

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

231010029GZU-001

ISSUE DATE

21-November-2023

REVISION DATE

None

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13

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Report No.: 231010029GZU-001

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWCH18927XX

(Remark: "XX" are denoted finish color)

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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<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: QGZ231007116.
<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 KWCH18927XX. The sample was received in undamaged condition. The sample designation was S231010029-001.
<u>DATES OF TESTS:</u>	12-October-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:	KWCH18927XX
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWCH18927XX

Criteria	Result
Total Lumen Output	1455.5 lm
Total Power	40.2 W
Luminaire Efficacy	36.3 lm/W
S/MH(C0/180)	1.44
S/MH(C90/270)	1.50
Correlated Color Temperature (CCT)	2674 K
Color Rendering Index (CRI)	96
R9	80
Chromaticity Coordinate (x)	0.4593
Chromaticity Coordinate (y)	0.4062
Chromaticity Coordinate (u')	0.2641
Chromaticity Coordinate (v')	0.5256

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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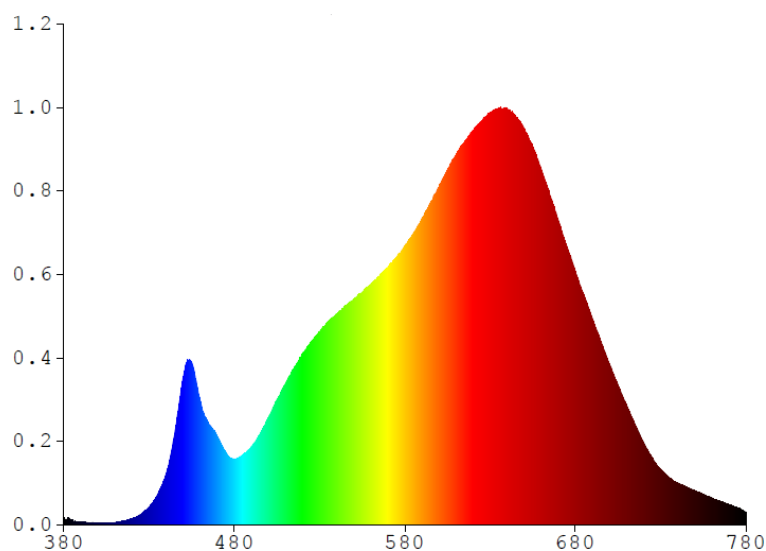
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWCH18927XX

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0491	480	0.5453	580	2.3048	680	2.0878	780	0.1037
385	0.0408	485	0.5772	585	2.4054	685	1.8940		
390	0.0195	490	0.6447	590	2.5277	690	1.7003		
395	0.0169	495	0.7485	595	2.6613	695	1.5087		
400	0.0150	500	0.8866	600	2.7843	700	1.3243		
405	0.0163	505	1.0326	605	2.9299	705	1.1502		
410	0.0192	510	1.1669	610	3.0527	710	0.9878		
415	0.0338	515	1.2905	615	3.1610	715	0.8253		
420	0.0517	520	1.4036	620	3.2536	720	0.6789		
425	0.0873	525	1.5083	625	3.3322	725	0.5532		
430	0.1465	530	1.5904	630	3.3967	730	0.4551		
435	0.2489	535	1.6776	635	3.4422	735	0.3915		
440	0.4207	540	1.7440	640	3.4319	740	0.3459		
445	0.7468	545	1.8043	645	3.3724	745	0.3131		
450	1.2138	550	1.8627	650	3.2705	750	0.2820		
455	1.3361	555	1.9204	655	3.1165	755	0.2548		
460	1.0226	560	1.9823	660	2.9337	760	0.2244		
465	0.8320	565	2.0464	665	2.7203	765	0.1943		
470	0.7264	570	2.1254	670	2.5107	770	0.1684		
475	0.6006	575	2.2065	675	2.2562	775	0.1428		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH18927XX

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

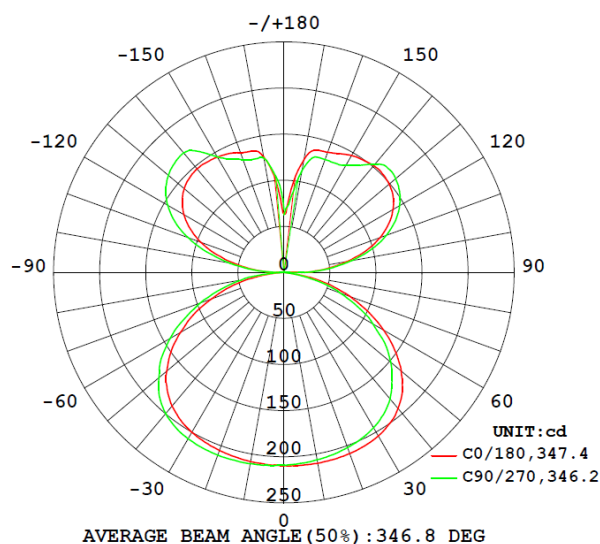
Photometric Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit	Chromaticit	Chromaticit	Chromaticit
					y	y	y	y
					Coordinate	Coordinate	Coordinate	Coordinate
					(x)	(y)	(u')	(v')
KWCH18927XX								
S2310100 29-001	--	2674	96	80	0.4593	0.4062	0.2641	0.5256

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)
KWCH18927XX							
S2310100 29-001	--	120.0	343.5	40.2	0.974	1455.5	36.3

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH18927XX

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	209.6	209.7	209.5	209.3	209.1
5	209.8	209.3	208.8	208.3	207.8
10	210.0	208.9	207.9	207.0	206.3
15	209.7	208.1	206.7	205.3	204.5
20	208.9	206.6	204.9	203.2	202.1
25	207.4	204.5	202.2	200.3	199.0
30	204.9	200.9	198.4	196.0	194.5
35	200.1	194.8	192.2	189.8	188.1
40	192.6	186.1	183.4	180.7	179.2
45	181.9	173.5	170.6	168.2	165.9
50	166.2	156.2	154.0	151.7	151.1
55	146.9	136.4	133.6	133.0	133.6
60	124.9	114.3	113.0	112.0	111.6
65	101.0	90.1	90.0	88.8	88.6
70	76.0	65.5	64.0	63.9	64.9
75	51.0	40.8	40.3	40.0	41.0
80	23.5	12.1	12.3	12.5	13.9
85	0.9	4.9	3.8	2.2	1.3
90	18.8	31.0	28.9	25.2	21.6
95	44.6	56.3	55.3	52.4	48.1
100	69.5	81.0	81.1	79.0	74.5
105	92.4	102.4	103.4	102.7	98.7
110	111.0	119.6	121.2	121.8	117.9
115	125.7	132.5	134.4	136.7	133.6
120	136.6	136.1	143.8	147.8	145.1
125	144.5	139.1	149.4	155.3	153.3
130	149.2	141.8	151.9	158.6	158.4
135	151.5	143.6	146.5	155.2	160.0
140	151.6	143.2	143.3	148.9	153.6
145	149.2	143.2	141.3	142.3	142.1
150	146.6	141.4	137.8	135.6	134.2
155	142.4	138.1	134.6	132.2	131.1
160	139.0	136.6	133.4	132.0	130.4
165	137.3	134.0	131.9	129.9	129.9
170	123.9	114.5	112.4	111.0	111.8
175	91.1	74.0	76.1	76.7	79.9
180	64.0	65.9	64.9	65.9	62.8

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH18927XX

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWCH18927XX		
0-30	173.5	11.9
0-40	296.9	20.4
0-60	567.2	39.0
0-90	745.5	51.2
60-90	178.3	12.2
0-180	1455.5	100.0

Beam Angle

Total Beam Angle (°)

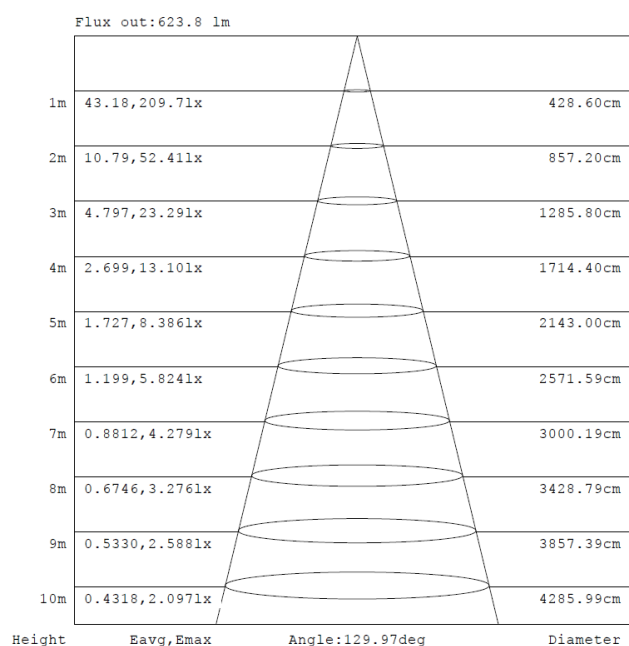
346.8

Illumination Plots

Model No.: KWCH18927XX

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

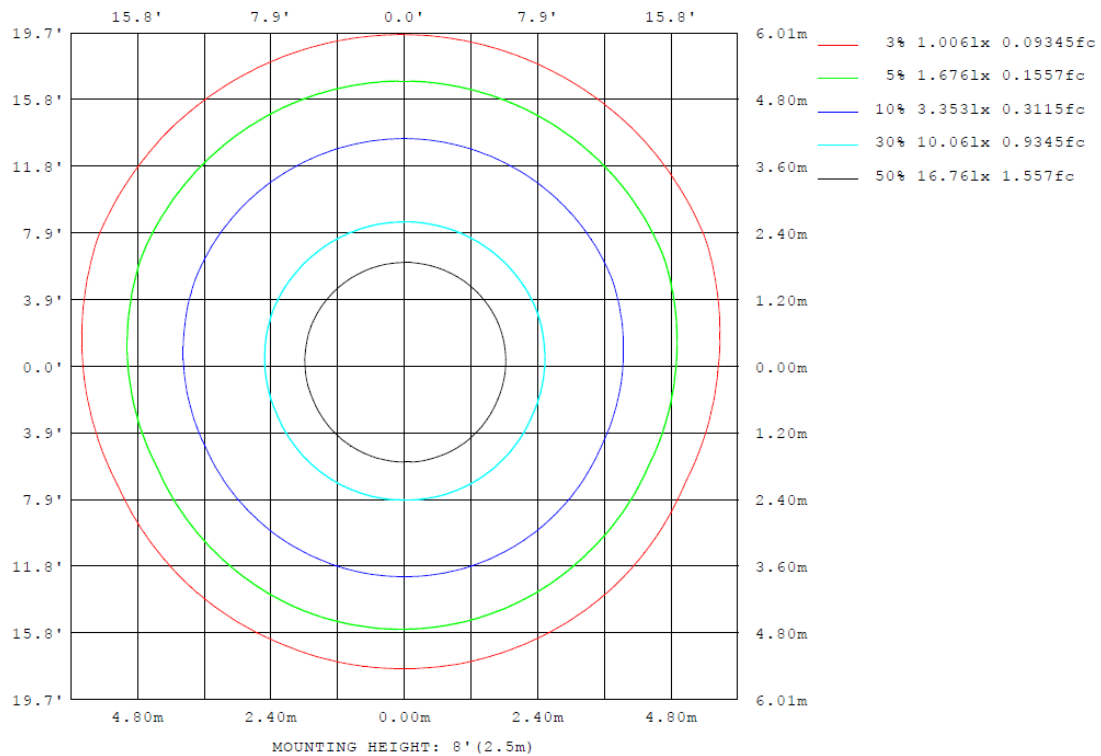
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH18927XX

Model No.: KWCH18927XX

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH18927XX

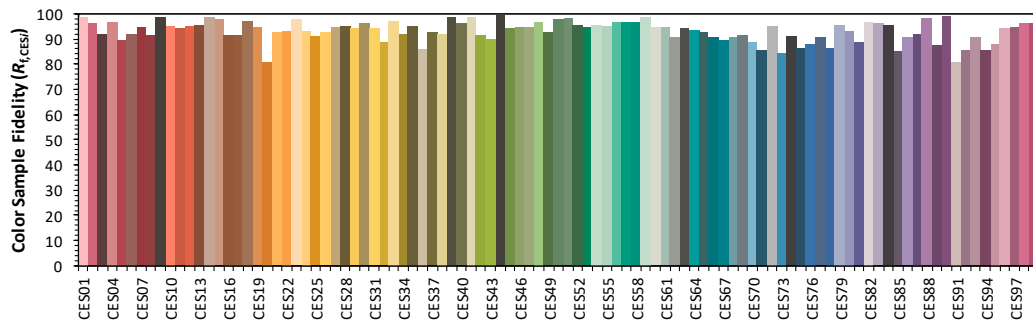
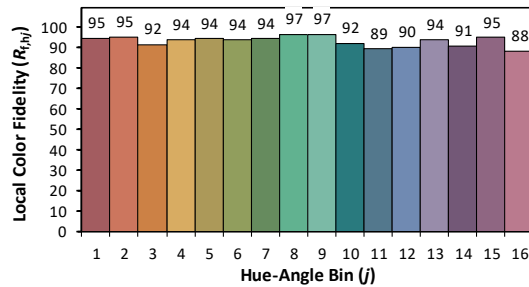
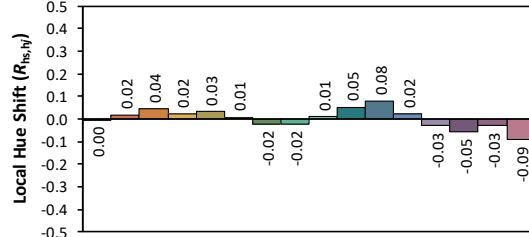
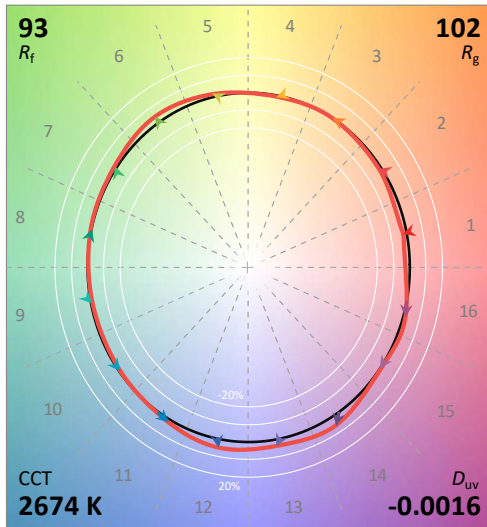
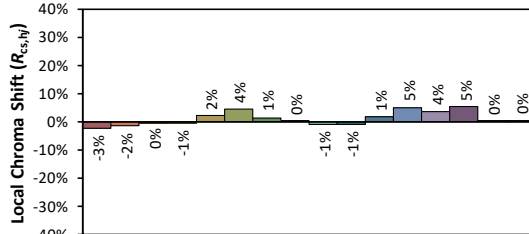
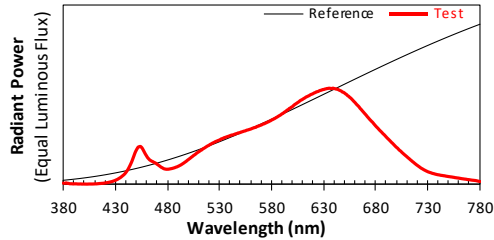
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/10/12

Model: KWCH18927xx



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

x 0.4593
 y 0.4062
 u' 0.2641
 v' 0.5256

CIE 13.3-1995
(CRI)

R_a 96

R_g 80

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 KWCH18927XX



External view of KWCH18927XX

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

TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED driver GBLD001



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 *****