

# Visual Comfort & Co.

## TEST REPORT

**SCOPE OF WORK**

LM-79 testing report

**REPORT NUMBER**

240621176GZU-002

**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-002  
Modification 1: 06 November 2024

## TEST REPORT

### TEST OF ONE LED LUMINAIRE

MODEL NO. KWWS21827XX

Remark: "XX" are denoted appearance color.

#### RENDERED TO

Visual Comfort & Co.

Contact Name: Adam Same

7400 LINDER AVE. SKOKIE, IL, 60077

Email: [asame@visualcomfort.com](mailto:asame@visualcomfort.com)  
Phone No.: 8474104402

<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 KWWS21827XX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S240621176-009.
<u>MANUFACTURER /FACTORY &amp; 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:	KWWS21827XX
Description:	LED Luminaries
Brand Name:	--

#### Test Condition: 120V, 60Hz For KWWS21827XX

Criteria	Result
Total Lumen Output	1388.4 lm
Total Power	26.6 W
Luminaire Efficacy	52.3 lm/W
S/MH(C0/180)	1.32
S/MH(C90/270)	1.73
Correlated Color Temperature (CCT)	2545 K
Color Rendering Index (CRI)	91
R9	54
Chromaticity Coordinate (x)	0.4738
Chromaticity Coordinate (y)	0.4144
Chromaticity Coordinate (u')	0.2697
Chromaticity Coordinate (v')	0.5309

#### Remark:

#### Revision history:

Modification 1: Based on and superseded the previous report 240621176GZU-002 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 $\pi$  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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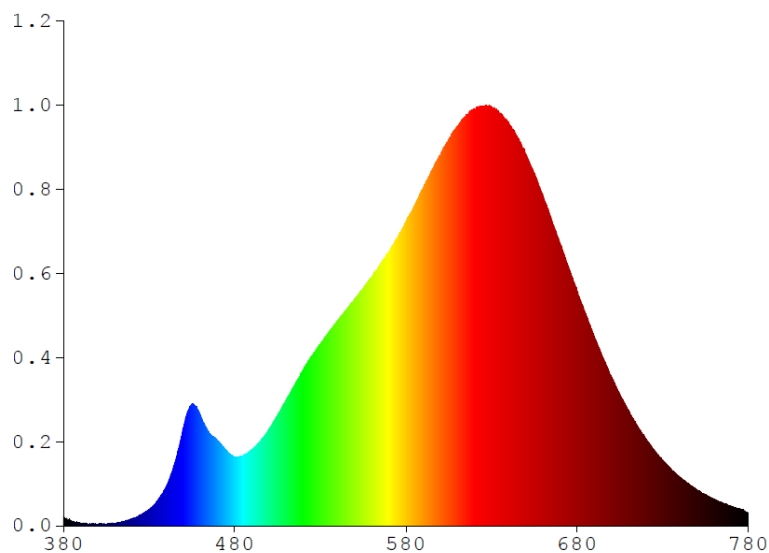
## TEST REPORT

### RESULTS OF TESTS

**Test Condition: 120V, 60Hz For KWWS21827XX**

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0653	480	0.4890	580	2.1469	680	1.6532	780	0.0885
385	0.0267	485	0.4961	585	2.2633	685	1.4925		
390	0.0154	490	0.5385	590	2.3860	690	1.3340		
395	0.0121	495	0.5982	595	2.5082	695	1.1843		
400	0.0121	500	0.6825	600	2.6138	700	1.0498		
405	0.0129	505	0.7805	605	2.7319	705	0.9230		
410	0.0191	510	0.8869	610	2.8249	710	0.8119		
415	0.0315	515	0.9943	615	2.8976	715	0.7084		
420	0.0490	520	1.0993	620	2.9464	720	0.6147		
425	0.0760	525	1.1998	625	2.9631	725	0.5324		
430	0.1159	530	1.2822	630	2.9522	730	0.4605		
435	0.1800	535	1.3717	635	2.9142	735	0.3976		
440	0.2759	540	1.4487	640	2.8441	740	0.3421		
445	0.4426	545	1.5256	645	2.7466	745	0.2953		
450	0.6899	550	1.5982	650	2.6254	750	0.2536		
455	0.8596	555	1.6771	655	2.4846	755	0.2196		
460	0.7756	560	1.7545	660	2.3327	760	0.1880		
465	0.6567	565	1.8446	665	2.1631	765	0.1602		
470	0.6000	570	1.9360	670	1.9925	770	0.1379		
475	0.5353	575	2.0336	675	1.7891	775	0.1196		



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For KWWS21827XX**

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

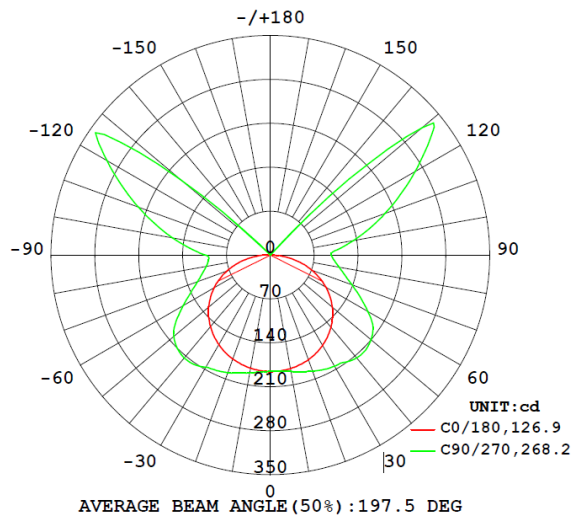
#### Photometric Measurements at 25°C – Distribution Method

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')
KWWS21827XX								
S2406211 76-009	base-up	2545	91	54	0.4738	0.4144	0.2697	0.5309

#### 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)
KWWS21827XX							
S2406211 76-009	base-up	120.0	222.5	26.6	0.995	1388.4	52.3

#### Intensity (Candlepower) Summary at 25°C - Candelas



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For KWWS21827XX**

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	185.6	185.5	185.5	185.4	185.3
5	185.2	185.2	185.5	185.8	185.8
10	183.9	184.1	186.0	187.7	188.3
15	181.2	182.8	187.0	191.0	192.2
20	177.5	180.7	188.3	194.8	196.8
25	172.5	178.1	189.6	198.7	201.1
30	166.4	174.8	190.6	201.3	204.5
35	159.0	170.9	190.5	202.9	208.4
40	150.3	166.2	189.1	208.4	214.0
45	140.4	160.8	189.6	210.0	214.4
50	129.0	154.5	189.1	206.2	209.7
55	116.3	146.9	184.0	197.3	199.8
60	102.3	139.6	173.7	180.1	179.4
65	86.9	132.0	156.4	157.2	157.9
70	70.3	119.2	131.2	136.3	138.7
75	52.7	99.7	108.3	119.1	123.1
80	34.5	72.0	90.4	106.3	111.4
85	16.5	49.9	77.6	96.8	102.6
90	1.1	37.0	70.5	91.4	97.3
95	0.2	56.3	87.6	104.8	108.1
100	0.2	88.4	116.7	132.1	134.4
105	0.1	128.2	149.5	162.0	163.4
110	0.1	87.6	186.4	195.1	194.7
115	0.1	7.3	227.3	230.9	228.9
120	0.2	0.5	259.8	270.0	266.5
125	0.2	0.2	107.5	311.6	306.7
130	0.2	0.2	5.1	230.9	316.5
135	0.2	0.2	1.2	50.7	132.6
140	0.3	0.3	0.3	3.1	6.0
145	0.3	0.3	0.3	0.5	1.2
150	0.3	0.3	0.3	0.3	0.3
155	0.3	0.3	0.3	0.3	0.3
160	0.4	0.4	0.4	0.4	0.3
165	0.3	0.4	0.3	0.3	0.3
170	0.3	0.3	0.3	0.3	0.3
175	0.3	0.3	0.4	0.3	0.3
180	0.3	0.3	0.3	0.3	0.3

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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For KWWS21827XX**

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWWS21827XX		
0-30	158.0	11.4
0-40	275.4	19.8
0-60	566.2	40.8
0-90	883.8	63.7
60-90	317.6	22.9
0-180	1388.4	100.0

Beam Angle

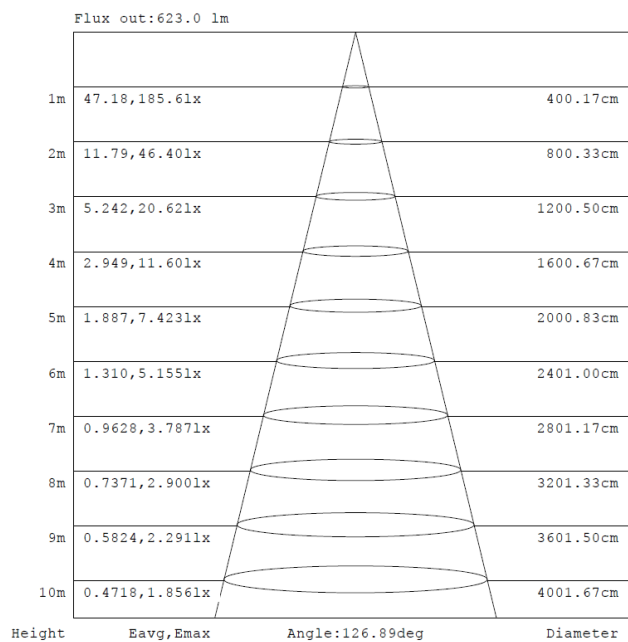
**Total Beam Angle(°)**  
197.5

Illumination Plots

Model No.: KWWS21827XX

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

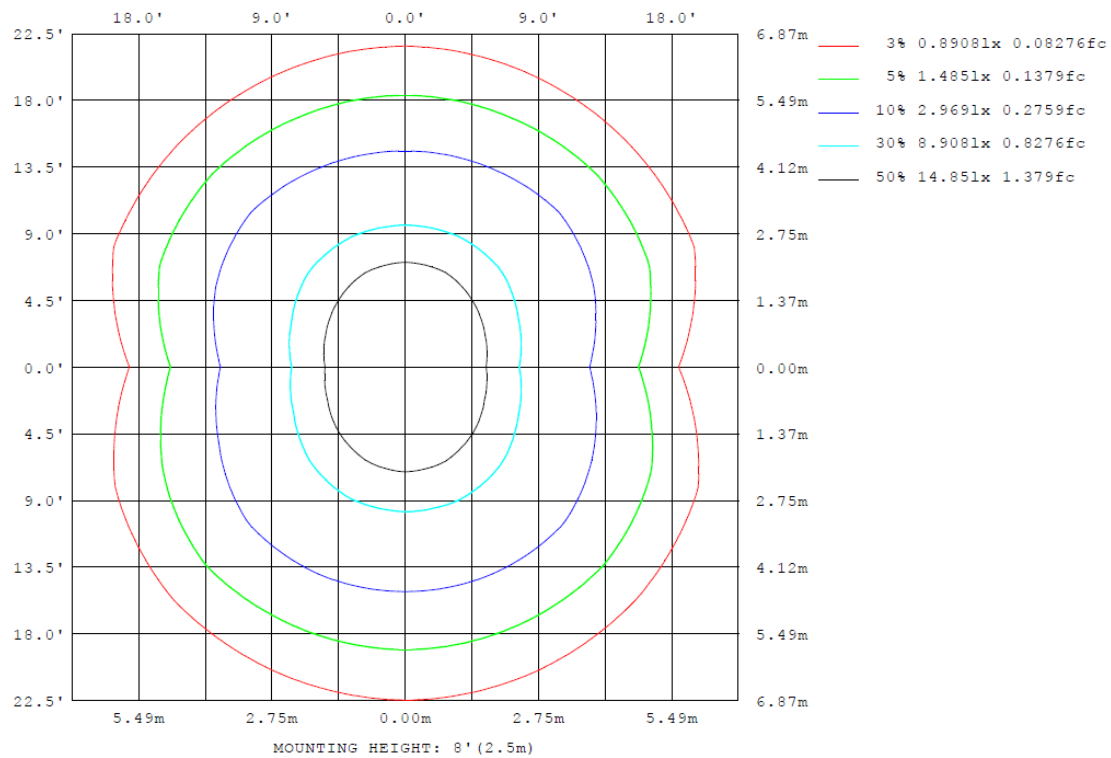
### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For KWWS21827XX**

Model No.: KWWS21827XX

Mount Height: 2.5 m

Isoillumination Plot



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWWS21827XX

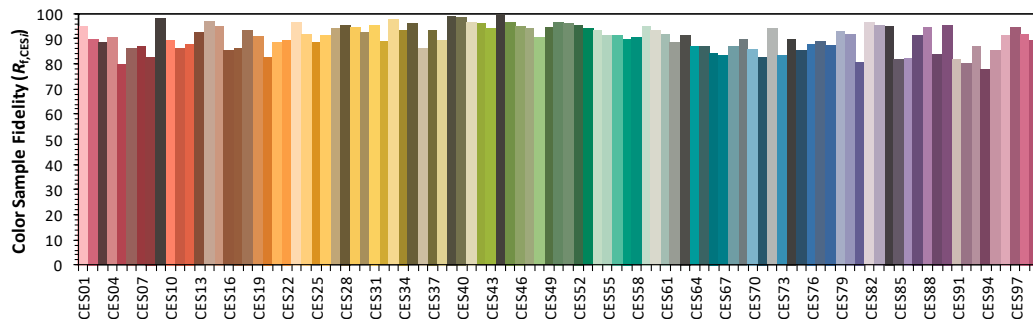
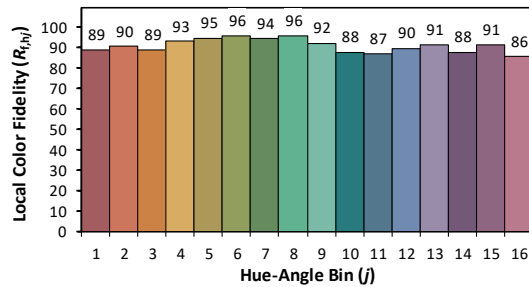
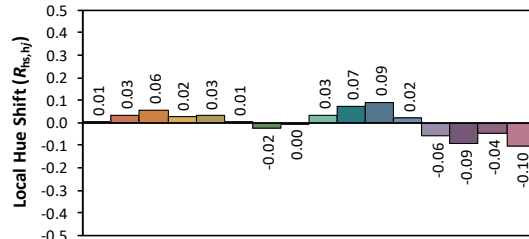
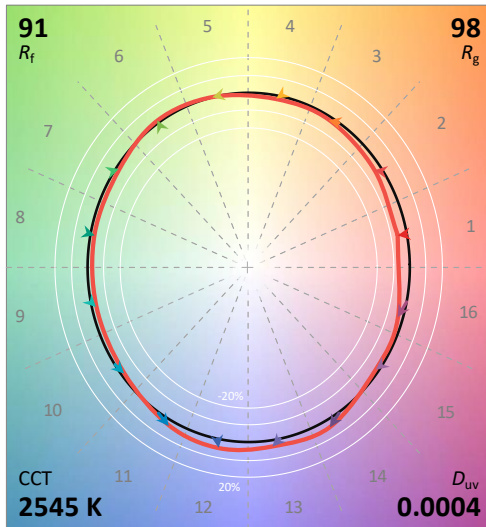
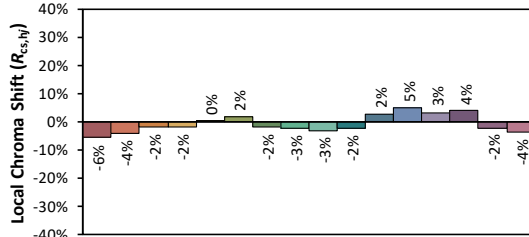
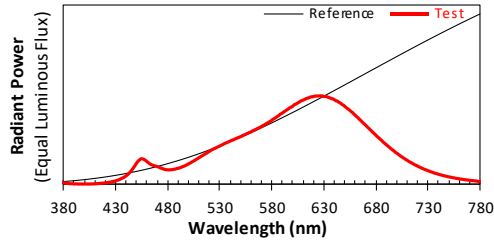
#### ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2024/7/9

Model: KWWS21827XX



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

$x$  0.4738  
 $y$  0.4144  
 $u'$  0.2697  
 $v'$  0.5309

CIE 13.3-1995  
(CRI)

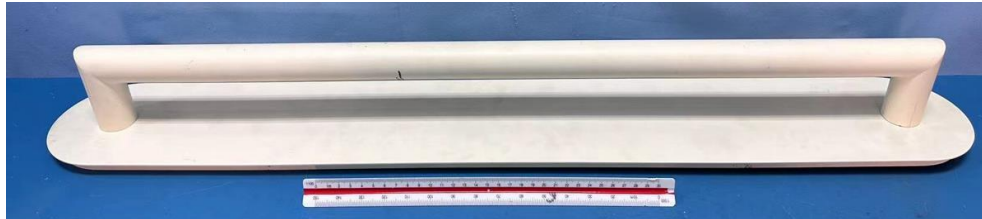
$R_a$  91  
 $R_g$  54

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

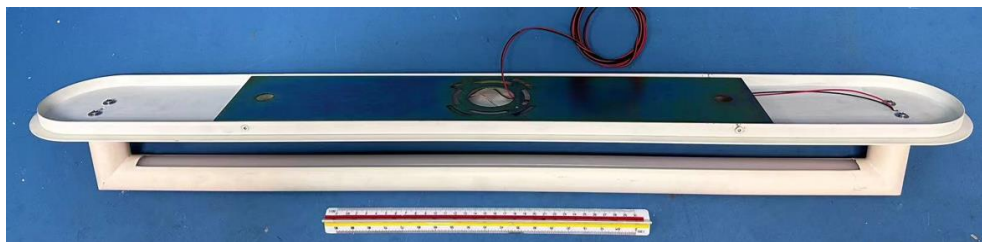
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## TEST REPORT

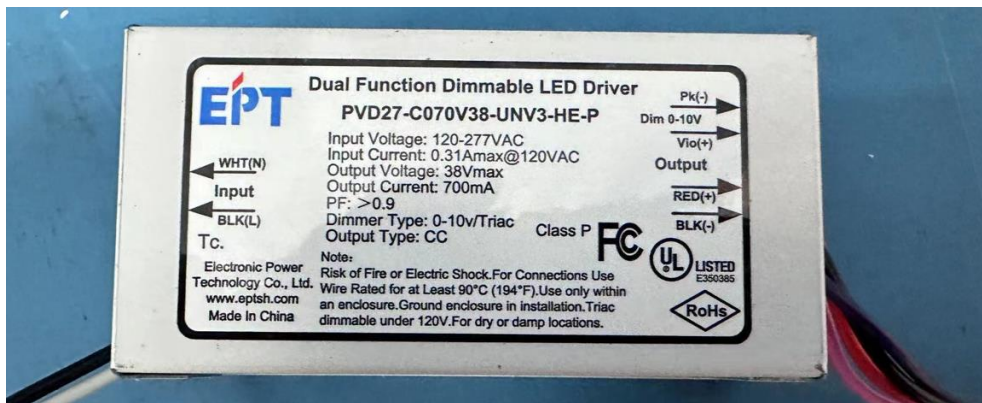
### PRODUCT PICTURE (not to scale)



External view of KWWS21827XX



External view of KWWS21827XX



View of LED driver PVD27-C070V38-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 \*\*\*\*\*