

Visual Comfort & Co.

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

241101145GZU-001

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03 December 2024

REVISION DATE

None

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13

DOCUMENT CONTROL NUMBER

Report format for LM-79_G

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Report No.: 241101145GZU-001

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. PBWS50227XXX

Remark: "XXX" are denoted appearance color.

RENDERED TO

Visual Comfort & Co.

Contact Name: Javan Rivero

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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: QGZ241031016.
<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 PBWS50227XXX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S241101145-001.
<u>MANUFACTURER /FACTORY & ADDRESS:</u>	Union Star Collection-Dongguan Denghuang HomeFurnishing Co., Ltd. No.5, Central Road, Yayuan Industrial Zone, Nancheng District, Dongguan City, Guangdong Province, 523000
<u>DATES OF TESTS:</u>	01 November 2024, 04 November 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:	PBWS50227XXX
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For PBWS50227XXX

Criteria	Result
Total Lumen Output	99.5 lm
Total Power	15.3 W
Luminaire Efficacy	6.5 lm/W
S/MH(C0/180)	1.79
S/MH(C90/270)	1.13
Correlated Color Temperature (CCT)	2008 K
Color Rendering Index (CRI)	90
R9	52
Chromaticity Coordinate (x)	0.5288
Chromaticity Coordinate (y)	0.4174
Chromaticity Coordinate (u')	0.3043
Chromaticity Coordinate (v')	0.5404

Remark:

N/A

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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 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 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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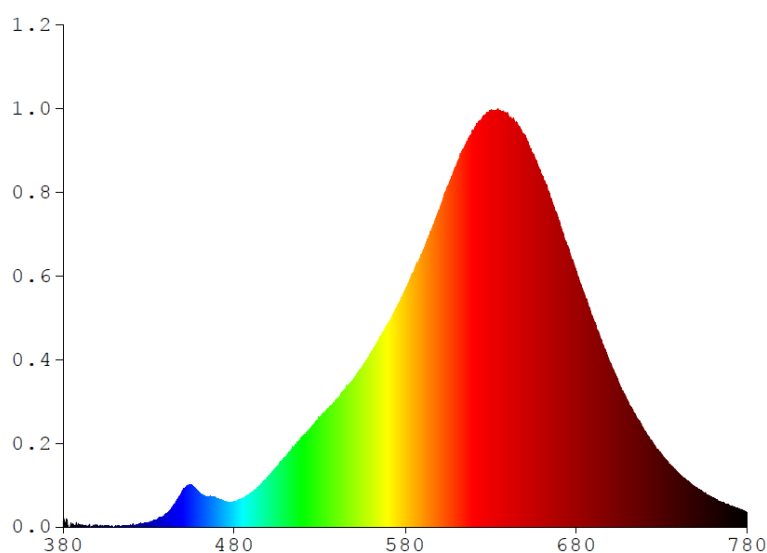
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For PBWS50227XXX

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0541	480	0.5203	580	4.8517	680	5.2198	780	0.2891
385	0.0294	485	0.5882	585	5.2232	685	4.7111		
390	0.0475	490	0.6998	590	5.6018	690	4.2248		
395	0.0121	495	0.8441	595	6.0394	695	3.7603		
400	0.0015	500	1.0349	600	6.4611	700	3.3395		
405	0.0172	505	1.2359	605	6.9713	705	2.9269		
410	0.0000	510	1.4334	610	7.4121	710	2.5693		
415	0.0305	515	1.6375	615	7.8018	715	2.2512		
420	0.0184	520	1.8647	620	8.1019	720	1.9594		
425	0.0726	525	2.0409	625	8.3618	725	1.7026		
430	0.0854	530	2.2414	630	8.5116	730	1.4806		
435	0.1482	535	2.4267	635	8.4889	735	1.2669		
440	0.2660	540	2.6118	640	8.4305	740	1.0900		
445	0.4584	545	2.8245	645	8.2756	745	0.9397		
450	0.7542	550	3.0361	650	8.0080	750	0.8106		
455	0.8546	555	3.2768	655	7.6208	755	0.6977		
460	0.6844	560	3.5589	660	7.1782	760	0.5935		
465	0.6105	565	3.8877	665	6.7207	765	0.5058		
470	0.5740	570	4.1674	670	6.2598	770	0.4247		
475	0.5221	575	4.4847	675	5.6199	775	0.3688		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS50227XXX

Total operation burning time: 60 minutes

Stabilization time: 30 minutes

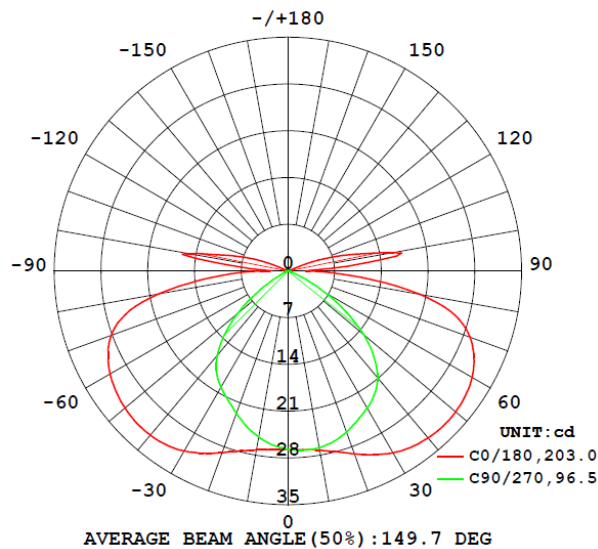
Photometric Measurements at 25°C – Distribution Method

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')
PBWS50227XXX								
S2411011 45-001	base-up	2008	90	52	0.5288	0.4174	0.3043	0.5404

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)
PBWS50227XXX							
S2411011 45-001	base-up	120.1	129.0	15.3	0.988	99.5	6.5

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS50227XXX

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	26.7	26.7	26.7	26.7	26.7
5	26.8	26.9	26.9	27.0	26.9
10	27.3	27.3	27.1	26.9	26.8
15	28.0	27.9	27.3	26.6	26.4
20	29.1	28.7	27.3	26.0	25.7
25	30.3	29.6	27.1	25.2	24.7
30	31.4	30.2	26.6	24.3	23.7
35	32.2	30.5	26.0	23.3	22.6
40	32.6	30.3	25.1	21.8	20.8
45	32.9	29.7	23.8	19.5	18.2
50	32.8	28.5	21.6	16.3	14.8
55	32.5	26.7	18.4	12.2	10.6
60	31.9	24.0	14.1	7.8	6.3
65	30.7	20.4	9.3	3.9	2.9
70	29.0	15.9	5.0	1.3	0.8
75	26.0	10.9	2.1	0.6	0.5
80	20.0	6.8	1.2	0.4	0.3
85	11.1	3.9	0.8	0.2	0.2
90	3.2	2.1	0.4	0.1	0.1
95	9.1	3.2	0.2	0.0	0.0
100	16.1	3.8	0.1	0.0	0.0
105	9.5	3.2	0.1	0.0	0.0
110	4.9	0.8	0.0	0.0	0.0
115	0.5	0.5	0.0	0.0	0.0
120	0.2	0.2	0.0	0.0	0.0
125	0.1	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	0.1	0.1	0.1
165	0.0	0.0	0.1	0.1	0.1
170	0.0	0.1	0.1	0.1	0.1
175	0.0	0.1	0.1	0.1	0.1
180	0.0	0.1	0.0	0.1	0.1

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS50227XXX

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
PBWS50227XXX		
0-30	22.2	22.3
0-40	38.2	38.4
0-60	72.4	72.7
0-90	94.6	95.0
60-90	22.2	22.3
0-180	99.5	100.0

Beam Angle

Total Beam Angle(°)

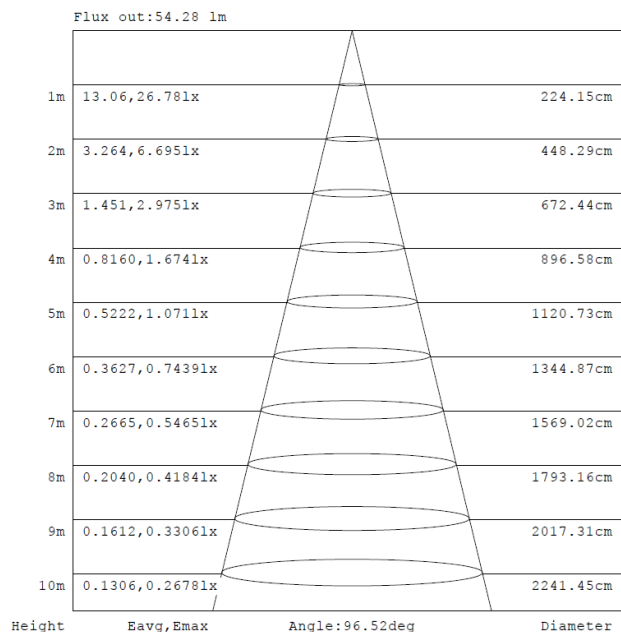
149.7

Illumination Plots

Model No.: PBWS50227XXX

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

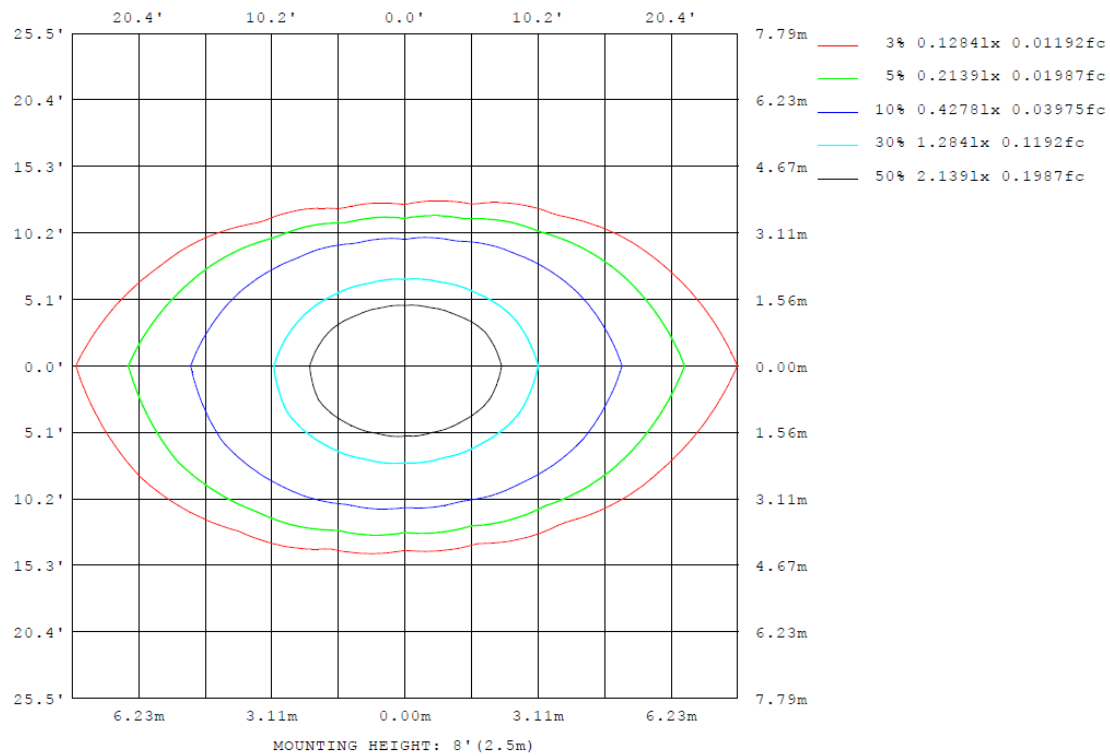
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS50227XXX

Model No.: PBWS50227XXX

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBWS50227XXX

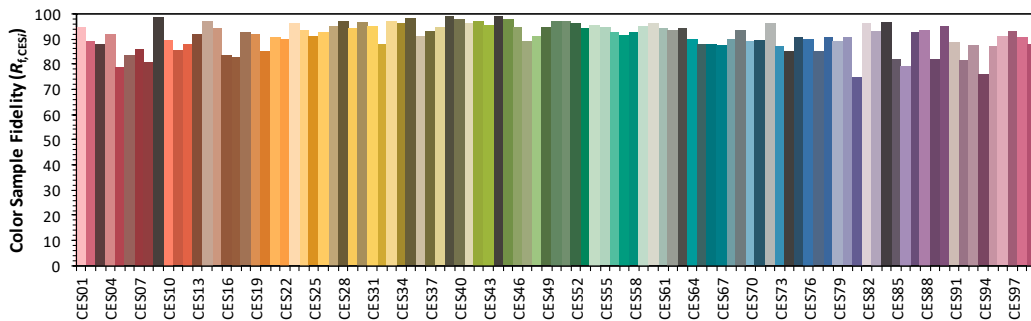
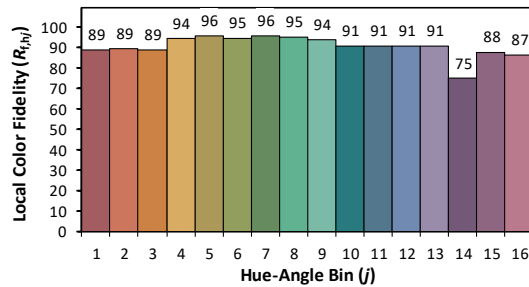
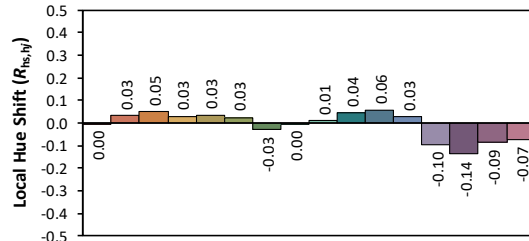
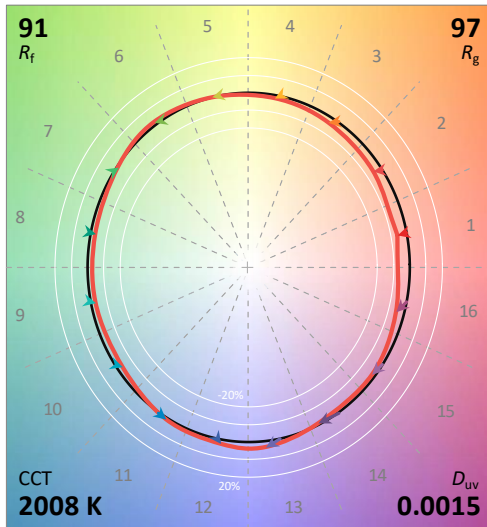
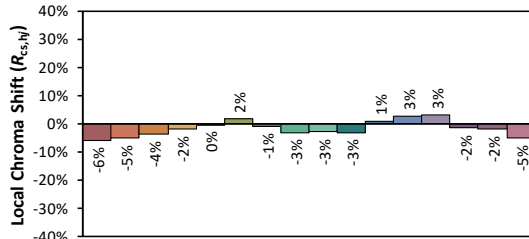
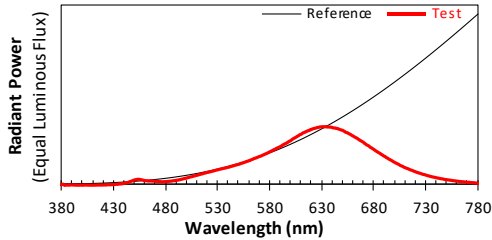
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2024/11/4

Model: PBWS50227XXX



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

x 0.5288
 y 0.4174
 u' 0.3043
 v' 0.5404

CIE 13.3-1995
(CRI)

R_a 90
 R_g 52

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

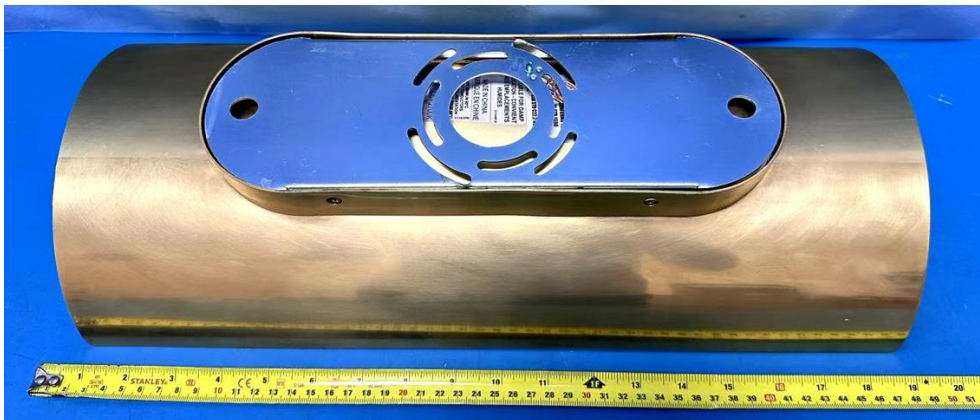
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of PBWS50227XXX



External view of PBWS50227XXX



View of LED driver PVD14-C040V35-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 *****