

Nuwave, LLC

TEST REPORT

SCOPE OF WORK

CADR Testing - Air Purifier - [47601; 476XX]

REPORT NUMBER

230531034GZU-001

DRAFT REPORT

ISSUE DATE

14-Nov-2023

[REVISED DATE]

None

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Test Report

Report Number	230531034GZU-001
Test Laboratory Name / Address	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District, Guangzhou, Guangdong, China
Applicant Name / Address	Nuwave, LLC 560 Bunker Ct. Vernon Hills, IL 60061, USA
Manufacturing Name / Address	Same as applicant
Product	Air Purifier
Brand Name	NUWAVE® OXYPURE ZERO® E2000
Description	The product covered by this report is a cord connected indoor used only Air Purifier.
Model(s) (if applicable)	47601; 476XX
Model Similarity	XX can be any number; All of the models are identical except for the specific model name.
Rated voltage (V)	120
Rated frequency (Hz)	60
Rated power (W)	105
Date of receipt of sample(s)	14-Oct-2023
Date of test	16-Oct-2023 to 1-Nov-2023
Sample Condition	Prototype
Test standard(s) or criteria(s)	ANSI/AHAM AC-1-2020 ENERGY STAR® Program Requirements for Room Air Cleaners Version 2.0
Conclusion	The results reported are within the minimum and maximum limits of measurability of the ANSI/AHAM AC-1-2020 " <u>Association of Home Appliance Manufacturers Method for Measuring Performance of Portable Household Electric Room Air Cleaners</u> " Test Method and meet the requirements of EPA Energy Star version 2.0.
Date of issue	14-Nov-2023
Date of revision	None

Prepared by:

Approved by:

DRAFT REPORT

#N/A

#N/A

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Test Method:

Tests were performed in accordance with ANSI/AHAM AC-1-2020 entitled "Association of Home Appliance Manufacturers Method for Measuring Performance of Portable Household Electric Room Air Cleaners". This standard method has defined limits of measurability. The practical limits of measurability are: Dust 10 to 600 CADR, Tobacco smoke 10 to 600 CADR and Pollen 25 to 450 CADR. The statistical validity of test results outside of the stated practical limits is questionable and unevaluated. Clean Air Delivery Rates (CADR's) were determined using Tobacco Smoke, AC Fine Test Dust, and Paper Mulberry Pollen.

Additional requirements for energy taken from IEC 62301 Ed. 2 entitled, "Household Electrical Appliances – Measurement of Standby Power".

Monitored particle size ranges for the three particulates were as follows:
Smoke - 0.10-1.0 microns; Dust - 0.5-3 microns; Pollen - 5-11 microns.

PM2.5 CADR is obtained by combining the CADR of Cigarette smoke particle sizes ranging from 0.1 and 0.5 microns with the CADR of dust particles that fall in the range of 0.5 to 2.5 microns and performing a geometric average calculation.

$$PM2.5 \text{ CADR} = \sqrt[2]{Smoke \text{ CADR}(0.1 - 0.5\mu m) \times Dust \text{ CADR} (0.5 - 2.5)}$$

Test Equipment List:

Equipment Name	Type	Number	Calibration Date	Due Date
Laser Aerosol Spectrometer	3340	SA016-23-04	2023/1/6	2024/1/5
Aerodynamic Particle Sizer	3321	SA016-23-05	2022/12/9	2023/12/8
Fluidized Bed Aerosol Generator	3400A	SA016-23-05	2023/6/2	2024/6/1
Air Cleaner testing Chamber		SA016-23	2023/6/2	2024/6/1

Device Under Test Description:

The device(s) tested for this report were/was Model 47601

The following device settings were used during testing: 120V/60Hz, High Speed, Tested on the Floor

	
<p align="center">Unit in test</p>	<p align="center">APP & Control Panel view</p>
	
<p align="center">Stainless Steel Pre-Filter view</p>	<p align="center">Ozone Emission Removal Filter view</p>
	<p align="center">NA</p>
<p align="center">Bio-Guard® Filter view</p>	

Results of Performance Tests:

Model/Configuration	Test Particulate	Natural Decay Rate	CADR (FT ³ /Min)	CADR STDEV	Power (W)
47601 S230531034-005 120V/60Hz, High Speed Tested on the Floor	Smoke	0.00378	401.1	6.1	101.7
	Dust	0.00614	406.9	4.8	100.5
	Pollen	0.12599	428.0	38.6	101.3
	PM2.5	-	404.0	-	-

Conclusion:

The results reported are within the minimum and maximum limits of measurability of the ANSI/AHAM AC-1-2020 "Association of Home Appliance Manufacturers Method for Measuring Performance of Portable Household Electric Room Air Cleaners" Test Method.

Energy Star v2.0 Smoke Operating Power Test

Test Sample Information

Manufacturer/ Organization Name	Model Number	Serial Number	Rated Voltage (V)	Rated Freq. (Hz)	Rated Power (W)
Nuwave, LLC	47601	1 Sample	120	60	105

Test Criteria

Test Voltage (V)	Test Freq. (Hz)	Ambient Temp. (°F)	Ambient Humidity (%RH)
120 ± 1	60 ± 1	70 ± 5	40 ± 5

Energy Star v2.0 Smoke CADR/Watt Requirement

Smoke CADR Bins	Minimum Smoke CADR/W
$30 \leq \text{CADR} < 100$	1.9
$100 \leq \text{CADR} < 150$	2.4
$\text{CADR} \geq 150$	2.9

Test Results

Test Sample	Test Voltage (V)	Test Freq. (Hz)	Ambient Temp. (°F)	Ambient Humidity (%RH)	Smoke CADR (FT ³ /Min)	Power (W)	Smoke CADR/W
S230531034-005	120.1	60.0	70.0	37.0	401.1	101.7	3.9

Conclusion:

These results illustrate that this sample does meet the Energy Star Program performance requirements.

Energy Star v2.0 Partial On Mode Power Test

Test Criteria - IEC 62301

Test Voltage (V)	Test Frequency (Hz)	THD of the Electricity Supply System	Ambient Test Temperature (°F)
115 ± 1	60 ± 1	≤ 2%	73.4 ± 9

Energy Star v2.0 Partial On Mode Power Test

Item	Partial On Mode Power Allowance for models without Wi-Fi capability (W)	Partial On Mode Power Allowance for models with Wi-Fi capability (W)
P _{Base_Allowance}	1.00	1.00
P _{Network_Connected}	0.00	1.00
P _{Max_Partial_On}	1.00	2.00

Note: P_{Max_Partial_On} = P_{Base_Allowance} + P_{Network_Connected}

Partial On Mode Power Test Results

Test Sample	Test Voltage (V)	Test Freq. (Hz)	THD (%)	Ambient Temp. (°F)	Measured Partial On Mode Power (W)	P _{Max_Partial_On} (W)
S230531034-005	115.3	60.0	0.92	70.0	0.97	2.00

Conclusion:

The results illustrated in the Partial On Mode Power Data shows that this model with Wi-Fi capability complies with the criteria.

