PARTICLE MEASURING SYSTEMS
a spectris company

5475 Airport Boulevard, Boulder, Colorado 80301-2339
303.443.7100 800.238.1801

Certificate of Calibration

Date: Aug-01-2024 12:58:29

Work Order:	QTS/PO/INST/24-25/039
Customer Name:	Quality Technical Solutions
Customer Address:	PAP-R-289, Near Golden Garage,Rabale Midc,Navi Mumbai 400701.
Calibration Lab:	Aimil Mumbai
Service Notes:	PMS/MUM/24-25/25(QTS/HVAC/PC-18)

Unit Under Test

Instrument:	LasairIII_5100	Serial Number:	140385
Firmware Version:	PCE: B2B53624 1.9	Calibration Due:	Aug-01-2025

Certification

Particle Measuring Systems certifies that the instrument listed above meets or exceeds manufacturing specifications and meets the requirements of ISO 21501-4:2018. It has been calibrated using equipment and/or standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST), or have been derived from acceptable values of natural physical constants, or by the ratio type of self-calibration. Counting Efficiency determined by digital output.

This Instrument was calibrated in accordance with the Particle Measuring Systems quality system documentation which meets ISO 9001:2015 requirements. The results contained within this calibration certificate relate only to the item calibrated.

Instrument Condition As Found

☑ In-Tolerance ☐ Out-of-Tolerance ☐ Operational Failure

Condition As Left

☑ In-Tolerance

Calibration Standards

Procedure Used:	2793G	Program Used:	1000013097 Rev N

AIMIL LIMITED MUMBAI

Performed by

Technician Name: Pravin Lawangare

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Reference Information

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Unit Under Test

Instrument:	LasairIII_5100	Serial Number:	140385
Firmware Version:	PCE: B2B53624 1.9	Laser Serial Number:	No Change

Particles Used: As Found

Particle Size	Std Deviation	Lot Number	Expiration Date	Uncertainty
0.510 micron	0.009	274149	Nov-30-2026	0.007
0.994 micron	0.010	268410	Jun-30-2026	0.021
2.020 micron	0.021	267195	May-31-2026	0.015
4.973 micron	0.050	265485	May-31-2026	0.054

Particles Used: As Left

Particle Size	Std Deviation	Lot Number	Expiration Date	Uncertainty
0.510 micron	0.009	274149	Nov-30-2026	0.007
0.994 micron	0.010	268410	Jun-30-2026	0.021
2.020 micron	0.021	267195	May-31-2026	0.015
4.973 micron	0.050	265485	May-31-2026	0.054

References Used

Type	Serial Number	Calibration Due
LasairII-110	81546	Dec-18-2024
Flow Meter	40430734011	Aug-30-2024

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Verification Data Record

Date: Aug-01-2024 12:45:06

Work Order: QTS/PO/INST/24-25/039
Customer Name: Quality Technical Solutions

Unit Under Test

Instrument:	LasairIII_5100	Serial Number:	140385
Firmware Version:	PCE: B2B53624 1.9	Laser Serial Number:	No Change

Environmental

Temperature:	23 Deg C	Relative Humidity:	45%

Threshold Information

Channel Size (micron)	Measured Threshold/Gain	Received Threshold/Gain	Measurement Type
Ch 1: 0.50	01853 / 0	02032 / 0	Distribution
Ch 2: 1.00	06426 / 0	07164 / 0	Distribution
Ch 3: 2.00	00911 / 1	00953 / 1	Distribution
Ch 4: 5.00	04493 / 1	04725 / 1	Distribution
Ch 5: 10.00	01132 / 2	01139 / 2	Extrapolate
Ch 6: 25.00	05422 / 2	05464 / 2	Extrapolate

As Found Results

Runtime Parameter	Results	Allowed Range	Expanded Uncertainty	Pass/Fail/ Skipped	
Flow Rate	100.0 L/min	95.0 to 105.0 L/min	n/a	Pass	
Flow Error	0.00%	-5.00 to 5.00%	1.0%	Pass	
Zero Count	0.00 Cnt/m³	<= 50.0 Cnt/m³	n/a	Pass	(*1)
Zero Count 95% UCL	49.64 Cnt/m³	<= 50.0 Cnt/m³	n/a	Pass	(*1)
CE(%) @ 0.50	41.2%	30.0% to 70.0%	0.29%	Pass	
CE(%) @ 1.00	98.5%	90.0% to 110.0%	1.5%	Pass	
Resolution @ 1.00	9.6%	0.0% to 15.0%	0.087%	Pass	
Size Error @ 0.50	5.2%	-10.0% to 10.0%	2.0%	Pass	
Size Error @ 1.00	5.7%	-10.0% to 10.0%	2.3%	Pass	
Size Error @ 2.00	3.3%	-10.0% to 10.0%	1.4%	Pass	
Size Error @ 5.00	2.9%	-10.0% to 10.0%	1.8%	Pass	
Size Error @ 10.00	0.4%	-10.0% to 10.0%	1.9%	Pass	
Size Error @ 25.00	0.4%	-10.0% to 10.0%	1.9%	Pass	

Design Parameter	Results	Allowed Range	
Sampling Time	0.84%	0.0% to 1.0%	(*2)
Response Rate	0.006%	0.0 % to 0.5%	(*2)
Maximum particle number concentration	24313975 Cnt/m³	10% coincidence loss	(*2)

Note *1: Calculated false count rate adjusted for 95% UCL
Note *2: Tested and verified during design and development

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Work Order: QTS/PO/INST/24-25/039
Customer Name: Quality Technical Solutions

Unit Under Test

Instrument:	LasairIII_5100	Serial Number:	140385
Firmware Version:	PCE: B2B53624 1.9	Laser Serial Number:	No Change

Environmental

Temperature:	23 Deg C	Relative Humidity:	45%

Threshold Information

Channel Size (micron)	Measured Threshold/Gain	Measurement Type
Ch 1: 0.50	01825 / 0	Distribution
Ch 2: 1.00	06328 / 0	Distribution
Ch 3: 2.00	00927 / 1	Distribution
Ch 4: 5.00	04458 / 1	Distribution
Ch 5: 10.00	01066 / 2	Extrapolate
Ch 6: 25.00	05029 / 2	Extrapolate

As Left Results

Runtime Parameter	Results	Allowed Range	Expanded Uncertainty	Pass/Fail	
Flow Rate	100.0 L/min	97.0 to 103.0 L/min	n/a	Pass	
Flow Error	0.00%	-3.00 to 3.00%	1.0%	Pass	
Zero Count	0.00 Cnt/m³	<= 2.0 Cnt/m³	n/a	Pass	(*1)
Zero Count 95% UCL	1.99 Cnt/m³	<= 2.0 Cnt/m³	n/a	Pass	(*1)
CE(%) @ 0.50	50.8%	30.0% to 70.0%	1.5%	Pass	
CE(%) @ 1.00	103.0%	90.0% to 110.0%	1.7%	Pass	
Resolution @ 1.00	10.1%	0.0% to 15.0%	0.12%	Pass	
Size Error @ 0.50	-0.76%	-10.0% to 10.0%	2.0%	Pass	
Size Error @ 1.00	-0.45%	-10.0% to 10.0%	2.3%	Pass	
Size Error @ 2.00	-0.58%	-10.0% to 10.0%	1.4%	Pass	
Size Error @ 5.00	-0.71%	-10.0% to 10.0%	1.8%	Pass	
Size Error @ 10.00	-0.82%	-10.0% to 10.0%	n/a	Pass	
Size Error @ 25.00	-0.82%	-10.0% to 10.0%	n/a	Pass	

Design Parameter	Results	Allowed Range	
Sampling Time	0.84%	0.0% to 1.0%	(*2)
Response Rate	0.006%	0.0 % to 0.5%	(*2)
Maximum particle number concentration	24313975 Cnt/m³	10% coincidence loss	(*2)

Note *1: Calculated false count rate adjusted for 95% UCL
Note *2: Tested and verified during design and development