

# REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 105443787

Date: May 30, 2023

**REPORT NO. 105443787CRT-002**

**SOUND POWER TESTING ON AN  
AIR CLEANER  
MODEL 5 ARCTIC P12**

**RENDERED TO:**

**RAINBOW PURIFIERS, LLC  
503 VINE ST.  
WELLINGTON, MO 64097  
USA**

## **INTRODUCTION**

This report gives the results of a Sound Power Test conducted on an air cleaner. The test specimen was selected and supplied by the client and received at the acoustical lab on May 10, 2023. The unit appeared to be in good, new condition upon arrival.

## **AUTHORIZATION**

Signed Intertek Quotation No. Qu-01330510-5

## **TEST METHOD – Sound Power Level**

The laboratory method used in conducting this test is in accordance with ANSI/ASA S12.51-2012/ISO 3741:2010, “Nationally Adopted International Standard (NAIS Standard) Acoustics -- Determination of sound power levels of noise sources using sound pressure – Precision method for reverberation rooms. The reference sound source used for these tests was a calibrated Bruel & Kjaer Type 4204, which conforms to the above standard. The sample was also tested in accordance with AHAM AC-2 2006(R2016) “Method for Sound Testing of Portable Household Electric Room Air Cleaners”. The sones were calculated in accordance with AHAM AC-2.

The sample was operated for a minimum of 15 minutes prior to testing.

**INSTRUMENTATION:**

Equipment	Calibration Date	Due Date	S/N	Model	Brand	Asset
Microphone/Pre - DF	5/1/2023	5/1/2024	2381161	4942	Brüel and Kjær	E450
Microphone Calibrator	5/1/2023	5/3/2024	2130586	4231	Brüel and Kjær	A227
Pulse Analyzer	5/1/2023	5/3/2024	2574546	3560	Brüel and Kjær	E553
Power Analyzer	1/31/23	1/31/24	B042	WT110 (253401)	Yokogawa	B042
Thermohygrometer	9/12/2022	9/12/2023	36231027	971	Fluke	E552

**Additional System Components:**

Brüel & Kjær Rotating Microphone Boom, Type 3923  
Brüel & Kjær Windscreen, Type UA0237

**DESCRIPTION OF TEST SPECIMEN AND SET UP**

The test specimen consisted of a Rainbow Purifiers, LLC 5 Arctic P12 air cleaner. The test was conducted with the sample operating with no external static pressure operating on 120 volt, 60 hertz power.

**PHOTOGRAPH OF TEST SAMPLE**



**RESULTS OF MEASUREMENTS – 5 ARCTIC P12**

<b>Speed</b>	<b>1</b>
<b>Volts</b>	120
<b>Amps</b>	0.142
<b>Watts</b>	8.3
<b>1/3 Octave Band Center Frequency (Hz)</b>	<b>Sound Power, Lw (dB re: 10-12 W)</b>
<b>50</b>	42.9*
<b>63</b>	41.5*
<b>80</b>	42.4*
<b>100</b>	33.3*
<b>125</b>	32.7
<b>160</b>	33.2
<b>200</b>	30.8
<b>250</b>	34.5
<b>315</b>	32.8
<b>400</b>	32.3
<b>500</b>	32.5
<b>630</b>	34.9
<b>800</b>	34.3
<b>1000</b>	35.5
<b>1250</b>	32.3
<b>1600</b>	30.4
<b>2000</b>	24.6
<b>2500</b>	21.5
<b>3150</b>	18.7
<b>4000</b>	14.8
<b>5000</b>	14.9*
<b>6300</b>	16.4*
<b>8000</b>	18.0*
<b>10000</b>	19.7*
<b>dBA (Lw)</b>	41.7
<b>Sones</b>	0.553

Note: Sones reported were the overall sound pressure level rating at 1 meter calculated in accordance with AHAM AC-2 2006 (R2016) "Method for Sound Testing of Portable Household Electric Room Air Cleaners"

\*Sound pressure level has reached background level and actual levels are less than or equal to the values indicated.

**CONCLUSION**

The test method employed for this test has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

Date of Test: May 25, 2023

Temperature: 72 °F Dry Bulb  
55 °F Wet Bulb

Barometric Pressure: 29.02 in. Hg

Report Approved by:



Gerald Gray  
Associate Engineer  
Acoustical Testing

Report Reviewed By:



Brian Cyr  
Engineer  
Acoustical Testing

Attachments: None