

Visual Comfort & Co.

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

240428155GZU-005

ISSUE DATE

12 July 2024

REVISION DATE

Modification 1: 01 November 2024

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

Report format for LM-79_G

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TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. PBWS35327XX

Remark: "XX" denoted the 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: QGZ240425048
<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 PBWS35327XX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S240428155-007.
<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>	13 June 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:	PBWS35327XX
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For PBWS35327XX

Criteria	Result
Total Lumen Output	236.4 lm
Total Power	11.4 W
Luminaire Efficacy	20.7 lm/W
S/MH(C0/180)	4.57
S/MH(C90/270)	1.16
Correlated Color Temperature (CCT)	2007 K
Color Rendering Index (CRI)	87
R9	44
Chromaticity Coordinate (x)	0.5323
Chromaticity Coordinate (y)	0.4219
Chromaticity Coordinate (u')	0.3043
Chromaticity Coordinate (v')	0.5426

Remark:

Revision history:

Modification 1: Based on and superseded the previous report 240428155GZU-005 issued on 12 July 2024, Correct the applicant name on page 1 and 2 of the report.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	DS215S	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, 4π 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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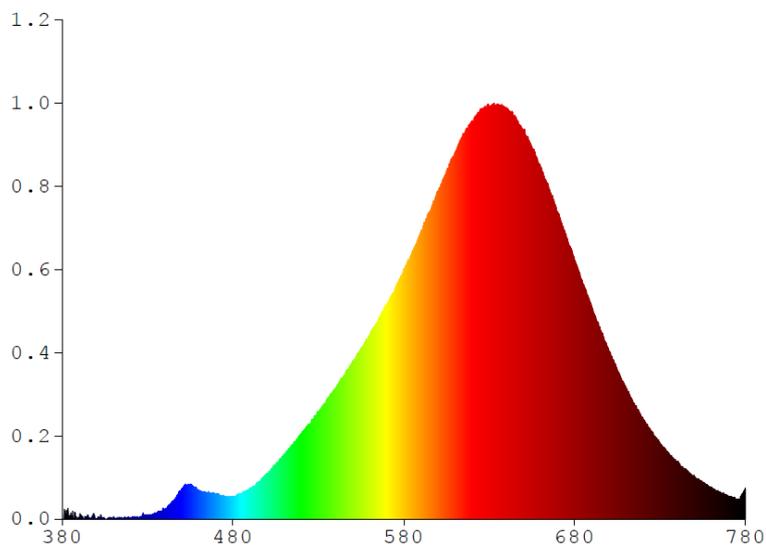
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For PBWS35327XX

Spectral Distribution over Visible Wavelengths

nm	mW/nm								
380	0.0015	480	0.0221	580	0.2448	680	0.2532	780	0.0301
385	0.0056	485	0.0252	585	0.2618	685	0.2297		
390	0.0000	490	0.0304	590	0.2811	690	0.2078		
395	0.0036	495	0.0362	595	0.3004	695	0.1849		
400	0.0000	500	0.0447	600	0.3187	700	0.1650		
405	0.0000	505	0.0535	605	0.3397	705	0.1456		
410	0.0025	510	0.0633	610	0.3591	710	0.1279		
415	0.0009	515	0.0731	615	0.3771	715	0.1124		
420	0.0005	520	0.0832	620	0.3895	720	0.0985		
425	0.0017	525	0.0932	625	0.4011	725	0.0854		
430	0.0038	530	0.1058	630	0.4016	730	0.0738		
435	0.0055	535	0.1172	635	0.4057	735	0.0647		
440	0.0098	540	0.1282	640	0.4025	740	0.0557		
445	0.0174	545	0.1405	645	0.3936	745	0.0486		
450	0.0295	550	0.1539	650	0.3798	750	0.0423		
455	0.0339	555	0.1669	655	0.3635	755	0.0356		
460	0.0282	560	0.1796	660	0.3448	760	0.0309		
465	0.0254	565	0.1938	665	0.3235	765	0.0263		
470	0.0240	570	0.2095	670	0.3005	770	0.0225		
475	0.0218	575	0.2259	675	0.2717	775	0.0193		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS35327XX

Total operation burning time: 60 minutes

Stabilization time: 30 minutes

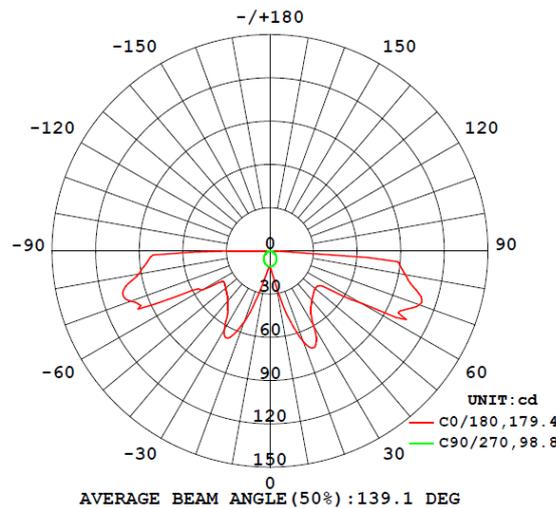
Photometric Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Correlated Color Temperature (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticity Coordinate (x)	Chromaticity Coordinate (y)	Chromaticity Coordinate (u')	Chromaticity Coordinate (v')
PBWS35327XX								
S2404281 55-007	base-up	2007	87	44	0.5323	0.4219	0.3043	0.5426

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)
PBWS35327XX							
S2404281 55-007	base-up	120.0	95.7	11.4	0.992	236.4	20.7

Intensity (Candlepower) Summary at 25°C - Candelas



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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS35327XX

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	2.6	2.6	2.6	2.6	2.6
5	3.5	3.4	3.1	2.8	2.6
10	5.8	5.3	4.1	3.1	2.6
15	11.0	9.6	6.2	3.5	2.5
20	15.9	14.2	9.5	4.0	2.4
25	17.5	16.2	11.9	4.8	2.2
30	14.4	14.5	12.7	5.7	2.1
35	11.7	12.1	12.0	6.2	1.9
40	10.7	10.4	10.6	6.3	1.7
45	10.1	9.7	9.2	6.5	1.5
50	9.7	9.2	8.2	6.2	1.3
55	10.0	9.4	8.0	6.0	1.1
60	17.4	13.7	10.4	6.0	0.9
65	23.6	18.4	6.8	4.6	0.7
70	26.1	21.2	9.0	3.5	0.5
75	24.8	21.3	12.0	2.3	0.3
80	22.6	19.7	11.7	2.9	0.2
85	21.1	17.2	9.8	2.3	0.0
90	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0
105	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0
115	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0
125	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0
135	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0
145	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0
155	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0
165	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS35327XX

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
PBWS35327XX		
0-30	27.1	11.5
0-40	51.4	21.8
0-60	105.0	44.4
0-90	235.6	99.7
60-90	130.6	55.3
0-180	236.4	100.0

Beam Angle

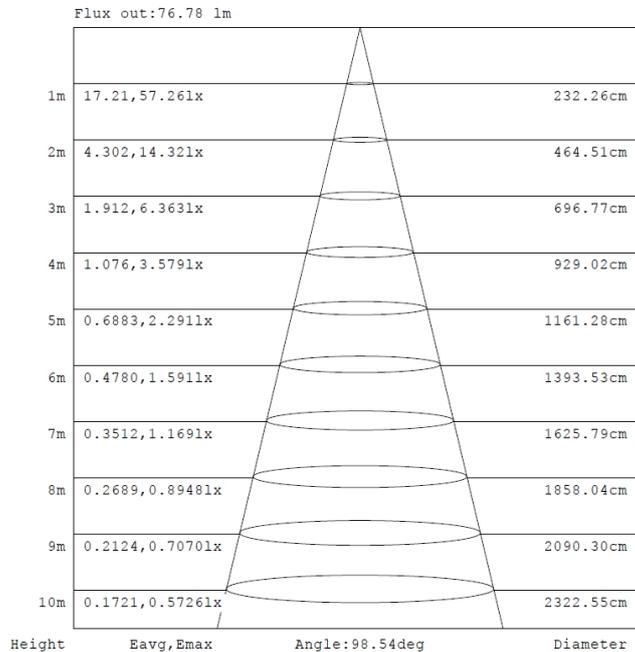
Total Beam Angle(°)
139.1

Illumination Plots

Model No.: PBWS35327XX

Mount Height: 2.5 m

Illuminance - Cone of Light



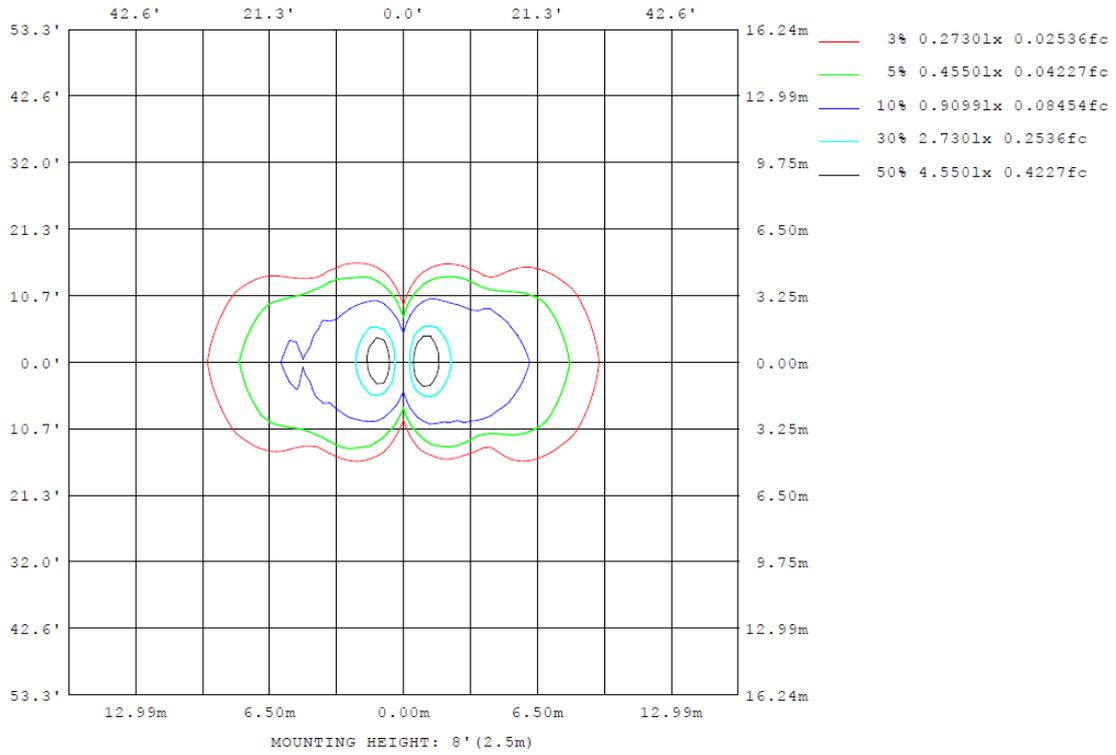
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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TEST REPORT
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS35327XX

Model No.: PBWS35327XX
Mount Height: 2.5 m
Isoillumination Plot



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TEST REPORT

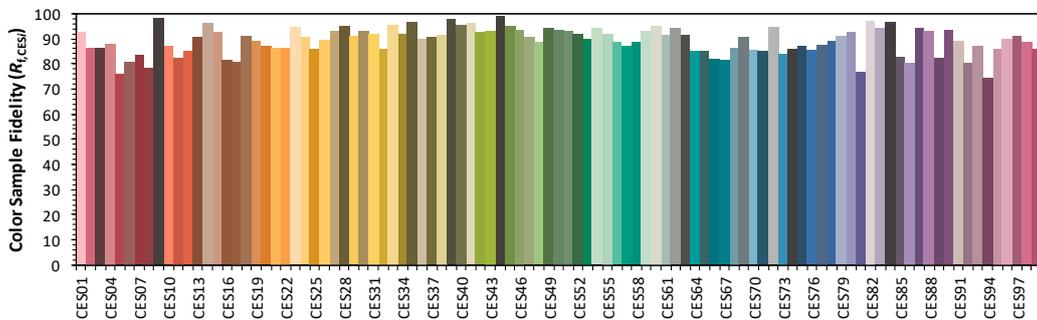
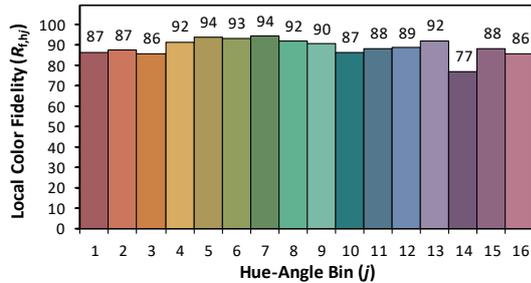
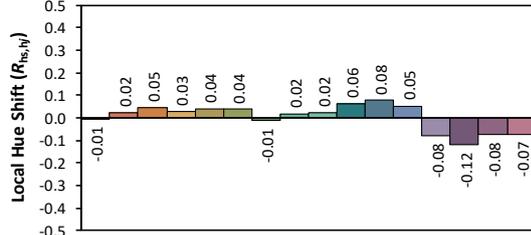
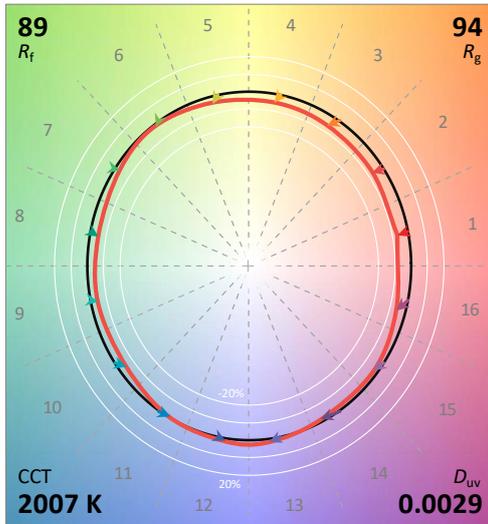
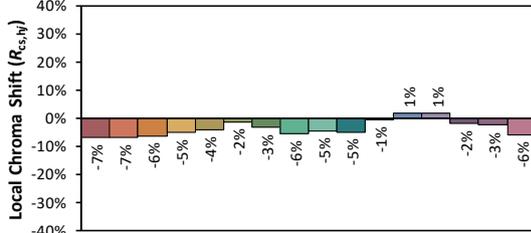
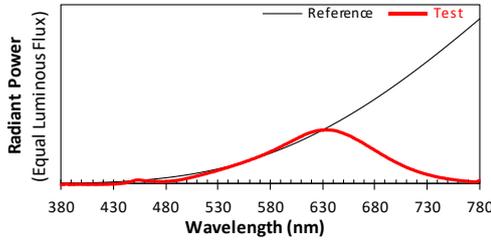
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS35327XX

ANSI/IES +B3:X17TM-30-18 Color Rendition Report

Source: User SPD
Date: 2024/6/13

Manufacturer: Visual Comfort and Company
Model: PBWS35327xx



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

x 0.5323
 y 0.4219
 u' 0.3043
 v' 0.5426

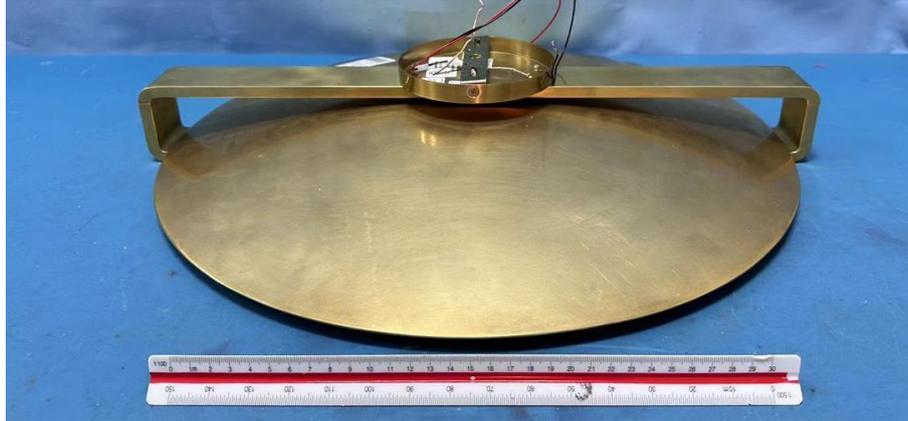
CIE 13.3-1995 (CRI)	
R_a	87
R_g	44

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

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

TEST REPORT

PRODUCT PICTURE (not to scale)



External view of PBWS35327XX



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

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

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 *****