

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

**Applicant:** LUV SYSTEMS, INC.  
18726 South Western Avenue  
**Address:** Suite 407  
Gardena, CA 90248  
**Country:** USA

**Manufacturer:** LUV Systems, Inc.  
18726 South Western Avenue  
**Address:** Suite 407  
Gardena, CA 90248  
**Country:** USA

**Party Authorized To Apply Mark:** Same as Manufacturer  
**Report Issuing Office:** Intertek Testing Services NA, Inc., Lake Forest, CA

**Control Number:** 5025536

**Authorized by:** \_\_\_\_\_  
for L. Matthew Snyder, Certification Manager



This document supersedes all previous Authorizations to Mark for the noted Report Number.

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Intertek Testing Services NA Inc.  
545 East Algonquin Road, Arlington Heights, IL 60005  
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

<b>Standard(s):</b>	Electric Fans [UL 507:2017 Ed.10+R:27May2020]
<b>Product:</b>	Air Disinfection System Using Upflow Ceiling Fan
<b>Brand Name:</b>	the halō
<b>Models:</b>	5R/M

1.0 Reference and Address			
Report Number	105098099LAX-001	Original Issued: 28-Oct-2022	Revised: 14-Aug-2023
Standard(s)	Electric Fans [UL 507:2017 Ed.10+R:27May2020]		
Applicant	LUV SYSTEMS, INC.	Manufacturer	<b>LUV Systems, Inc.</b>
Address	18726 South Western Avenue Suite 407 Gardena, CA 90248	Address	18726 South Western Avenue Suite 407 Gardena, CA 90248
Country	USA	Country	USA
Contact	Sandeep Seth Anu Sood	Contact	Sandeep Seth Anu Sood
Phone	(832) 875-1470 (310) 803-7280	Phone	(832) 875-1470 (310) 803-7280
FAX	NA	FAX	NA
Email	sandy@luvsystems.com anu@luvsystems.com	Email	sandy@luvsystems.com anu@luvsystems.com

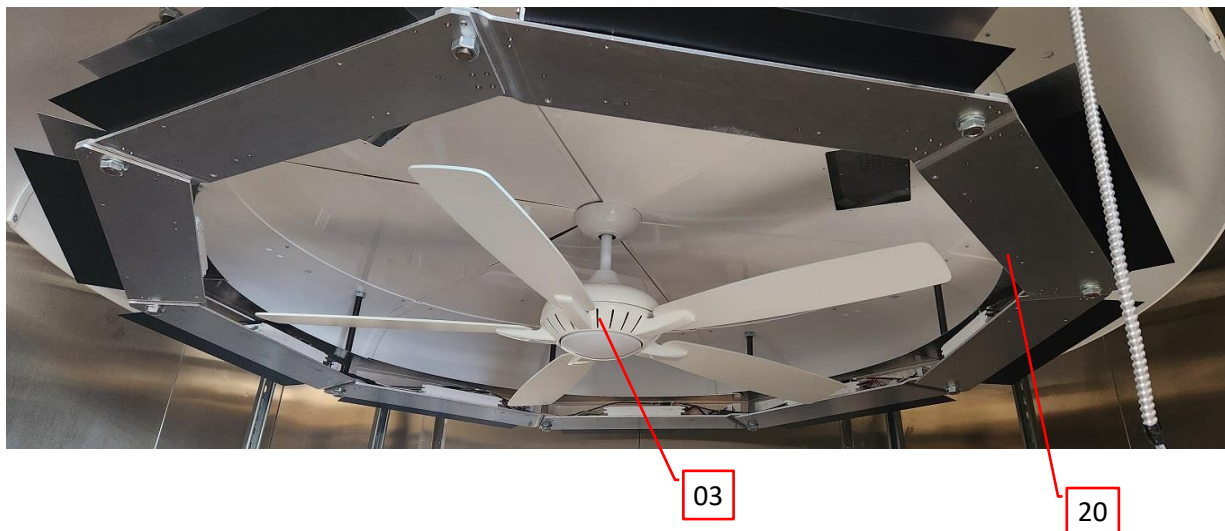
<b>2.0 Product Description</b>	
Product	Air Disinfection System Using Upflow Ceiling Fan
Brand name	the halō
Description	The product covered by this report uses a ceiling fan in an upflow mode. The product is intended to be installed in commercial building and to disinfect the air in the room. The fan has UV lamps rated 254nm contained in a circular duct system surrounding the fan. The air is directed through the ductwork & disinfected. Unit is indoor use and permanently connected. The product is intended to be installed in accordance with the National Electrical Code.
Models	5R/M
Model Similarity	NA
Ratings	120Vac, 50-60Hz, 5.4A
Other Ratings	Minimum distance from floor to fan blades: 8.6 ft. 650W UV lamps: 254nm.

**3.0 Product Photographs**

**Photo 1 - Side View of the 5R/M**

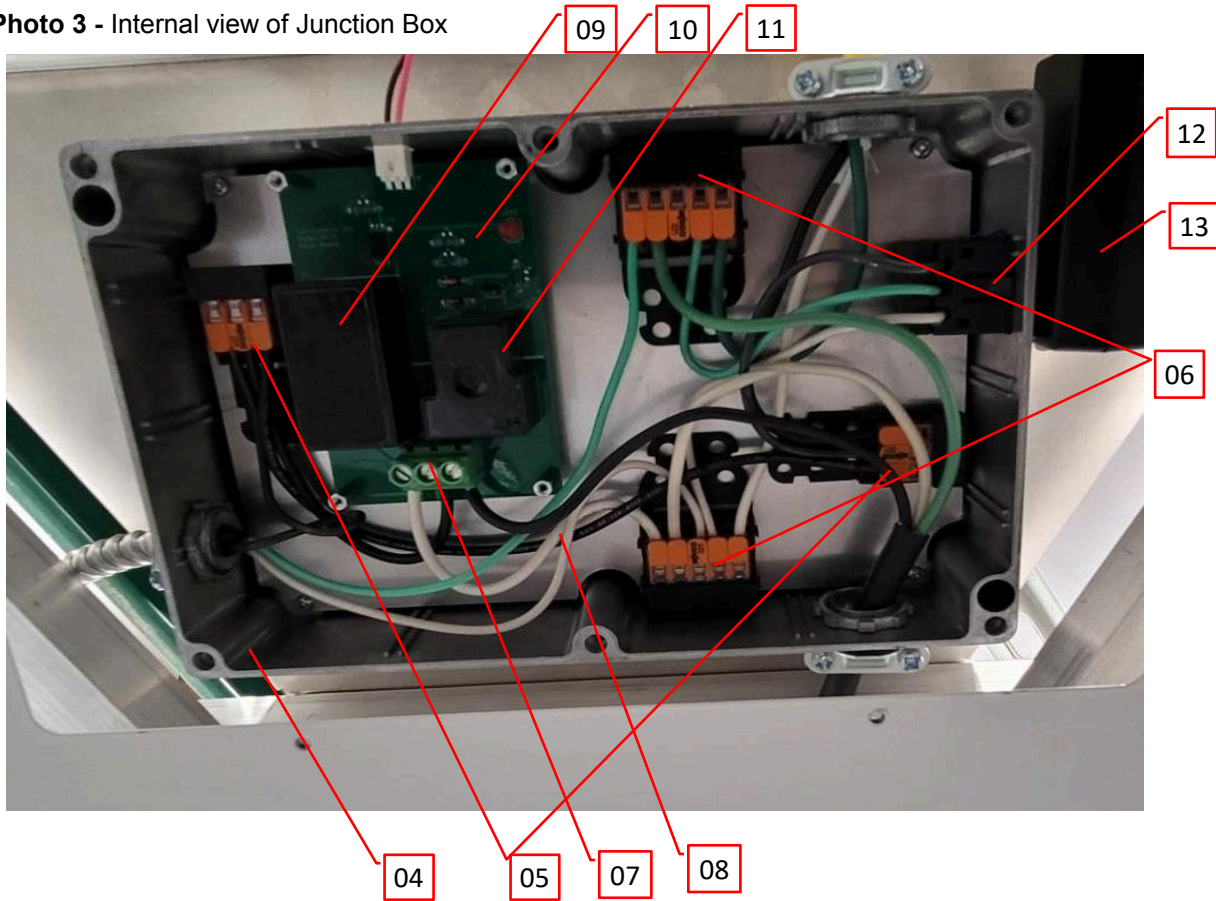


**Photo 2 - Underside View of the 5R/M with Lower Cowling Removed**

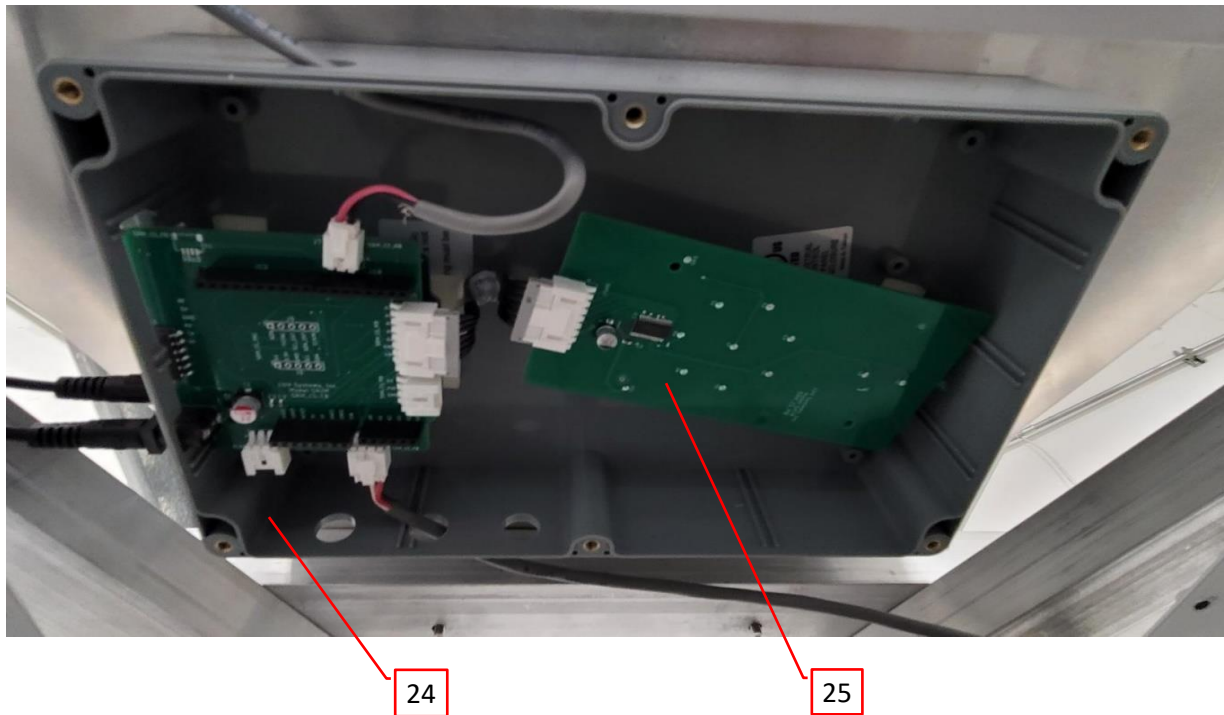


**3.0 Product Photographs**

**Photo 3 - Internal view of Junction Box**



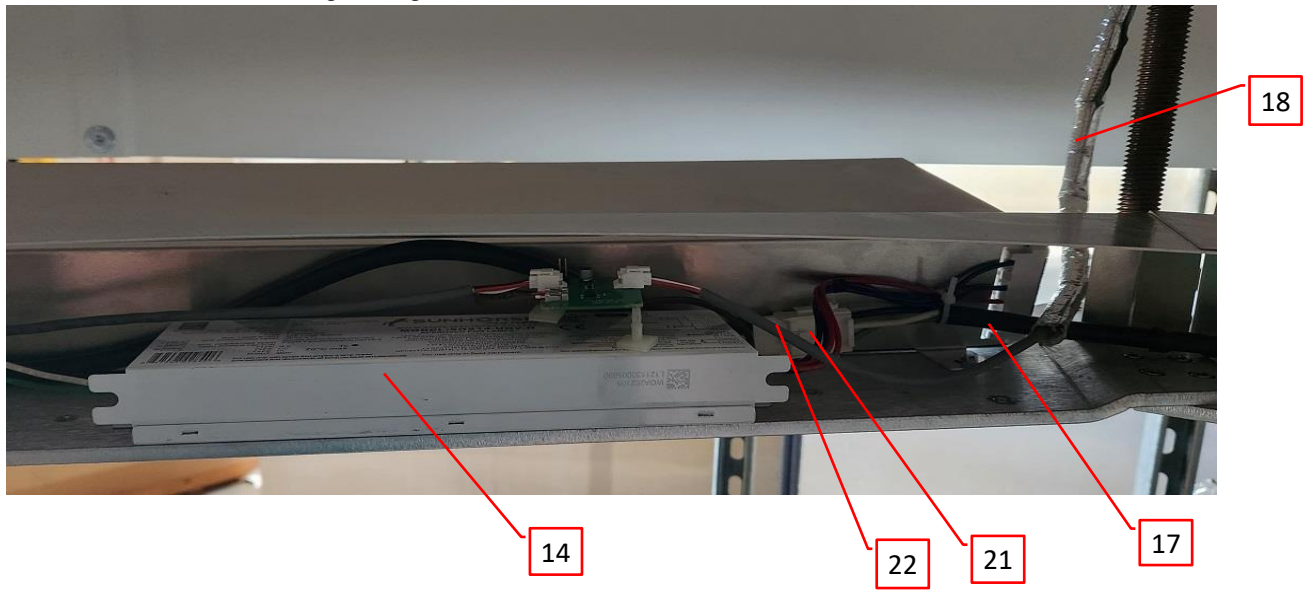
**Photo 4 - Internal view of Fan Control Box**





### 3.0 Product Photographs

Photo 5 - Internal view of Light Ring



4.0 Critical Components						
Photo #	Item no. <sup>1</sup>	Name	Manufacturer/ trademark <sup>2</sup>	Type / model <sup>2</sup>	Technical data and securement means	Mark(s) of conformity <sup>3</sup>
1	1	Upper Cowling	Sekisui Kydex LLC (E115252)	Kydex 100	Rated for UV exposure (f1), flame rating V-0, 5VA @ minimum thickness 0.15" (3.8 mm), Oper Temp 50°C	cURus
1	2	Lower Cowling	Sekisui Kydex LLC (E115252)	Kydex 100	Rated for UV exposure (f1), flame rating V-0, 5VA @ minimum thickness 0.15" (3.8 mm), Oper Temp 50°C	cURus
2	3	Fan with Light	Minka-Aire	Dyno XL F1001 series	Rated 120Vac, 60Hz, 0.75A with light. Impedance protected.	ETLus
3	4	Junction Box	Polycase	AN-07F_RC4 AN-07K_RC4	Aluminum. Minimum thickness 0.12", Dim 8.76 x 5.75 x 2.17 in.	NR
3	5	3 position connector	Wago	221-413	Size 24-12AWG. Rated 20A, 300V. 3 position	cULus
3	6	5 position connector	Wago	221-415	Size 24-12AWG. Rated 20A, 300V. 5 position	cULus
3	7	Terminal Block	Phoenix	1714968	3 position. Size 10-30AWG, Rated 30A, 300V.	cURus
3	8	Mains Internal Wires	Various	Various	14AWG, 105°C.	cULus
3	9	Power Supply	Mean Well	IRM10-5	Input: 85-305Vac, 2A. Output: 5Vdc, 10W. Oper Temp -30 to 70°C.	cURus
3	10	PWB	Various	Various	Flame rating V-1 or V-0. RTI 90°C or higher.	UR
3	11	Relay	TE Connectivity Potter & Brumfield	T9AS1D12-5	coil: 5Vdc, 200mA. Contact: 277Vdc max, 30A. Oper Temp -55 to 85°C.	cURus
3	12	Receptacle	Schurter	3-119-048	NEMA 5-15R. Rated 125Vac, 15A. Snap-in type, Oper Temp -25 to 150°C. Flame rating V-0.	cURus
3	13	Power adapter	GlobTek, Inc.	GT-86181-1810-W2	Input: 100-240Vac, 0.6A. Output: 10Vdc, 1.8A, 18W. Oper Temp 0-40°C. LPS output	cULus
5	14	Ballast	Sunhorse Fulham	SHS14-UNV-H	Input: 120-277Vac, 50/60Hz, 1.282A, class P. Output volt to ground: 374Vac.	cULus
2	15	Lampholder (Not Shown)	Various	2G11	Rated 600Vac, 660W.	cULus
2	16	Lamps (Not Shown)	OSRAM	HNS L 36W 2G11	Ozone Free, 254nm, UV-C lamp, 2G11 base. Rated 36W.	NR
				HNS L 55W 2G11	Ozone Free, 254nm, UV-C lamp, 2G11 base. Rated 55W.	NR
5	17	Power Cord	Various	Various	14AWG, 105°C.	cULus
5	18	Sleeving	Various	Various	Temp Range: up to 75°C	NR

4.0 Critical Components						
Photo #	Item no. <sup>1</sup>	Name	Manufacturer/ trademark <sup>2</sup>	Type / model <sup>2</sup>	Technical data and securement means	Mark(s) of conformity <sup>3</sup>
1	19	Marking Label (Not Shown)	Big City Manufacturing	Various	Stainless Steel. 0.91 mm thick. Screwed to Junction Plate. Refer to Illustration 9. Marking is etch or painted on the plate.	NR
			Coast Label Company	CLC 865	Adhered to stainless steel nameplate. Oper temp at -40 to 150°C.	NR
2	20	UV Lamp Reflector	Various	Various	Aluminum or Aluminum with black dye. At least 1mm thick.	NR
5	21	Power Cord Male Connector	TE Connectivity	350766-4	3 position. Size 30-14AWG, Rated 600V.	cURus
5	22	Power Cord Female Connector	TE Connectivity	1586849-1	3 position. Size 24-16AWG, Rated 600V. Flame rating V-2. Oper Temp -55 to 105°C	cURus
1	23	Mounting Brackets	LUV System	Various	Refer to Illustration 1 to 4. Aluminum material. Minimum thickness 3.175mm.	NR
4	24	Fan Control Box	Polycase	WA-25F	Nema type 4X, Dim 8.74 x 5.75 x 2.17 in. (222 x 146 x 55 mm) Flame rating HB.	cULus
4	25	Fan Controller	Minka-Aire	RC600	Part of item 3. Fan remote is removed from its enclosure.	NR
1	26	EMI Filter (Not Shown)	TE Connectivity	6ESB1	Rated 250Vac, 6A. Oper Temp -10 to 40°C	cURus
1	27	Emi Filter Enclosure (Not Shown)	Polycase	WA-25F	Nema type 4X, Dim 8.74 x 5.75 x 2.17 in. (222 x 146 x 55 mm) Flame rating HB.	cULus
3	28	Conformal Coating	Sirnice	CA3002	Oper Temp. -30 To 130°C Flame rating V-1.	UR

NOTES:

- 1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.
- 2) "Various" means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.
- 3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.



## **5.0 Critical Unlisted CEC Components**

No Unlisted CEC components are used in this report.

**6.0 Critical Features**

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - In primary circuits, 1.5 mm minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of opposite polarity and 1.5 mm minimum between such current-carrying parts and dead-metal parts or low voltage isolated circuits.
2. Mechanical Assembly - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a metal enclosure constructed with no openings other than those specifically described in Sections 4 and 5.
5. Grounding - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed are connected to the equipment grounding terminal.
7. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets. All wiring is minimum 22 AWG, with a minimum rating of 300V, 105°C.
9. Markings - The product is marked on as labeling system as described in item no.19 of Section 4.0 as follows:  
applicant's name, brand name, model number, date of manufacturer, electrical ratings.
  1. Ground marking: used recognized pressure-sensitive label system, overall dimensions: 1/2"x1/2", please refer to illustration 8 for locations of installation.

## 6.0 Critical Features

10. Cautionary Markings - The following are required:

1. "CAUTION - To Reduce The Risk Of Injury To Persons, Install Fan At Least 2.62 m (8.6 feet) Above The Floor."
2. "Suitable for commercial or industrial use only."
3. "WARNING – Support Directly From Building Structure."
4. "WARNING – Skin or eye damage may result from directly viewing the light produced by the lamp in this apparatus. Always disconnect power before relamping or servicing. Replace Lamp With Lamp HNS L 36W 2G11 or HNS L 55W 2G11, Manufactured by OSRAM."

French Translation:

1. "ATTENTION - Pour réduire le risque de blessures corporelles, installez le ventilateur à au moins 2,62 m (8,6 pieds) au-dessus du sol."
2. "Convient uniquement à un usage commercial ou industriel."
3. "AVERTISSEMENT – Support directement à partir de la structure du bâtiment."
4. "AVERTISSEMENT – Des lésions cutanées ou oculaires peuvent résulter de la visualisation directe de la lumière produite par la lampe de cet appareil. Débranchez toujours l'alimentation avant de remplacer la lampe ou de procéder à l'entretien. Remplacez la lampe par la lampe HNS L 36W 2G11 ou HNS L 55W 2G11, fabriquée par OSRAM."

11. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer.  
Refer to Illustration No(s). 1-4 for Mounting Instructions details and Illustration No(s). 5-7 for Safety Instructions.

## 7.0 Illustrations

### Illustration 1 - Mounting Bracket Instruction

the halō™

## STEP 8: Mounting the Support Triangle

### KITs used:

Light Ring Lifting Assembly Kit (5RM\_LR\_LA\_KIT)  
Light Ring Positioning Assembly Kit (5RM\_LR\_PA\_KIT)  
Upper Cowling Sheet Disc Kit (5RM\_UC\_SD\_KIT)  
Control System Kit (5RM\_CS\_KIT)  
Fan Kit (5RM\_F\_KIT)

### Tools required:

Two 1-1/8" hex wrenches  
1/4" socket hex wrench

- a. Fasten one LA\_H3 flanged nut onto each Lifting Assembly, flange up. The bottom plane of the nut should be 1/4 in. above the cowling surface.
- b. Start by fastening one flanged hex nuts (PA\_H2) onto each exposed Positioning Assembly leaving approximately 1 in. gap between the bottom of the nut and the Upper Cowling Sector surface.
- c. Lift the assembled Support Triangle into place above the Light Ring, rotating the Support Triangle until the Lifting Assemblies are aligned with the vertices of the Support Triangle. The vertex containing the Junction Plate Assembly should be positioned over Segment Assembly #1.
- d. Lower the Support Triangle onto the Light Ring until the bottom surfaces of its Corner Brackets are in contact the uppermost flanged nuts of the Lifting Assemblies.
- e. Use a level to check for any tilt in the Support Triangle. Adjust the position of the flanged nuts on the Lifting Assemblies to remove any tilt.
- f. Raise the flanged nuts on the Positioning Assemblies so they contact the bottom surfaces of the Support Triangle T3 cross-members.
- g. Secure the Support Triangle in place by fastening a flanged nut from the Lifting Assembly Kit (LA\_H4) onto each Lifting Assembly so that the flange contacts the upper surface of the respective Support Triangle Corner Bracket
- h. Fasten the flanged nuts from the Positioning Assembly Kit (PA\_H2) onto the Positioning Assemblies so that the flange contacts the upper surface of the Support Triangle T3 cross members. The Positioning Assembly rod surface should be flush or close-to-flush with the top surface of the fastened flanged nut.


**7.0 Illustrations**

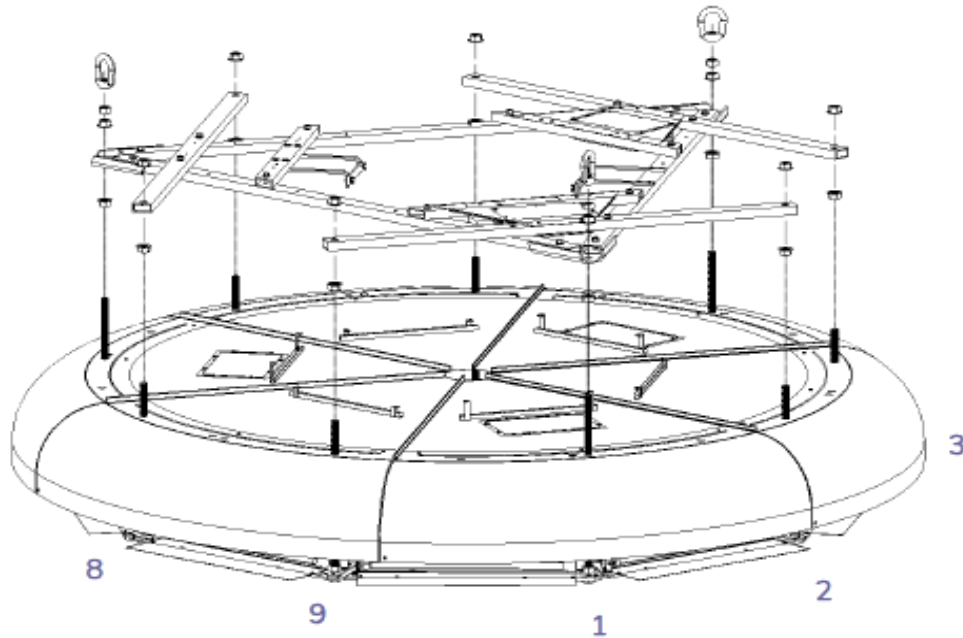
**Illustration 2 - Mounting Bracket Instruction**



If not, the Support Triangle may have to be lowered slightly to fully insert the flanged nut into the Positioning Assembly. If adjusting the Support Triangle, make sure to use a level to ensure there is no tilt.

- i. Tighten all the flanged nuts onto their contacting surfaces so that the Support Triangle is securely positioned on the Light Ring
- j. Fasten one hex nut (LA\_H4) and one eye nut (LA\_H1) from the Lifting Assembly Kit onto each Lifting Assembly. The bottom surface of the eye hook should be flush with the top surface of the Lifting Assembly rod. Tighten the lock nut. The distance between the lock nut and the bottom of the nearest flanged nut should be approximately 4.3 in. if installed correctly.

 The Support Triangle vertex containing the Junction Plate Assembly should be positioned at Segment Assembly #1.

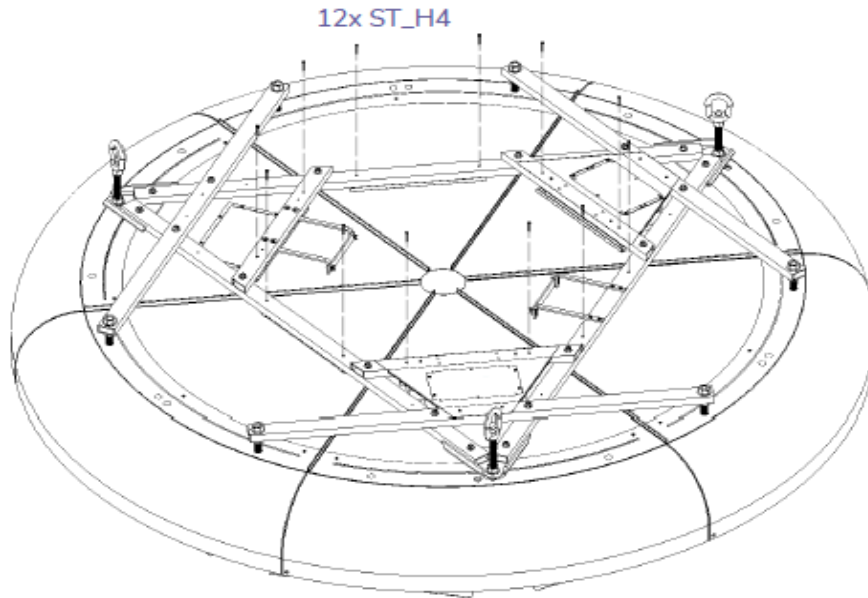


- k. Fasten the Upper Cowling Sector Disks to the Support triangle using twelve hex head screws (ST\_H4) found in UC\_SD\_KIT.

**7.0 Illustrations**

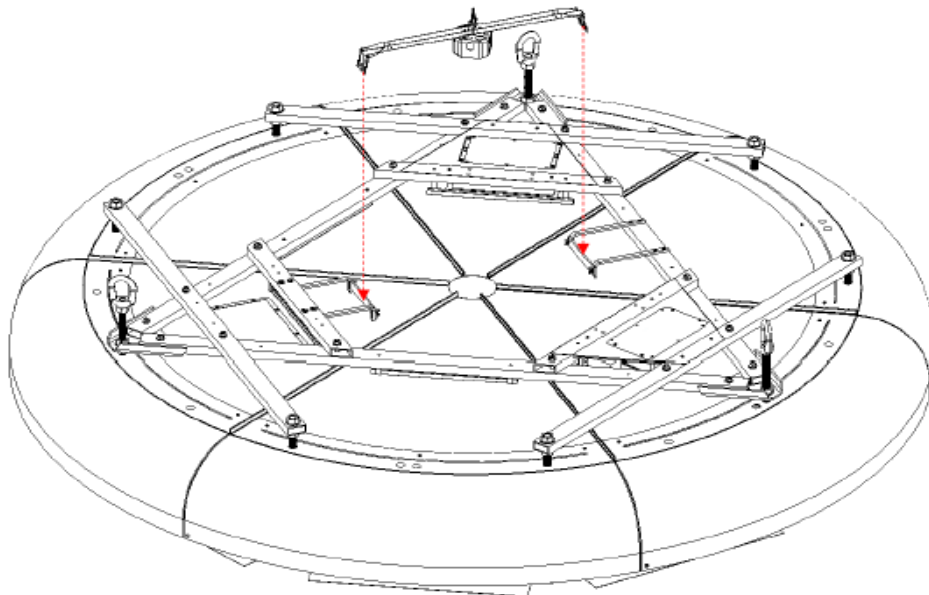
**Illustration 3 - Mounting Bracket Instruction**

the halō™



- L. Mount the Fan Bracket (FB) onto the Support Triangle Fan Brackets (ST\_FB). Secure the Fan Bracket with thread-forming sheet metal screws to prevent sliding of the Fan Bracket. Align the Fan Bracket electrical box so that it is flush with the sheet disc plane.

the halō™



## 7.0 Illustrations

### Illustration 4 - Mounting Bracket Instruction

the halo™

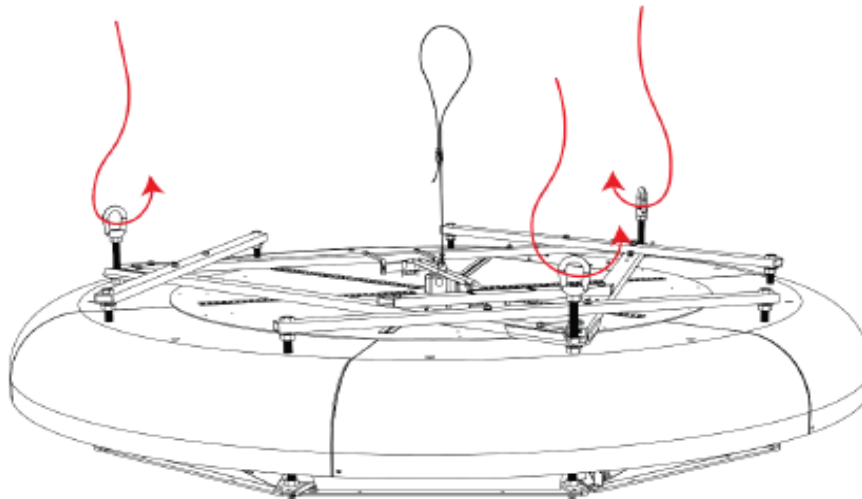
#### STEP 9: Attachment of the halo to the Superstructure

The halo is attached to the superstructure with aircraft cable (wire rope). Each eye nut will have three aircraft wire loops extending equilaterally to the superstructure forming an upside down tetrahedron. This attachment method ensures stability of the halo under seismic loads.

Additionally, the Fan Bracket (FB) is tethered to the superstructure with one or two aircraft cables so that the weight of the fan (yet to be installed) is supported by the superstructure and not the Support Triangle.

Attachment instructions vary depending on the construction of the superstructure.

With the halo lifted into place and the aircraft cable attached to the Fan Bracket taught, the halo can be connected to the AC and the Fan can then be installed.





## 7.0 Illustrations

### Illustration 5 - Safety Instructions

# **READ THOROUGHLY AND SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE**

Incorrect or improper installation, or maintenance, including, but not limited to, any of the following actions by the customer or agent of the customer will constitute a breach of and will void all warranties:

- Failure to follow the requisite installation procedures specified in this Installation Guide
- Failure to follow all relevant codes and ordinances, including, but not limited to applicable national and local electrical codes, and state and local building codes
- Failure to follow electrical engineering industry standards regarding the approved method of installing electrical equipment
- Failure to follow structural engineering industry standards regarding the method of installing overhead equipment such as the halō
- Removing or modifying any components provided with the halō



#### **WARNING**

*Please read and observe the following warnings and cautions to reduce the risk of fire, electric shock, or injury to persons and property:*

- **WARNING:** This installation guide does not cover instructions for the ceiling fan. Refer to separate instructions and manuals for the supplied ceiling fan. To reduce the risk of fire, electric shock, and injury to persons, the halō™ Model 5R/M must be installed with a Minka-Aire Dyno XL 60 in. fan (Model #: F1001). Other ceiling fans cannot be substituted.
- **WARNING:** Disconnect power to the installation locations before installing the halō
- **WARNING:** Only connect power to the halō after all cowl pieces are securely and correctly installed with no light gaps
- **WARNING:** Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- **WARNING:** Incorrect assembly can cause electric shock, fire, injury to persons, damage to property, and/or damage to the halō
- **WARNING:** Installation must be in accordance with the requirements set forth by the National Electrical Code (NEC), ANSI/NFPA 70, and all national and local code
- **WARNING:** the halō should not be installed unless the structure on which it is to be mounted has been verified to be of secure/stable construction and verified to be capable of supporting the load of the halō. A certified structural engineer should verify the structure and installation location is adequate prior to installation. Verifying the stability and suitability of the mounting structure is the sole responsibility of the customer and/or end

## 7.0 Illustrations

### Illustration 6 - Safety Instructions

user. LUV Systems, Inc. hereby expressly disclaims any liability arising therefrom, or arising from the use of any materials or hardware other than those provided with the halō

- **WARNING:** Do not substitute parts provided with the halō with any others unless provided by LUV Systems
- **WARNING:** Do not add additional components to the halō not specified in this Installation Guide
- **WARNING:** Do not remove or modify any of the components provided with the halō unless instructed to do so by this Installation Guide
- **WARNING:** Ensure there are no persons below the halō during installation
- **WARNING:** the halō must be installed per the following National Fire Protection Association (NFPA) guidelines
- **WARNING:** Check for and avoid affecting hidden utilities such as but not limited to electrical wiring, gas lines before drilling into, cutting or modifying the wall or ceiling during the installation of the halō
- **WARNING:** Caution must be employed with lifting or raising the halō due to its weight. A suitable means for lifting the weight of the halō such as a scissor lift, and at least two installation personnel will be required
- **WARNING:** The installation of the halō requires the use of tools not supplied with the unit. Follow the safety procedures found in the owner's manual for each of these tools and do not use them for purposes other than those intended by LUV Systems
- **WARNING:** If unusual mechanical oscillations and/or audible noise are observed, immediately stop using the halō and contact LUV Systems, the certified service agent, or suitably qualified persons.
- **WARNING:** Do not use broken, torn or otherwise damaged components with the halō. Return to an authorized service facility for examination and/or repair all damaged components
- **WARNING:** There is a risk of fire, electric shock, or injury to persons during cleaning and user maintenance. Disconnect the unit from the power supply before servicing or cleaning the halō
- **WARNING:** Before servicing or cleaning the unit, switch power off at the service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel
- **WARNING:** When service or maintenance of the halō requires the removal or disconnection of components including safety-related ones, the components are to be reinstalled or remounted as previously installed before the power is reinstated to the halō
- **WARNING:** Use this unit only in the manner intended by the manufacturer. If you have questions, contact LUV Systems

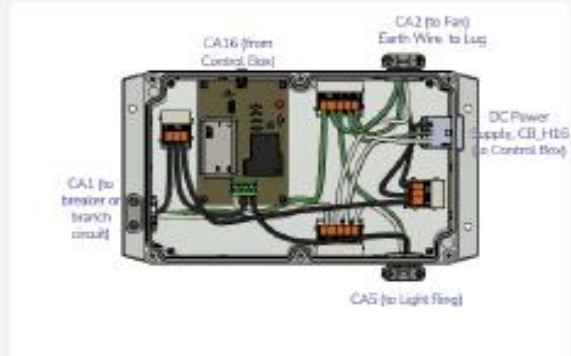
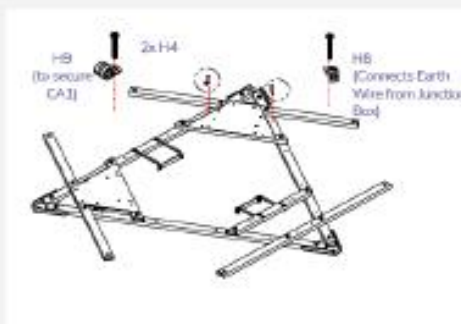
## 7.0 Illustrations

### Illustration 7 - Safety Instructions

- **WARNING:** The information contained in this document is merely a guide for proper installation. LUV Systems cannot assume responsibility for the compliance or non-compliance to any code, national, local, or otherwise for the proper installation of the halō
- **WARNING:** The length of the external earth conductor should be such that should failure of the suspension system occur, the current-carrying conductors are taut before the protective earth conductor. Should failure of the suspension system occur, the support of the halō must not rely on the protective earth conductor
- **WARNING:** The halō suspension system shall be examined at regular intervals, at least once every three months

### Illustration 8 - Ground marking location

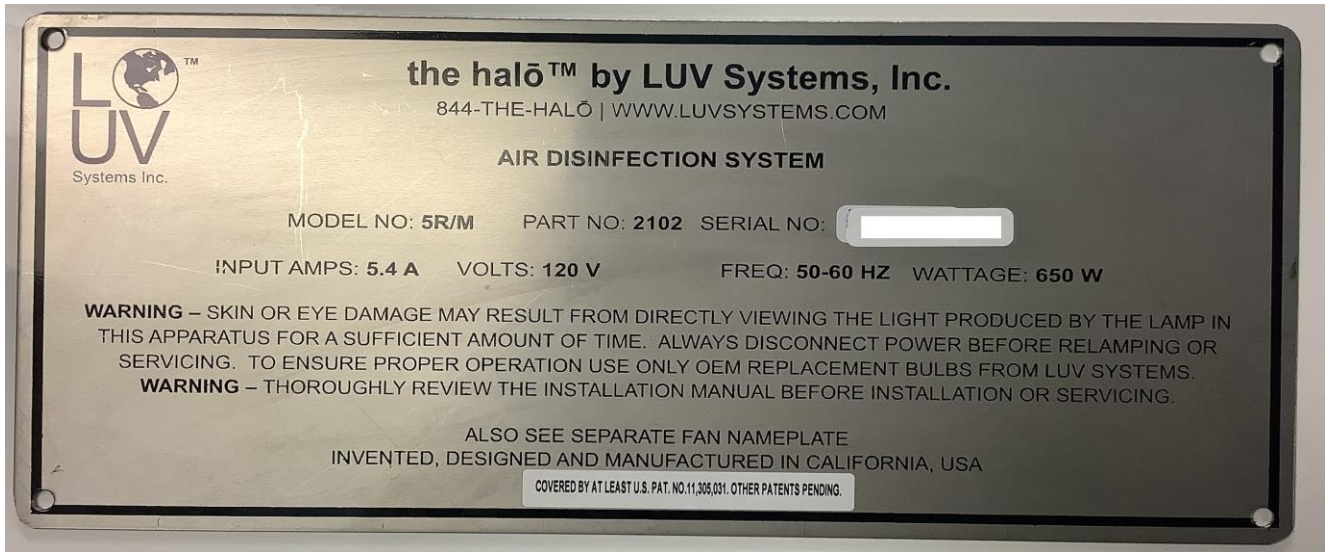
“GND” label to be adhered to next to Earthing Lug 5RM\_ST\_H8 & sidewall of 5RM\_CS\_JBX\_ASM adjacent to CA2/Earth Wire to Lug connection



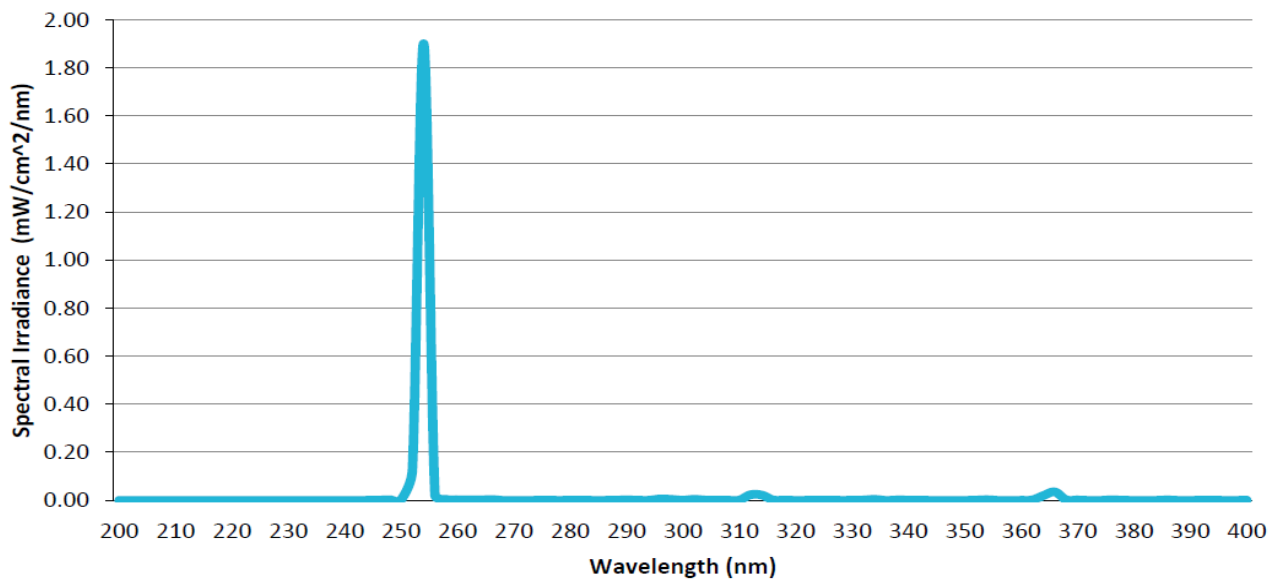


**7.0 Illustrations**

**Illustration 9 - Nameplate Marking**

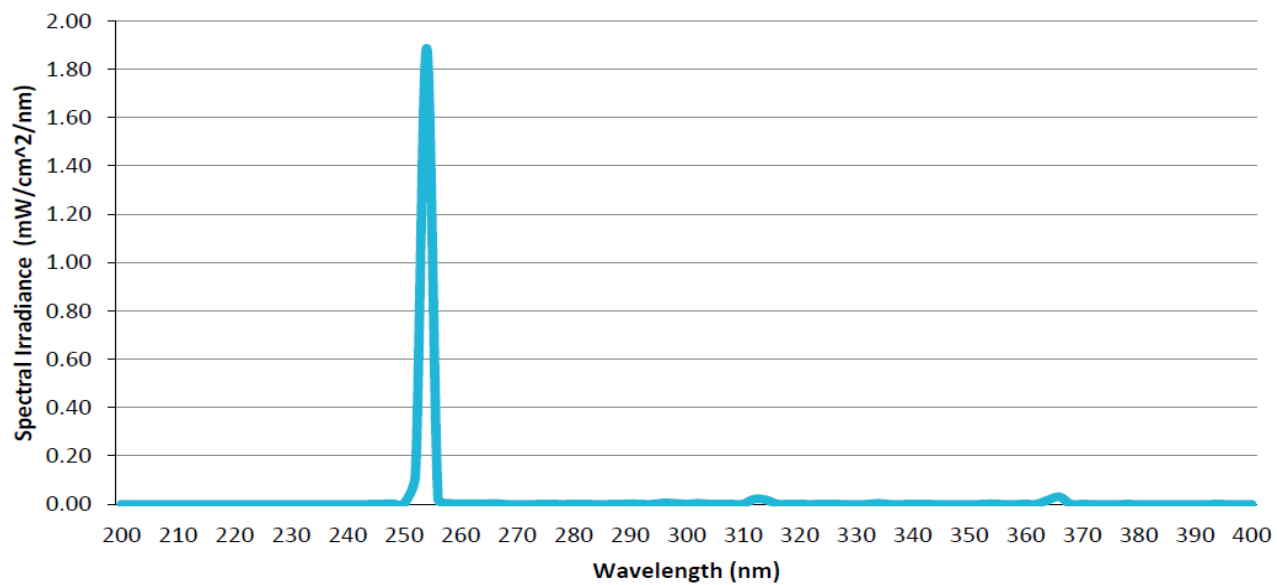


**Illustration 10 - Spectral Power Distribution graph for Halo Model 5R/M with 55W bulb**



**7.0 Illustrations**

**Illustration 11 - Spectral Power Distribution graph for Halo Model 5R/M with 36W bulb**



<b>8.0 Test Summary</b>			
Evaluation Period	1-Sep-2022 to		Project No. G105098099
Sample Rec. Date	30-Sep-2022	Condition Production	Sample ID. LAN2209301400-001
Test Location	25800 Commercentre Drive Lake Forest, California 92630 USA		
Test Procedure	Testing Lab		
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.			
The following tests were performed:			
Test Description	UL 507:2017 Ed.10+R:27May2020 Clause	CSA C22.2#113:2018 Ed.11 Clause	
Continuity of Grounding Circuit Test	42	5.18	
Starting Current Test	44	6.1	
Input Test	45	6.3	
Temperature Test	46	6.4	
Dielectric Voltage Withstand Test	47	6.5	
Locked Rotor Cycling	50	6.11	
Humidity Conditioning Test	53	6.26	
Static Load Test for Mounting Means	60, 91.1	--	
UV Radiation Test	223.2	--	
Impact Test	--	6.25	
<b>8.1 Signatures</b>			
A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.			
Completed by:	Randy Chau	Reviewed by:	Michael Brousseau
Title:	Project Engineer	Title:	Regional Chief
Signature:	<i>Signature on file</i>	Signature:	<i>Signature on file</i>

**9.0 Correlation Page For Multiple Listings**

The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.

<b>BASIC LISTEE</b>	LUV SYSTEMS, INC.
<b>Address</b>	18726 South Western Avenue Suite 407 Gardena, CA 90248
<b>Country</b>	USA
<b>Product</b>	Air Disinfection System Using Upflow Ceiling Fan

<b>MULTIPLE LISTEE 1</b>	None
<b>Address</b>	
<b>Country</b>	
<b>Brand Name</b>	

<b>ASSOCIATED MANUFACTURER</b>	
<b>Address</b>	
<b>Country</b>	

<b>MULTIPLE LISTEE 1 MODELS</b>	<b>BASIC LISTEE MODELS</b>

<b>MULTIPLE LISTEE 2</b>	None
<b>Address</b>	
<b>Country</b>	
<b>Brand Name</b>	

<b>ASSOCIATED MANUFACTURER</b>	
<b>Address</b>	
<b>Country</b>	

<b>MULTIPLE LISTEE 2 MODELS</b>	<b>BASIC LISTEE MODELS</b>

<b>MULTIPLE LISTEE 3</b>	None
<b>Address</b>	
<b>Country</b>	
<b>Brand Name</b>	

<b>ASSOCIATED MANUFACTURER</b>	
<b>Address</b>	
<b>Country</b>	

<b>MULTIPLE LISTEE 3 MODELS</b>	<b>BASIC LISTEE MODELS</b>



## 10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

### COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

### LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

- 1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
- 2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
- 3) a control number issued by Intertek
- 4) a product descriptor that identifies the standards used for certification. Example:

**For US standards**, the words, "Conforms to" shall appear with the standard number along with the word, "Standard" or "Std." Example: "Conforms to ANSI/UL Std. XX."

**For Canadian standards**, the words "Certified to CAN/CSA Standard CXX No. XX." shall be used, or abbreviated, "Cert. to CAN/CSA Std. CXX No. XX."

Can be used together when both standards are used.

**If all standards on the ATM have the same standard title**, the shared title or its abbreviation may be used in place of the examples above. Example: "Medical Electrical Equipment" or "MEE"; "Information Technology Equipment" or "ITE"; "Audio/Video Information And Communication Technology Equipment" or "A/V ICTE".

**Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use.**

The facsimile need not have a control number. A control number will be issued **after signed Certification Agreements** have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

### MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

### FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

### **10.1 Evaluation of Unlisted Components**

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

**The Applicant will be notified, in writing, via the applicable contact methods, as defined in Section 1.0, when these components must be selected and sent to Component Evaluation Center (CEC) for re-evaluation.**

**Due to particular testing requirements, some components may be requested to be shipped to specific labs. Thus, specific shipment destination(s) for each sample will be provided in the written notification.**

Managing CEC Location:  
Intertek Testing Services NA Inc.  
ETL Component Evaluation Center  
1717 Arlingate Ln.  
Columbus, Ohio 43228 USA  
Attn: CEC Safety

Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

**11.0 Manufacturing and Production Tests**

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

**Required Tests**

Dielectric Voltage Withstand Test, Grounding Continuity Test.

**11.1 Dielectric Voltage Withstand Test**

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.

The test shall be conducted on products, which are partially assembled (without Fan with Light and Lower Cowling). Prior to applying the test potential, all switches, contactors, relays, etc., should be closed, arrangements to safely disconnect Fan with Light (along with bypassing the relay) may be made, so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.

The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.

If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:

- 1 - a voltmeter in the primary circuit;
- 2 - a selector switch marked to indicate the test potential; or
- 3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.

In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

**Products Requiring Dielectric Voltage Withstand Test:**

<u>Product</u>	<u>Test Voltage</u>	<u>Test Time</u>
All products covered by this Report.	1000Vac	60 s
	or	
	1400Vdc	60 s

**11.2 Grounding Continuity Test**

Method



Each product listed below shall be subjected to a test to determine that there is continuity between accessible dead-metal parts of the product and the grounding conductor of the power supply cord.

If all accessible dead metal is connected, only a single test need be performed. A visual or audible device (ohmmeter, buzzer, etc.) may be used to indicate grounding continuity.

**Products Requiring Grounding Continuity Test:**

All products covered by this Report.

<b>12.0 Revision Summary</b>				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
20-Mar-2023	N.Vo	2	--	Changed Ratings from: "110-125 Vac, 50/60 Hz, 1 $\Phi$ , 5.4 FLA" to: "110-125 Vac, 50/60 Hz, 7A"
		2	--	Added to Other Ratings: "UV lamps: 254nm."
		3	1	Changed Title from: "Side View of the 5RM" to: "Side View of the 5R/M"
		3	2	Changed Title from: "Underside View of the 5RM with Lower Cowling Removed" to: "Underside View of the 5R/M with Lower Cowling Removed"
		3	4	Changed Component Number from "00" to "25"
		4	3	Changed Fan and Light manufacturer and model from: "SUMMER WIND INTERNATIONAL LTD., CF560KR-02" to: "Minka-Aire, Dyno XL F1001 series"
		4	19	Changed Marking Label manufacturer and model from: "Coast Label Company (MH 19670), CLC 230" to: "Coast Label Company, CLC 865"
G105098099LAX	B Parikh	4	25	Changed Fan Controller manufacturer from: "SUMMER WIND INTERNATIONAL LTD." to: "Minka-Aire"
		6	9	Changed Markings from: "The product is marked on as labeling system as described in item no.19 of Section 4.0 as follows: applicant's name, brand name, model number, date of manufacturer, electrical ratings, 15A breaker. 1. Ground marking see illustration." to: "The product is marked on as labeling system as described in item no.19 of Section 4.0 as follows: applicant's name, brand name, model number, date of manufacturer, electrical ratings. 1. Ground marking see illustration 8."
		7	10	Added Illustration 10 - Spectral Power Distribution graph for Halo Model 5R/M with 55W bulb
		7	11	Added Illustration 11 - Spectral Power Distribution graph for Halo Model 5R/M with 36W bulb

12.0 Revision Summary				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
14-Aug-2023	N. Vo 	1	--	Removed CSA standard
		2	--	Added to Product Description: "The product is intended to be installed in accordance with the National Electrical Code."
		2	--	Updated Ratings from: "110-125 Vac, 50/60 Hz, 7A" to: 120Vac, 50-60Hz, 5.4A"
		2	--	Removed "Receptacle: 110-125 VAC, 50/60Hz, 1Φ, 7A" from Other ratings
		3	3	Changed call-out item "09" (lower right) to "08"
		4	3	Changed Marking of Fan with Light from: "cETLus" to "ETLus"
			18	Updated Technical data of Sleeving from: "Material Aluminum. Dia 1.4". Temp Range -40 to 300°F." to: "Temp Range: up to 75°C"
			21	Removed "19A" from Technical data of the Power cord male connector.
			22	Changed Technical data from: "Rated 10A, 600V. Flame rating V-0." to: "Rated 600V. Flame rating V-2."
			23	Added unit "mm" to Technical data of the Mounting Brackets
G105474796LAX	S. Wisman 	6	9	Updated Marking description, from: "1. Ground marking see illustration 8." to: "1. Ground marking: used recognized pressure-sensitive label system, overall dimensions: 1/2"x1/2", please refer to illustration 8 for locations of installation."
		7	8	Replaced Illustration no.8
		7	9	Replaced Illustration no.9
		11.1	--	Revised Test description from: "The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential." to: "The test shall be conducted on products, which are partially assembled (without Fan with Light and Lower Cowling). Prior to applying the test potential, all switches, contactors, relays, etc., should be closed, arrangements to safely disconnect Fan with Light (along with bypassing the relay) may be made, so that all primary circuits are energized by the test potential."
		11.2	--	Revised Test description from: "... there is continuity between accessible dead-metal parts of the product and the grounding pin or blade of the attachment plug." to: "... there is continuity between accessible dead-metal parts of the product and the grounding conductor of the power supply cord."
		--	--	This revision has been completed to resolve variances raised during the inspection dated 27-Apr-2023 under order number 5025536.