

# DELTA T LLC DBA BIG ASS FANS

## EFFICACY TEST REPORT

### SCOPE OF WORK

Non-standardized Test Method: Microbial Reduction Rate Test - Virus test (Phi X174)

### PRODUCT

#### UVC Kit

009785-258 Haiku UV-C Kit, Haiku Black  
009785-259 Haiku UV-C Kit, Haiku White  
009785-470 Haiku UV-C Kit, Satin Nickel  
009785-471 Haiku UV-C Kit, Oil Rubbed Bronze

### FAN

S3150-XX-YY-04-02-C-01-FXXX-G9  
60", Indoor Uplight Compatible

### REPORT NUMBER

104380072COL-015

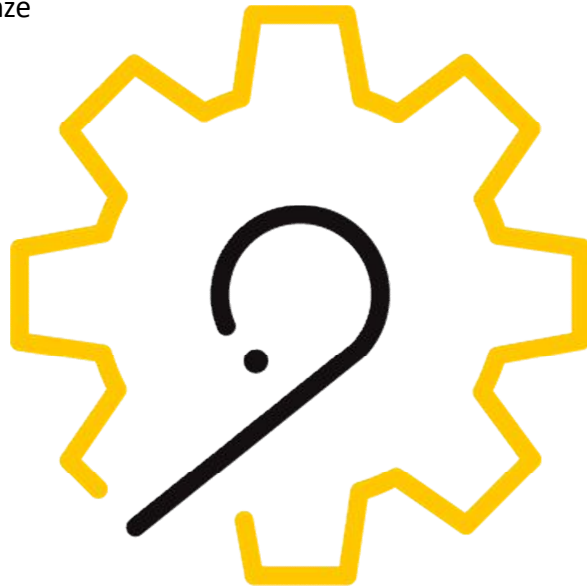
### ISSUE DATE

30-July-2020

### PAGES 5

### DOCUMENT CONTROL NUMBER

GFT-OP-10h (6-July-2017)  
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## MICROBIOLOGICAL PERFORMANCE TEST REPORT

### SECTION 1 EFFICACY STUDY SUMMARY

<b>Client</b>		<b>DELTA T LLC DBA BIG ASS FANS 2348 Innovation Drive Lexington, KY 40511-2601</b>
<b>Project No.</b>		G104380072
<b>Sample</b>	Product	UVC Haiku Fan Mounted Uplight
	Model	60" (152cm), Indoor Uplight Compatible Haiku UV-C Kit
<b>Procedural</b>	Engineer	Nicholas Unger
	Reviewer	Lee Moomaw
	Dates Tested	7/27/20 – 7/30/20
	Report Date	7/30/20
<b>Standard</b>	Non-standardized Test Method: Microbial Reduction Rate Test	
<b>Testing Facility</b>	Intertek Microbiological Laboratory 1717 Arlingate Ln. Columbus, OH 43228 United States	

### SECTION 2 TEST PROCEDURE

The test unit was installed in the center of the test chamber with a blade height of 93" from the floor. The test chamber measured 10' x 10' x 10' (3m x 3m x 3m) and a microbial suspension was aspirated into the chamber. Air samples were taken from the test chamber once the unit was turned on, and then at client specified intervals (0, 5, 10, 15, 20, 30, 45, 60, 90 and 120 minutes) over a period of 2 hours and then plated. The process was then repeated without the test unit in the chamber to provide the natural decay results. All plates were incubated overnight and viral growth on the test plate was compared to that of the natural decay control.

Air sampling took place using an SKC BioStage Single-stage impactor for 30 seconds at 12L/min (.424 cubic feet/min). Results below represent the percent reduction at 15 minutes.

## MICROBIOLOGICAL PERFORMANCE TEST REPORT



**Photo 1:** Photo of Fan in Test Chamber

### SECTION 3 ORGANISMS

Organism Name	Organism Type	ATCC Number	Source
Phi X174 bacteriophage	small, non-enveloped virus	13706-B1	Carolina Bioscience

### SECTION 3 EQUIPMENT

Equipment Type	Equipment No.	Calibration Due Date
Micropipette	CE 2587	6/12/2021
Incubator	CE 2381	7/7/2021
Balance	CE 1882	7/7/2021
Autoclave	CE 2376	Verify Before Use
Centrifuge	CE 2382	For Reference Only
Chamber	CE 1149	For Reference Only
Collision Nebulizer	CE 1139	For Reference Only
Refrigerator	CE 1157	For Reference Only
Pump	CE 1137	For Reference Only
Stopwatch	SW015	10/22/2020
Ambient Temperature/RH	CE 1179	For Reference Only

## MICROBIOLOGICAL PERFORMANCE TEST REPORT

### SECTION 4 MEDIA AND REAGENTS

Type	Manufacturer	Lot No	Expiration Date
Nutrient Agar	DIFCO	9346039	10/31/2024
PBS	Fisher	192736	08/01/2022

### SECTION 5 SAMPLE ACQUISITION

Acquisition method	Client Hand Delivered
Description	Various components including Haiku Kit with Fan
Serial Number	S3150-XX-YY-04-02-C-01-FXXX-G9
Arrival date	7-6-2020
Condition	New
Model	Various
Sample Identification No.	07072020NUCOL-001
Development Level	Prototype

### SECTION 6 SUMMARY OF RESULTS

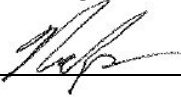

Mode	Fan Setting	Optional Features
Forward (Downward Blowing)	3	UVC Haiku Uplight – Test 15

#### Client Provided UVC Specifications

Technical Specifications					
Operating Voltage	Operating Current	Input Power	Peak Wavelength	Maintenance <sup>1</sup>	Operating Temperature
12 VDC	1.9 A	22.4 W	260–270 nm	Replace diodes annually (recommended)	32° to 104 °F (0° to 40 °C)
24 VDC	0.9 A	21.2 W			

Organism Type	Virus Reduction (15 minutes)
Temperature Min/Max	22°C (72°F) / 24°C (75°F)
Humidity Min/Max	48 % RH / 55 % RH
Organism Name	Phi-X174
Percent Reduction (15 Minutes)	99.9%

## MICROBIOLOGICAL PERFORMANCE TEST REPORT

Completed by:	Nicholas Unger	Reviewed by:	Lee Moomaw
Title:	Staff Engineer	Title:	Engineering Team Lead
Signature:		Signature:	
Date	30--JUL-2020	Date:	30-JUL-2020

### Annex B Test Results:

Test Parameter		Test Result	Natural Decay Result	Units
Organism	Species	<i>Coliphage φX174</i>		---
	ATCC No.	(Item # 124425)		---
	Challenge Concentration	5.0 x 10 <sup>9</sup>		PFU/mL
Samples (min)	0	TNTC	TNTC	PFU
	5	264	TNTC	PFU
	10	23	TNTC	PFU
	15	1	TNTC	PFU
	20	0	TNTC	PFU
	30	0	TNTC	PFU
	45	1	TNTC	PFU
	60	0	TNTC	PFU
	90	0	TNTC	PFU
	120	0	TNTC	PFU
Results	--	99.9%		Reduction