

1.0 Reference and Address			
Report Number	150500250SHA-002	Original 16-Jun-2015	Revised: None
Standard(s)	Luminares – UL1598 (3rd ed., Rev October 17, 2012) Luminares – CSA C22.2 No.250.0 (3rd ed., Rev October 17, 2012)		
Applicant	Yaham Optoelectronics Co., Ltd.	Manufacturer	Yaham Optoelectronics Co., Ltd.
Address	Han's Laser Industrial Park, NO.128, Chongqing Road, Bao'an District, Shenzhen	Address	Han's Laser Industrial Park, NO.128, Chongqing Road, Bao'an District, Shenzhen
Country	China	Country	China
Contact	Can Luo	Contact	Can Luo
Phone	0755-26755760	Phone	0755-26755760
FAX	0755-26755760	FAX	0755-26755760
Email	lc@yaham.com.cn	Email	lc@yaham.com.cn

2.0 Product Description						
Product	LED Fixed Luminaires					
Brand name	NA					
Description	The products covered by this report are fixed luminaires for wet location use.					
Models	YHL-AI2-240, YHL-AI2-210, YHL-AI2-180, YHL-AI2-150, YHL-AI2-120 and YHL-AI2-90.					
Model Similarity	The products covered by this report have similar electrical and mechanical construct, except the numbers of bulb, wattage, color and the outer pattern.					
Ratings	100-240V/277V~; 50/60Hz, AC ONLY, Non-replaceable LED(s), Suitable for Wet location.					
	Model No.	Wattage (W)	LED Driver	Mounting	Weight(KG)	Outline size (L x W x H)
	YHL-AI2-240	240	HLG-240H-48A	Ceiling or Hanging	8.1	L1286×W190×H118(mm)
	YHL-AI2-210	210	HLG-240H-48A	Ceiling or Hanging	8	L1286×W190×H118(mm)
	YHL-AI2-180	180	HLG-185H-36A	Ceiling or Hanging	6.3	L986×W190×H118(mm)
	YHL-AI2-150	150	HLG-150H-36A	Ceiling or Hanging	6.2	L986×W190×H118(mm)
	YHL-AI2-120	120	HLG-120H-48A	Ceiling or Hanging	4.7	L686×W190×H118(mm)
	YHL-AI2-90	90	HLG-100H-36A	Ceiling or Hanging	4.6	L686×W190×H118(mm)
Other Ratings	NA					

3.0 Product Photographs

Photo 1 - External view, model YHL-AI2-90

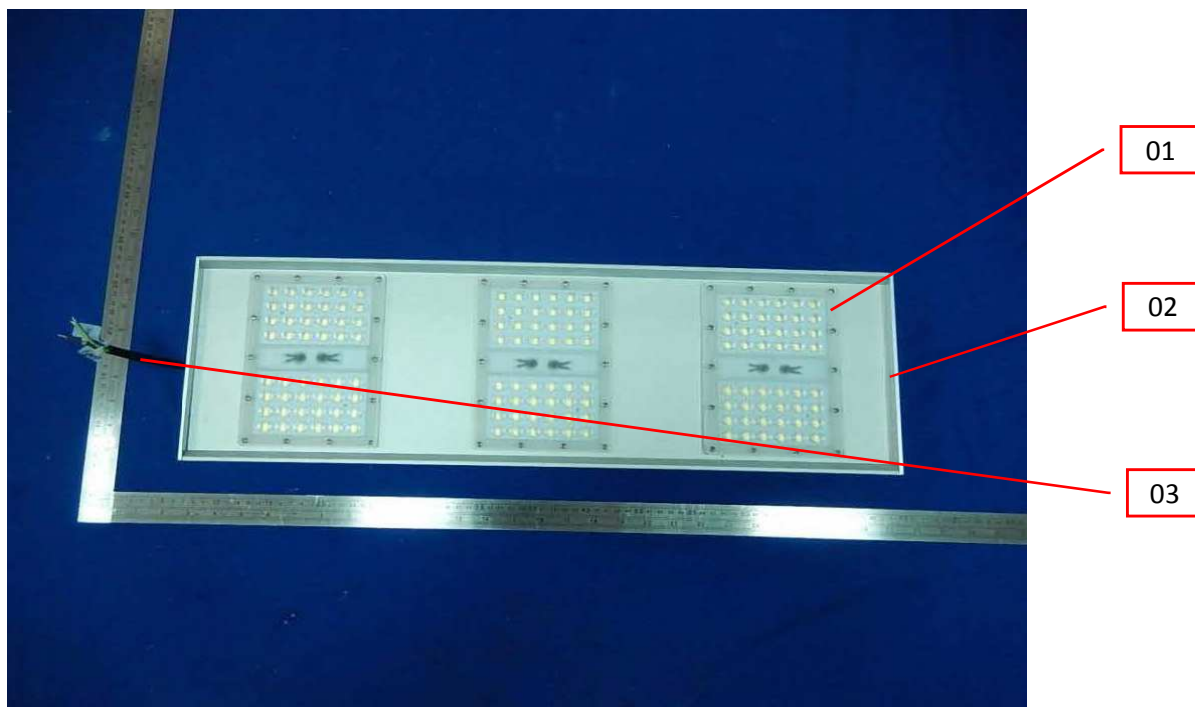
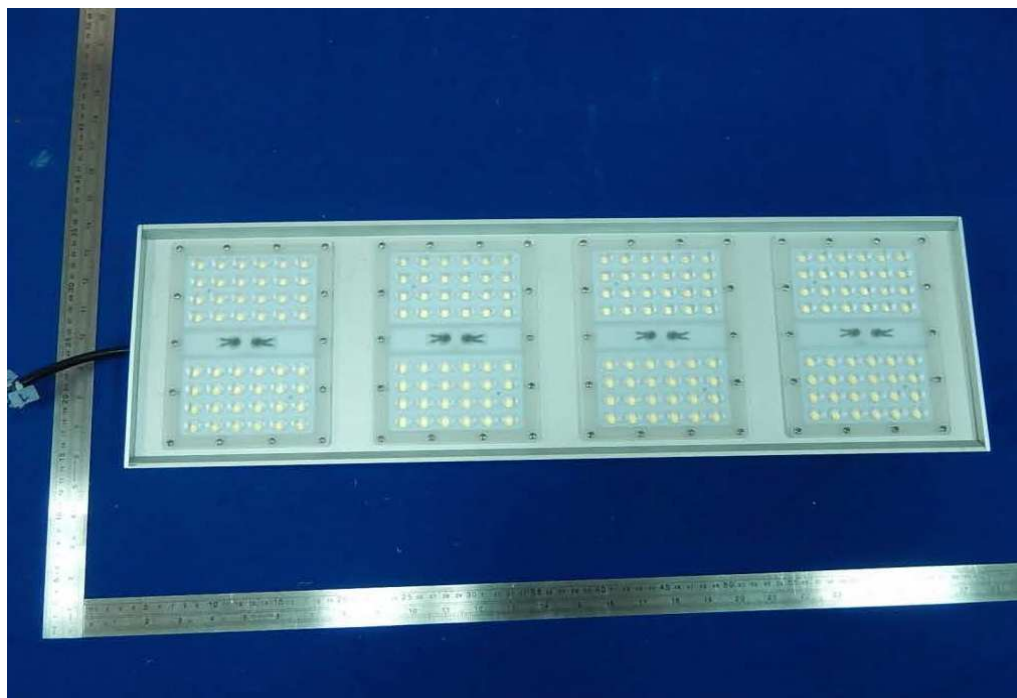


Photo 2 - External view, model YHL-AI2-120



3.0 Product Photographs

Photo 3 - Internal view, model YHL-AI2-150

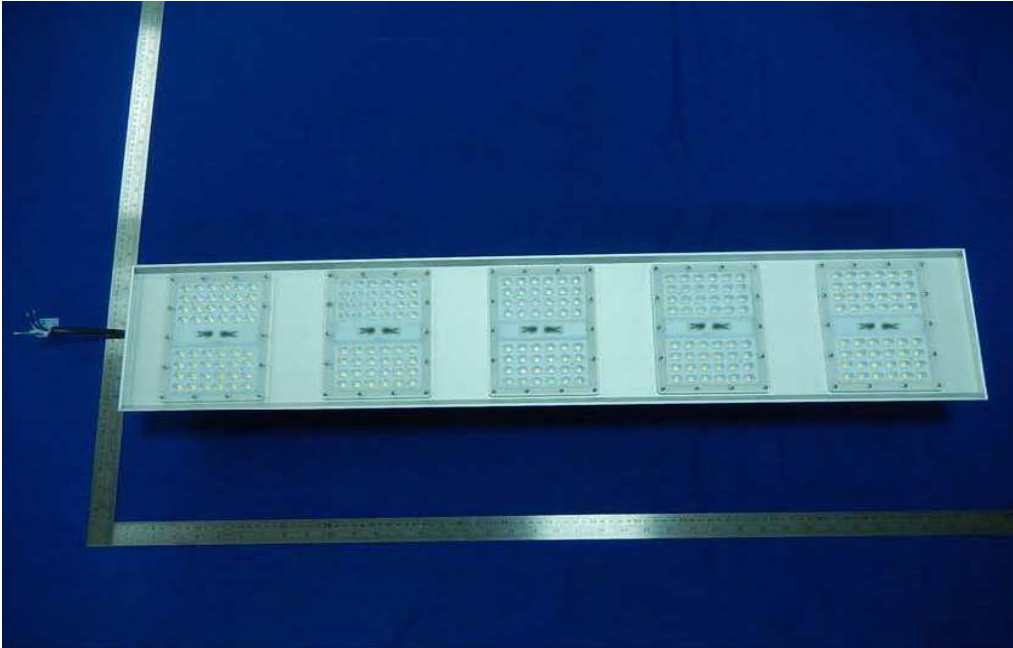
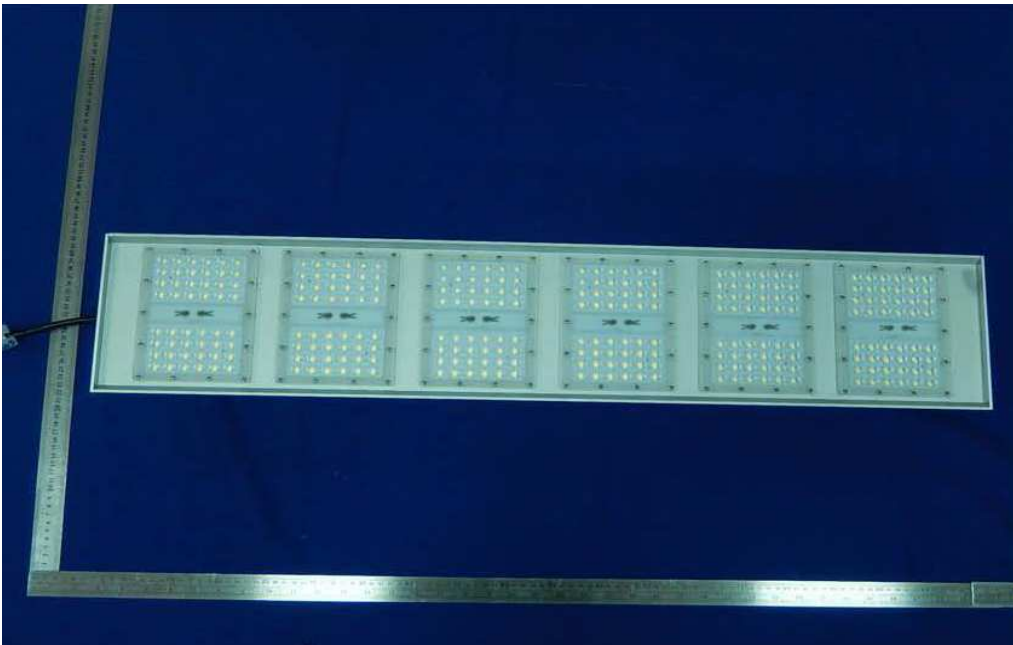


Photo 4 - External view, model YHL-AI2-180



3.0 Product Photographs

Photo 5 - External view, model YHL-AI2-210

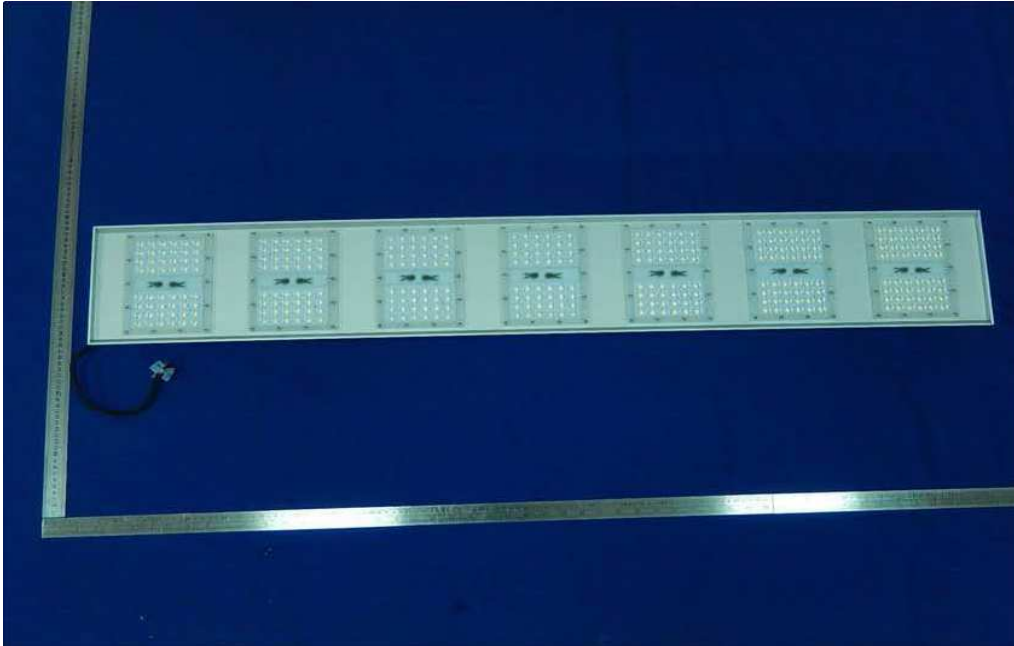
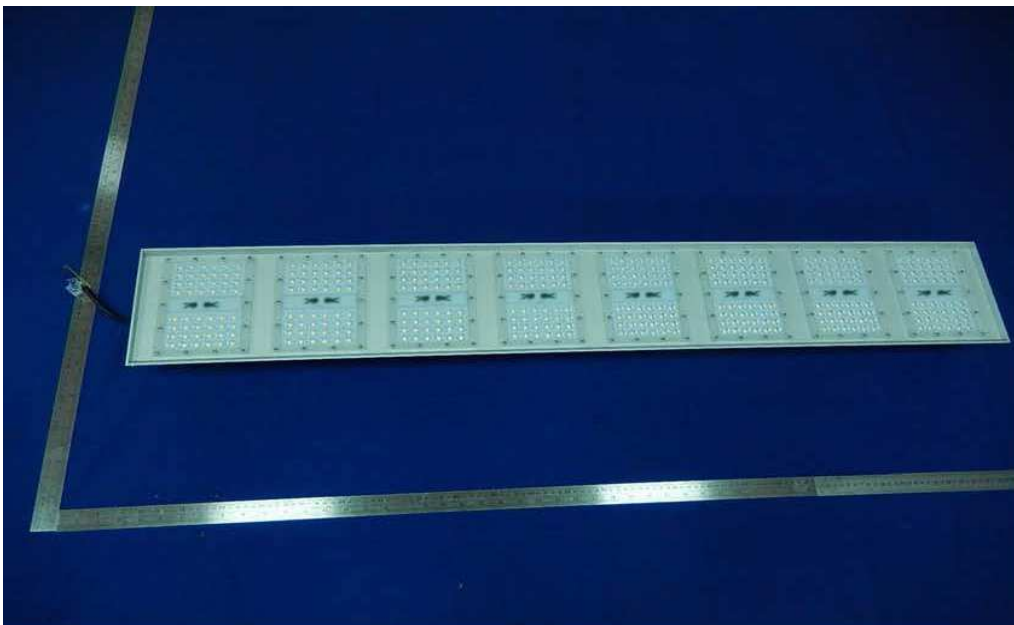


Photo 6 - Internal view, model YHL-AI2-240

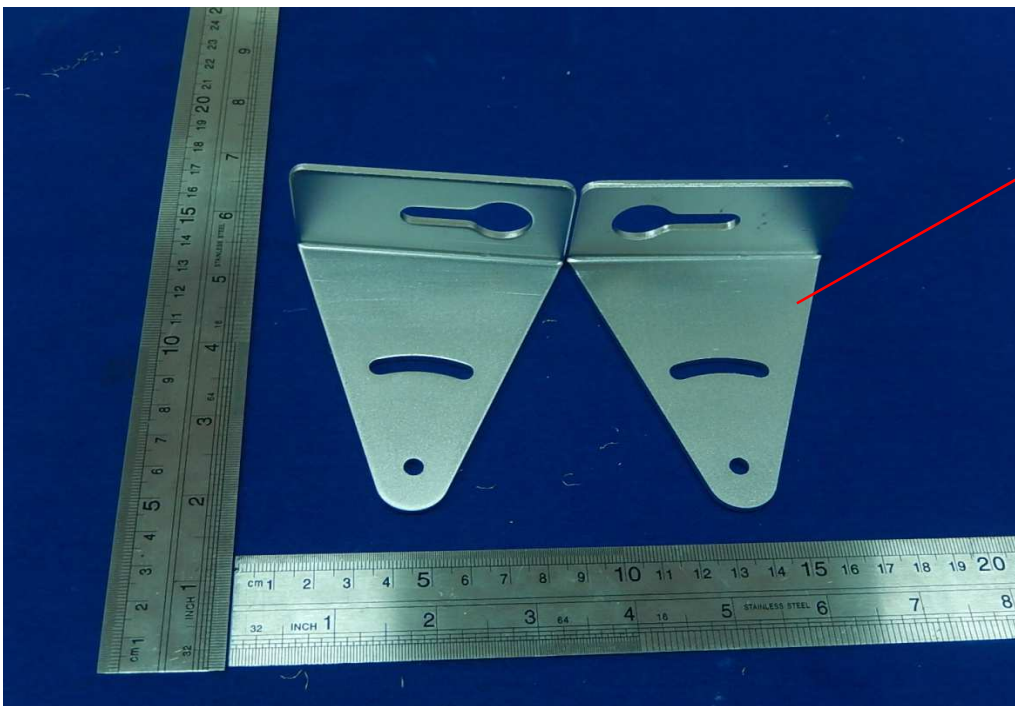


3.0 Product Photographs

Photo 7 - External view, model YHL-AI2-240



Photo 8 - External view, model YHL-AI2-240



3.0 Product Photographs

Photo 9 - External view, model YHL-AI2-240

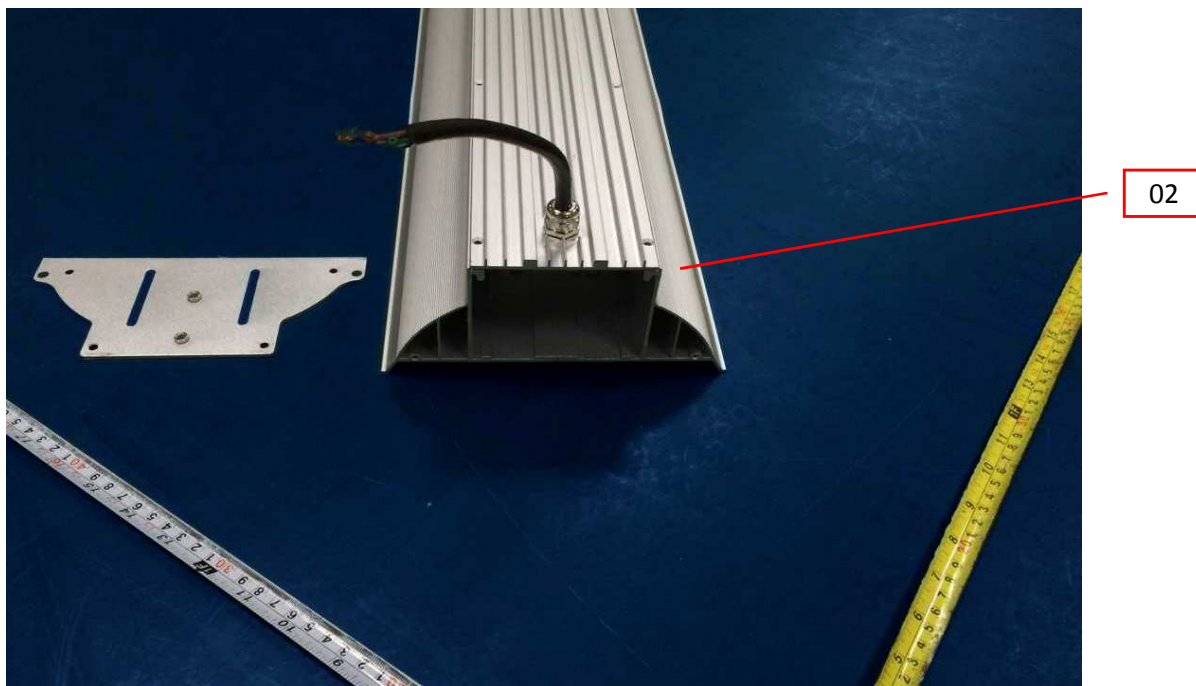
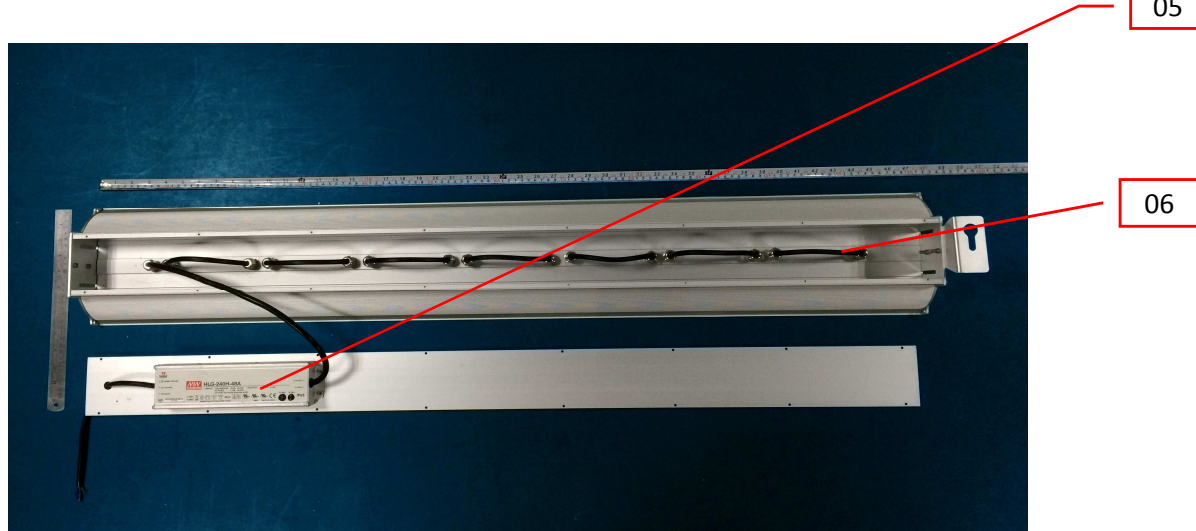
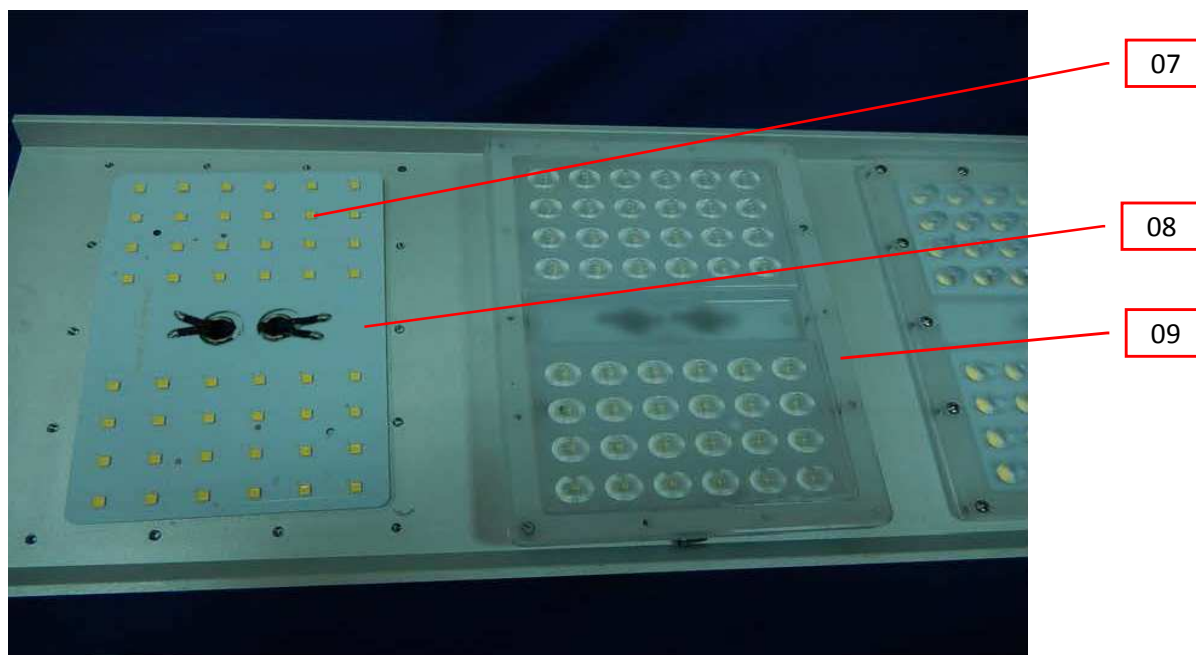


Photo 10 - External view, model YHL-AI2-240



3.0 Product Photographs

Photo 11 - External view, model YHL-AI2-240 as representative



4.0 Critical Components						
Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformat
1	1	Plastic lens for all models	TEIJIN LIMITED RESIN AND PLASTIC (E50075)	LN-2525U(#)(f1)	PC material, 5VA, f1, HWI: 3, HAI: 0, CTI: 3, RTI: 115, Min. thickness: 3mm. Suitable for outdoor use. Complied with cold impact test.	cURus
1,9	2	Metal enclosure for all models	Various	Various	Extruded aluminum Min. thickness: 0.81mm.	NR
3	3	Power cord for all models	Various	SJTW	18AWGx3C, 300V,105°C, VW-1. The wire is more than 15.2cm long from the end to luminaire surface. Suitable for outdoor use.	cULus
8	4	Metal breaket for all models	Various	Various	Painted steel, min.thickness is 2.6mm.	NR
10	5	LED driver	MEAN WELL ENTERPRISES CO LTD (E334687)	HLG-100H-48A	Input:AC100-240V, 277V, 2.65A, 50/60Hz; Ouput: 2.65A, 48 Vdc. Constant current output type; For model YHL-AI2-90. Input wiring:18AWGx3C, 300V,105°C, VW-1. Output wiring:18AWGx2C, 300V,105°C, VW-1.	cURus
			MEAN WELL ENTERPRISES CO LTD (E334687)	HLG-120H-48A	Input:AC100-240V, 277V, 2.5A, 50/60Hz; Ouput: 2.5A, 48 Vdc. Constant current output type; For model YHL-AI2-120. Input wiring:18AWGx3C, 300V,105°C, VW-1. Output wiring:18AWGx2C, 300V,105°C, VW-1.	cURus
			MEAN WELL ENTERPRISES CO LTD (E334687)	HLG-150H-36A	Input:AC100-240V, 277V, 4.2A, 50/60Hz; Ouput: 4.2A, 36 Vdc. Constant current output type; For model YHL-AI2-150. Input wiring:18AWGx3C, 300V,105°C, VW-1. Output wiring: 18AWGx2C, 300V,105°C, VW-1.	cURus
			MEAN WELL ENTERPRISES CO LTD (E334687)	HLG-185H-36A	Input:AC100-240V, 277V, 5.2A, 50/60Hz; Ouput: 5.2A, 36 Vdc. Constant current output type; For model YHL-AI2-180. Input wiring:18AWGx3C, 300V,105°C, VW-1. Output wiring:18AWGx2C, 300V,105°C, VW-1.	cURus
			MEAN WELL ENTERPRISES CO LTD (E334687)	HLG-240H-48A	Input:AC100-240V, 277V, 5.0A, 50/60Hz; Ouput: 5A, 48 Vdc, for models YHL-AI2-240 and YHL-AI2-210. Constant current output type; Input wiring: 18AWGx3C, 300V,105°C, VW-1. Output wiring: 18AWGx2C, 300V,105°C, VW-1.	cURus

4.0 Critical Components						
Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformit
10	6	Output wire	Various	SJTW	18AWGx2C, 600V,105°C, VW-1.	cULus
11	7	LED	Nicha	NF2W757DR-V1	384pcs(48p 8s) for each unit model YHL-AI2-240; 336pcs(48p 7s) for each unit models YHL-AI2-210; 288pcs(48p 6s) for each unit models YHL-AI2-180; 240pcs(48p 5s) for each unit models YHL-AI2-150; 192pcs(24p 8s) for each unit models YHL-AI2-120; 144pcs(24p 6s) for each unit models YHL-AI2-90; Each rated IF:1500mA, VF:2.85-3.4V Size:3.45*3.45*2.36 70-CRI White. Mechanically secured to LED Board.	NR
11	8	LED PCB	SHENZHEN JINGXINWEI TECHNOLOGY CO LTD (E351131)	JXW-001	Metal base, 90°C; V-0; Complied with UL796	cURus
11	9	Gasket	Various	Various	Silicone rubber. measuring 1.5 mm thick. Positioned under plastic lens and fixed by screw.	NR
1	10	Label material (Not show)	Various	Various	Suitable for attaching on the 90°C metal surface; Complied with UL969.	cURus

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.

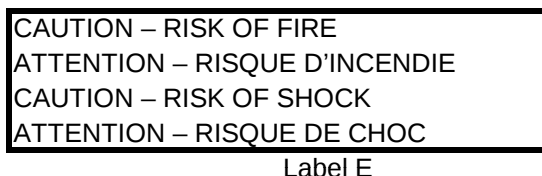
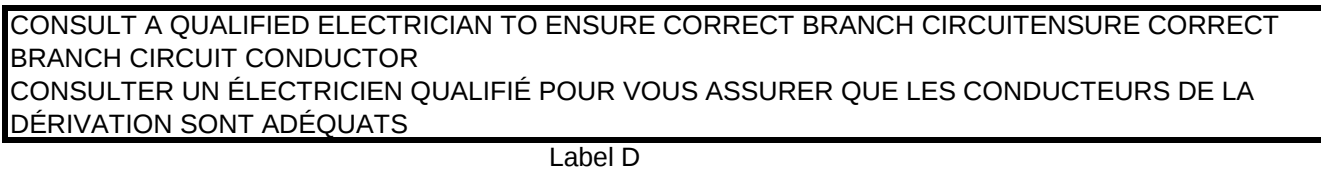
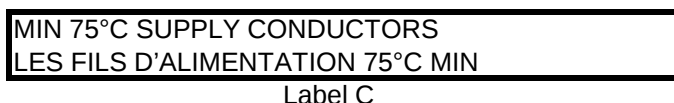
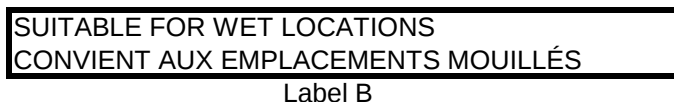
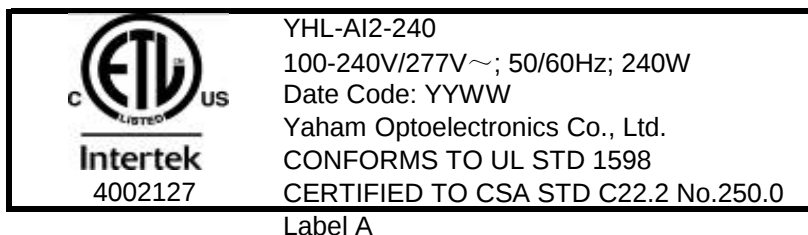
Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

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(100-240V/277V), 6.4 mm minimum spacing are maintained through air and 9.5mm over surfaces of insulating material between current-carrying parts of opposite polarity and between such current-carrying parts and dead-metal parts.
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 non-metallic 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 grounding lead of the power supply cord.
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.
8. Markings - The product is marked as follows: manufacturer's name, brand name, model number, date of manufacturer, electrical ratings.
The following markings in French are required: refer to Illustration 1 - Label for details
9. Cautionary Markings - The following are required: refer to Illustration 1 - Label for details
10. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer. Refer to Illustration 2 - Instruction for details.

7.0 Illustrations

Illustration 1 - Label



Note:

- 1, Label A was attached on the enclosure, ETL logo shall be at least 8 mm high. "US" should be at least 2mm high. "Intertek" shall be at least 3mm high, The control No. shall be at least 2mm high. other letters shall be 1.6mm high. "XXXX" is the manufacturing date code, "XX" denotes the year and "XX" denotes the month.
- 2, Label B was attached on the enclosure, visible during installation .all letters shall be at least 2.4mm high.
- 3, Label C was visible during installation and inspection of wire connections, located near the supply connections and on the smallest unit package or carton. "MIN" shall be 4.8mm high and remainder letters shall be at least 2.4mm high.
- 4, Label D was attached on the smallest unit package or carton, visible during installation .all letters shall be at least 2.4mm high.
- 5, Label E was visible during relamping, and after installation. "Max" shall be 4.8mm high and remainder letters shall be at least 2.4mm high
- 6, Other models (ref. Sec 2.0) have similar labels except the electrical specification, model name .

7.0 Illustrations

Illustration 2 - Manual

The instruction shall include the following information:

Sentence: "INSTALLATION OR ASSEMBLY INSTRUCTIONS".

French version: "INSTRUCTIONS D'INSTALLATION".

(the letters shall be at least 1.6mm)

Sentence: "CONSULT A QUALIFIED ELECTRICIAN TO ENSURE CORRECT BRANCH CIRCUIT CONDUCTOR".

French version: "CONSULTER UN ÉLECTRICIEN QUALIFIÉ POUR VOUS ASSURER QUE LES CONDUCTEURS DE LA DÉRIVATION SONT ADÉQUATS"

(The letters in the sentence shall be at least 2.4mm high)

Specific methods for sealing the mounting surface.

Proper installation method.

Wiring connecting method.

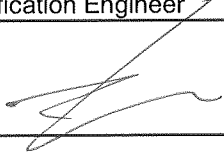
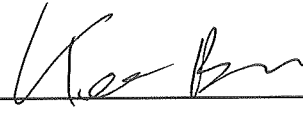
Other warning that will not lead to misuse.

Note:

Both English and French instruction should be provided.

8.0 Test Summary					
Evaluation Period	6-May-2015 to 16-Jun-2015		Project No.	150500250SHA	
Sample Rec. Date	6-May-2015	Condition	Prototype	Sample ID.	0150504-67-001 to 009
Test Location	Intertek Testing Services Shanghai Limited.				
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 (3rd Ed.,Rev. October 17, 2012)/Clause		CSA C22.2 No.250.0 (3rd Ed.,Rev. October 17, 2012) /Clause		
Normal temperature test	14		14		
Mold Stress Relief Test	16.4		16.4		
Rain test	16.5.2		16.5.2		
Loading	16.15		16.15		
Strain relief test	16.21		16.21		
Impact Test	16.41		16.41		
Dielectric Voltage test	17.1		17.1		
Bonding Impedance test	17.2		17.2		

Test Description	UL 8750 (1st ed. Rev April 1, 2015)/Clause	CSA C22.2 No. 250.13 (1st Ed. Rev. July 2014)/Clause
Input test	8.2	9.2
Humidity Exposure test	8.12.1	8.12.1

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:	Stephen Wu	Reviewed by:	Kevin Bao
Title:	Certification Engineer	Title:	Reviewer
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	Yaham Optoelectronics Co., Ltd.
Address	Han's Laser Industrial Park, NO.128, Chongqing Road, Bao'an District, Shenzhen
Country	China
Product	LED Fixed Luminaires

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 issue 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.

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.

Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation

Ship the samples to:

Intertek Testing Services Shanghai Limited
ETL Component Evaluation Center
Building No. 86, 1198 Qinzhou Road (North)
Shanghai 200233, China
Attn: Ms. Dansy Xu

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

Polarity 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, all switches, contactors, relays, etc., should be closed 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:

Product	Test Voltage	Test Time
All products covered by this Report.	1000V	60 s
	or	
	1200V	1 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

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.

Test Equipment:

The grounding continuity test apparatus shall consist of an indicating instrument and an ac or dc power supply of approximately 12 V providing a current of 30A though the bonding means being evaluated.

Test Records:

Test records shall be retained for a period of at six months, and include test quantity, test dates, catalog or model numbers, test results and disposition of any non-complying products.

Products Requiring Grounding Continuity Test:

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

Test location

Allowable value

Between the point of grounding means and any dead metal part

< 0.10 ohm

11.3 POLARITY 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.

Each product listed below shall be checked as routine production-line test to verify that there is electrical continuity between the grounded supply-circuit conductor of the attachment plug - wide blade of a 2-wire type - and the part of the product that is intended to be connected to the grounded supply-circuit conductor of the attachment plug (for example, screw shell of an incandescent lampholder).

The continuity shall be determined either visually or through the use of an electrical test. Equivalently, continuity is able to be verified between the ungrounded supply-circuit conductor of the attachment plug and the part of the product that is intended to be connected to the ungrounded conductor (for example, the center contact of an incandescent lampholder).

Test Equipment

A visual or electrical test (ohmmeter, buzzer, etc.) may be used to indicate the continuity.

Products Requiring polarity Test

Product

All products covered by this Report.

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

ED 16.3.15 (1-Jan-13) Mandatory