. CMC test uncertainty is +/-2.2%. Instruments are calibrated with a test uncertainty ratio of 4:1 or greater whenever possible, with uncertainty defined as within a 95% confidence interval using a coverage factor of k = 2. In all cases, statistical methods are used to minimize uncertainty using the best commercially available methods. In Tolerance conditions are based on test results falling within the Acceptable Range. Measurement uncertainty is provided separately & independent of the decision rule. Voltage readings are for preventative maintenance purposes & not part of the calibration; values other than voltage, temperature, pressure, & air velocity are calculated values. Calibration results relate only to the items listed above; e.g., the instrument should be recalibrated prior to switching to a different media size (e.g., from 90mm Petri dishes to 55mm contact plates or vice versa).

<u>Measurement Standards</u>			
ID	Description	Last Cal.	Cal. Due
W-T95451849004	Velocity	4/27/2022	4/27/2023
W-6530-191969427	Temperature & Pressure	11/17/2021	11/17/2023

Work performed by / date: Maria Torrey 14 Jul 2022 Reviewed by / date: BIMBILA FERNANDO 14 JUL 2022

BIOSCIENCE INTERNATIONAL

Innovative Microbiology Products
 11333 Woodglen Drive • Rockville, Maryland 20852
 301.231.7400 • www.biosci-intl.com • fax: 301.231.7277

CERTIFICATE OF CALIBRATION

Model:	SAS Duo 360 - Left Head
Air Sampler Serial #:	21-D-17136
Air Sampler Head Serial #:	52443
Customer:	Aerobiology Laboratory Associates
Customer Asset ID #:	n/a
Calibration performed at:	Woodglen site (see address above)

Cal. Date:	14 Jul 2022
Cal. Due:	14 Jul 2023 (12 months)
Procedure:	EOP-030
Certificate #:	21-D-17136-2756
Volume sampled (L):	1000
Calibrated w/media type:	BBL TSA w/L&P80
Plate Lot #:	2070125
Plate Exp Date:	8/23/2022

	As Found	In Tolerance	As Left	In Tolerance	Acceptable Range
Battery output (Volts):	14.1	n/a	13.9	n/a	>13.0
Temperature (F°):	74.6	n/a	74.6	n/a	59 - 95
Barometric pressure (in. HG):	30.00	n/a	30.00	n/a	n/a
Time to sample 1000 Liters (min)	5.71	n/a	5.54	n/a	n/a
Temp. & Pressure Standardization Factor:	0.99	n/a	0.99	n/a	n/a
Air velocity reading (ft/min)	98.0	n/a	101.0	n/a	n/a
Air velocity reading (m/sec)	0.498	n/a	0.513	n/a	n/a
Standardized air velocity reading (m/sec)	0.495	n/a	0.510	n/a	n/a
Standardized Air Flow (L/min)	175.1	Yes	180.4	Yes	171 - 189

Additional heads inspected and determined to be within +/-2%:	n/a
Additional service, preventative maintenance, or calibration notes:	n/a

Bioscience International certifies that the above described instrument conforms to the original manufacturer's tolerances for the parameters listed (not applicable to As Found data) & has been calibrated in accordance with ISO 17025:2017 guidelines using standards whose accuracies are traceable to the U.S. National Institute of Standards & Technology, have been verified with respect to instrumentation whose accuracy is traceable to NIST, or are derived from accepted values of physical constants. CMC test uncertainty is +/-2.2%. Instruments are calibrated with a test uncertainty ratio of 4:1 or greater whenever possible, with uncertainty defined as within a 95% confidence interval using a coverage factor of k = 2. In all cases, statistical methods are used to minimize uncertainty using the best commercially available methods. In Tolerance conditions are based on test results falling within the Acceptable Range. Measurement uncertainty is provided separately & independent of the decision rule. Voltage readings are for preventative maintenance purposes & not part of the calibration; values other than voltage, temperature, pressure, & air velocity are calculated values. Calibration results relate only to the items listed above; e.g., the instrument should be recalibrated prior to switching to a different media size (e.g., from 90mm Petri dishes to 55mm contact plates or vice versa).

<u>Measurement Standards</u>				
ID	Description	Last Cal.	Cal. Due	
W-T95451849004	Velocity	4/27/2022	4/27/2023	
W-6530-191969427	Temperature & Pressure	11/17/2021	11/17/2023	

Work performed by / date: Muhammad 11/14/2022 Reviewed by / date: BAMBOLA FERNANDO 11/14/2022

625 East Bunker Court
 Vernon Hills, Illinois 60061
 PH: 866-466-6225
 Fax: 847-327-2993
 www.innocalsolutions.com

NIST Traceable
Calibration Report



Reference Number: 1411589
 PO Number: GPRATT102021

Bioscience International
 11333 Woodglen Drive
 Rockville, MD 20852 United States



Manufacturer: Traceable
Model Number: 6530
Description: Pressure, Digital Barometer
Asset Number: CP325818
Serial Number: 191969427
Procedure: DS Traceable 6530

Calibration Date: 11/17/2021
Calibration Due Date: 11/17/2023
Condition As Found: In Tolerance
Condition As Left: In Tolerance, No adjustment

Remarks:
 NIST-traceable calibration performed on the unit referenced above in accordance with customer requirements, published specifications and the lab's standard operating procedures. No adjustments were made to the unit.

Standards Utilized

Asset No.	Manufacturer	Model No.	Description	Cal. Date	Due Date
CP05020	DH Instruments Inc.	RPM4 BA100KS	Calibrator, Reference Pressure Monitor	03/29/2021	03/31/2022
CP144802	Rotronic Instrument Corp	HC2A-S	Humidity, HygroClip2	06/21/2021	06/30/2022

Calibration Data

FUNCTION TESTED	Nominal Value	As Found	Out of Tol	As Left	Out of Tol	CALIBRATION TOLERANCE
Relative Humidity	50 %RH	51		Same		47 to 53 %RH [EMU 0.82 %RH][TUR 3.7:1]
Increasing Barometric Pressure	805 mbar	805		Same		801 to 809 mbar [EMU 0.12 mbar][TUR 32:1]
	910 mbar	910		Same		906 to 914 mbar [EMU 0.12 mbar][TUR 32:1]
	1010 mbar	1010		Same		1006 to 1014 mbar [EMU 0.12 mbar][TUR 32:1]
Temperature	25.0 °C	25.0		Same		24.6 to 25.4 °C [EMU 0.12 °C][TUR 3.4:1]

Temperature: 20° C
 Humidity: 45% RH
 Rpt. No.: 1669915

Calibration Performed By:				Quality Reviewer:	
Name	ID #	Title	Phone	Name	Date
Yonkus, Elaine	334	Metrologist	847-327-5334	Szplitt, Tony	11/17/2021

