

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230717030GZU-001

ISSUE DATE

01-August-2023

REVISION DATE

None

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Report No.: 230717030GZU-001

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWBA27527XX

(Remark: "xx" are denoted finish color)

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

7400 LINDER AVE. SKOKIE, IL, 60077

Email: Tgallagher@visualcomfortco.com
Phone No.: 8474104774

<u>TEST:</u>	Electrical and Photometric as required to the IES LM-79 test standard.
<u>STATEMENT OF LIMITATION:</u>	The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.
<u>AUTHORIZATION:</u>	The testing performed was authorized by signed quote number: QGZ230714100.
<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: 2008; Approved Method for the Electrical and Photometric IES LM-79: 2019 Measurements of Solid-State Lighting Products ANSI C78.377:2017 Specifications of the Chromaticity of Solid State Lighting Products
<u>DESCRIPTION OF SAMPLE:</u>	The client submitted one sample of model KWBA27527XX. The sample was received in undamaged condition. The sample designation was S230717030-001.
<u>DATES OF TESTS:</u>	19-July-2023 to 21-July-2023
<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 Science City, Guangzhou, Guangdong, China

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TEST REPORT

SUMMARY

Model Number:	KWBA27527XX
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWBA27527XX

Criteria	Result
Total Lumen Output	1925.3 lm
Total Power	22.4 W
Luminaire Efficacy	86.1 lm/W
S/MH(C0/180)	1.05
S/MH(C90/270)	1.09
Correlated Color Temperature (CCT)	2673 K
Color Rendering Index (CRI)	91
R9	66
Chromaticity Coordinate (x)	0.4630
Chromaticity Coordinate (y)	0.4127
Chromaticity Coordinate (u')	0.2636
Chromaticity Coordinate (v')	0.5286

Remark:

Measurement uncertainty for applicable tests has been established.

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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	RC-HT601A	SA047-62

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 EVERFINE - Digital Power Meter., model PLM3000.

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: 3.9480A DC

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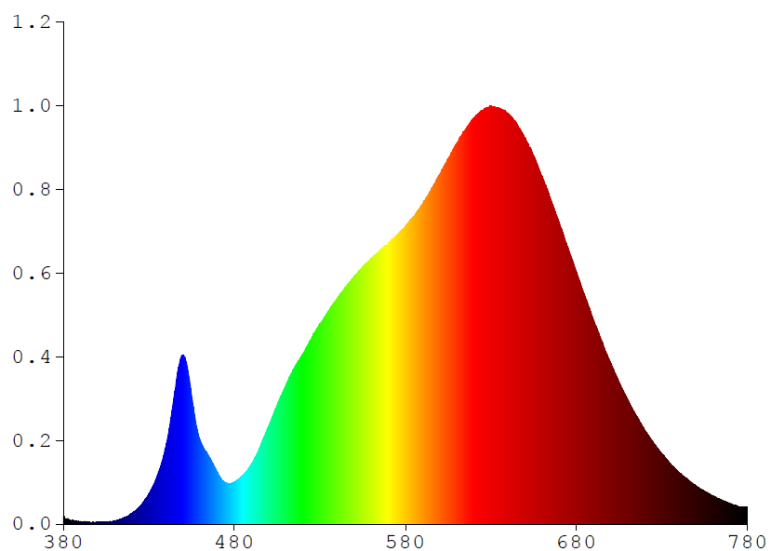
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWBA27527XX

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.1117	480	0.6465	580	4.5516	680	3.8411	780	0.2663
385	0.0485	485	0.7480	585	4.7052	685	3.4720		
390	0.0375	490	0.9222	590	4.8950	690	3.1146		
395	0.0326	495	1.1835	595	5.1170	695	2.7729		
400	0.0256	500	1.4960	600	5.3413	700	2.4551		
405	0.0307	505	1.8223	605	5.5851	705	2.1555		
410	0.0503	510	2.1181	610	5.8192	710	1.8882		
415	0.0939	515	2.3824	615	6.0210	715	1.6489		
420	0.1633	520	2.5938	620	6.2082	720	1.4309		
425	0.2753	525	2.8354	625	6.3227	725	1.2378		
430	0.4664	530	3.0560	630	6.3884	730	1.0682		
435	0.7439	535	3.2517	635	6.3380	735	0.9174		
440	1.2030	540	3.4443	640	6.2616	740	0.7887		
445	2.0042	545	3.6216	645	6.1157	745	0.6789		
450	2.5828	550	3.7913	650	5.8916	750	0.5830		
455	1.9290	555	3.9290	655	5.6105	755	0.4988		
460	1.2676	560	4.0583	660	5.3078	760	0.4287		
465	1.0337	565	4.1755	665	4.9476	765	0.3643		
470	0.7888	570	4.2913	670	4.5891	770	0.3142		
475	0.6293	575	4.4092	675	4.1331	775	0.2691		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWBA27527XX

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

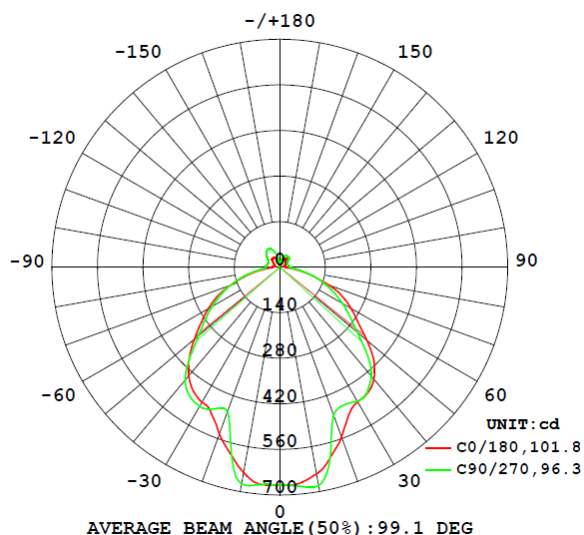
Photometric Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit y	Chromaticit y	Chromaticit y	Chromaticit y
					Coordinate (x)	Coordinate (y)	Coordinate (u')	Coordinate (v')
KWBA27527XX								
S2307170 30-001	--	2673	91	66	0.4630	0.4127	0.2636	0.5286

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	Lumen
						Luminous Flux (Lumens)	Efficacy (Lumens Per Watt)
KWBA27527XX							
S2307170 30-001	--	120.2	187.7	22.4	0.991	1925.3	86.1

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWBA27527XX

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	669.7	670.2	670.0	669.6	670.3
5	666.6	659.6	657.9	662.4	675.1
10	645.5	635.8	636.6	660.9	682.0
15	602.9	601.5	596.1	611.5	599.4
20	555.3	557.8	538.3	516.7	483.5
25	501.1	488.3	481.2	474.9	466.8
30	478.1	467.2	468.1	468.8	475.0
35	471.1	459.5	451.1	453.1	468.7
40	449.3	437.5	427.0	428.2	438.7
45	409.0	396.4	381.4	378.5	381.1
50	349.6	343.5	327.2	320.2	311.1
55	292.8	289.4	279.9	273.3	261.6
60	252.3	247.8	239.2	232.2	221.2
65	211.7	209.0	200.7	192.6	182.1
70	158.9	170.0	162.0	153.4	143.7
75	105.2	131.2	123.5	115.4	105.8
80	60.0	91.3	85.5	78.5	70.1
85	25.2	57.0	53.0	46.9	40.4
90	17.9	42.8	37.6	31.7	30.5
95	14.3	41.9	36.8	30.7	29.7
100	10.4	39.6	35.6	29.9	28.7
105	14.7	37.8	33.4	28.1	26.9
110	18.6	35.8	31.9	26.9	25.9
115	20.1	35.1	31.2	26.1	25.2
120	20.4	35.8	31.8	26.0	25.5
125	22.4	39.1	35.9	29.7	29.8
130	23.9	42.9	41.1	35.0	35.1
135	26.7	46.4	45.8	40.1	40.4
140	29.9	48.0	47.8	41.2	41.4
145	33.7	46.9	47.3	41.2	41.3
150	33.1	45.9	45.2	41.3	40.8
155	28.5	41.9	42.5	39.7	38.8
160	24.9	35.7	37.7	36.2	34.9
165	10.3	27.3	30.6	30.5	28.1
170	5.3	8.3	21.5	22.4	19.4
175	2.5	3.9	7.3	12.1	10.4
180	5.1	5.5	6.0	0.0	0.0

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWBA27527XX

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWBA27527XX		
0-30	456.7	23.7
0-40	748.7	38.9
0-60	1302.2	67.6
0-90	1684.5	87.5
60-90	382.3	19.9
0-180	1925.3	100.0

Beam Angle

Total Beam Angle (°)

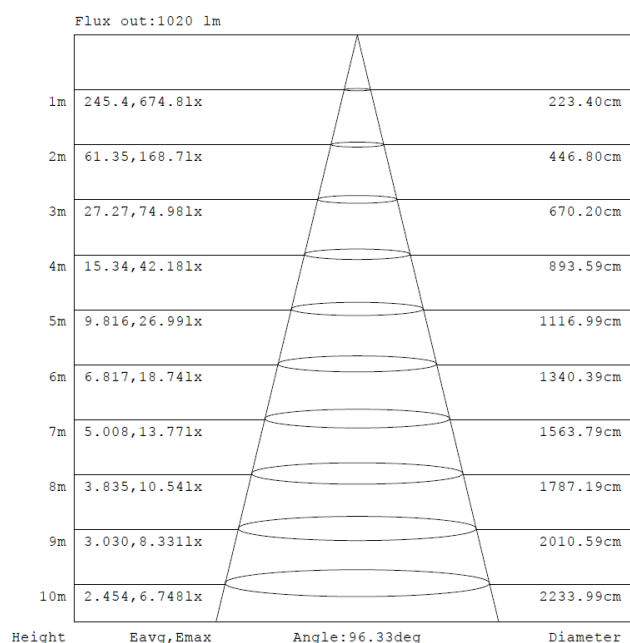
99.1

Illumination Plots

Model No.: KWBA27527XX

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

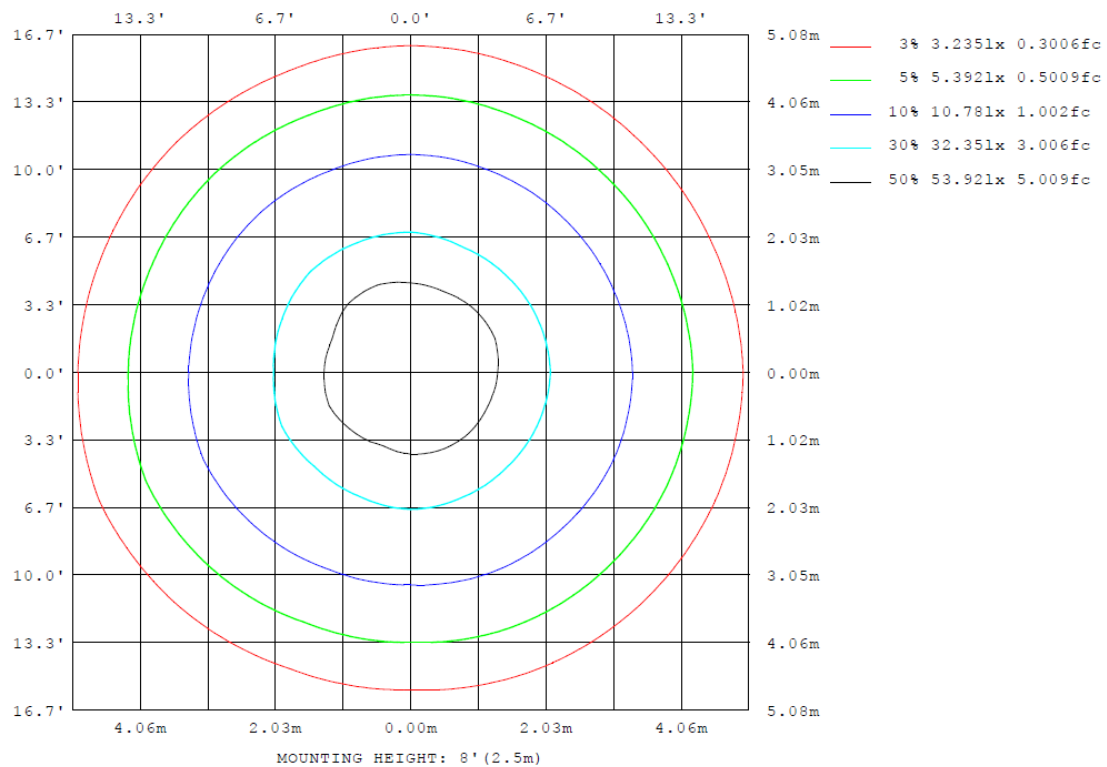
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWBA27527XX

Model No.: KWBA27527XX

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWBA27527XX

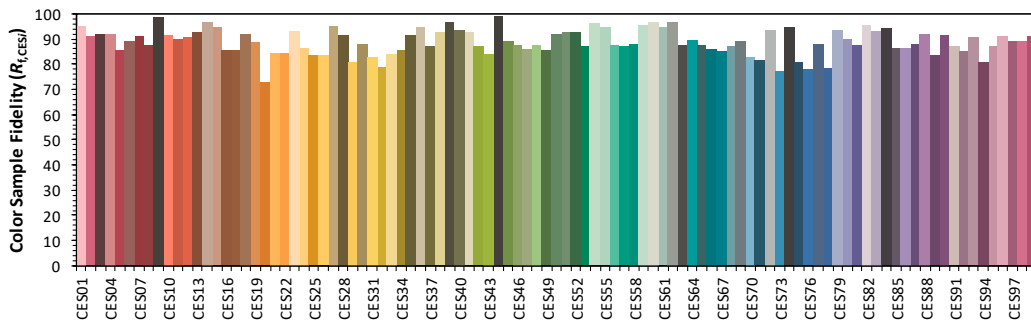
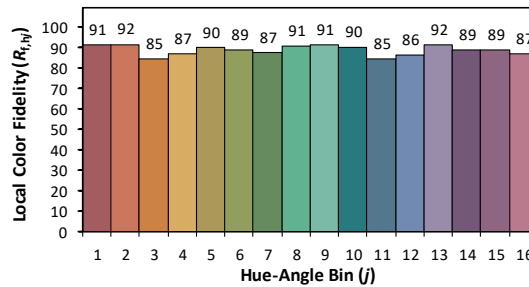
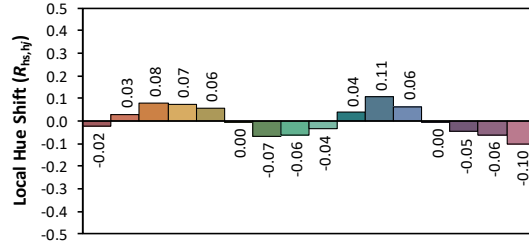
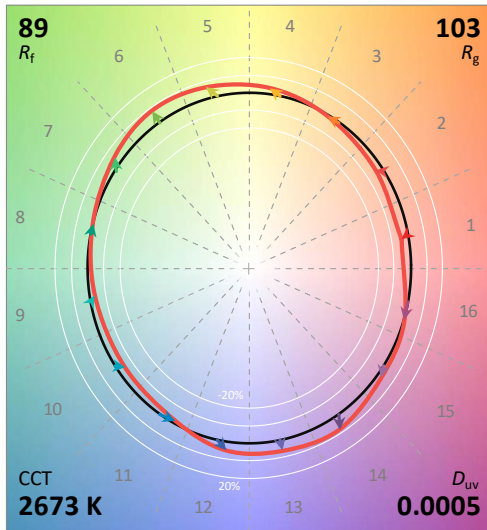
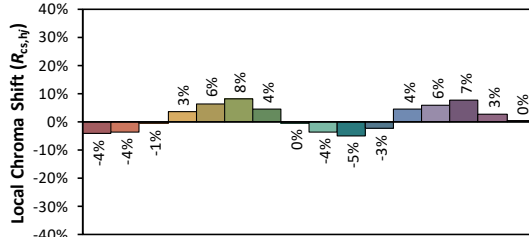
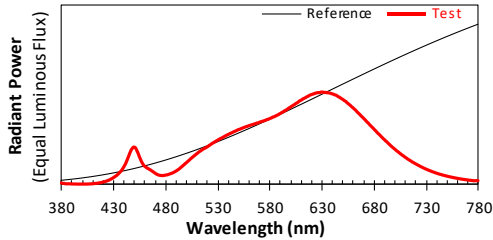
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/7/21

Model: KWBA27527xx



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

x 0.4630
 y 0.4127
 u' 0.2636
 v' 0.5286

CIE 13.3-1995
(CRI)

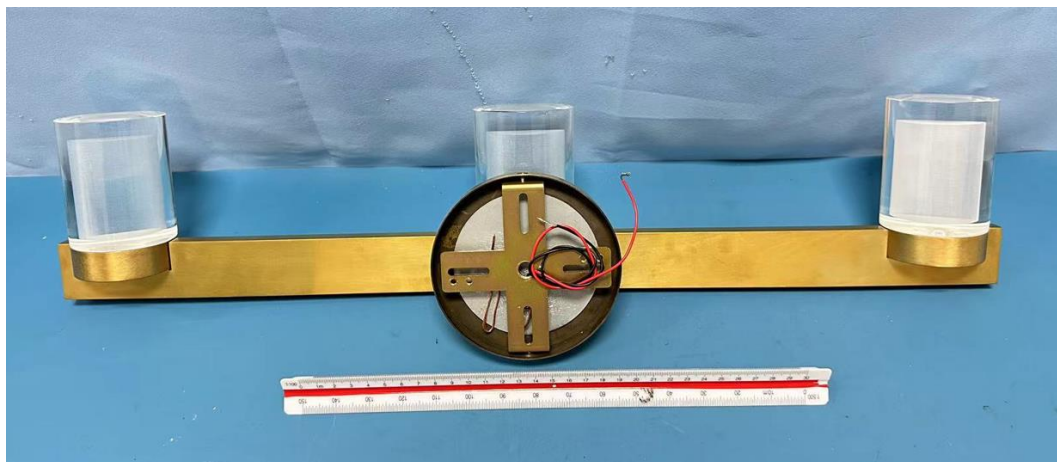
R_a 91
 R_g 66

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

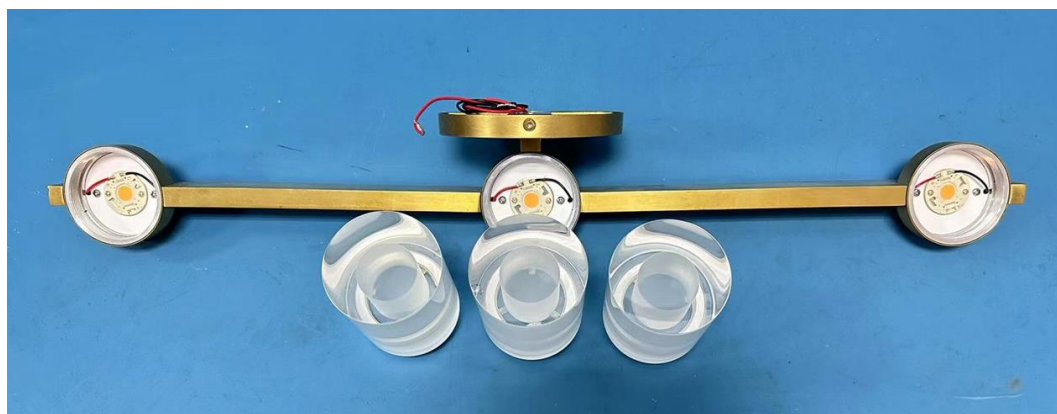
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of KWBA27527XX

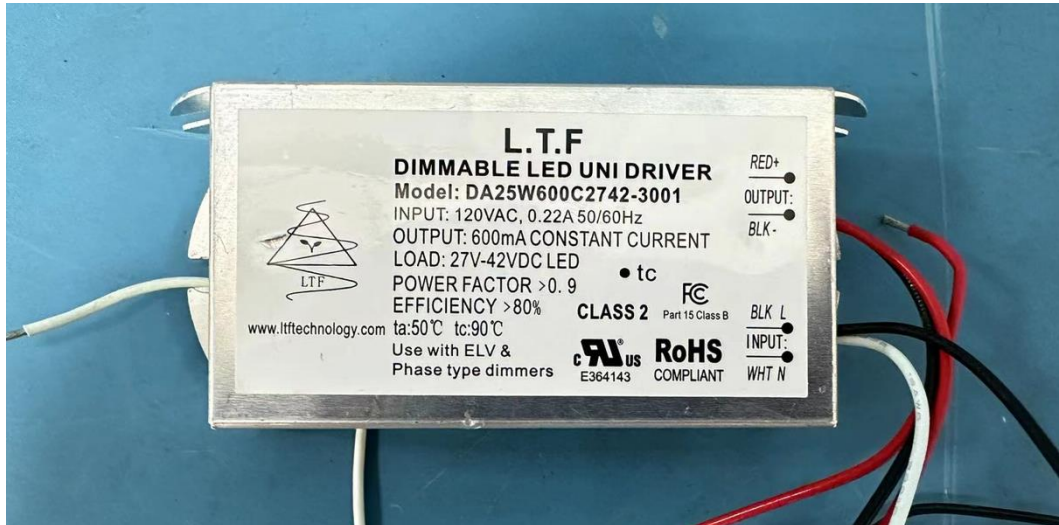


External view of KWBA27527XX

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

TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED driver DA25W600C2742-3001



View of LED board

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

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