

Visual Comfort & Co.

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

240621176GZU-001

ISSUE DATE

08 October 2024

REVISION DATE

Modification 1: 06 November 2024

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

Report format for LM-79_G

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Report No.: 240621176GZU-001
Modification 1: 06 November 2024

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWWS21727XX

Remark: "XX" are denoted appearance color.

RENDERED TO

Visual Comfort & Co.

Contact Name: Adam Same

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<u>TEST:</u>	Electrical and Photometric as required to the IES LM-79 test standard.
<u>AUTHORIZATION:</u>	The testing performed was authorized by signed quote number: QGZ240620045.
<u>STANDARDS USED:</u>	The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:
IES LM-79-19	Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI C78.377-2017 (R2022)	Specifications of the Chromaticity of Solid State Lighting Products
<u>DESCRIPTION OF SAMPLE:</u>	The client submitted one sample of model KWWS21727XX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S240621176-008.
<u>MANUFACTURER /FACTORY & ADDRESS:</u>	Guangzhou Xiongyi Precision Metalworking Co., Ltd Hantang Industrial Zone, Langbian Village, Shiji Town, Panyu District, Guangzhou City, Guangdong Province, China 511450
<u>DATES OF TESTS:</u>	09 July 2024
<u>ISSUED BY:</u>	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
<u>TEST LOCATION:</u>	Room101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District, Guangzhou, Guangdong, China

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TEST REPORT

SUMMARY

Model Number:	KWWS21727XX
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWWS21727XX

Criteria	Result
Total Lumen Output	634.8 lm
Total Power	11.4 W
Luminaire Efficacy	55.6 lm/W
S/MH(C0/180)	1.31
S/MH(C90/270)	1.71
Correlated Color Temperature (CCT)	2540 K
Color Rendering Index (CRI)	91
R9	55
Chromaticity Coordinate (x)	0.4740
Chromaticity Coordinate (y)	0.4140
Chromaticity Coordinate (u')	0.2701
Chromaticity Coordinate (v')	0.5308

Remark:

Revision history:

Modification 1: Based on and superseded the previous report 240621176GZU-001 issued on 08 October 2024, correct the manufacturer information on page 2 of the report, correct the applicant name on page 1 and 2 of the report.

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TEST REPORT

EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Goniophotometer System	Go-R5000	SA063-16
KONICA MINOLTA - Illuminance meter	CX-2B_WL	SA063-16-01
Standard Lamp	D215S	SA063-16-06
Digital Power Meter	PLM3000	SA063-16-09
AC power source for Goniophotometer	PCR-1000WH	SA063-16-10
Temperature Meter	S500-TH	SA047-182

GENERAL REMARK

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When determining for test conclusion, measurement uncertainty of tests has been considered.

Throughout this report a ☐ comma ☒ point is used as the decimal separator.

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TEST REPORT

TEST METHOD

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IES LM-79

Light Distribution and Output Measurements

Light Distribution and total light output (luminous flux) were measured using a Go-R5000 Type-C Rotating Mirror Goniophotometer. Temperature 25°C and relative humidity of 60% was measured at a position in the testing laboratory.

The lamp rotates only around the fixed vertical axle in the prescribed burning position. The lamp and mirror permit the measurement of luminous intensity at the direction of any horizontal or vertical angle without tilting the lamp. The lamp was allowed to stabilize before measurements were made.

Chromaticity Measurements

Chromaticity was measured using a 2 meters integrating sphere spectral lamp measurement system, 4 π geometry, with an interior coating reflectance no less than 95 %. Temperature was measured at a position inside the sphere shielded from direct light. Relative humidity of 65% was measured at a position in the testing laboratory.

Spectral radiant flux measurements were made using spectroradiometer attached to the detector port of the integrating sphere. Each lamp was allowed to stabilise before measurements were made. The calibration of the integrating sphere spectroradiometer system is by the reference/standard lamps which are traceable to National Institute of Metrology P.R. CHINA. Lamp efficacy (lumens per watt) for each lamp model was then computed based on the luminous flux result. Electrical measurements including voltage, power and power factor were measured using YOKOGAWA - Digital Power Meter., model WT310E.

Correction factor (self-absorption) has been considered when doing measurement.

Standard lamp used for Goniophotometer method:

Model: D215S

Current: 4.809A DC

Standard lamp used for integrating sphere:

Model: D204

Current: 3.948A DC

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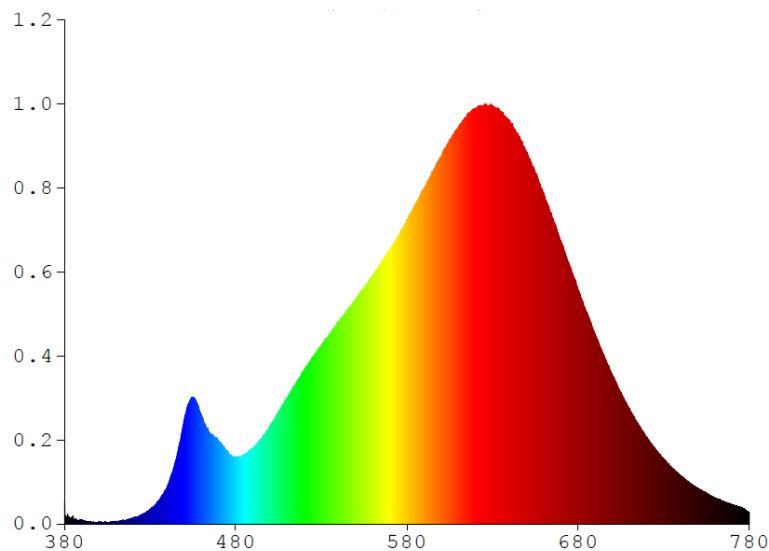
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWWS21727XX

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0955	480	0.2181	580	0.9923	680	0.7626	780	0.0351
385	0.0233	485	0.2255	585	1.0429	685	0.6901		
390	0.0127	490	0.2474	590	1.0957	690	0.6163		
395	0.0070	495	0.2766	595	1.1469	695	0.5498		
400	0.0068	500	0.3195	600	1.1969	700	0.4836		
405	0.0037	505	0.3648	605	1.2516	705	0.4277		
410	0.0080	510	0.4096	610	1.2935	710	0.3736		
415	0.0114	515	0.4549	615	1.3303	715	0.3253		
420	0.0180	520	0.5000	620	1.3536	720	0.2820		
425	0.0301	525	0.5410	625	1.3621	725	0.2449		
430	0.0479	530	0.5822	630	1.3600	730	0.2111		
435	0.0748	535	0.6214	635	1.3453	735	0.1824		
440	0.1219	540	0.6602	640	1.3117	740	0.1563		
445	0.2069	545	0.6969	645	1.2664	745	0.1343		
450	0.3397	550	0.7316	650	1.2113	750	0.1159		
455	0.4124	555	0.7687	655	1.1441	755	0.1002		
460	0.3527	560	0.8081	660	1.0766	760	0.0853		
465	0.2957	565	0.8488	665	0.9964	765	0.0726		
470	0.2698	570	0.8938	670	0.9201	770	0.0630		
475	0.2379	575	0.9379	675	0.8265	775	0.0540		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS21727XX

Total operation burning time: 60 minutes
Stabilization time: 30 minutes

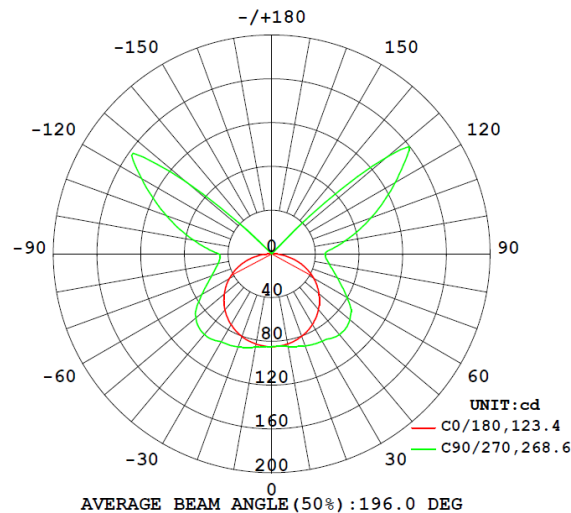
Photometric Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Correlated Color Temperature (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit	Chromaticit	Chromaticit	Chromaticit
					y	y	y	y
					Coordinate	Coordinate	Coordinate	Coordinate
					(x)	(y)	(u')	(v')
KWWS21727XX								
S2406211 76-008	base-up	2540	91	55	0.4740	0.4140	0.2701	0.5308

Photometric and Electrical Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
KWWS21727XX							
S2406211 76-008	base-up	120.2	95.8	11.4	0.992	634.8	55.6

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS21727XX

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	84.8	84.7	84.6	84.6	84.6
5	84.5	84.3	84.4	84.7	84.8
10	83.6	83.5	84.4	85.5	85.9
15	82.2	82.4	84.6	86.7	87.6
20	80.2	81.0	84.8	88.2	89.5
25	77.6	79.3	84.9	89.5	91.1
30	74.5	77.2	84.8	90.4	92.3
35	70.8	74.8	84.3	90.8	94.3
40	66.6	72.1	83.2	93.1	96.4
45	61.7	69.1	82.8	93.2	96.1
50	56.4	65.7	82.0	91.1	93.4
55	50.6	61.7	79.2	86.6	88.6
60	44.3	57.7	74.1	78.8	79.7
65	37.5	53.8	66.2	69.6	71.2
70	30.2	47.8	56.1	61.5	64.0
75	22.7	39.3	47.2	55.0	58.2
80	15.0	28.7	40.3	49.8	53.5
85	7.5	20.4	35.4	46.2	50.2
90	0.9	16.8	33.7	45.0	48.9
95	0.1	26.1	42.3	52.5	55.6
100	0.1	39.9	55.4	65.0	67.9
105	0.1	57.1	70.4	79.1	81.5
110	0.1	25.9	87.2	94.5	96.6
115	0.1	4.6	105.9	111.2	113.0
120	0.1	0.3	104.5	129.5	130.5
125	0.1	0.1	30.9	148.6	149.3
130	0.1	0.1	1.5	90.3	138.4
135	0.1	0.1	0.3	5.9	49.1
140	0.1	0.1	0.1	1.0	2.0
145	0.1	0.1	0.1	0.2	0.4
150	0.1	0.1	0.1	0.2	0.2
155	0.2	0.2	0.2	0.2	0.2
160	0.2	0.2	0.2	0.2	0.2
165	0.2	0.2	0.2	0.2	0.2
170	0.2	0.2	0.2	0.2	0.2
175	0.2	0.2	0.2	0.2	0.2
180	0.2	0.2	0.2	0.2	0.2

***** End of Page *****

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS21727XX

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWWS21727XX		
0-30	71.7	11.3
0-40	124.4	19.6
0-60	253.6	40.0
0-90	397.1	62.6
60-90	143.5	22.6
0-180	634.8	100.0

Beam Angle

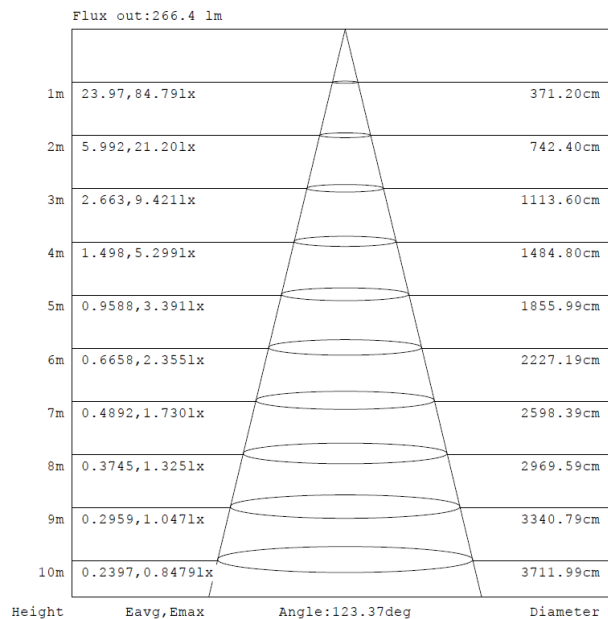
Total Beam Angle(°)
196.0

Illumination Plots

Model No.: KWWS21727XX

Mount Height: 2.5 m

Illuminance - Cone of Light



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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TEST REPORT

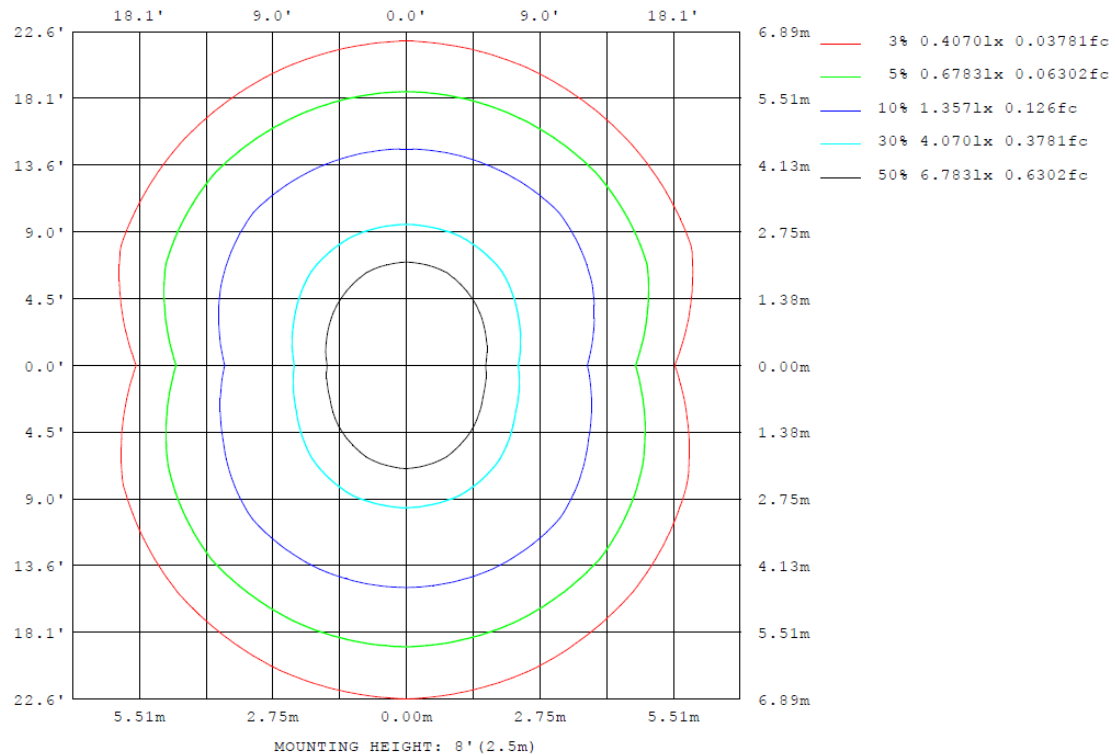
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS21727XX

Model No.: KWWS21727XX

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS21727XX

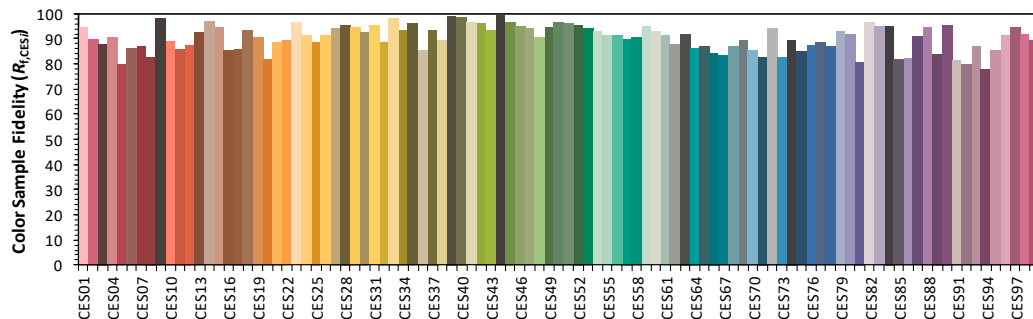
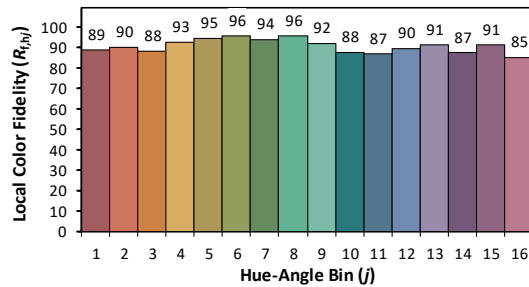
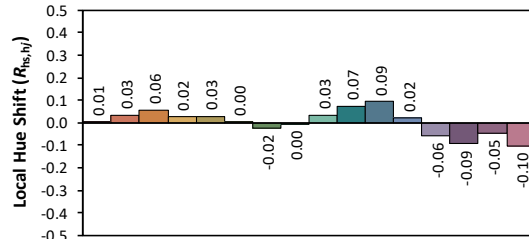
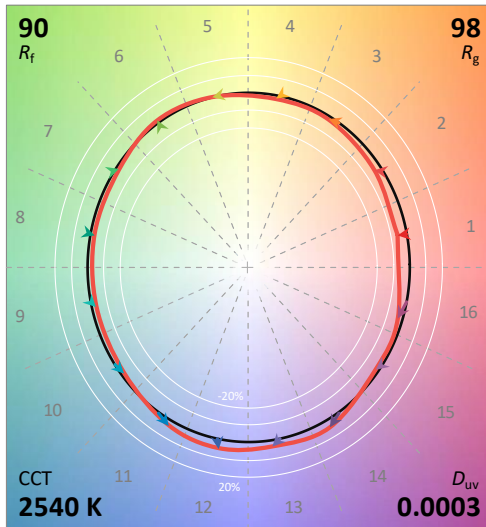
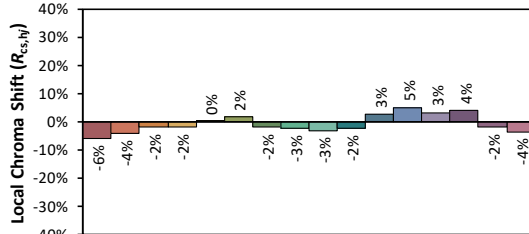
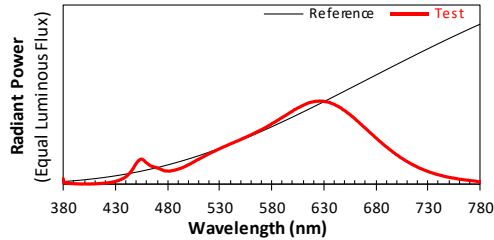
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2024/7/9

Model: KWWS21727XX



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4740
 y 0.4140
 u' 0.2701
 v' 0.5308

CIE 13.3-1995
(CRI)

R_a 91
 R_g 55

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

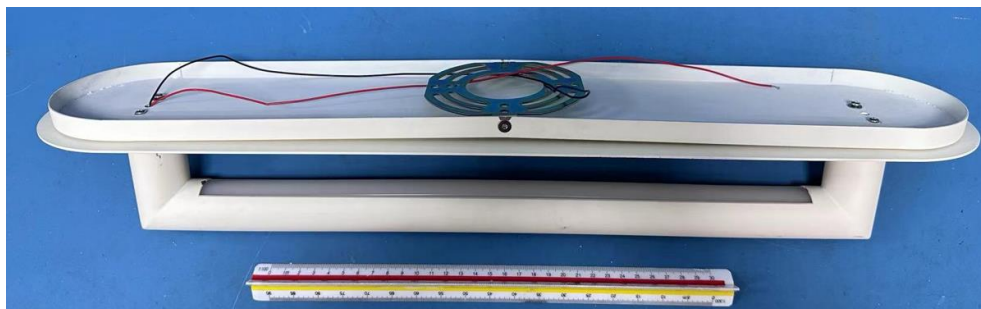
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TEST REPORT

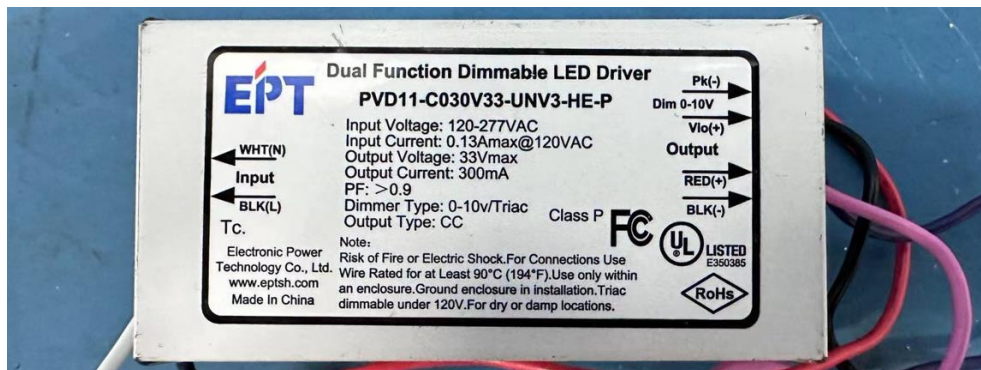
PRODUCT PICTURE (not to scale)



External view of KWWS21727XX



External view of KWWS21727XX



View of LED driver PVD11-C030V33-UNV3-HE-P

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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

***** End of Report *****