

# GREENFAN, INC.

## OZONE TEST REPORT

### SCOPE OF WORK

Ozone Emissions Testing of Household Electrostatic Air Cleaners for Model: 1600-01

### REPORT NUMBER

104617012CRT-001

### ISSUE DATE    REVISED DATE

09/28/2021    03/10/2022

### PAGES

10

### QUOTE NUMBER

Qu-01151312-3

### DOCUMENT CONTROL NUMBER

GFT-OP-10o (16-Oct-2017)

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## TEST REPORT FOR

Report No.: 104617012CRT-001

Date: 09/28/2021

Revised: 03/10/2022

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## SECTION 1

### SUMMARY

The representative sample(s) have been tested, investigated, and found to comply with the requirements of the following Standard(s):

Electrostatic Air Cleaners, UL 867, Section 40, Fifth Edition, August 4, 2011 revision: August 7, 2018

CSA 22-2 No.187-20, Section 7, February 2015, January 2020 Revision

The equipment identified in this report has been found to meet the criteria for emittance of ozone not exceeding a concentration of 0.050 ppm. Furthermore, a second sample was not required to be tested, according to UL 867, as the first sample's maximum emissions were less than 0.030 ppm, which satisfies the exception in the Section 40.1.1.

This report completes our evaluation covered by Intertek Project Number G104617012 which has been authorized by Intertek quote number: Qu-01151312-3 If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact the undersigned.

OZONE EMISSIONS SUMMARY			
FAN SPEED	FILTER(S)	O3/VOLTAGE SETTING	C(t) <sub>max</sub> [ppm]
ON	NO	24V AC	0.001
Highest 8-hour time weighted average: 0.000[ppmv]			
Completed by:	Ateet Shah	Reviewed by:	Michael Hudon
Title:	Project Engineer	Title:	Sr. Project Engineer
Signature:	<i>Signature on file</i>	Signature:	<i>Signature on file</i>
Date:	09/28/2021	Date:	29 September 2021

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## SECTION 2

## INDEX

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## CHAMBER EQUIPMENT INFORMATION

TEST EQUIPMENT LIST

Instrument	Model	Intertek Ctrl #	Cal Due Date
Teledyne – Advanced Pollution Instrumentation Ozone Calibrator	703E	O200	08-24-2022
Teledyne – Advanced Pollution Instrumentation Ozone Monitor	T400	D804	*
Vaisala – Temperature & Humidity Transducer	HMD-70Y	T1307	05-24-2022
Fluid Components International- Flow meter	ST75V	F463	10-12-2021

\* The 400E Ozone Monitor is calibrated using the 703E calibrator.

**SECTION 3**

**UNIT UNDER TEST INFORMATION**

MODEL INFORMATION			
Manufacturer:	GREENFAN, INC.	Pre-Filter:	NO
Model Number:	1600-01	HEPA Filter:	NO
Production/Prototype/ Design	Production	ESP Filter:	NO
Fan Speeds:	ON/OFF	Carbon Filter:	NO
O3/Voltage Settings:	24V AC	UV Light:	NO
O3 Monitor:	-	Ionizer:	YES
Model Notes:	Ionizer unit only, no fans or other air movement devices		

RUN-IN TEST			
<b>FIRST SAMPLE</b>			
Run-in Start:	09/01/2021 1:30 PM	Run-in End:	09/03/2021 3:04 PM
Run-in Temperature:	77 +/-4	Tracking Number:	CRT2108101019-001
Serial Number:	NA	Manufacture Date:	July 2021
Sample Notes:	Sample was burnt due to an operator error, so second sample was used for testing.		
<b>SECOND SAMPLE</b>			
Run-in Start:	09/16/2021 8:56 AM	Run-in End:	09/21/2021 3:41 PM
Run-in Temperature:	77 +/-4	Tracking Number	CRT2109091024-002
Serial Number	NA	Manufacture Date:	September 8, 2021
Sample Notes:			

**SECTION 4**

**PEAK OZONE TEST**

GRILL AND AIR PERIPHERY DIMENSIONS			
		Date of Test:	09/24/2021
Grill Height:	NA	Air Periphery Height:	NA
Grill Width:	2.5 in	Air Periphery Width:	NA
Estimated Grill Area:	NA	Est. Air Periphery Area:	NA
Notes:	Measurements are in Inches		

PEAK LOCATION			
Loc.	X	Y	
-	[inches]	[inches]	
1	0.00	-0.63	
2	0.00	0.00	
3	0.00	0.63	
4			
5			
6			
7			
8			
9			
* Location measurements are coordinates in reference to the center point.			



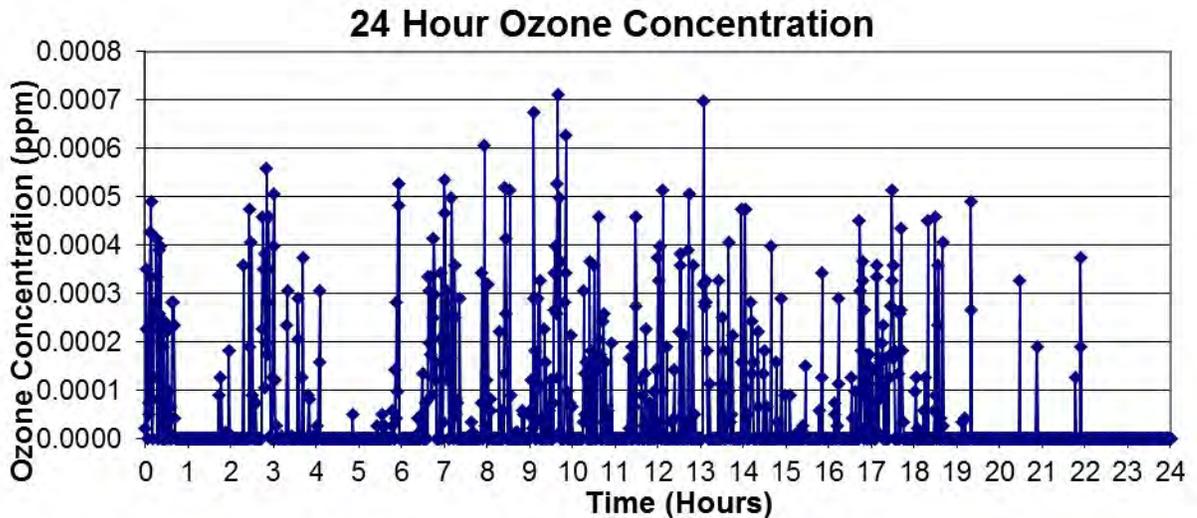
PEAK OZONE CONCENTRATIONS (ppm)				
Location	<i>Without Filter(s)</i>		--	
	<i>ON</i>	--	--	--
1	0.0006	--	--	--
2	0.0012	--	--	--
3	0.0011	--	--	--

Note: Peak Ozone Test concentrations are shown with background subtracted.

**SECTION 5**

**MAX OZONE TEST UL 867 & CSA 22-2**

START DATE OF TEST: 09/25/2021  
 SAMPLE: Second  
 FAN SPEED: ON  
 FILTER(S): No Filters, Ionizer On



MAXIMUM OZONE TEST RESULTS							
	UL Ref.	Pass/Fail	Mean	Min	Max	Delta	Units
Background C(t) O3:	40.4.3	PASS	0.001	0.000	0.001	0.001	[ppm]
Test 1min C(t) O3:	40.1.2	PASS	0.000	0.000	<b>0.001</b>	0.001	[ppm]
Test 5min C(t) O3:	40.1.2	PASS	0.000	0.000	0.000	0.000	[ppm]
Chamber Temperature:	40.4.2	PASS	77	77	77	1	[degF]
Chamber Humidity:	40.4.2	PASS	52	50	52	2	[%RH]
Chamber Static Pressure:	-	PASS	0.02	0.01	0.03	0.01	["H2O]
Chamber Supply Air Flow:	-	-	20	20	20	0	[SCFM]
Required to Test 2nd Sample:	40.1.1	NO					
Test Duration:	*40.4.6	24 hours					

NOTES: Peak Test Location 2 Highest 8-hour time-weighted average: 0.000 [ppmv]  
 All 8-hour time-weighted averages:  
 0h-8h: 0.000 [ppmv]  
 8h-16h: 0.000 [ppmv]  
 16h-24h: 0.000 [ppmv]

**SECTION 6**  
**APPENDIX**

**DATA FILES**

TEST NAME	RAW DATA FILE
Model Half Life	4693 Halflife.xls
Model Half Life	4693 Half-life ozonelog.csv
Max Ozone: ON w/o Filter	4694 Max ONWOF ozonelog.csv
Max Ozone: ON w/o Filter	4694 Max ONWOF.xls

**ATTACHMENT DOCUMENTS**

DOCUMENT	SOFT-COPY FILE NAME
ARB Application	NA
Chain of Custody: Sample 1	COC-CRT2108101019-001.docx
Chain of Custody: Sample 2	COC-CRT2109091024-002.docx

**UUT PHOTOGRAPHS**



UUT



Nameplate

UUT PHOTOGRAPHS: PEAK TEST



Location 2

On w/o FILTER

UUT PHOTOGRAPHS: MAX OZONE TESTS



Location 2

On w/o FILTER

**7.0 REVISION SUMMARY**

Date/Proj # Site ID	Project Handler/ Reviewer	Section	Description of Change
March 10, 2022	P.Comfort <i>PC</i>	Cover Page	Added revised date 03/10/2022.
G104617012CRT	Ateet Shah M.Hudon <i>MH</i>	Page 2	Added revised date 03/10/2022. Removed signatures and added "Signature on file" for both signatures.
		Page 9	Changed w/ filters to w/o filters for Peak and Max test photos.