

1.0 Reference and Address			
Report Number	231206133GZU-001	Original Issued: 27-Mar-2024	Revised: None
Standard(s)	Luminaires [UL 1598:2021 Ed.5+R:18Jun2021]		
	Luminaires [CSA C22.2#250.0:2021 Ed.5+U1]		
Applicant	Foshan Rayven Lighting Co.,Ltd.	Manufacturer 1	Foshan Rayven Lighting Co.,Ltd.
Address	A1 New Lighting Source Industry Zone,Luocun, Nanhai District, FOSHAN Guangdong	Address	A1 New Lighting Source Industry Zone,Luocun, Nanhai District, FOSHAN Guangdong
Country	China	Country	China
Contact	Chen WenFeng	Contact	Chen WenFeng
Phone	86-13418437808	Phone	86-13418437808
FAX	NA	FAX	NA
Email	Caesar@rayvenlight.com	Email	Caesar@rayvenlight.com

2.0 Product Description						
Product	LED fixed luminaire					
Brand name	NA					
Description	The product covered by this report are LED fixed luminaires suitable for damp location use, and intended to be mounted on outlet box.					
Models	RAVOLC2300A, RAVOLC2400A, RAVOLC2600A, RAVOLC2800A, RAVOLC21000A.					
Model Similarity	All models have similar mechanical and electrical construction, difference between them are LED driver, total wattage and size.					
Ratings	100-277V, 50/60Hz					
	Model No.	Rated power (W)	Size (mm)	LED driver	LED quantity (pcs)	Mounting means
	RAVOLC2300A	20	300*65	LED driver-3	384	ceiling
	RAVOLC2400A	30	400*65	LED driver-2	768	ceiling
	RAVOLC2600A	50	600*65	LED driver-1	1488	ceiling
	RAVOLC2800A	70	800*65	LED driver-5	2208	ceiling
	120-277V, 50/60Hz					
	Model No.	Rated power (W)	Size (mm)	LED driver	LED quantity (pcs)	Mounting means
	RAVOLC21000A	100	1000*65	LED driver-4	3840	ceiling
Other Ratings	0-10V dimming.					

3.0 Product Photographs

Photo 1 - External view of model RAVOLC2300A.

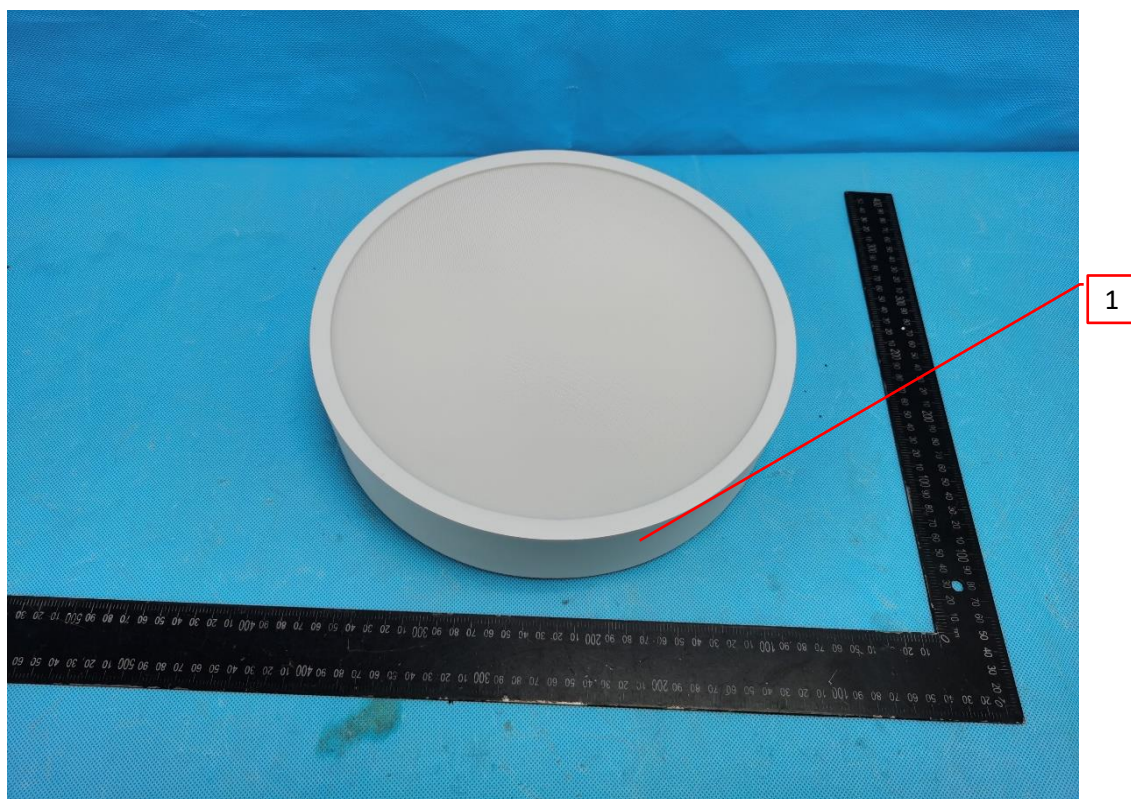
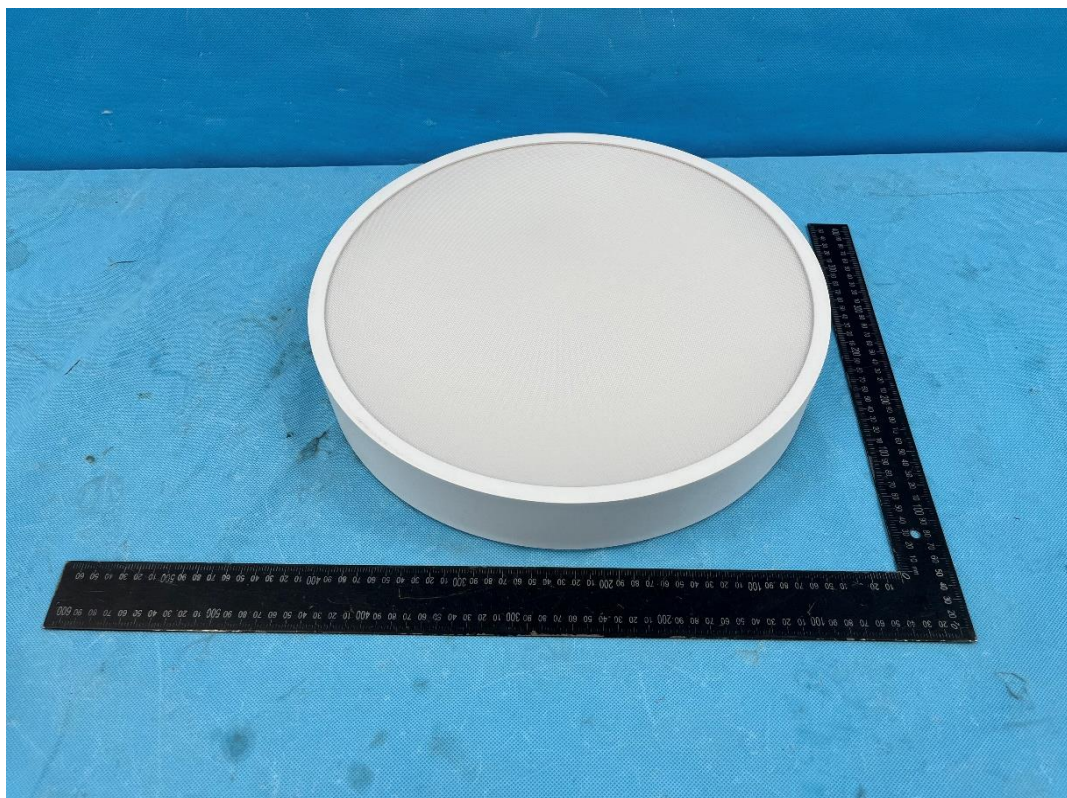


Photo 2 - External view of model RAVOLC2400A.



3.0 Product Photographs

Photo 3 - External view of model RAVOLC2600A.

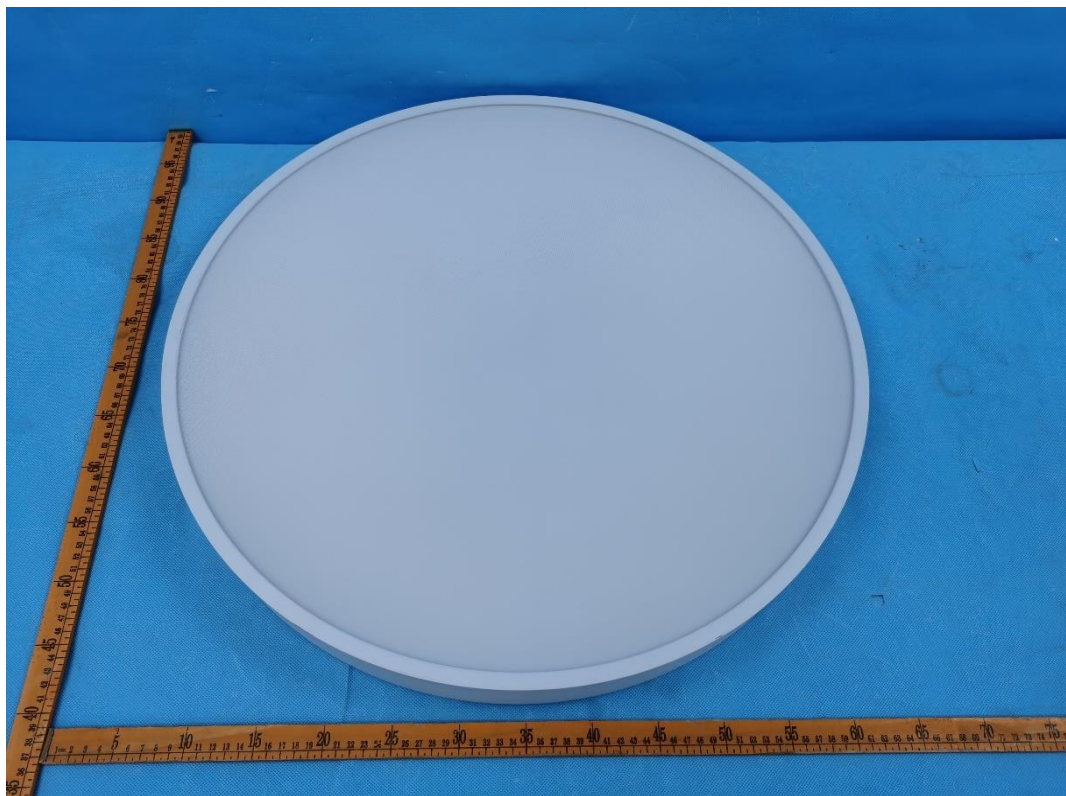
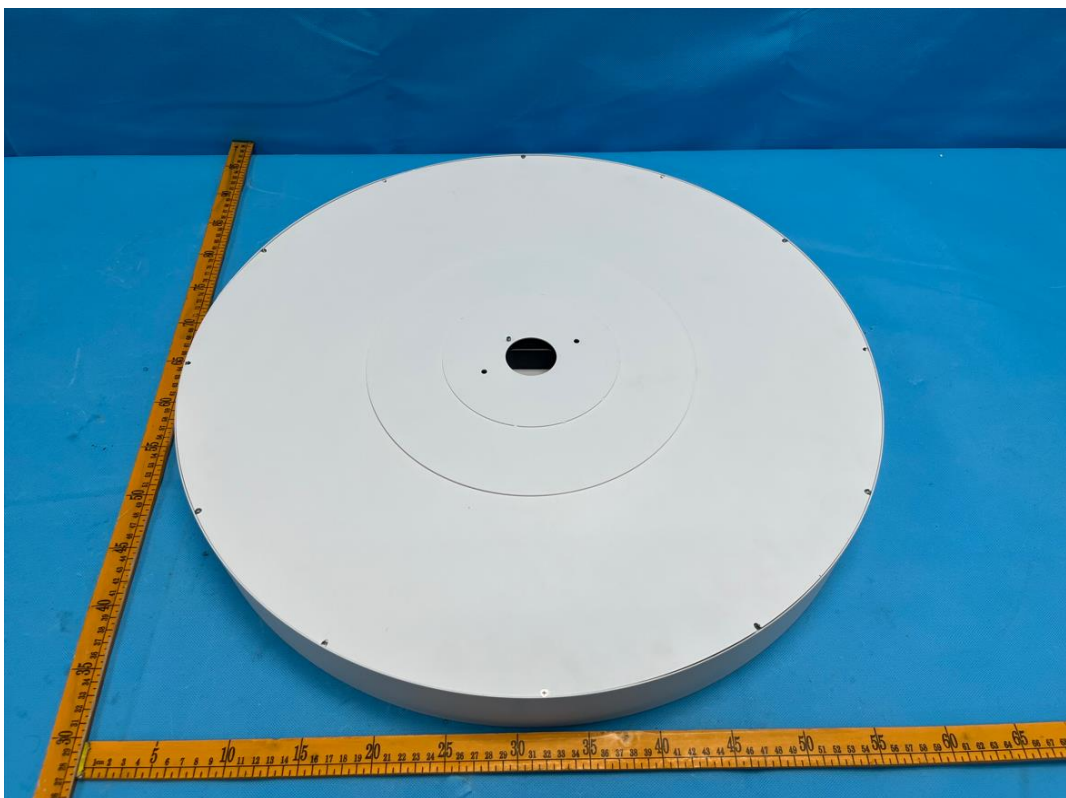


Photo 4 - Back view of model RAVOLC2600A, also represent RAVOLC2400A, RAVOLC2300A.



3.0 Product Photographs

Photo 5 - Internal view of model RAVOLC2600A, also represent RAVOLC2400A, RAVOLC2300A.

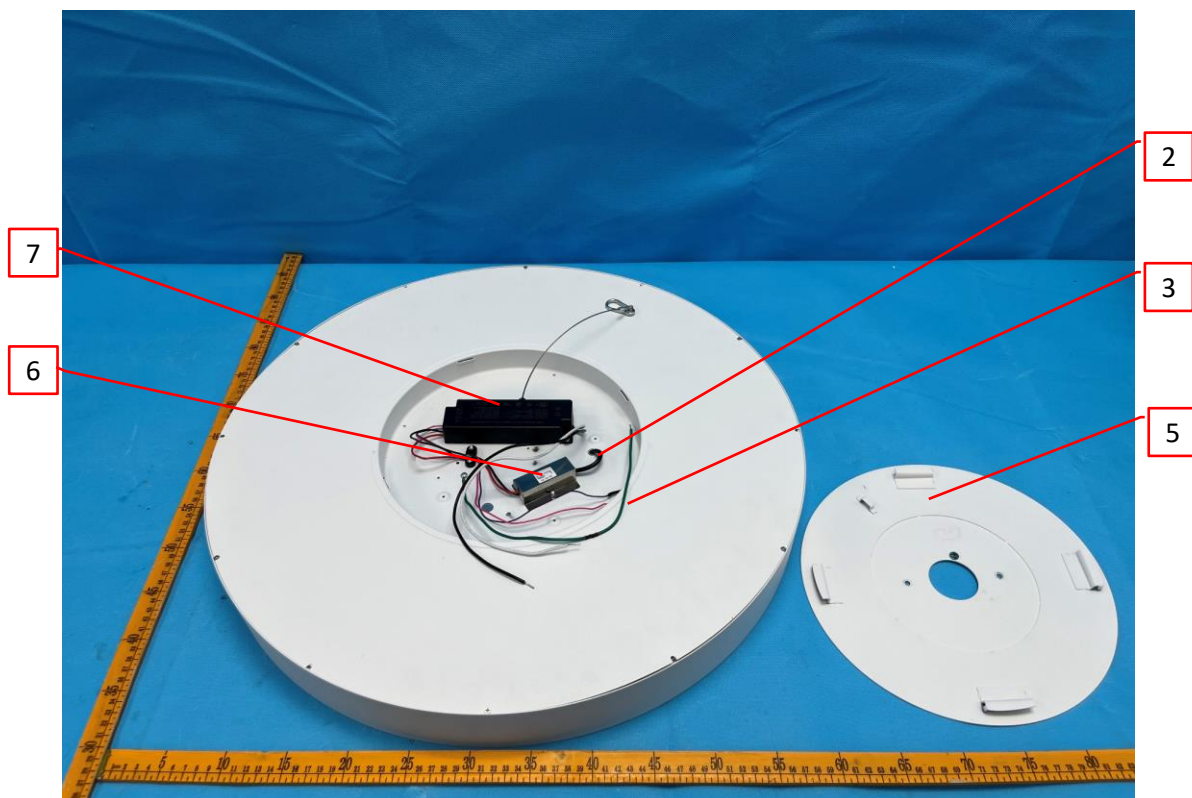


Photo 6 - External view of model RAVOLC2800A.



3.0 Product Photographs

Photo 7 - External view of model RAVOLC21000A.

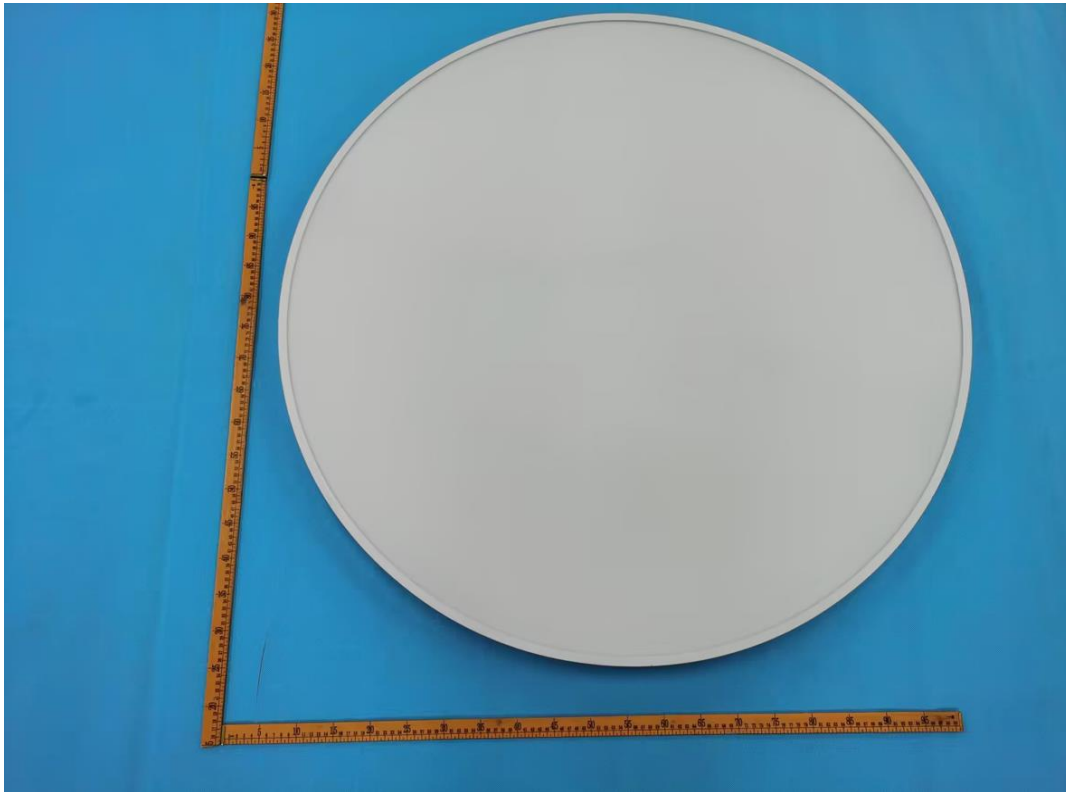


Photo 8 - Back view of model RAVOLC21000A, also represent RAVOLC2800A.



3.0 Product Photographs

Photo 9 - Internal view of model RAVOLC21000A, also represent RAVOLC2800A.

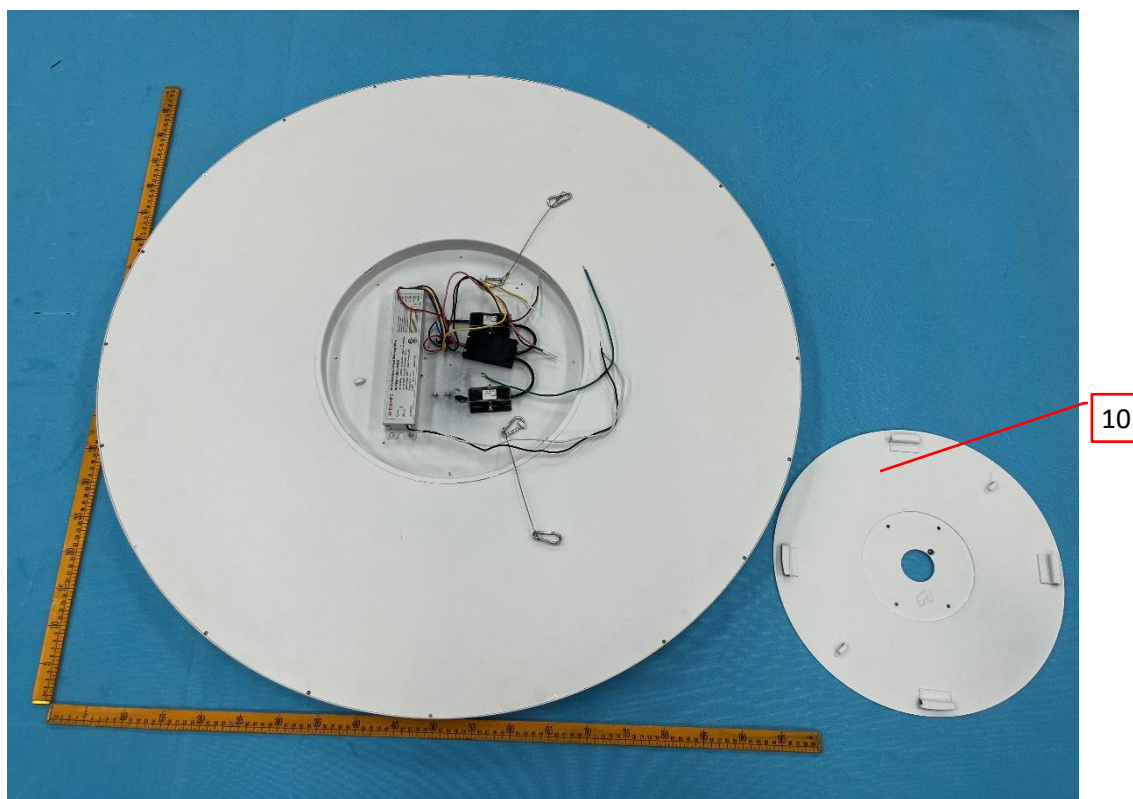
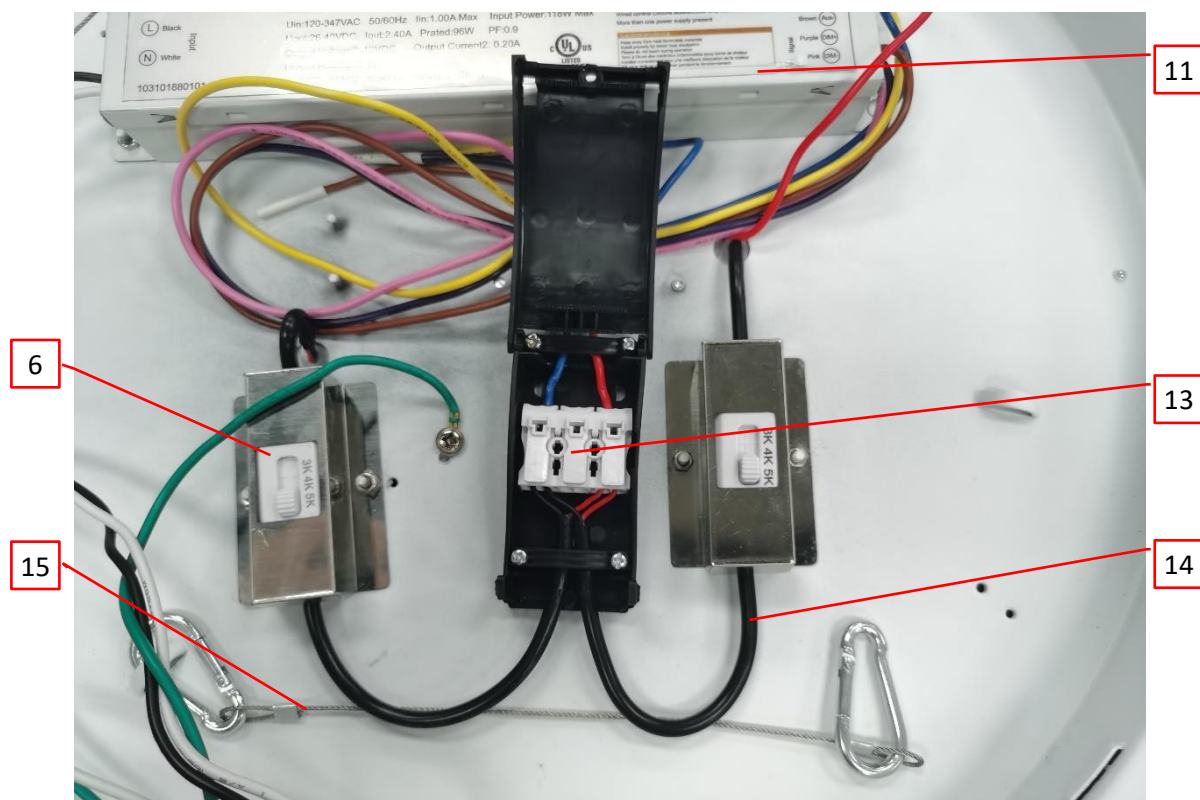
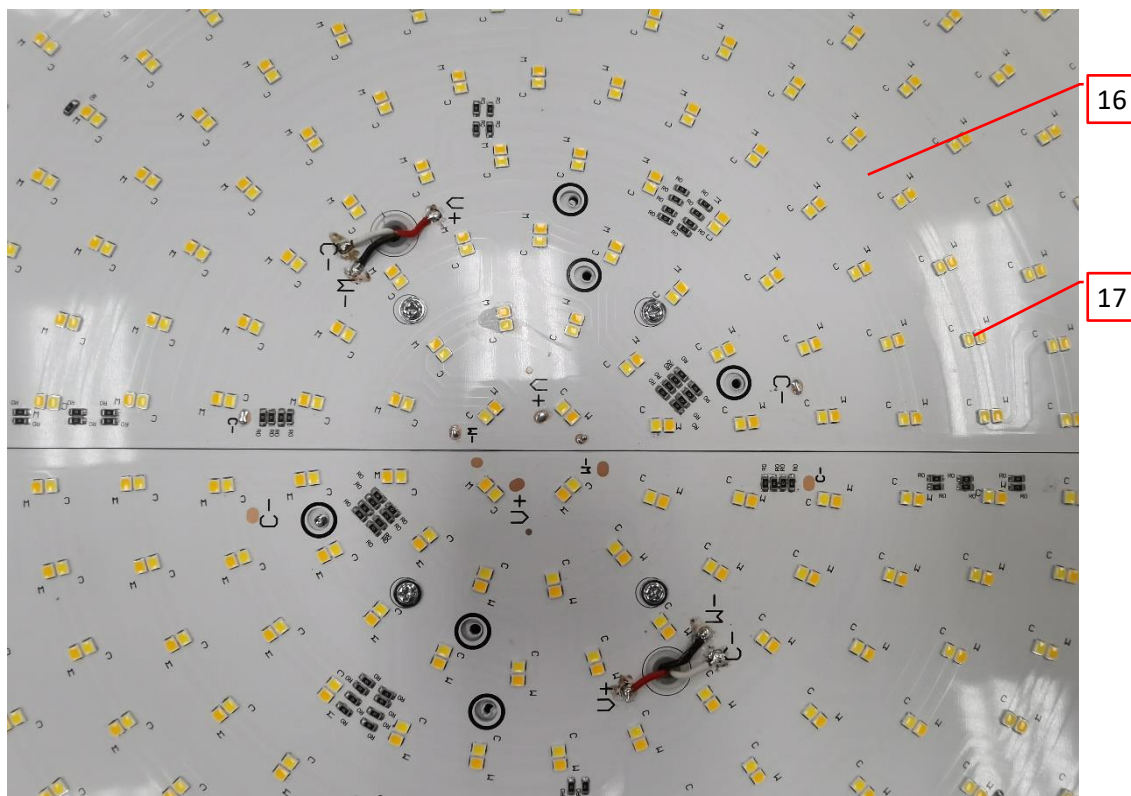


Photo 10 - Internal view of model RAVOLC21000A, also represent RAVOLC2800A.



3.0 Product Photographs

Photo 11 - LED view of model RAVOLC21000A, also represent RAVOLC2800A, RAVOLC2600A, RAVOLC2400A, RAVOLC2300A.



4.0 Critical Components						
Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformity ³
1	1	Enclosure	Various	Various	Sheet steel minimum 0.8 mm thick, for all models.	NR
5	2	LED wire	Various	Various	AWM, Min. 24AWG, min. 300V, min. 80°C. For connecting to LED PCB. For all models.	cURus or cETLus Recognized
5	3	Grounding wire	Various	Various	AWM, 300V, 105°C, 18AWG. Secured to canopy by nut. At least 15.0cm extending into outlet box. For all models.	NR
5	4	Mounting plate-1 (Not shown)	Various	Various	Sheet steel, with minimum thickness 1.5mm. Specification refer to Sec. 7.0 III.2. For models RAVOLC2300A, RAVOLC2400A.	NR
5	5	Mounting plate-2	Various	Various	Sheet steel, with minimum thickness 1.5mm. Specification refer to Sec. 7.0 III.3. For model RAVOLC2600A.	NR
5, 10	6	CCT switch	Various	Various	125V, 105°, min.3A. Located in Class 2 circuits. For all models.	cURus
5	7	LED driver-1	Yiguang Technology (Jiangsu) Co Ltd	LBS50W-40-C1250-RD	Input: 100-277Vac, 50/60Hz. Class 2 Output: Max.40Vdc, 1250mA, CC, 0-10V dimming. Provided with minimum 18 AWG, stranded leads, rated 105°C, 300 V minimum for input/output and minimum 24 AWG, stranded leads, rated 105°C, 300 V minimum for dimming	cURus
5	8	LED driver-2 (Not shown)	Yiguang Technology (Jiangsu) Co Ltd	LBS30W-42-C0700-RD	Input: 100-277Vac, 50/60Hz. Class 2 Output: Max.42Vdc, 700mA, CC, 0-10V dimming. Provided with minimum 18 AWG, stranded leads, rated 105°C, 300 V minimum for input/output and minimum 24 AWG, stranded leads, rated 105°C, 300 V minimum for dimming	cURus
5	9	LED driver-3 (Not shown)	Yiguang Technology (Jiangsu) Co Ltd	LBS20W-42-C0500-RD	Input: 100-277Vac, 50/60Hz. Class 2 Output: Max.42Vdc, 500mA, CC, 0-10V dimming. Provided with minimum 18 AWG, stranded leads, rated 105°C, 300 V minimum for input/output and minimum 24 AWG, stranded leads, rated 105°C, 300 V minimum for dimming	cURus
9	10	Mounting plate-3	Various	Various	Sheet steel, with minimum thickness 2.0mm. Specification refer to Sec. 7.0 III.4. For models RAVOLC2800A, RAVOLC21000A.	NR

4.0 Critical Components						
Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformity ³
10	11	LED driver-4	Various	Various	Class 2, Class P, 0-10V dimming. Input: 120-347Vac, 50/60Hz, max.118W. OutPut1: 26-40Vdc, 2.40A, CC. OutPut2: 12Vdc, 0.2A, CV. Provided with minimum 18 AWG, stranded leads, rated 105°C, 300 V minimum for input, and minimum 24 AWG, stranded leads, rated 105°C, 300 V minimum for output/dimming	cULus
10	12	LED driver-5 (Not shown)	Yiguang Technology (Jiangsu) Co Ltd	LBS80W-43-C1860-RD	Input: 100-277Vac, 50/60Hz. Class 2 Output: Max.43Vdc, 1860mA, CC, 0-10V dimming. Provided with minimum 18 AWG, stranded leads, rated 105°C, 300 V minimum for input/output and minimum 24 AWG, stranded leads, rated 105°C, 300 V minimum for dimming	cURus
10	13	Terminal block	Various	Various	Rated 300V, 8A, Suitable for 16-28AWG, Located in Class 2 circuits. For models RAVOLC2800A, RAVOLC21000A.	cURus or cETLus Recognized
10	14	Internal wire	Various	Various	AWM, Min. 24AWG, min. 300V, min. 80°C. For connected between driver output and CCT switch. For all models RAVOLC2800A, RAVOLC21000A.	cURus or cETLus Recognized
10	15	Suspending cable	Various	Various	Steel wire with min. diameter 1.5mm. For all models.	NR
11	16	LED	Various	Various	IF=max.60mA, VF=2.8-3.4V, size: 2.8 x 3.5 x 0.7mm, For all models.	NR
11	17	LED PCB	Various	Various	Single layer metal base, V-0, 130°C, min. 1.0mm thickness. For all models.	cURus
1	18	Marking Label (Not shown)	Various	Various	Rated min. 60°C for metal surface. Complied with UL 969.	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, 3.2 mm minimum spacing are maintained through air and 6.4 mm minimum over surfaces of insulating material between current-carrying parts of opposite polarity and between such current-carrying parts and dead-metal parts, between such current-carrying parts and 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 the equipment grounding terminal.
6. Polarized Connection - This product is provided with a polarized power supply connection. All single pole switches and fuses are connected only to the ungrounded supply circuit conductor.
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 wirings refer to sec. 4.0.
8. Markings - The product is marked on a labeling system as described in item no. 18 of Section 4.0 as follows:
 - applicant's name
 - model number
 - date of manufacture
 - electrical ratings (volts, wattage & frequency)
9. Cautionary Markings - The following are required:
 - Refer to Illustration No(s). 1 and 1a for required text and format.
10. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer. The instruction shall include the below information:
 1. Proper wiring connection method.
 2. Proper grounding connecting means.
 3. Proper installation method.Refer to sec.7.0 III. 5, 5a for details.

7.0 Illustrations

Illustration 1 - Cautionary Markings

List of required markings

Model No.	Item
RAVOLC2300A, RAVOLC2400A, RAVOLC2600A, RAVOLC2800A, RAVOLC21000A.	1.3, 2.2

Item	Marking	Text / Format
1.3	___ VOLTS ___ WATTS ___ HERTZ or ___ V ___ W ___ Hz	S24-L3
2.2	SUITABLE FOR DAMP LOCATIONS CONVIENTAUX EMPLACEMENTS HUMIDES	Verbatim S16-L2

Illustration 1a - Cautionary Marking text and format

Format minimum size designation for marking height and typeface (clause 20.1.3)

Size Designation	Letter Height		Font Size	Font typeface, upper case
	(mm)	(in)	(points)	
S16	1.6	0.062	6	Not specified
S24	2.4	0.094	10	Univers bold, Arial bold, Helvetica bold, Zurich BT bold
S32	3.2	0.125	12	Not specified
S48	4.8	0.188	19	Univers bold, Arial bold, Helvetica bold, Zurich BT Bold

Format location designation for marking

Location Designation	Description	Label exposed to a dry/damp environment	Label exposed to a wet environment
L1	Visible during relamping, after installation	Type P	Type P
L2	Visible during installation	Type N	Type P
L3	Visible during installation and inspection of wire connections, located near the supply connections	Type N	Type P
L4	On the smallest unit package or carton	Type T	Type T
L5	On an instruction sheet or tag	Type T	Type T
L6	Visible during component replacement	Type P	Type P

Note:

Type P - Permanent label or nameplate

A label that is intended to remain in the applied position for the lifetime of the luminaire under conditions of intended use.

Uses: Information required for user maintenance over the expected life of the product.

Material: Metal, plastic, or other suitable material with an adhesive suitable for the temperature involved and comply with Clause 20.1.7.

Type N - Non-permanent label or nameplate

A label that is intended to remain in place only for the purpose of installation.

Uses: Certification mark, manufacturer's identification, product identification.

Material: Paper with an adhesive suitable for the temperature involved.

Type T - Temporary label or instruction sheet

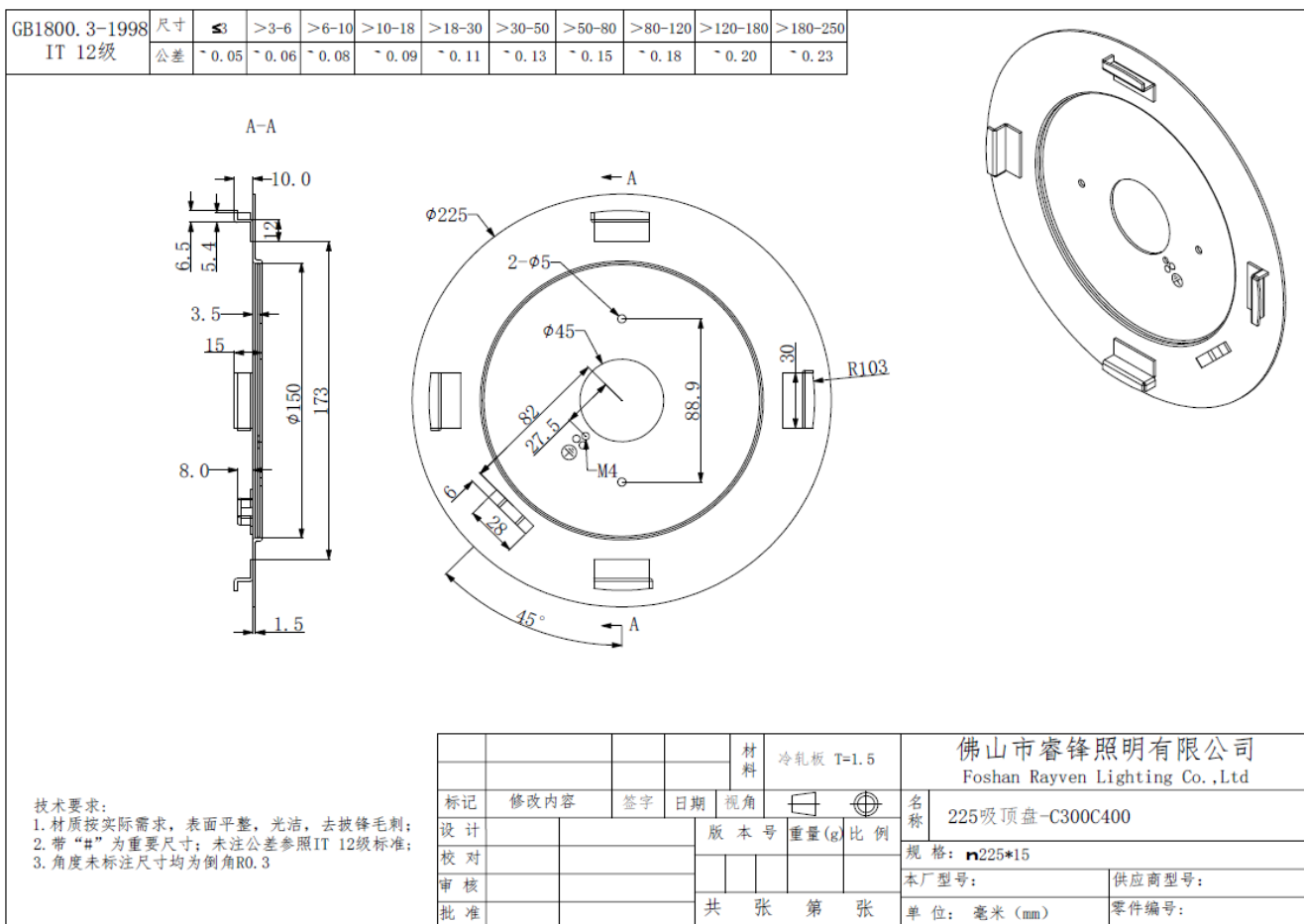
A label, instruction sheet, or tag that is not required after installation.

Uses: Installation instructions, and information not required after installation.

Material: Printed matter with or without adhesive and/or attachment, intended to be included with or attached to the product.

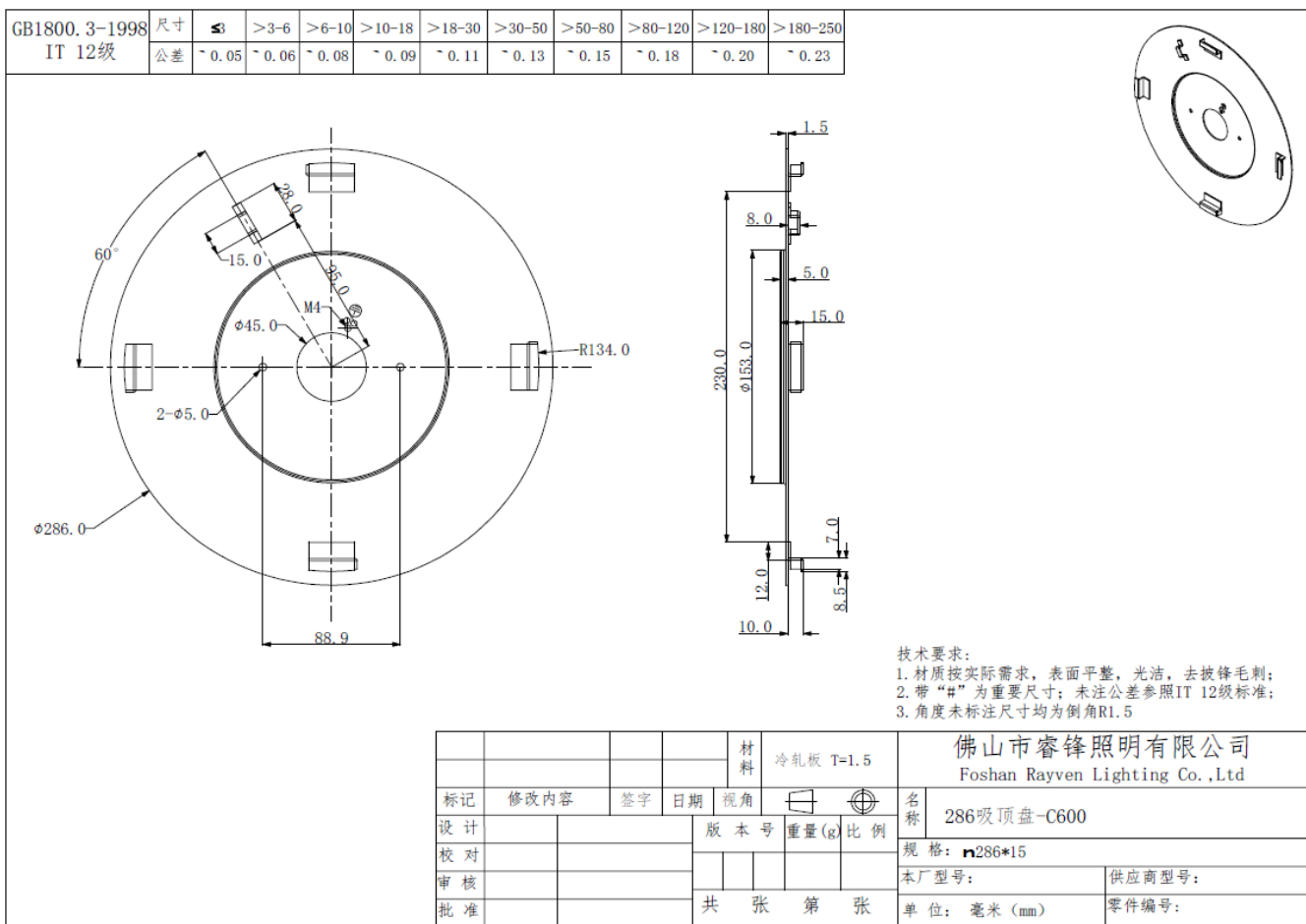
7.0 Illustrations

Illustration 2 - Specification of Mounting plate-1



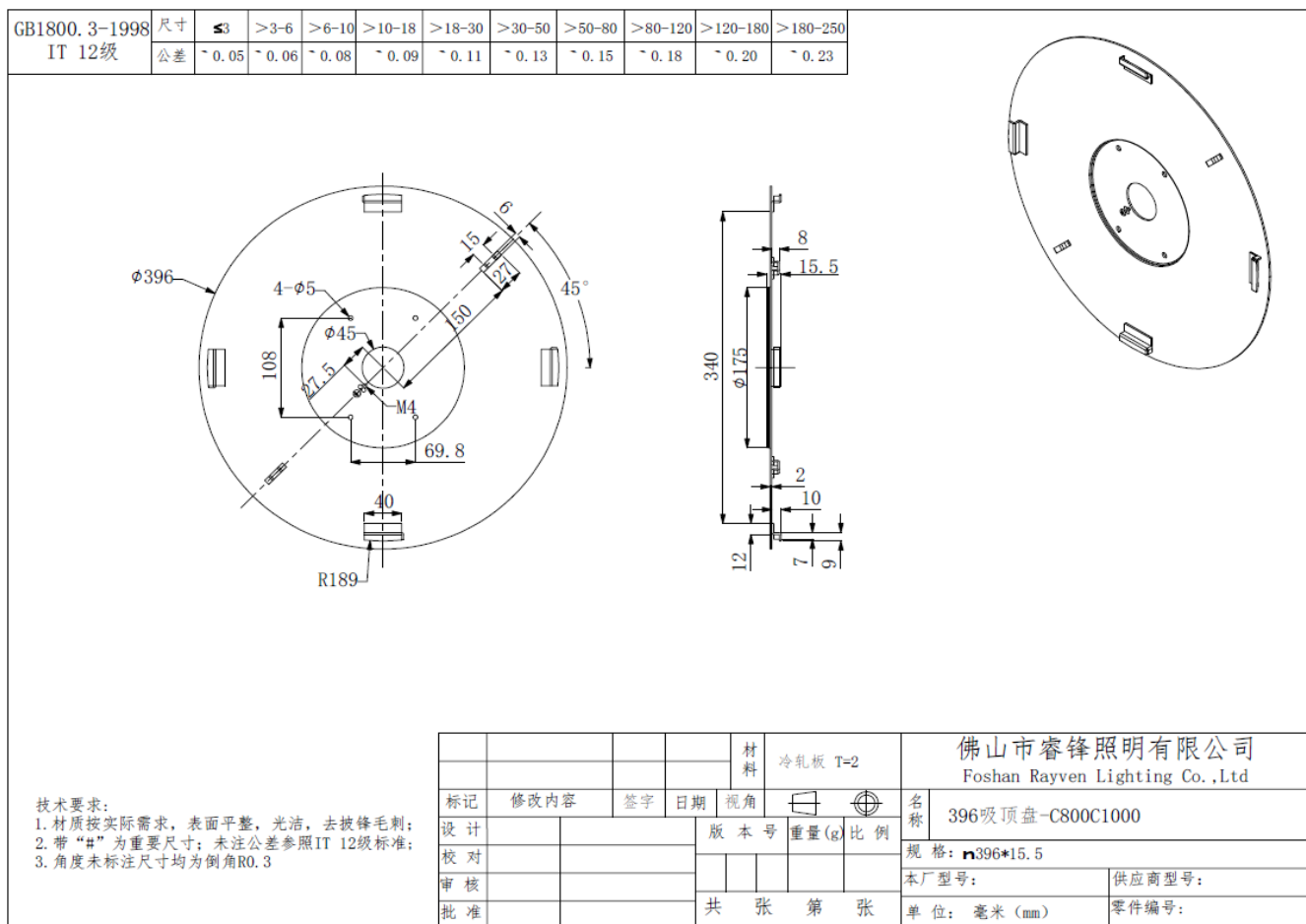
7.0 Illustrations

Illustration 3 - Specification of Mounting plate-2



7.0 Illustrations

Illustration 4 - Specification of Mounting plate-3



7.0 Illustrations

Illustration 5 - Installation Instructions for models RAVOLC2300A, RAVOLC2400A, RAVOLC2600A.

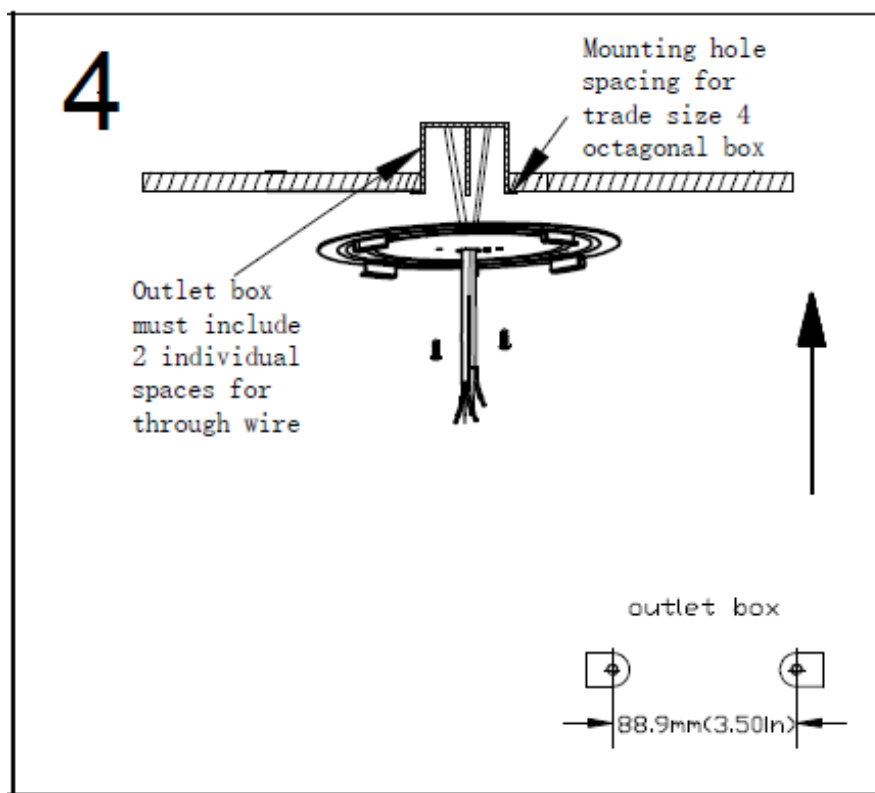
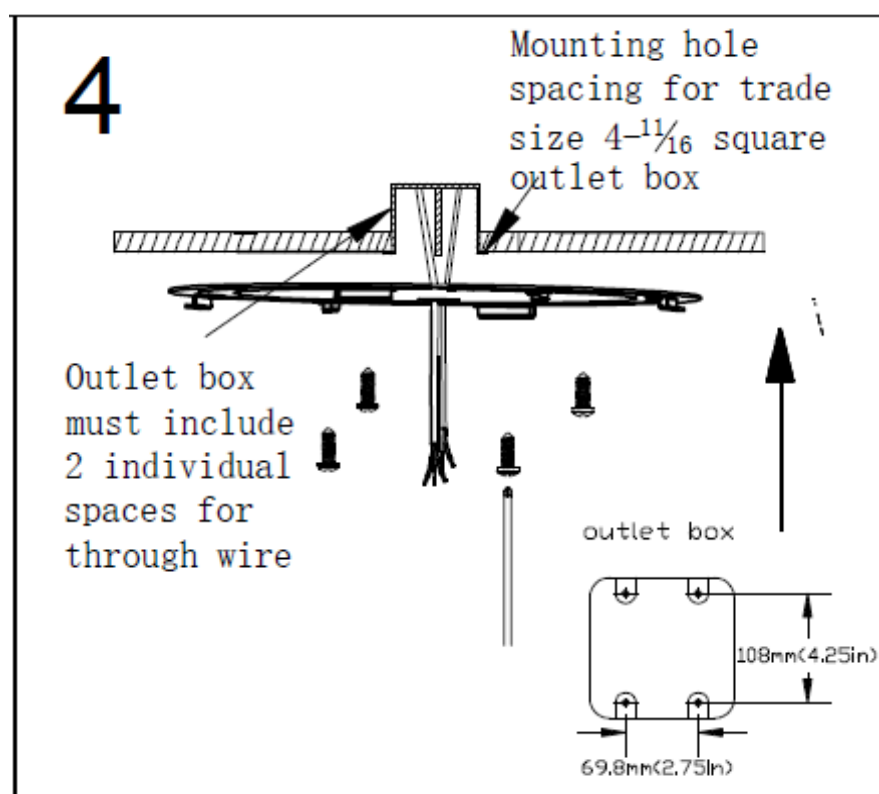
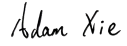



Illustration 5a - Installation Instructions for models RAVOLC2800A, RAVOLC21000A.



8.0 Test Summary					
Evaluation Period	6-Dec-2023 to 23-Mar-2024		Project No.	231206133GZU	
Sample Rec. Date	6-Dec-2023	Condition	Prototype	Sample ID.	S231206133-001~005
Test Location	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				
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 1598:2021 Ed.5+R:18Jun2021]/ Clause	[CSA C22.2#250.0:2021 Ed.5+U1]/ Clause	/		
Normal temperature Test	15	15	/		
Loading Test	17.15	17.15	/		
Ground-Screw Assembly Strength Test	17.39	17.39	/		
Dielectric Voltage-withstand Test	18.1	18.1	/		
Bonding Impedance Test	18.2	18.2	/		
Test Description	UL 8750:2015 Ed.2+R:07Dec2022/ Clause	CSA C22.2#250.13:2022 Ed.5 / Clause	/		
Input Test	8.2	9.2	/		
Dielectric Voltage-Withstand Test	8.6	9.4	/		
Environmental Test - Humidity Exposure Test	8.14.1	9.12.1	/		

8.1 Signatures			
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:	Adam Xie	Reviewed by:	Gerry Wu
Title:	Engineer	Title:	Manager
Signature:		Signature:	

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.

BASIC LISTEE	Foshan Rayven Lighting Co.,Ltd.
Address	A1 New Lighting Source Industry Zone,Luocun, Nanhai District, FOSHAN Guangdong
Country	China
Product	LED fixed luminaire

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	

ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 2	None
Address	
Country	
Brand Name	

ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 3	None
Address	
Country	
Brand Name	

ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS

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 Shenzhen Limited Guangzhou Branch

ETL Component Evaluation Center

Room 101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District

Guangzhou, Guangdong, China

Attn: Ms. Joey Kuang

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 or Insulation Resistance 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 fully assembled. Prior to applying the test potential, switches, contractors, relays, etc., should be closed so that all primary circuits are energized by the test all 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 wiring, including connected components, and accessible dead metal parts of a portable luminaire that are likely to become energized, including those parts that are accessible only during relamping. 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.	1200V	1 second

11.2 Insulation Resistance Test

Method

One hundred percent of production of the products covered by this Report that the Dielectric Voltage Withstand Test was not conducted shall be subjected to a routine production line insulation resistance test.

The test shall be conducted on products that are fully assembled. Prior to applying the test potential, should be closed so that the input circuit is energized by the test potential.

The test potential shall be applied between input circuit and accessible parts, including enclosure, output terminals. The test potential may be gradually increased to the specified value but must be maintained at the specified value for the time as required. A voltage of 500 Vdc was applied for a minimum duration of 1 s. The measured resistance should not be less than 2 MΩ. For safety reasons, the test should be performed with the luminaire disconnected from the power supply.

Test Equipment

The test equipment is a dc insulation tester capable of delivering the appropriate open circuit voltage (i.e., 500 V dc), or other suitable equipment.

Products Requiring Insulation Resistance Test:

All products covered by this Report that the Dielectric Voltage Withstand Test was not conducted.

11.3 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 pin or blade of the attachment plug.

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.

The measured or calculated resistance between the point of connection of the grounding means and any non-current-carrying metal parts described above should not exceed 0.10 Ω.

Test Equipment:

The ground continuity test apparatus shall be an ohmmeter or similar indicating instrument capable of measuring 0.10 Ω.

Products Requiring Grounding Continuity Test:

At least Once per quarter for all products covered by this report.

The following changes are in compliance with the declaration of Section 8.1:

ED 16.3.15 (1-Jul-2022) Mandatory