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深圳市光科照明有限公司

Wudeng Yuan



Wudeng Yuan
SHENZHEN GK LIGHTING CO LTD
5F BLOCK F GUANCHENG LOW CARBON INDUST
GONGMING TOWN GUANGMING NEW DISTRICT
SHENZHEN
GUANGDONG 518106 CHINA

Date: 2016/12/30
Subscriber: None
PartySite: 1642638
File No: E488795
Project No: 4787671111
PD No: 16051884
Type: R
PO Number:

Subject: **Initial Production Inspection**

PLEASE NOTE: YOU ARE NOT AUTHORIZED TO SHIP ANY PRODUCTS BEARING ANY UL MARKS UNTIL THE INITIAL PRODUCTION INSPECTION HAS BEEN SUCCESSFULLY CONDUCTED BY THE UL FIELD REPRESENTATIVE.

An Initial Production Inspection (IPI) is an inspection that must be conducted prior to the first shipment of products bearing the UL Mark. This is to ensure that products being manufactured are in accordance with UL's requirements including the Follow-Up Service Procedure. After the UL Representative has verified compliance of your product(s), authorization will be granted for shipment of product(s) bearing the appropriate UL Marks as denoted in the Procedure.

Inspections at your plant will be conducted under the supervision of BILL ZHANG, UL INSPECTION CENTER SHENZHEN, CHINA NAT'L IMPORT & EXP COM INSP CORP, 3/F, GALAXY WIND BUILDING, KEYUAN ROAD, NANSHAN DISTRICT, SHENZHEN, GUANGDONG, China, 518057., PHONE: 755-86130536, FAX: 755-86130575, EMAIL: szic@sz.ccic.com

Marks as needed may be obtained from UL LABEL CENTER GUANGZHOU, ROOM 3006-3007, TIMES PROPERTY CENTER, NO 410 DONGFENG RD MIDDLE, GUANGZHOU, GUANGDONG, China, 510030. PHONE: 208-348-7088, FAX: 208-348-7088, EMAIL: LABELCENTER.GUZ@UL.COM, ATTN: T WEN

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at <http://ul.com/aboutul/locations>.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above., referring to the above Project and/or PD Numbers.

This material is provided on behalf of UL LLC(UL) or any authorized licensee of UL.

NWT File

UL INSPECTION CENTER 750

Production Date: UNKNOWN
Contact: Mr. WUDENG YUAN
Phone: 86-755-27602700
EMail: ywd_wt@hotmail.com

ADDENDUM TO TRANSMITTAL LETTER

Wudeng Yuan
SHENZHEN GK LIGHTING CO LTD
5F BLOCK F GUANCHENG LOW CARBON INDUST
GONGMING TOWN GUANGMING NEW DISTRICT
SHENZHEN
GUANGDONG 518106 CHINA

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File No: E488795
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Subject: **Initial Production Inspection**

The following material resulting from the investigation under the above numbers is enclosed.

Issue

<u>Date</u>	<u>Vol</u>	<u>Sec</u>	<u>Pages</u>	<u>Revised Date</u>
2016/12/22	1	1	Cert of Compliance	
2016/12/22	1	1	Add New Volume	

Follow-Up Service Procedure

DO NOT DISCARD THIS PAGE

It is important to keep UL Procedures and Test Reports up-to-date as new or revised pages are received. Correct maintenance will decrease the amount of time the UL Representative spends when visiting your facility.

UL LLC offers MyHome @UL, a dedicated website providing secure access to online tools and databases that can help simplify your compliance activities. You can customize your personal MyHome @UL page to include the content needed most, including timely information about certification updates and links to other Web sites you visit regularly. Visit <http://my.home.ul.com/> to sign up today!

PAGES (in content order)	FUNCTION	HOW TO UPDATE
Authorization Page	Displays the Product Category, the type of Follow-Up Service (Type R=Reexamination / Type L=Label), the File Number and the Volume Number associated with each Applicant's, Manufacturer's and Listee's company name and address.	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Addendum to Authorization Page*	Lists the additional names and addresses of manufacturing locations, when multiple locations exist	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Listing Mark Data (LMD), Classification Mark Data (CMD) or Recognized Component Mark Data (RCMD) Pages* #	Used only for products covered under Type R Service. Displays the correct LMD, CMD, or RCMD Mark, the Control Number for Listed and Classified categories and additional information regarding minimum size, application, procurement, and any other optional markings, in addition to the UL Mark.	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Multiple Listing (ML) Correlation Sheet*	Correlates product model numbers between those products made by a Manufacturer for the Basic Applicant and those supplied to another company, the Multiple Listee.	Replace, add or delete page(s) with most current "Issued" or "Revised" date.
Index*	Catalogs the contents of the Procedure by some logical means, i.e. Section Number, Report Reference Number, or Issue Date.	Replace present page by matching the UL File Number, Volume Number, Page Number and most current "Revised" date.
Appendices* # (App.)	Contains instructions for the Manufacturer and UL Representative concerning specific responsibilities and required periodic tests. May also outline tests to be conducted on samples to be forwarded to UL's facilities.	Replace present page by matching the UL File Number, Volume Number, Appendix letter (eg. App. A), Page Number and most current "Revised" date.
	Standardized Appendix Pages are the same for all manufacturers within a particular product category.	Replace present page by matching the Appendix letter (eg. App. A), Page Number and most current "Revised" date.
Follow-Up Inspection Instructions (FUII) Pages*	Contains information similar to that in the Appendices. FUII Pages are issued as part of the Procedure when a UL Standard is used in conjunction with the Procedure, and are the same for all manufacturers within a particular category.	Replace present pages by matching the Page Number and most current "Issued" or "Revised" date.
Section General* # (Sec. Gen.)	Contains description, requirements, identifications and/or specifications that are common to all products covered by the entire volume and supplements the information provided in the Description Section.	Replace present page by matching the UL File Number, Volume Number, Page Number and most current "Revised" date.
Description, or Section (Sec.)*	Contains the specific description of one or more products or systems. This includes written text supplemented by photographs, drawings, etc., as necessary, to define features that affect compliance with the applicable requirements.	Replace present page by matching the UL File Number, Volume Number, Section Number, Page Number and most current "Issued" date.

* The above page(s) may not appear in all UL Follow-Up Service Procedures; UL's Conformity Assessment Services staff determines their inclusion.

These pages are combined in the **Generic Inspection Instructions** for International Style Reports, identified, as example by Vol. X1, X2, etc.

PLEASE NOTIFY YOUR LOCAL UL OFFICE OF ANY CHANGES IN CONTACT NAME, COMPANY NAME OR ADDRESS, SO THIS MATERIAL AND IMPORTANT INFORMATION CONTINUES TO BE DELIVERED TO YOUR FACILITY WITHOUT INTERRUPTION.



File E488795

Vol 1

Auth. Page 1

Issued: 2016-12-29

Revised: 2016-12-30

FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

COMPONENT - SIGN ACCESSORIES
(UYMR2,UYMR8)

Manufacturer: SEE ADDENDUM FOR MANUFACTURER LOCATIONS

Applicant: 1642638 (Party Site)
Shenzhen GK Lighting Co Ltd
5F Block F Guancheng Low carbon Industrial Park Hedi Road
Gongming Town Guangming New District
Shenzhen
Guangdong 518106 CHINA

Recognized Company: 1642638 (Party Site)
SAME AS APPLICANT

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party and any applicable Service Terms. The UL Contracting Party for Follow-Up Services is listed on addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

UL further defines responsibilities, duties and requirements for both Manufacturers and UL representatives in the document titled, "UL Mark Surveillance Requirements" that can be located at the following web-site: <http://www.ul.com/fus> and in the document titled "UL and Subscriber Responsibilities" that can be located at the following website: <http://www.ul.com/responsibilities>. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the applicable Service Terms, please contact UL's Customer Service at <http://ul.com/aboutul/locations/>, select a location and enter your request, or call the number listed for that location.

The Applicant, the specified Manufacturer(s) and any Recognized Company in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable agreement is a Global Services Agreement ("GSA") with an effective date of January 1, 2012 or later and this Follow-Up Service Procedure is issued on or after that effective date, the Applicant, the specified Manufacturer(s) and any Recognized Company will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of use of the prescribed UL Mark, acceptance of the factory inspection, or payment of the Follow-Up Service fees which will incorporate such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking here: <http://www.ul.com/contracts/Terms-After-12-31-2011>. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

It is the responsibility of the Recognized Company to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

This Follow-Up Service Procedure contains information for the use of the above Manufacturer(s) and representatives of UL and is not to be used for any other purpose. It is provided to the Manufacturer with the understanding that it will be returned upon request and is not to be copied in whole or in part.

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the above named Manufacturer(s) and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

UL LLC has signed below solely in its capacity as the accredited entity to indicate that this Follow-Up Service Procedure is in compliance with the accreditation requirements.

Bruce A. Mahrenholz
Director
North American Certification Program

File E488795 Vol 1 Addendum To Page 1 Issued: 2016-12-29
Authorization Page Revised: 2016-12-30

LOCATION

1642638 (Party Site)
Shenzhen GK Lighting Co Ltd
5F Block F Guancheng Low carbon Industrial Park Hedi Road
Gongming Town Guangming New District
Shenzhen
Guangdong 518106 CHINA

Factory ID: None
UL Contracting Party for above site is: UL AG

Recognized Component Marking Data Page (RCMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

RECOGNIZED COMPONENT MARKING

Products Recognized under UL's Component Recognition Service are identified by marking elements consisting of:

1. The Recognized Company's identification specified in this document.
2. A catalog, model or other applicable product designation specified in the descriptive sections of this document.
3. The UL Recognized Component Mark shown below is optional unless required elsewhere in the Procedure.

Only those components, which actually bear the Marking, should be considered as being covered under the Recognition Program. The UL Listing or Classification Mark is not authorized for use on or in connection with Recognized Components.

Recognized Component Mark



Minimum size of the Recognized Component Mark is not specified as long as it is legible. Minimum height of the registered symbol ® shall be 3/64 inch but may be omitted if it is out of proportion to the Recognized Component Mark or not legible to the naked eye.

The manufacturer may reproduce the Mark electronically. Any decision regarding the acceptability of the manufacturer's Mark reproduction will be made at the Reviewing Office.

Recognized Component Marking Data Page (RCMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

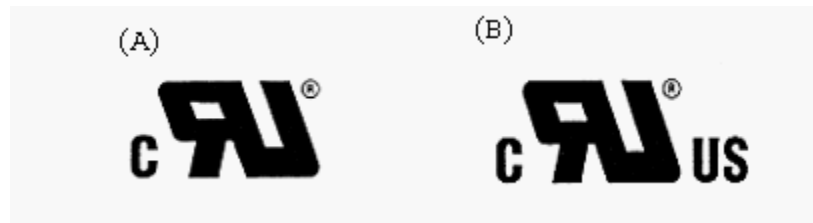
RECOGNIZED COMPONENT MARKING

Products Recognized under UL's Component Recognition Service are identified by marking elements consisting of:

1. The Recognized Company's identification specified in this document.
2. A catalog, model or other applicable product designation specified in the descriptive sections of this document.
3. The UL Recognized Component Mark shown below:
 - (A) Recognized only to Canadian safety requirements, or;
 - (B) Recognized to both U.S. and Canadian safety requirements.

Only those components, which actually bear the Marking, should be considered as being covered under the Recognition Program. The UL Listing or Classification Mark is not authorized for use on or in connection with Recognized Components.

Recognized Component Mark



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INDEX

Product	USR	CNR	Section	Date
LPS/Class 2 type, LED Modules, Mxxxxxxx series; LED Strips, Fxxxxxxx series; LED Rigid Strips, Lxxxxxxx series;	X	X	1	2016-12-22

USR indicates investigation to United States Standard, UL 879.

CNR indicates investigation to the Canadian Standard C22.2 No. 207.

DESCRIPTION

PRODUCT COVERED:

*USR, CNR - Component, Sign Accessories, LPS/Class 2 type, LED module, Mxxxxxxx series; LED Strips, Fxxxxxxx series; and LED Rigid Strips, Lxxxxxxx series.

Model Nomenclature:

Mxxxxxxx, Fxxxxxxx, Lxxxxxxx series

Example: M x x x x x x x
 b c d e f g

The lower case letters b-g corresponds to the number of x and is defined below:

- b = may be any letter denoting LED type;
- c = may be any letter denoting LED color;
- d = any 1-digit alpha-numeric character (internal code);
- e = any 2-digit alpha-numeric character (serial no.);
- f = may be A or B for constant voltage (CV) supply; C or D for constant current (CC) supply;
- g = may be numeral "1" or "2" denoting CV input voltage 12 V or 24 V respectively; or blank for CC input voltage range of 5-24Vdc.

Model Designation and Input Electrical Ratings:

Model No.	Max. Input (CC) Voltage, Vdc	Max. Input Current, A	Maximum Input Power
LED Module, <u>MxxxxxxAx</u> , <u>MxxxxxxBx</u>	5-24	4.0	96
LED Strip, <u>FxxxxxxAx</u> , <u>FxxxxxxBx</u>	5-24	4.0	96
LED Rigid Strip, <u>LxxxxxxAx</u> , <u>LxxxxxxBx</u>	5-24	4.0	96

Model No.	Max. Input (CC) Voltage, Vdc	Max. Input Current, A	Maximum Input Power
LED Module, <u>MxxxxxxC1</u> , <u>MxxxxxxD1</u>	12	5.0	60
LED Strip, <u>FxxxxxxC1</u> , <u>FxxxxxxD1</u>	12	5.0	60
LED Rigid Strip, <u>LxxxxxxC1</u> , <u>LxxxxxxD1</u>	12	5.0	60

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE USE):

Special Considerations - These products have only been evaluated for use when connected to a LPS or Class 2 circuit.

USR - Indicates that these products comply with the Standard for Electric Sign Components, UL 879.

CNR - Indicates compliance with Canadian Standard C22.2 No. 207 for Electric Signs.

Conditions of Acceptability:

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by UL LLC.

1. These products are only suitable for connection to a Class 2 or LPS power source.
2. These products has not been evaluated for use when connected to a power source that does not comply with Class 2/LPS voltage and energy limits and which is rated greater than electrical ratings.
3. These products are rated as noted in the electrical ratings table. When units are connected to a Class 2 or LPS circuit, they are not to draw a total wattage of greater than the secondary or output rating of the Class 2/LPS supply.
4. This product is suitable for use in dry, damp and wet locations with supply sources rated at electrical ratings or less.
5. This product is not required to be enclosed or protected from the weather in the end product.
6. This product may be secured in place in the end products by any means available.
7. The temperature rating of LED board is 105°C minimum, of supply leads is 60°C minimum, LED Housing is 50°C minimum. The suitability is to be determined in end product use.

CONSTRUCTION DETAILS:

General - The general design, shape, and arrangement shall be as illustrated in the following descriptive pages.

Markings - Each unit or smallest unit container shall be legibly and permanently marked with the following:

1. Manufacturer's name, trade name, or trademark (if authorized).
2. Distinctive catalog or model number.
3. Date code of at least month and year of manufacture

Installation Instructions - Each package or box containing these LED light board shall be provided with installation instructions that include the following:

- a) A location designation indicating the environmental condition for which the product has been evaluated (e.g. wet, damp, or dry location);
- b) This product is only suitable for connection to a circuit from a Class 2/LPS power source;
- c) This product has not been evaluated for use when connected to a power source that does not comply with Class 2 or LPS voltage and energy limited supplies; and
- d) For wet location product, "This product is not required to be enclosed or protected from weather".

LED Modules, Model MBW194A1 - FIG. 1
Model MDW156D1 - FIGS. 2a, 2b

General - All components located in Class 2/LPS circuit. Represents all models of Mxxxxxxx series.

1. Printed Wiring Board (PWB) - R/C (ZPMV2), metal-clad type, shape, size and design may vary, rated min. HB, 105°C.
2. LED packages - Located in Class 2 circuit. 2 provided. SMD type. See table below for ratings. Color temperature, and color may vary.

Model	Forward voltage, Vf	Forward current, If
MBxxxxxxx	2.8-3.4 V	20 mA
MDxxxxxxx	9 V	350 mA

3. LED Plastic Housing - R/C (QMFZ2), rated min. HB, 50°C min. Shape, size and design may vary. Integrally molded with the PWB and lead wires.
4. Lead wires - R/C (AVLV2), 24 AWG min., rated 60°C min. Secured to PWB by soldering.
5. Resistors - Optional. PWB mounted, rating may vary per module.
6. Mounting Means - Each module may be provided with mounting holes, double-sided adhesive tape or other mechanical means for securement.

LED Strip, Model FFW295A2 - FIG. 3
Model FPW012A1 - FIG. 4

General - All components located in Class 2/LPS circuit. Represents all models of Fxxxxxxx series.

1. Flexible Printed Wiring Board (PWB) - R/C (ZPXK2), size and design may vary, rated min. HB, 105°C.
2. LED packages - Located in Class 2/LPS circuit. 240pcs/meter provided. SMD type. See table below for ratings. Color temperature, and color may vary.

Model	Forward voltage, Vf	Forward current, If
FFxxxxxxx	2.8-3.4 V	30 mA
FPxxxxxxx	2.8-3.4 V	60 mA

3. LED Plastic Housing - Optional. R/C (QMFZ2), silicone, rated min. HB, 50°C min. Shape, size and design may vary.
4. Lead wires - R/C (AVLV2), 24 AWG min., 60°C min. Secured to PWB by soldering.
5. Resistors - Optional. PWB mounted, rating may vary per module.
6. Mounting Means - Each module may be provided with mounting holes, double-sided adhesive tape or other mechanical means for securement.

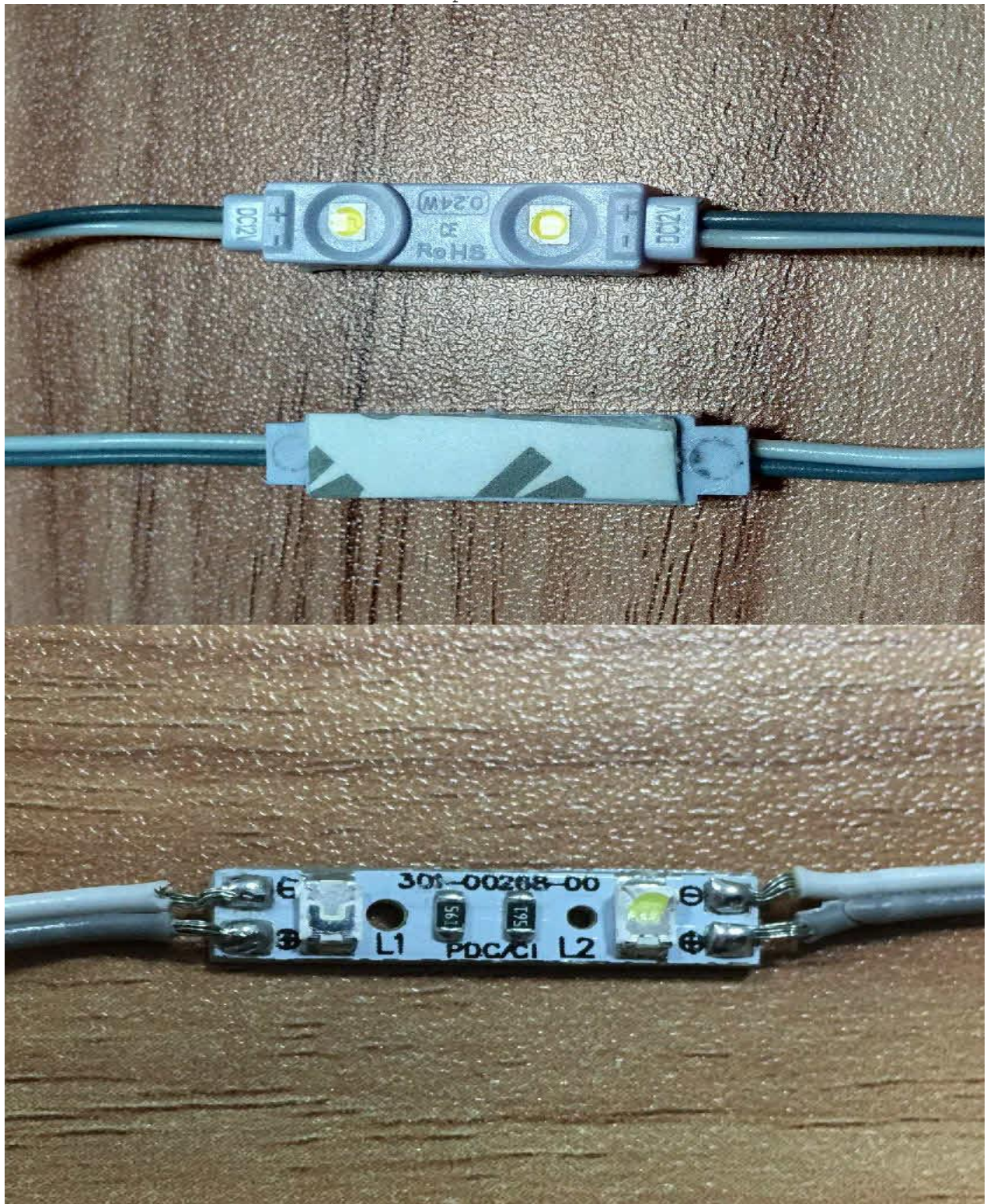
Rigid LED Strip, Model LDW0X1A1 - FIG. 5
Model LFW061A1 - FIG. 6

General - All components located in Class 2/LPS circuit. Represents all models of Lxxxxxxx series.

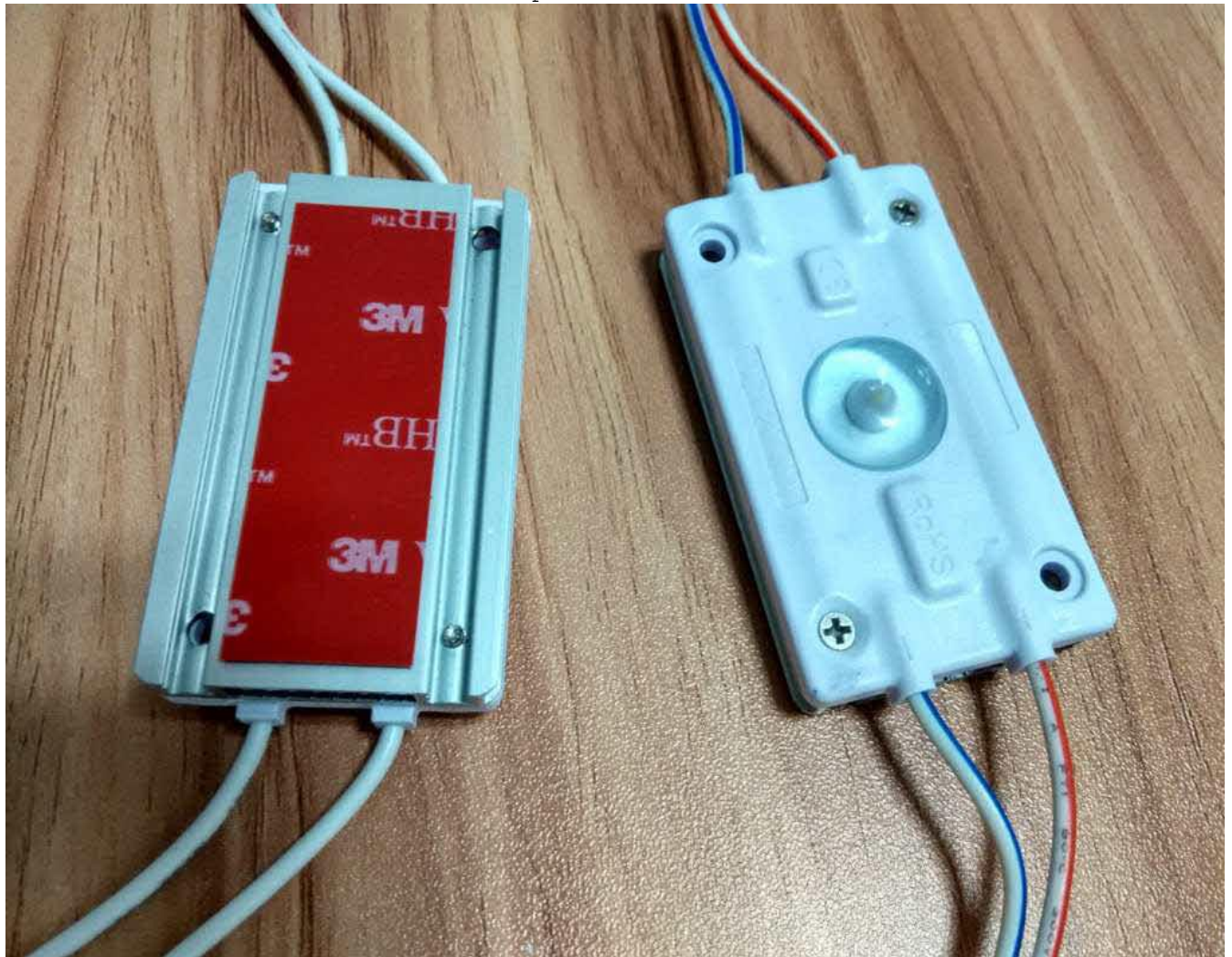
1. Printed Wiring Board (PWB) - R/C (ZPMV2), size and design may vary, rated min. HB, 105°C.
2. LED packages - Located in Class 2/LPS circuit. 12pcs/meter provided. SMD type. See table below for ratings. Color temperature, and color may vary.

Model	Forward voltage, Vf	Forward current, If
LDxxxxxxx	2.8-3.4 V	350 mA
LFxxxxxxx	2.8-3.4 V	60 mA

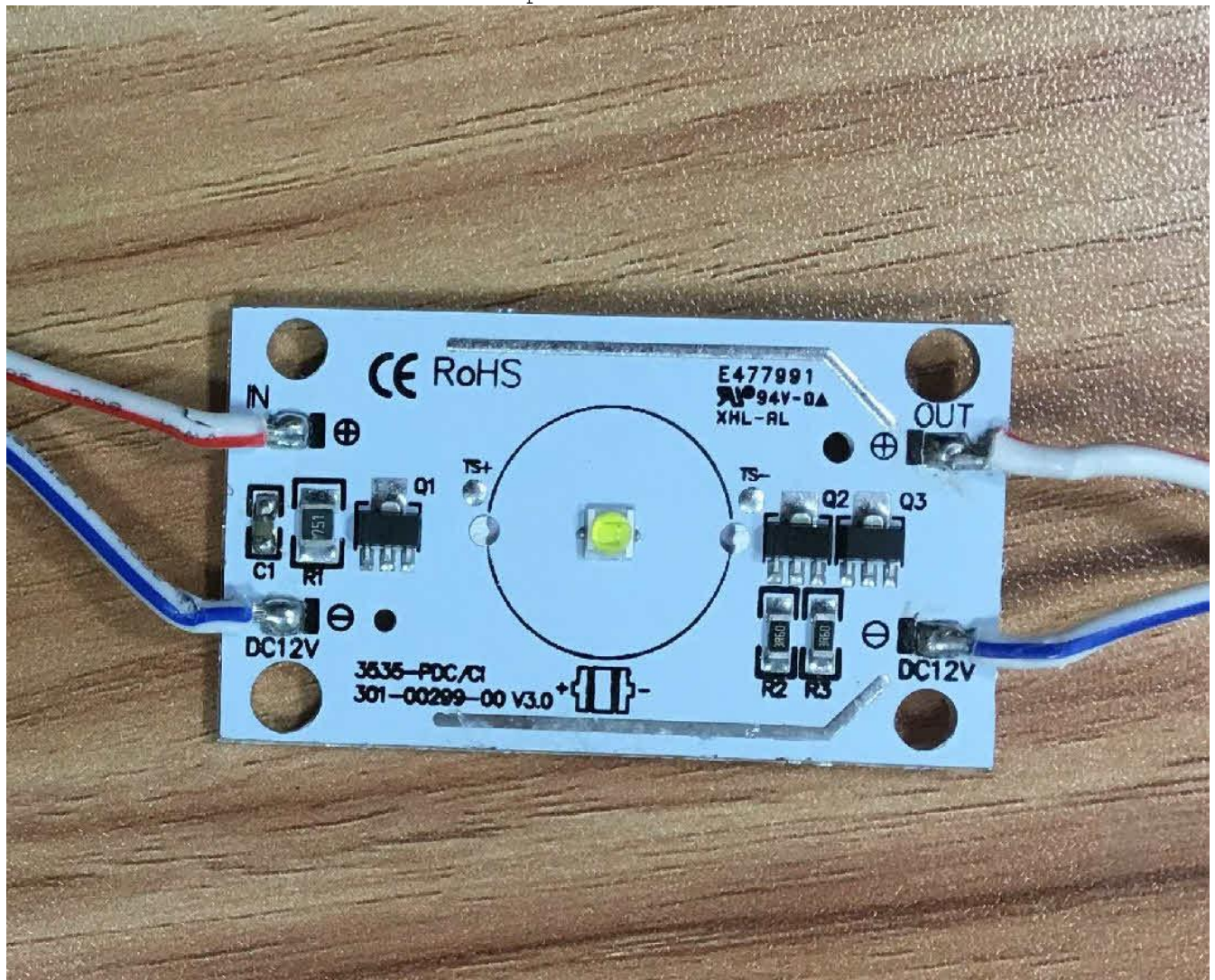
3. Connector - Optional. R/C (QMFZ2), rated min. HB, 50°C min. Shape, size and design may vary.
4. Lead wires - R/C (AVLV2), 24 AWG min., 60°C min. Secured to PWB by soldering to PWB or to Connector.
5. Resistors - Optional. PWB mounted, rating may vary per module.
6. Mounting Means - Each module may be provided with mounting holes, double-sided adhesive tape or other mechanical means for securement.



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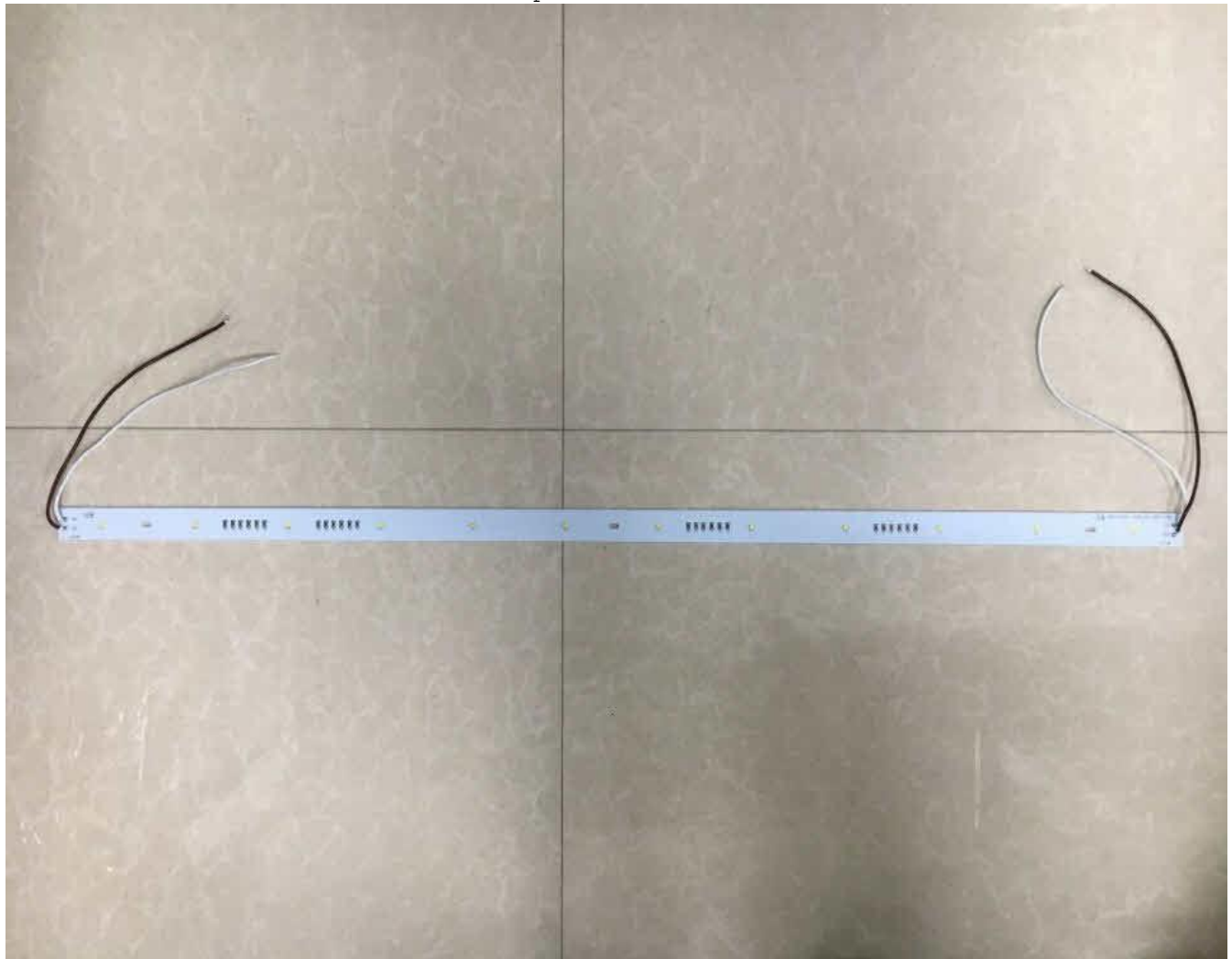
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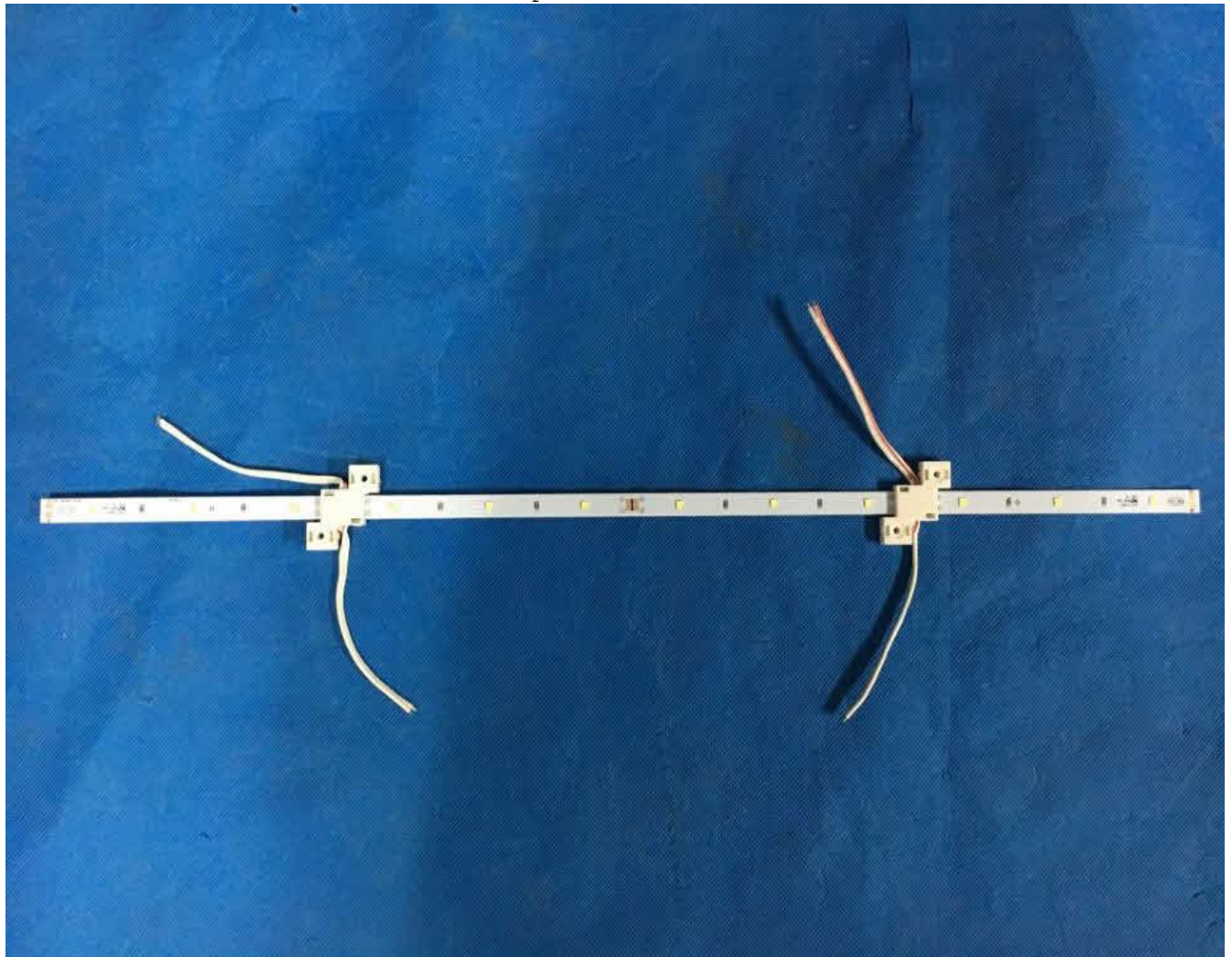
C161939369



C161939370



C161939371



C161939372

CERTIFICATE OF COMPLIANCE

Certificate Number 20161230-E488795
Report Reference E488795-20161222
Issue Date 2016-DECEMBER-30

Issued to: Shenzhen GK Lighting Co Ltd
5F Block F Guancheng Low carbon Industrial Park Hedi
Road
Gongming Town Guangming New District
Shenzhen , Guangdong 518106 CHINA

This is to certify that COMPONENT - SIGN ACCESSORIES
representative samples of See Addendum Page

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 879 : Electric Sign Components
CSA-C22.2 No. 207-15 : Portable and Stationary Electric
Signs and Displays

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog
number, model number or other product designation as specified under "Marking" for the particular
Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products
that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:
 may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is
required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual
recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance
capabilities and are intended for use as components of complete equipment submitted for investigation rather
than for direct separate installation in the field. The final acceptance of the component is dependent upon its
installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number 20161230-E488795
Report Reference E488795-20161222
Issue Date 2016-DECEMBER-30

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

USR, CNR – Component, Sign Accessories, LPS/Class 2 type, LED module, Mxxxxxxx series; LED Strips, Fxxxxxxx series; and LED Rigid Strips, Lxxxxxxx series.

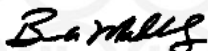
Model Nomenclature:

Mxxxxxxx, Fxxxxxxx, Lxxxxxxx series

Example: M x x x x x x x
b c d e f g

The lower case letters b-g corresponds to the number of x and is defined below:

- b = may be any letter denoting LED type;
- c = may be any letter denoting LED color;
- d = any 1-digit alpha-numeric character (internal code);
- e = any 2-digit alpha-numeric character (serial no.);
- f = may be A or B for constant voltage (CV) supply; C or D for constant current (CC) supply;
- g = may be numeral "1" or "2" denoting CV input voltage 12 V or 24 V respectively; or blank for CC input voltage range of 5-24Vdc.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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File E488795
Project 4787671111

December 22, 2016

REPORT

ON

COMPONENT - SIGN ACCESSORIES

Shenzhen GK Lighting Co Ltd
Shenzhen, China

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UL LLC authorizes the above named company to reproduce this Report either in its entirety or the portion of this Report consisting of the Cover Page up to (but not including) the Construction Details Descriptive pages.

DESCRIPTION

PRODUCT COVERED:

*USR, CNR - Component, Sign Accessories, LPS/Class 2 type, LED module, Mxxxxxxx series; LED Strips, Fxxxxxxx series; and LED Rigid Strips, Lxxxxxxx series.

Model Nomenclature:

Mxxxxxxx, Fxxxxxxx, Lxxxxxxx series

Example: M x x x x x x x
 b c d e f g

The lower case letters b-g corresponds to the number of x and is defined below:

- b = may be any letter denoting LED type;
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- d = any 1-digit alpha-numeric character (internal code);
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- f = may be A or B for constant voltage (CV) supply; C or D for constant current (CC) supply;
- g = may be numeral "1" or "2" denoting CV input voltage 12 V or 24 V respectively; or blank for CC input voltage range of 5-24Vdc.

Model Designation and Input Electrical Ratings:

Model No.	Max. Input (CC) Voltage, Vdc	Max. Input Current, A	Maximum Input Power
LED Module, <u>MxxxxxAx</u> , <u>MxxxxxBx</u>	5-24	4.0	96
LED Strip, <u>FxxxxxAx</u> , <u>FxxxxxBx</u>	5-24	4.0	96
LED Rigid Strip, <u>LxxxxxAx</u> , <u>LxxxxxBx</u>	5-24	4.0	96

Model No.	Max. Input (CC) Voltage, Vdc	Max. Input Current, A	Maximum Input Power
LED Module, <u>MxxxxxC1</u> , <u>MxxxxxD1</u>	12	5.0	60
LED Strip, <u>FxxxxxC1</u> , <u>FxxxxxD1</u>	12	5.0	60
LED Rigid Strip, <u>LxxxxxC1</u> , <u>LxxxxxD1</u>	12	5.0	60

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE USE):

Special Considerations - These products have only been evaluated for use when connected to a LPS or Class 2 circuit.

USR - Indicates that these products comply with the Standard for Electric Sign Components, UL 879.

CNR - Indicates compliance with Canadian Standard C22.2 No. 207 for Electric Signs.

Conditions of Acceptability:

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by UL LLC.

1. These products are only suitable for connection to a Class 2 or LPS power source.
2. These products has not been evaluated for use when connected to a power source that does not comply with Class 2/LPS voltage and energy limits and which is rated greater than electrical ratings.
3. These products are rated as noted in the electrical ratings table. When units are connected to a Class 2 or LPS circuit, they are not to draw a total wattage of greater than the secondary or output rating of the Class 2/LPS supply.
4. This product is suitable for use in dry, damp and wet locations with supply sources rated at electrical ratings or less.
5. This product is not required to be enclosed or protected from the weather in the end product.
6. This product may be secured in place in the end products by any means available.
7. The temperature rating of LED board is 105°C minimum, of supply leads is 60°C minimum, LED Housing is 50°C minimum. The suitability is to be determined in end product use.

CONSTRUCTION DETAILS:

General - The general design, shape, and arrangement shall be as illustrated in the following descriptive pages.

Markings - Each unit or smallest unit container shall be legibly and permanently marked with the following:

1. Manufacturer's name, trade name, or trademark (if authorized).
2. Distinctive catalog or model number.
3. Date code of at least month and year of manufacture

Installation Instructions - Each package or box containing these LED light board shall be provided with installation instructions that include the following:

- a) A location designation indicating the environmental condition for which the product has been evaluated (e.g. wet, damp, or dry location);
- b) This product is only suitable for connection to a circuit from a Class 2/LPS power source;
- c) This product has not been evaluated for use when connected to a power source that does not comply with Class 2 or LPS voltage and energy limited supplies; and
- d) For wet location product, "This product is not required to be enclosed or protected from weather".

LED Modules, Model MBW194A1 - FIG. 1
Model MDW156D1 - FIGS. 2a, 2b

General - All components located in Class 2/LPS circuit. Represents all models of Mxxxxxxx series.

1. Printed Wiring Board (PWB) - R/C (ZPMV2), metal-clad type, shape, size and design may vary, rated min. HB, 105°C.
2. LED packages - Located in Class 2 circuit. 2 provided. SMD type. See table below for ratings. Color temperature, and color may vary.

Model	Forward voltage, Vf	Forward current, If
MBxxxxxxx	2.8-3.4 V	20 mA
MDxxxxxxx	9 V	350 mA

3. LED Plastic Housing - R/C (QMFZ2), rated min. HB, 50°C min. Shape, size and design may vary. Integrally molded with the PWB and lead wires.
4. Lead wires - R/C (AVLV2), 24 AWG min., rated 60°C min. Secured to PWB by soldering.
5. Resistors - Optional. PWB mounted, rating may vary per module.
6. Mounting Means - Each module may be provided with mounting holes, double-sided adhesive tape or other mechanical means for securement.

LED Strip, Model FFW295A2 - FIG. 3
Model FPW012A1 - FIG. 4

General - All components located in Class 2/LPS circuit. Represents all models of Fxxxxxxx series.

1. Flexible Printed Wiring Board (PWB) - R/C (ZPXK2), size and design may vary, rated min. HB, 105°C.
2. LED packages - Located in Class 2/LPS circuit. 240pcs/meter provided. SMD type. See table below for ratings. Color temperature, and color may vary.

Model	Forward voltage, Vf	Forward current, If
FFxxxxxxx	2.8-3.4 V	30 mA
FPxxxxxxx	2.8-3.4 V	60 mA

3. LED Plastic Housing - Optional. R/C (QMFZ2), silicone, rated min. HB, 50°C min. Shape, size and design may vary.
4. Lead wires - R/C (AVLV2), 24 AWG min., 60°C min. Secured to PWB by soldering.
5. Resistors - Optional. PWB mounted, rating may vary per module.
6. Mounting Means - Each module may be provided with mounting holes, double-sided adhesive tape or other mechanical means for securement.

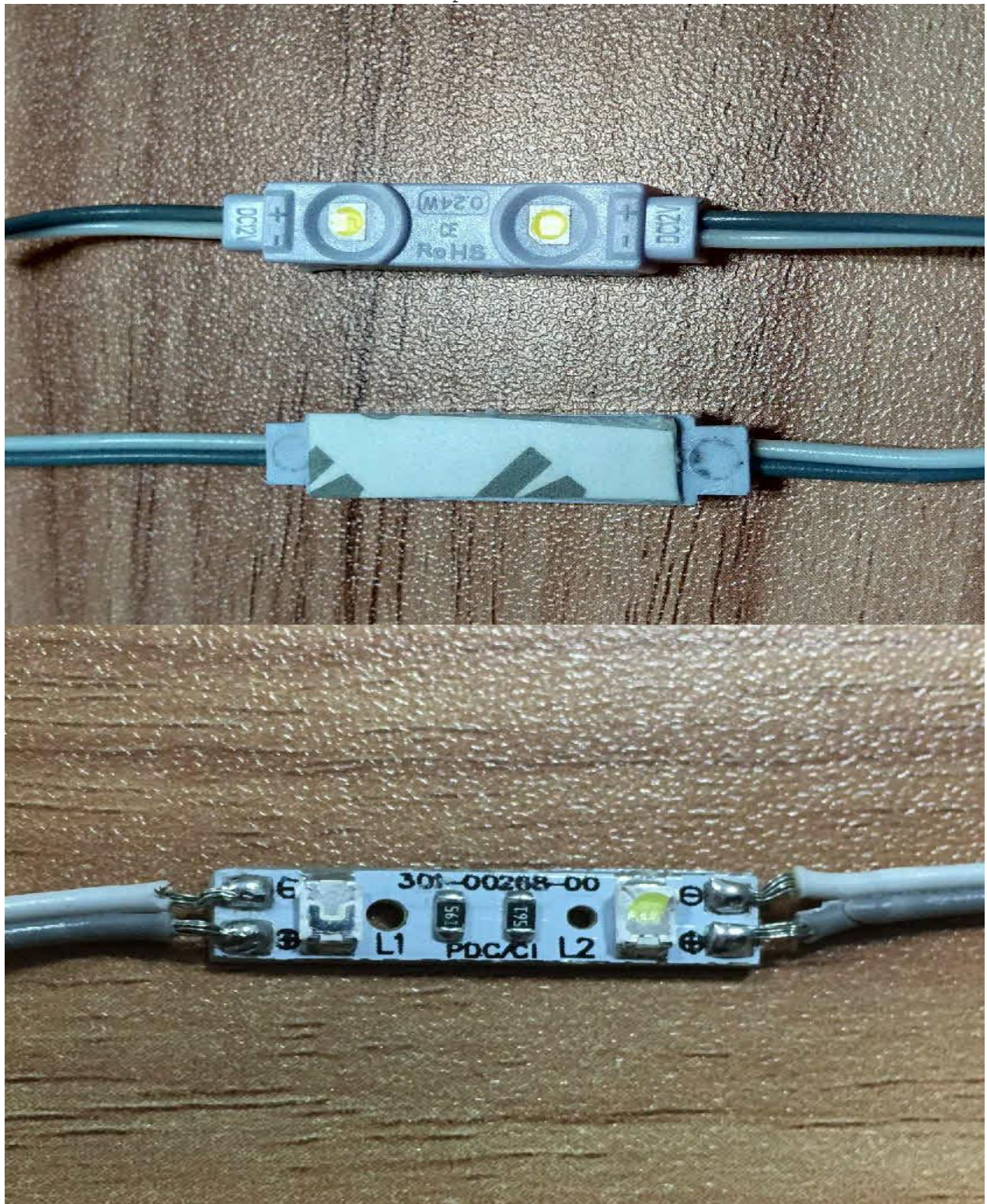
Rigid LED Strip, Model LDW0X1A1 - FIG. 5
Model LFW061A1 - FIG. 6

General - All components located in Class 2/LPS circuit. Represents all models of Lxxxxxxx series.

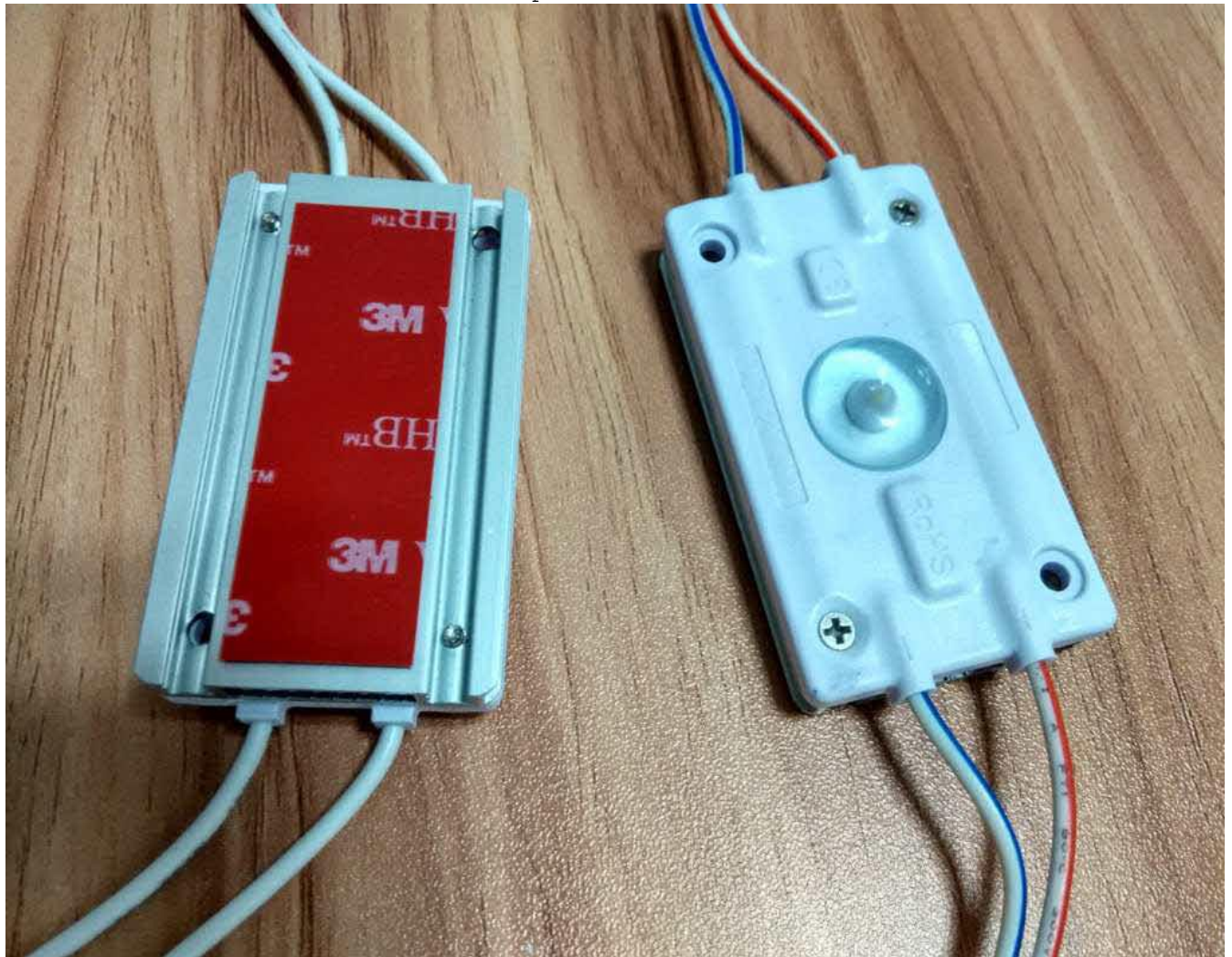
1. Printed Wiring Board (PWB) - R/C (ZPMV2), size and design may vary, rated min. HB, 105°C.
2. LED packages - Located in Class 2/LPS circuit. 12pcs/meter provided. SMD type. See table below for ratings. Color temperature, and color may vary.

Model	Forward voltage, Vf	Forward current, If
LDxxxxxxx	2.8-3.4 V	350 mA
LFxxxxxxx	2.8-3.4 V	60 mA

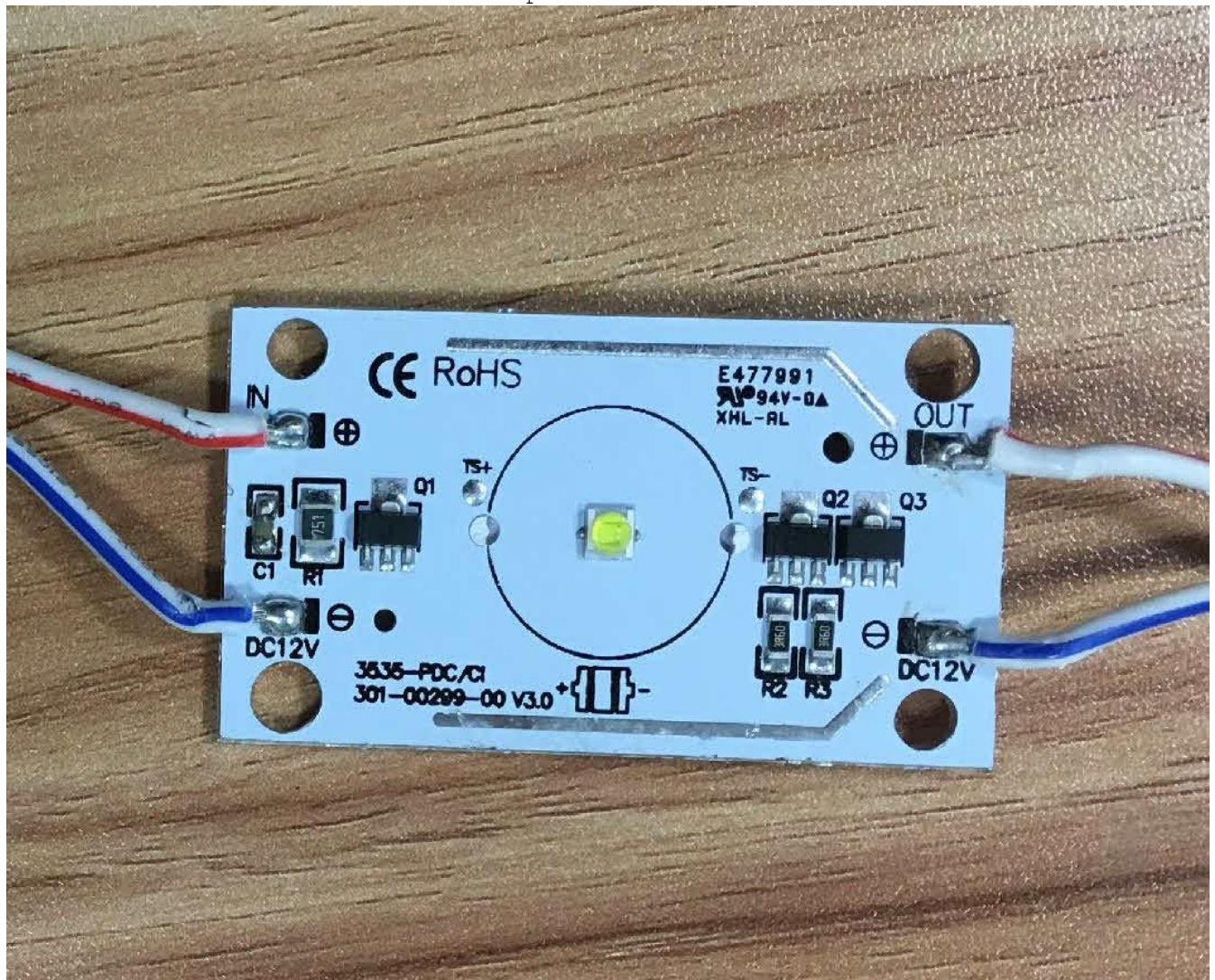
3. Connector - Optional. R/C (QMFZ2), rated min. HB, 50°C min. Shape, size and design may vary.
4. Lead wires - R/C (AVLV2), 24 AWG min., 60°C min. Secured to PWB by soldering to PWB or to Connector.
5. Resistors - Optional. PWB mounted, rating may vary per module.
6. Mounting Means - Each module may be provided with mounting holes, double-sided adhesive tape or other mechanical means for securement.



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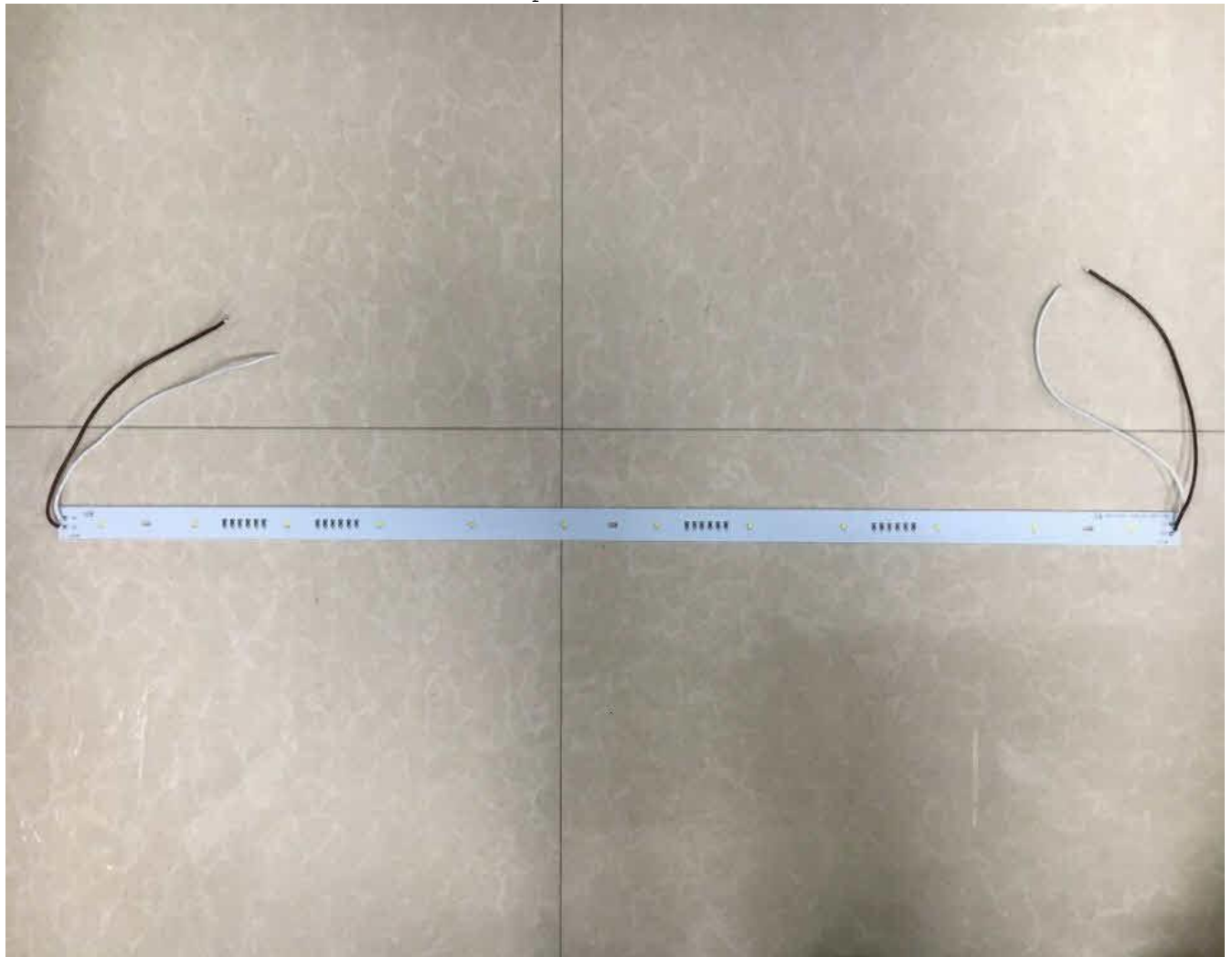
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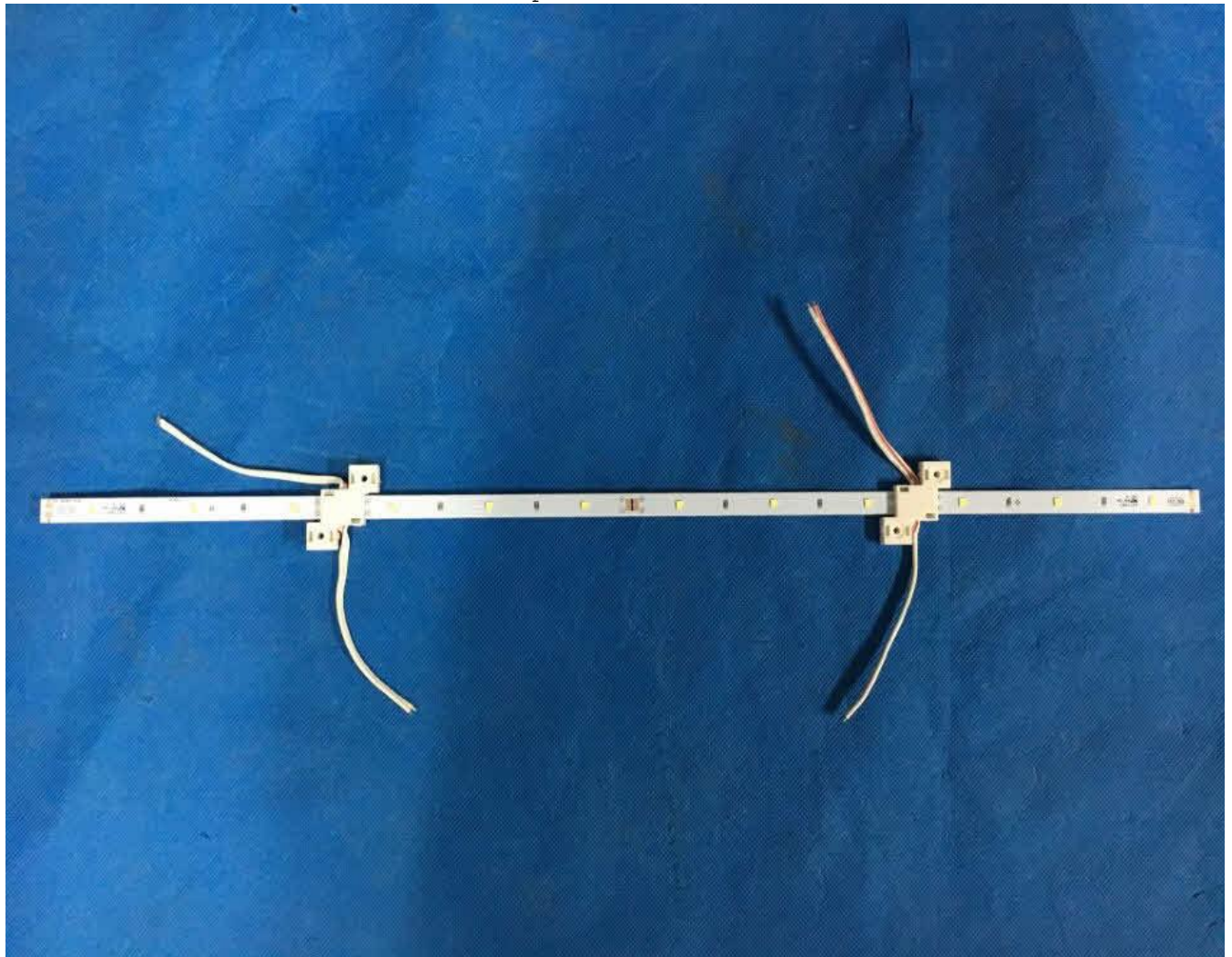
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TEST RECORD NO. 1

SAMPLES:

Samples of the Sign Components as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test.

LPS/Class 2 type, LED Modules, Mxxxxxxx series;
LPS/Class 2 type, LED Strips, Fxxxxxxx series;
LPS/Class 2 type, LED Rigid Strips, Lxxxxxxx series;

GENERAL:

No testing was considered necessary on Component Sign Accessories, due to engineering consideration and the Class 2/LPS circuit application.

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in the standards noted below and, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Standard	Title	Edition or Publication Date	Latest Revision Date
UL 879	Electric Sign Components	9 th	2014-06-11
CSA-C22.2 No. 207-15	Portable and Stationary Electric Signs and Displays	2 nd	2015-06-01

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

CONCLUSION

Samples products covered by this Report have been found to comply with the requirements covering the category and the products are found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the sample(s) investigated by UL and does not signify UL certification or that the product(s) described are covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the UL Listing Mark on such products which comply with UL's Follow-Up Service Procedure and any other application requirements of Underwriters Laboratories Inc. The Listing Mark of Underwriters Laboratories Inc. on the product, or the UL symbol on the product and the Listing Mark on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Listing and Follow-Up Service.

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