

# Visual Comfort & Co.

## TEST REPORT

**SCOPE OF WORK**

LM-79 testing report

**REPORT NUMBER**

240124027GZU-005

**ISSUE DATE**

29 August 2024

**REVISION DATE**

Modification 1: 01 November 2024

**NUMBER OF PAGES**

12

**DOCUMENT CONTROL NUMBER**

Report format for LM-79\_G

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## TEST REPORT

### TEST OF ONE LED LUMINAIRE

MODEL NO. AKWS15927XX

Remark: "XX" are denoted appearance color.

#### RENDERED TO

Visual Comfort & Co.

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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: QGZ240119029.
<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 AKWS15927XX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S240124027-005.
<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>	28 February 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:	AKWS15927XX
Description:	LED Luminaries
Brand Name:	--

### Test Condition: 120V, 60Hz For AKWS15927XX

Criteria	Result
Total Lumen Output	980.6 lm
Total Power	10.6 W
Luminaire Efficacy	93.0 lm/W
S/MH(C0/180)	1.27
S/MH(C90/270)	1.63
Correlated Color Temperature (CCT)	2624 K
Color Rendering Index (CRI)	93
R9	64
Chromaticity Coordinate (x)	0.4644
Chromaticity Coordinate (y)	0.4089
Chromaticity Coordinate (u')	0.2662
Chromaticity Coordinate (v')	0.5274

### Remark:

### Revision history:

Modification 1: Based on and superseded the previous report 240124027GZU-005 issued on 29 August 2024, correct the manufacturer information on page 2 of the report, correct the applicant name on page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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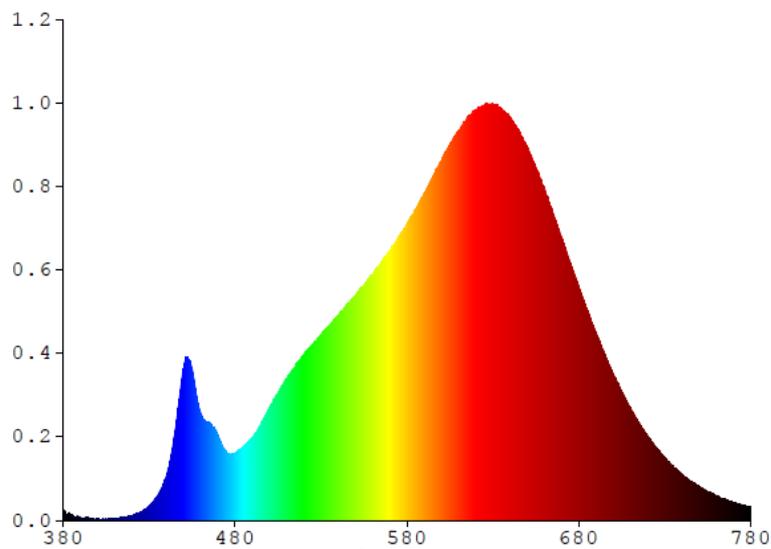
## TEST REPORT

### RESULTS OF TESTS

**Test Condition: 120V, 60Hz For AKWS15927XX**

Spectral Distribution over Visible Wavelengths

nm	mW/nm								
380	0.0298	480	0.2841	580	1.2564	680	0.9879	780	0.0613
385	0.0247	485	0.3127	585	1.3162	685	0.8869		
390	0.0094	490	0.3509	590	1.3866	690	0.7938		
395	0.0106	495	0.4099	595	1.4552	695	0.7052		
400	0.0089	500	0.4784	600	1.5239	700	0.6190		
405	0.0056	505	0.5404	605	1.5933	705	0.5451		
410	0.0089	510	0.5993	610	1.6525	710	0.4754		
415	0.0141	515	0.6535	615	1.7086	715	0.4122		
420	0.0223	520	0.7025	620	1.7392	720	0.3563		
425	0.0360	525	0.7453	625	1.7580	725	0.3082		
430	0.0624	530	0.7852	630	1.7631	730	0.2654		
435	0.1057	535	0.8276	635	1.7462	735	0.2265		
440	0.1877	540	0.8692	640	1.7082	740	0.1957		
445	0.3748	545	0.9136	645	1.6511	745	0.1672		
450	0.6439	550	0.9540	650	1.5821	750	0.1435		
455	0.6350	555	0.9952	655	1.4920	755	0.1213		
460	0.4515	560	1.0425	660	1.4062	760	0.1051		
465	0.4129	565	1.0946	665	1.2995	765	0.0894		
470	0.3594	570	1.1429	670	1.1955	770	0.0763		
475	0.2890	575	1.1963	675	1.0715	775	0.0646		



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For AKWS15927XX**

Total operation burning time: 60 minutes

Stabilization time: 30 minutes

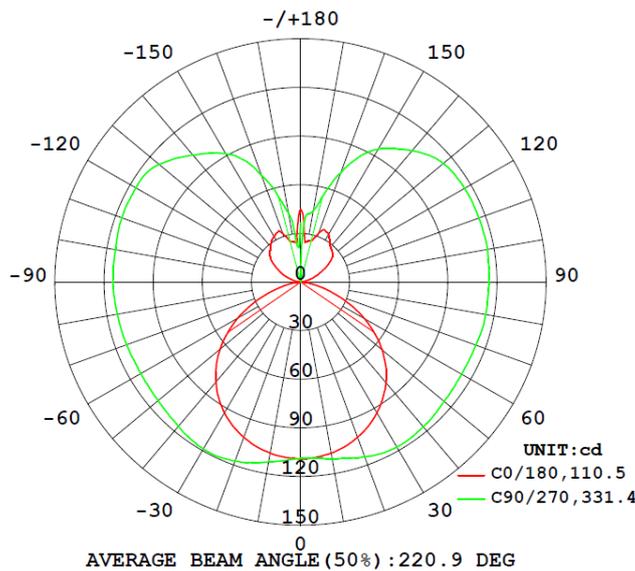
#### Photometric Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Correlated Color Temperature (K)	CRI	R9	CIE 31'		CIE 76'	
					Chromaticity Coordinate (x)	Chromaticity Coordinate (y)	Chromaticity Coordinate (u')	Chromaticity Coordinate (v')
AKWS15927XX								
S2401240 27-005	base-up	2624	93	64	0.4644	0.4089	0.2662	0.5274

#### 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)
AKWS15927XX							
S2401240 27-005	base-up	120.2	88.7	10.6	0.990	980.6	93.0

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



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**TEST REPORT**  
**RESULTS OF TESTS (cont'd)**

**Test Condition: 120V, 60Hz For AKWS15927XX**

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	109.0	108.8	108.9	108.8	108.7
5	108.5	108.4	108.7	109.0	109.1
10	107.1	107.3	108.7	110.1	110.6
15	105.0	105.8	108.8	111.4	112.4
20	101.9	103.4	108.4	112.8	114.6
25	98.0	100.6	107.7	114.1	116.6
30	93.2	97.1	106.8	114.6	117.5
35	87.6	92.6	104.9	114.1	117.3
40	81.2	87.7	102.2	112.6	116.6
45	73.7	82.1	98.4	110.9	115.6
50	65.0	75.7	94.3	108.9	114.4
55	55.4	68.3	90.2	106.9	114.0
60	44.9	60.4	85.7	105.8	113.5
65	33.9	52.2	81.7	105.0	113.6
70	23.3	44.1	78.9	104.4	113.9
75	13.8	36.5	76.6	104.1	114.7
80	6.3	30.7	74.7	104.4	114.8
85	2.0	27.0	73.7	104.3	114.8
90	0.8	25.4	73.5	104.2	115.0
95	0.9	26.2	74.0	104.6	115.3
100	1.8	29.2	75.3	105.3	115.9
105	4.3	34.0	77.1	105.8	115.9
110	8.1	39.8	79.4	106.3	115.8
115	12.4	45.0	82.0	106.9	115.9
120	17.1	49.1	84.4	107.2	115.7
125	22.0	53.1	85.3	107.4	115.1
130	25.7	54.1	85.2	106.2	113.8
135	27.2	53.3	84.0	103.3	110.7
140	28.4	50.6	81.4	99.4	106.0
145	31.3	46.2	77.9	94.5	100.5
150	34.3	42.2	71.9	89.5	94.8
155	35.4	40.6	63.2	79.9	85.7
160	32.0	41.0	53.2	67.3	72.1
165	26.3	34.6	45.4	53.1	56.8
170	25.6	25.5	42.5	43.7	44.7
175	28.4	26.4	32.5	39.8	41.7
180	45.2	46.8	45.0	44.1	0.0

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**TEST REPORT**  
**RESULTS OF TESTS (cont'd)**

**Test Condition: 120V, 60Hz For AKWS15927XX**

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
AKWS15927XX		
0-30	91.6	9.4
0-40	157.3	16.0
0-60	311.5	31.8
0-90	538.2	54.9
60-90	226.7	23.1
0-180	980.6	100.0

Beam Angle

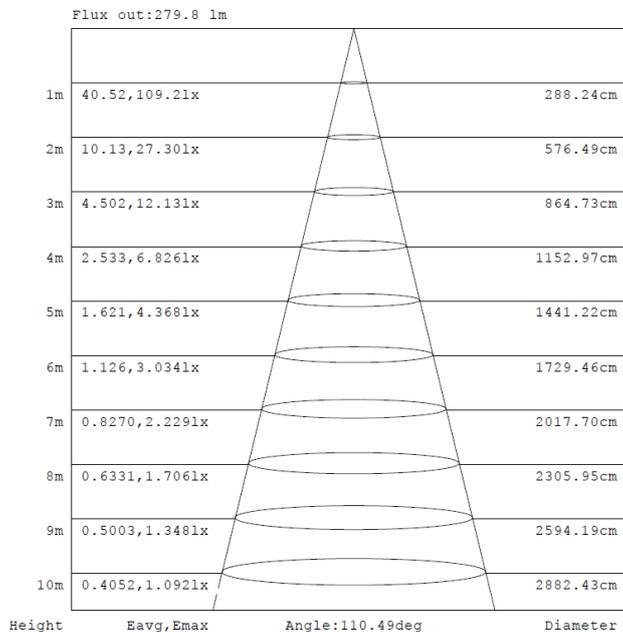
**Total Beam Angle(°)**  
220.9

Illumination Plots

Model No.: AKWS15927XX

Mount Height: 2.5 m

Illuminance - Cone of Light



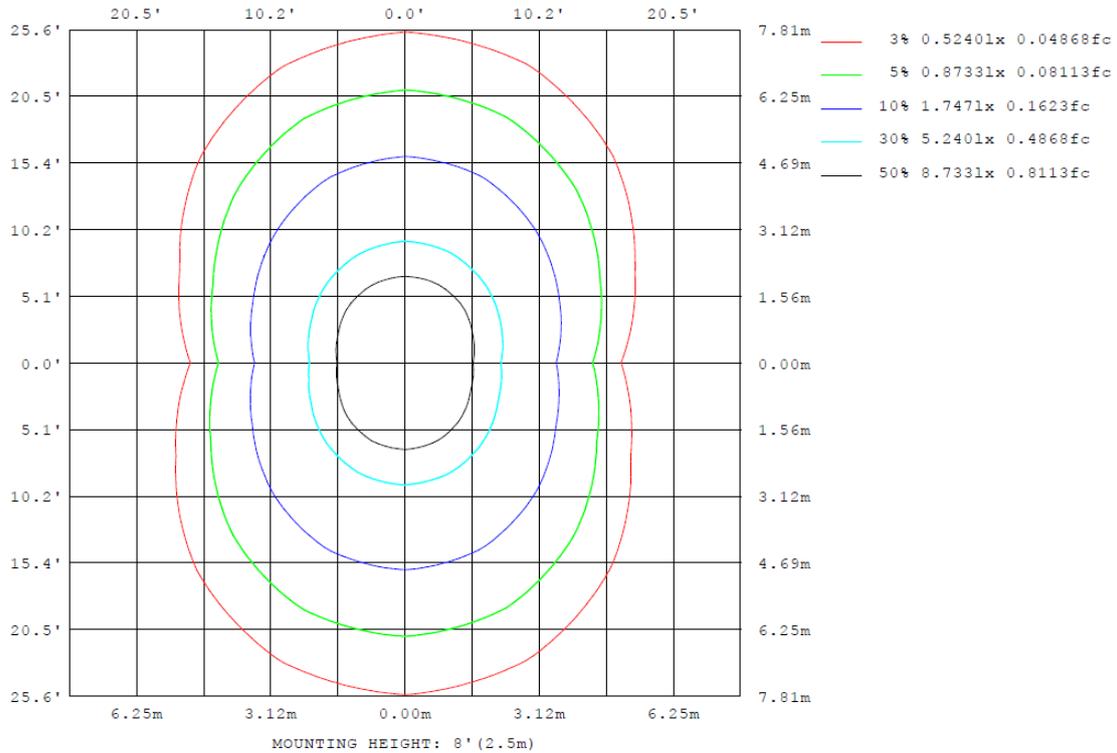
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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**TEST REPORT**  
**RESULTS OF TESTS (cont'd)**

**Test Condition: 120V, 60Hz For AKWS15927XX**

Model No.: AKWS15927XX  
Mount Height: 2.5 m  
Isoillumination Plot



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## TEST REPORT

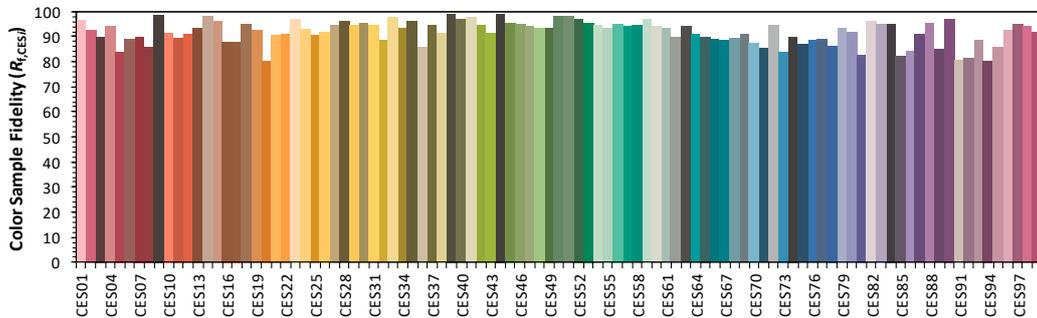
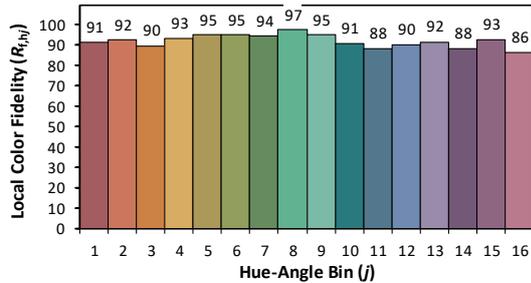
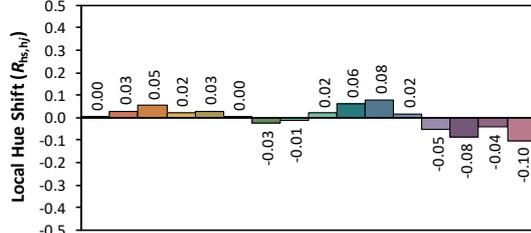
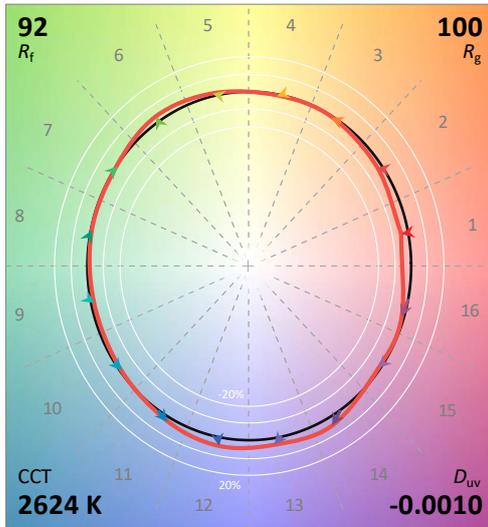
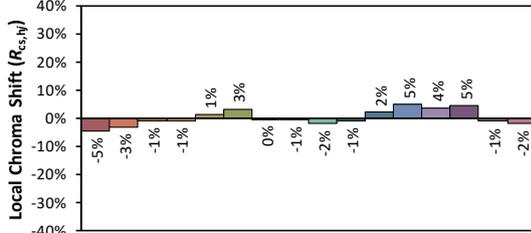
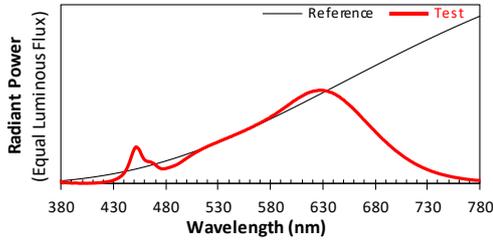
### RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For AKWS15927XX

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

Source: User SPD  
Date: 2024/2/28

Manufacturer: Visual Comfort and Company  
Model: AKWS15927xx



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

$x$  0.4644  
 $y$  0.4089  
 $u'$  0.2662  
 $v'$  0.5274

CIE 13.3-1995 (CRI)	
$R_a$	93
$R_g$	64

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 AKWS15927XX



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



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 \*\*\*\*\*