

**CLIENT:** SunModo Corporation  
14800 NE 65<sup>th</sup> Street  
Vancouver, WA 98682

<b>Project No:</b> MED-1200b	<b>Report Date:</b> December 27, 2023
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**SAMPLE ID:** Series: K50064-BK1 NanoPlus Rafter Mount and NanoPlus Deck Mount

**SAMPLING DETAIL:** The test sample manufactured by SunModo Corporation was submitted directly to QAI by the client. Samples were not independently selected for testing.

**DATE OF RECEIPT:** Samples were received at the QAI Miami Laboratory on October 18, 2023, and in good condition.

**TESTING PERIOD:** December 18, 2023

**TESTING LOCATION:** QAI Laboratories – Miami, Florida, USA

**AUTHORIZATION:** QAI proposal number 23MT09261 dated September 26, 2023, signed by Roland Jasmin, Director of Engineering of SunModo Corporation, dated October 2, 2023.

**TEST PROCEDURE:** Testing to the following requirements:

- TAS 100(A)-23 Test Procedure for Wind and Wind Driven Rain Resistance and/or Increased Windspeed Resistance of Soffit Ventilation Strip and Continuous or Intermittent Ventilation System Installed at The Ridge Area

**TEST RESULTS:** The four samples of each series: K50064-BK1 NanoPlus Rafter Mount and NanoPlus Deck Mount achieved passing results found on pages 3-4 of this test report when tested in accordance with the TAS 100(A).

**CONTENTS:** Test report pages 1 through 19.

**Prepared By**

*Lusinda Delgado*

**Lusinda Delgado**  
Technical Report Writer

**Signed for and on behalf of  
QAI Laboratory**

Printed in an e-signature document

Digitally signed  
by Jose Sanchez  
Date: 2024.01.18  
12:46:03 -05'00'

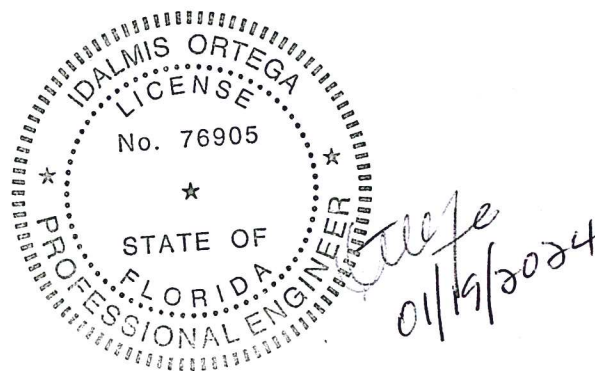
**Jose Sanchez**  
Operation Manager



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Technician:  
 Ian McGinley

W/E: Professional Engineer:  
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DESCRIPTION OF SAMPLE	
<b>Model Designation:</b>	Series: K50064-BK1 NanoPlus Rafter Mount
<b>Sample A-1</b>	
<b>Test Deck:</b> Test deck was constructed by QAI Laboratory. The deck consisted of APA 32/16 span rated sheathing of 15/32" thickness Grade C-D with 3 ply installed over 2" by 6" perimeter supports and 2" by 6" intermediate supports spaced 24" apart. The sheathing was attached using 8d common nails at 6" on centers at panel edges and 12" on centers at intermediate supports. The test deck had a test slope of 2/12.	
<b>Underlayment:</b> The underlayment used on test deck consisted of self-adhering polystick IR-X	
<b>Metal Flashing:</b> One 2 1/2" by 2 1/2" by 26"-gauge galvanized metal flashing was installed at the perimeter of the deck over the underlayment and fastened using a staggered row of a 1 1/4" long corrosion resistant ring shank nail.	
<b>Roof Shingles:</b> Asphalt shingles installed throughout the roof deck as per the Florida Building Code HVAZ.	
<b>NanoPlus Rafter (Part No. K50064-BK1) Installation:</b> The NanoPlus rafter mount was installed over rafters using one 5/16" lag screw with a sealing washer. Roof sealant was applied on the bottom of the NanoPlus rafter prior to fastening.	
<b>Method of Conditioning:</b> The roof deck was conditioned for 3 days exposure to outside environment conditions. The roof deck temperature was verified each day with a thermocouple and was maintained above 120°F for six hours each day.	

Interval #	Wind Speed (mph)	Time (min)	Observations	Results
1	35	15	No leak	Passed
2	0	5	No leak	Passed
3	70	15	No leak	Passed
4	0	5	No leak	Passed
5	90	15	No leak	Passed
6	0	5	No leak	Passed
7	110	5	No leak	Passed
8	0	5	No leak	Passed

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DESCRIPTION OF SAMPLE	
<b>Model Designation:</b>	Series: K50064-BK1 NanoPlus Deck Mount
<b>Sample B-1</b>	
<b>Test Deck:</b> Test deck was constructed by QAI Laboratory. The deck consisted of APA 32/16 span rated sheathing of 15/32" thickness Grade C-D with 3 ply installed over 2" by 6" perimeter supports and 2" by 6" intermediate supports spaced 24" apart. The sheathing was attached using 8d common nails at 6" on centers at panel edges and 12" on centers at intermediate supports. The test deck had a test slope of 2/12.	
<b>Underlayment:</b> The underlayment used on test deck consisted of self-adhering polystick IR-X	
<b>Metal Flashing:</b> One 2 1/2" by 2 1/2" by 26"-gauge galvanized metal flashing was installed at the perimeter of the deck over the underlayment and fastened using a staggered row of a 1 1/4" long corrosion resistant ring shank nail.	
<b>Roof Shingles:</b> Asphalt shingles installed throughout the roof deck as per the Florida Building Code HVAZ.	
<b>NanoPlus Deck (Part No. K50064-BK1) Installation:</b> The NanoPlus deck mount was installed over plywood sheathing using one 14 x 3" self-tapping hex head screws with a sealing washer. Roof sealant was applied on the bottom of the NanoPlus deck prior to fastening.	
<b>Method of Conditioning:</b> The roof deck was conditioned for 3 days exposure to outside environment conditions. The roof deck temperature was verified each day with a thermocouple and was maintained above 120°F for six hours each day.	

Interval #	Wind Speed (mph)	Time (min)	Observations	Results
1	35	15	No leak	Passed
2	0	5	No leak	Passed
3	70	15	No leak	Passed
4	0	5	No leak	Passed
5	90	15	No leak	Passed
6	0	5	No leak	Passed
7	110	5	No leak	Passed
8	0	5	No leak	Passed

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Immediately after commencement of interval 1 top side



Immediately after commencement of interval 1 bottom side



30 seconds prior to completion of interval 1 top side



30 seconds prior to completion of interval 1 bottom side



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Immediately after commencement of interval 2 top side



Immediately after commencement of interval 2 bottom side



30 seconds prior to completion of interval 2 top side



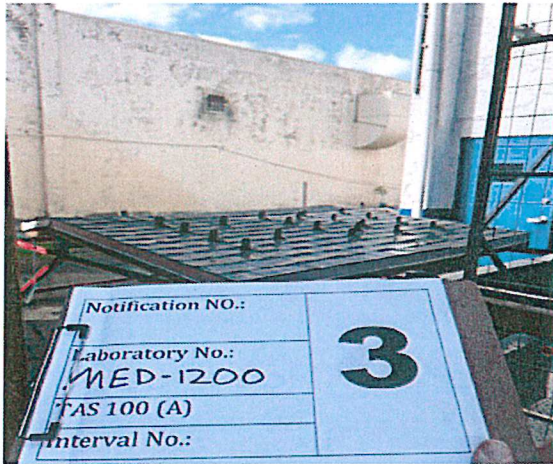
30 seconds prior to completion of interval 2 bottom side



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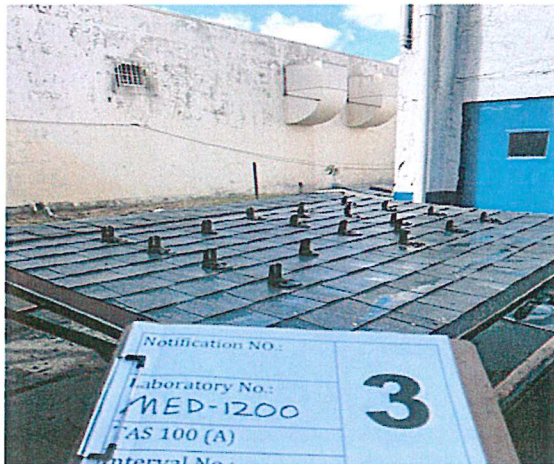
Immediately after commencement of interval 3 top side



Immediately after commencement of interval 3 bottom side



30 seconds prior to completion of interval 3 top side



30 seconds prior to completion of interval 3 bottom side



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Immediately after commencement of interval 4 top side



Immediately after commencement of interval 4 bottom side



30 seconds prior to completion of interval 4 top side



30 seconds prior to completion of interval 4 bottom side



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Immediately after commencement of interval 5 top side



Immediately after commencement of interval 5 bottom side



30 seconds prior to completion of interval 5 top side



30 seconds prior to completion of interval 5 bottom side



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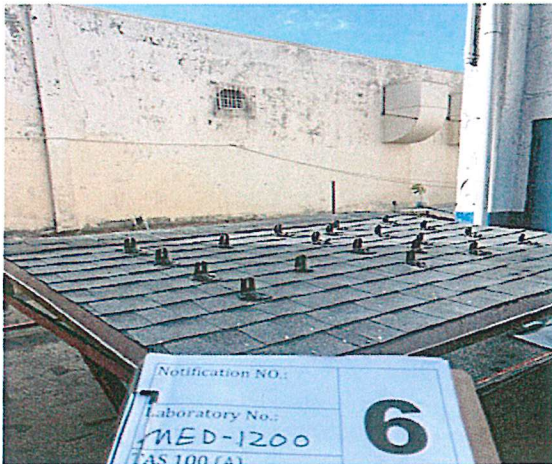
Immediately after commencement of interval 6 top side



Immediately after commencement of interval 6 bottom side



30 seconds prior to completion of interval 6 top side



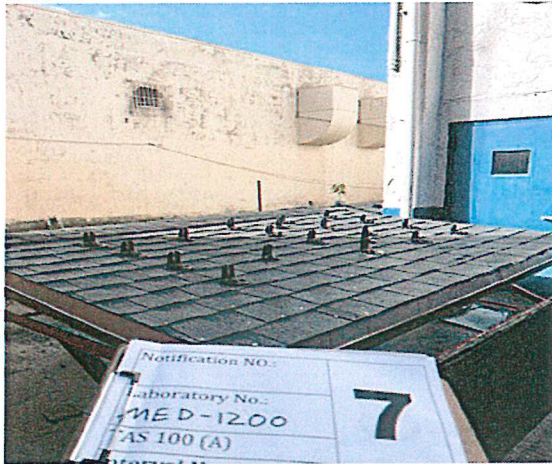
30 seconds prior to completion of interval 6 bottom side



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Immediately after commencement of interval 7 top side



Immediately after commencement of interval 7 bottom side



30 seconds prior to completion of interval 7 top side



30 seconds prior to completion of interval 7 bottom side



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Immediately after commencement of interval 8 top side



Immediately after commencement of interval 8 bottom side



30 seconds prior to completion of interval 8 top side



30 seconds prior to completion of interval 8 bottom side



**Conclusion:** The sample tested has passed the Florida Building Code TAS 100(a)-95 with no deviation.

Appendix A: Calibration records

Appendix – B 0.05% Maximum Allowable Leakage Calculations

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TAS 100 (A) Calibration Records

Appendix A

**Technician:** Jose Sanchez  
**Date:** 9/19/2023

**Temperature:** 73.6° F  
**Barometer Reading:** 30.06 inHg

Wind Stream Calibration

Engine RPM: 1200 @ 35 MPH

32.0 (mph)	34.0 (mph)	33.0 (mph)	34.0 (mph)
32.0 (mph)	33.0 (mph)	32.0 (mph)	33.0 (mph)

Engine RPM: 2300 @ 70 MPH

71.0 (mph)	69.0 (mph)	71.0 (mph)	69.0 (mph)
69.0 (mph)	71.0 (mph)	71.0 (mph)	72.0 (mph)

Engine RPM: 3200 @ 90 MPH

90.0 (mph)	88.0 (mph)	91.0 (mph)	92.0 (mph)
92.0 (mph)	90.0 (mph)	91.0 (mph)	89.0 (mph)

Engine RPM: 4100 @ 110 MPH

109.0 (mph)	108.0 (mph)	111.0 (mph)	110.0 (mph)
108.0 (mph)	112.0 (mph)	108.0 (mph)	111.0 (mph)

Engine RPM: 4300 @ 115 MPH

118.0 (mph)	115.0 (mph)	116.0 (mph)	116.0 (mph)
116.0 (mph)	114.0 (mph)	116.0 (mph)	114.0 (mph)

Revised: 6/2/2014

Author Jose Sanchez  
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TAS 100 (A) Calibration Records  
Wind Stream Calibration

Engine RPM: 4400 @ 120 MPH

119.0(mph)	119.0(mph)	121.0(mph)	121.0(mph)
121.0(mph)	120.0(mph)	122.0(mph)	120.0(mph)

Engine RPM: 4800 @ 125 MPH

125.0(mph)	125.0(mph)	121.0(mph)	125.0(mph)
122.0(mph)	126.0(mph)	126.0(mph)	124.0(mph)

Engine RPM: 4900 @ 130 MPH

130.0(mph)	131.0(mph)	132.0(mph)	131.0(mph)
133.0(mph)	134.0(mph)	132.0(mph)	132.0(mph)

Engine RPM: 5100 @ 135 MPH

135.0(mph)	133.0(mph)	135.0(mph)	133.0(mph)
135.0(mph)	134.0(mph)	133.0(mph)	134.0(mph)

Engine RPM: 5300 @ 140 MPH

141.0(mph)	139.0(mph)	141.0(mph)	143.0(mph)
140.0(mph)	142.0(mph)	139.0(mph)	138.0(mph)

Wind speed (mph) shall not exceed or decrease any more than  $\pm 10\%$  of the required wind speed as per TAS 100-95(A) section 7.1.2

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TAS 100 (A) Calibration Records

Simulated Rainfall and Flow Meter Calibration

Reading #	Flow meter read out gallon/minute	inches/hour	Allowable Standard Tolerance ±5% of 8.8
1	4.3	8.62	8.36-9.24 in/hr
2	4.3	8.62	8.36-9.24 in/hr
3	4.3	8.62	8.36-9.24 in/hr

Section 7.2.3

Formula:

$$[(\text{Gal}/\text{min}) \times (60 \text{ min}/1 \text{ hr}) \times (231 \text{ in}^3/1 \text{ gal})] / 6912 \text{ in}^2 = \text{inches}/\text{hour}$$

Simulated Rainfall and Flow Meter Calibration

Status- 1 minute filling time

Test Number	Weight of Water Bucket	Weight of Bucket Tare	Weight of Water	Divide	Weight of One Gallon	Gallon/minute Collected	Inches/hour	Allowable Standard Tolerance ±5% of 7.2.3
1	36 lbs	(-) 1.0 lbs	35 lbs	/	8.34 lbs	4.19	8.40	8.19-9.05 in/hr
2	36 lbs	(-) 1.0 lbs	35 lbs	/	8.34 lbs	4.19	8.40	8.38-9.26 in/hr
3	35 lbs	(-) 1.0 lbs	34 lbs	/	8.34 lbs	4.08	8.18	8.38-9.26 in/hr

Section: 7.2.5

Formula:

$$[(\text{inches}^3/6912 \text{ inches}^2)/1 \text{ minute}] \times (60 \text{ minutes}/1 \text{ hour}) = \text{inches}/\text{hour}$$

Note: 231 in<sup>3</sup> = 1 gallon

Water Distribution Check

10) 24"x24" Absorptive Cloth Material

#1) 244g	#2) 241g	#3) 251g	#4) 247g	#5) 250g
#6) 242g	#7) 242g	#8) 246g	#9) 247g	#10) 251g

Total of all ten squares= 2461 g

Average of ten squares= 246 g

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TAS 100 (A) Calibration Records  
 Water Distribution Check @ 35 (mph)

Reading #1 Total Weight <u>915g</u> (-) tare <u>246g</u> = <u>669g</u> = <u>0.59 inches/hour</u>	Reading #2 Total Weight <u>936g</u> (-) tare <u>246g</u> = <u>690g</u> = <u>0.61 inches/hour</u>	Reading #3 Total Weight <u>936g</u> (-) tare <u>246g</u> = <u>690g</u> = <u>0.61 inches/hour</u>	Reading #4 Total Weight <u>935g</u> (-) tare <u>246g</u> = <u>689g</u> = <u>0.61 inches/hour</u>
Reading #5 Total Weight <u>924g</u> (-) tare <u>246g</u> = <u>678g</u> = <u>0.60 inches/hour</u>	Reading #6 Total Weight <u>924g</u> (-) tare <u>246g</u> = <u>678g</u> = <u>0.60 inches/hour</u>	Reading #7 Total Weight <u>912g</u> (-) tare <u>246g</u> = <u>666g</u> = <u>0.59 inches/hour</u>	Reading #8 Total Weight <u>952g</u> (-) tare <u>246g</u> = <u>706g</u> = <u>0.62 inches/hour</u>
Reading #9 Total Weight <u>929g</u> (-) tare <u>246g</u> = <u>683g</u> = <u>0.60 inches/hour</u>	Reading #10 Total Weight <u>941g</u> (-) tare <u>246g</u> = <u>695g</u> = <u>0.61 inches/hour</u>	Reading #11 Total Weight <u>929g</u> (-) tare <u>246g</u> = <u>683g</u> = <u>0.60 inches/hour</u>	Reading #12 Total Weight <u>1000g</u> (-) tare <u>246g</u> = <u>754g</u> = <u>0.66 inches/hour</u>

**Formula: 7.3.5.1**

1 gram = 0.061 inches<sup>2</sup>

$[(\text{in}^2/576^2) / (\text{hours})] = x (\text{inches/hour})$

Run Time = 0.12 hour

No one particular square shall be greater than or less than  $\pm 15\%$  of any other square as per TAS 100(A)-95 Section 7.3.6

Revised: 6/2/2014

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TAS 100 (A) Calibration Records  
 Water Distribution Check @ 70 (mph)

Reading #1 Total Weight <u>1029g</u>  (-) tare <u>246g</u>  = <u>783g</u>  = <u>0.69 inches/hour</u>	Reading #2 Total Weight <u>1020g</u>  (-) tare <u>246g</u>  = <u>774g</u>  = <u>0.68 inches/hour</u>	Reading #3 Total Weight <u>1048g</u>  (-) tare <u>246g</u>  = <u>804g</u>  = <u>0.71 inches/hour</u>	Reading #4 Total Weight <u>1028g</u>  (-) tare <u>246g</u>  = <u>782g</u>  = <u>0.69 inches/hour</u>
Reading #5 Total Weight <u>1044g</u>  (-) tare <u>246g</u>  = <u>798g</u>  = <u>0.70 inches/hour</u>	Reading #6 Total Weight <u>1018g</u>  (-) tare <u>246g</u>  = <u>772g</u>  = <u>0.68 inches/hour</u>	Reading #7 Total Weight <u>1026g</u>  (-) tare <u>246g</u>  = <u>780g</u>  = <u>0.69 inches/hour</u>	Reading #8 Total Weight <u>1042g</u>  (-) tare <u>246g</u>  = <u>796g</u>  = <u>0.70 inches/hour</u>
Reading #9 Total Weight <u>1026g</u>  (-) tare <u>246g</u>  = <u>780g</u>  = <u>0.69 inches/hour</u>	Reading #10 Total Weight <u>1044g</u>  (-) tare <u>246g</u>  = <u>798g</u>  = <u>0.70 inches/hour</u>	Reading #11 Total Weight <u>1049g</u>  (-) tare <u>246g</u>  = <u>808g</u>  = <u>0.71 inches/hour</u>	Reading #12 Total Weight <u>999g</u>  (-) tare <u>246g</u>  = <u>753g</u>  = <u>0.66 inches/hour</u>

**Formula: 7.3.5.1**

1 gram = 0.061 inches<sup>3</sup>

$[(\text{in}^3/576^2) / (\text{hours}) = x (\text{inches/hour})$

Run Time = 0.12 hour

No one particular square shall be greater than or less than  $\pm 10\%$  of any other square as per TAS 100(A)-95 Section 7.3.7.1

Revised: 6/2/2014

Author Jose Sanchez  
 Page 5 of 5

Form Number IN 509-27

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**Appendix B**

**TAS 100(a)-95 0.05% Maximum Allowable Leakage Calculations**

**Test Frame Size:**

8'-0" by 6'-0" or 6912 inches<sup>2</sup>

**8.8 inches/hour of rain in a 15 minute duration:**

(8.8 inches/hour) x (15 minutes) x (1hour/60 minutes) = 2.2 inches

**2.2 inches of water sprayed over the test frame:**

(6912 inches<sup>2</sup>) x (2.2 inches) = 15,206.4 inches<sup>3</sup> of water

**1 inch<sup>3</sup> of water or 0.576 ounces of water**

(15,206.4 inches<sup>3</sup>) x (0.576 ounces of water) = 8,758.8 ounces of water

**0.05% maximum allowable:**

(8,758.8) x (0.05%) = 4.379 ounces of water



**Notes**

\* Designates measurements by laboratory  
\*\* as per manufacturer

QAI does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by QAI. QAI is not owned, operated, or controlled by any company manufacturing or distributing products it tests or labels.

Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Test results obtained represent the actual value of the tested specimens and do not constitute opinion, endorsement, or certification by this laboratory.

**REMARKS**

This product was tested and is in compliance with the Florida Building Code (2023) TAS 100-23(A) with no deviations.

See Appendix A for the calibration records as indicated in TAS 100-23(A). Total water sprayed was 8.8 inches per hour.

**REVISION HISTORY:**

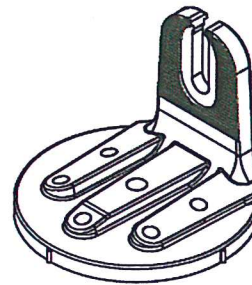
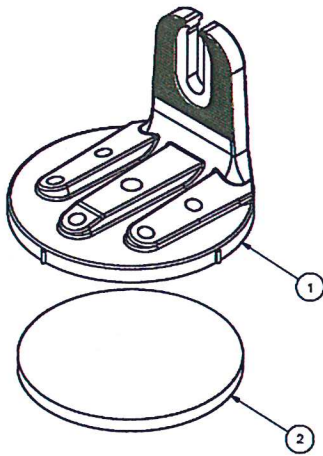
12/27/2023: Initial report release

1/18/2024: Added part number per clients request.

**\*\*\*\*\*END REPORT\*\*\*\*\***

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REVISIONS			
REV	DESCRIPTION	BY	DATE
A	INITIAL RELEASE	KYY	10/21/2022



2	C50009-DD1	NANO GASKET, NEOPRENE FOAM	1
1	A50259-BK1	BLACK NANOPLUS MOUNT	1
ITEM	PART NUMBER	DESCRIPTION	QTY
MATERIAL		SEE NOTES	
Third Angle Projection:		<b>SunModo Corp.</b> 14800 NE 65TH STREET, VANCOUVER WA 98662	
<b>GENERAL SPECIFICATIONS</b> (All dimensions in inches unless noted)			
XXXX 10.01 (0.25mm) Break all sharp edges XXX 10.02 (0.50mm) C/S: 0.00 unless otherwise specified XXX 10.03 (1.0mm)			
DRAWN BY: KYY DATE: 10/31/2022 CHECKED BY:			
APPROVALS		TITLE	
		NANOPLUS MOUNT, BLACK	
		B	DRAWING NUMBER: K50064-BK1
		SCALE: 1/1.5	SHEET 1 of 1

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QAI LABORATORY

LABORATORY NUMBER: MED-1200b

DATE: 1/18/2024

DRAWINGS VERIFIED BY: LD