

# Visual Comfort & Co.

## TEST REPORT

**SCOPE OF WORK**

LM-79 testing report

**REPORT NUMBER**

240621176GZU-009

**ISSUE DATE**

08 October 2024

**REVISION DATE**

Modification 1: 06 November 2024

**NUMBER OF PAGES**

13

**DOCUMENT CONTROL NUMBER**

Report format for LM-79\_G

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Report No.: 240621176GZU-009  
Modification 1: 06 November 2024

## TEST REPORT

### TEST OF ONE LED LUMINAIRE

MODEL NO. PBCH35727XX

Remark: "XX" are denoted appearance color.

#### RENDERED TO

Visual Comfort & Co.

Contact Name: Adam Same

7400 LINDER AVE. SKOKIE, IL, 60077

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Phone No.: 8474104402

<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: QGZ240620045.
<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 PBCH35727XX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S240621176-010.
<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>	29 July 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:	PBCH35727XX
Description:	LED Luminaries
Brand Name:	--

#### Test Condition: 120V, 60Hz For PBCH35727XX

Criteria	Result
Total Lumen Output	825.2 lm
Total Power	10.6 W
Luminaire Efficacy	78.2 lm/W
S/MH(C0/180)	1.63
S/MH(C90/270)	1.47
Correlated Color Temperature (CCT)	2724 K
Color Rendering Index (CRI)	94
R9	75
Chromaticity Coordinate (x)	0.4565
Chromaticity Coordinate (y)	0.4076
Chromaticity Coordinate (u')	0.2617
Chromaticity Coordinate (v')	0.5257

#### Remark:

#### Revision history:

Modification 1: Based on and superseded the previous report 240621176GZU-009 issued on 08 October 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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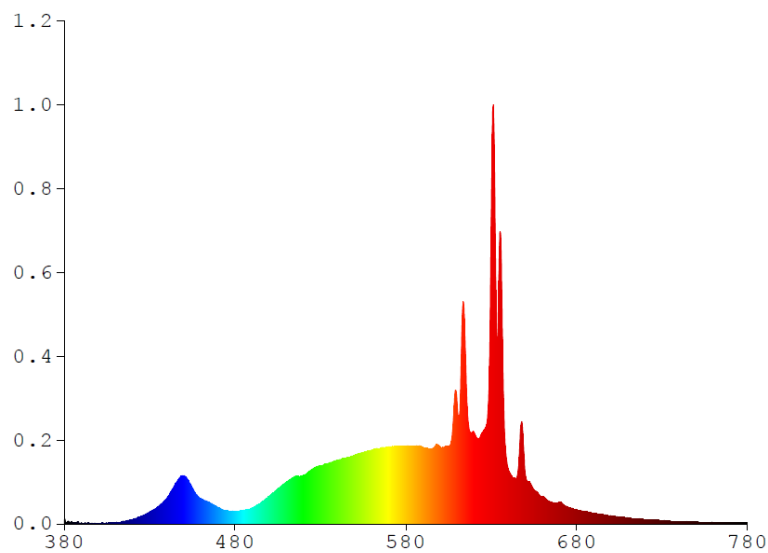
## TEST REPORT

### RESULTS OF TESTS

**Test Condition: 120V, 60Hz For PBCH35727XX**

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0342	480	0.1455	580	0.8756	680	0.1593	780	0.0131
385	0.0133	485	0.1532	585	0.8771	685	0.1385		
390	0.0100	490	0.1802	590	0.8629	690	0.1207		
395	0.0066	495	0.2345	595	0.8426	695	0.1050		
400	0.0064	500	0.3105	600	0.8649	700	0.0903		
405	0.0088	505	0.3936	605	0.8764	705	0.0781		
410	0.0166	510	0.4678	610	1.3156	710	0.0667		
415	0.0279	515	0.5298	615	1.7664	715	0.0586		
420	0.0521	520	0.5451	620	1.0263	720	0.0505		
425	0.0847	525	0.6140	625	1.0321	725	0.0441		
430	0.1332	530	0.6542	630	3.5394	730	0.0377		
435	0.1952	535	0.6854	635	3.2623	735	0.0325		
440	0.2884	540	0.7146	640	0.6055	740	0.0294		
445	0.4480	545	0.7447	645	0.5260	745	0.0249		
450	0.5424	550	0.7739	650	0.5436	750	0.0227		
455	0.4019	555	0.8007	655	0.3817	755	0.0193		
460	0.2818	560	0.8281	660	0.3095	760	0.0169		
465	0.2392	565	0.8495	665	0.2435	765	0.0153		
470	0.1847	570	0.8662	670	0.2481	770	0.0133		
475	0.1489	575	0.8714	675	0.1810	775	0.0118		



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH35727XX**

Total operation burning time: 60 minutes  
Stabilization time: 30 minutes

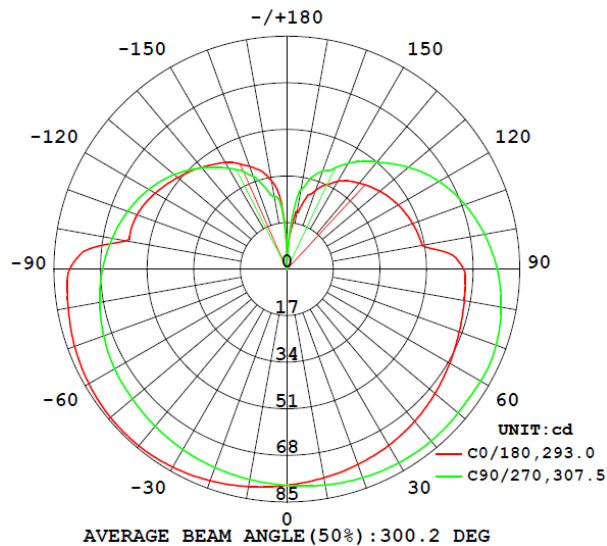
#### Photometric Measurements at 25°C – Distribution Method

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')
PBCH35727XX								
S2406211 76-010	base-up	2724	94	75	0.4565	0.4076	0.2617	0.5257

#### 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	Lumen
						Flux (Lumens)	Efficacy (Lumens Per Watt)
PBCH35727XX							
S2406211 76-010	base-up	120.1	89.6	10.6	0.982	825.2	78.2

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



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH35727XX**

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	78.8	78.7	78.8	79.0	78.9
5	78.1	78.6	78.6	79.2	79.4
10	77.3	77.8	78.5	79.4	80.0
15	76.6	77.3	78.4	79.6	80.5
20	75.8	76.8	78.2	79.7	80.9
25	75.1	76.3	78.0	79.8	81.3
30	74.3	75.8	77.7	79.7	81.7
35	73.4	75.1	77.4	79.5	81.8
40	72.5	74.4	76.9	79.3	81.9
45	71.5	73.7	76.4	78.9	81.8
50	70.6	72.8	75.7	78.3	81.6
55	69.6	72.0	75.0	77.7	81.4
60	68.6	71.1	74.3	77.0	81.6
65	67.7	70.2	73.4	76.7	81.7
70	66.9	69.4	72.8	76.3	81.2
75	66.3	68.6	72.1	75.5	80.4
80	65.7	67.7	71.2	74.4	79.4
85	65.4	66.7	70.2	73.2	78.2
90	64.6	65.6	69.0	71.7	76.7
95	60.5	64.4	67.6	70.1	75.1
100	50.3	62.5	66.2	68.3	73.3
105	49.5	59.5	64.4	66.3	71.3
110	48.8	56.0	62.3	64.2	69.1
115	48.0	53.0	59.8	61.8	66.8
120	46.9	50.5	57.0	59.2	64.1
125	45.7	48.2	54.2	56.3	61.2
130	44.3	46.3	51.5	53.2	58.0
135	42.8	44.3	48.5	50.3	54.5
140	41.1	42.2	45.5	47.1	51.1
145	39.3	40.2	42.7	43.3	48.0
150	37.1	38.1	39.5	39.6	44.6
155	34.1	35.6	35.5	36.1	40.5
160	30.7	30.9	32.0	34.2	38.2
165	26.9	25.6	28.9	29.2	34.7
170	21.3	22.6	25.1	21.0	29.4
175	12.2	11.3	13.8	3.2	15.3
180	0.1	0.0	0.0	0.0	0.0

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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH35727XX**

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
PBCH35727XX		
0-30	66.5	8.1
0-40	115.9	14.0
0-60	245.2	29.7
0-90	477.6	57.9
60-90	232.4	28.2
0-180	825.2	100.0

Beam Angle

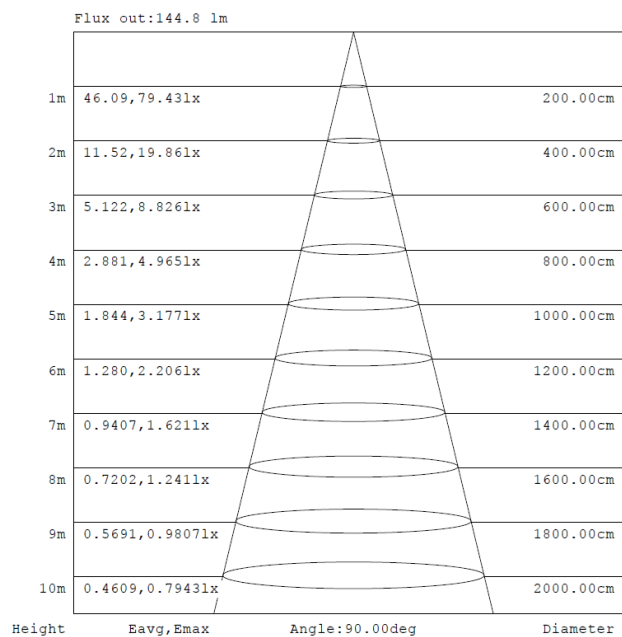
**Total Beam Angle(°)**  
300.2

Illumination Plots

Model No.: PBCH35727XX

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

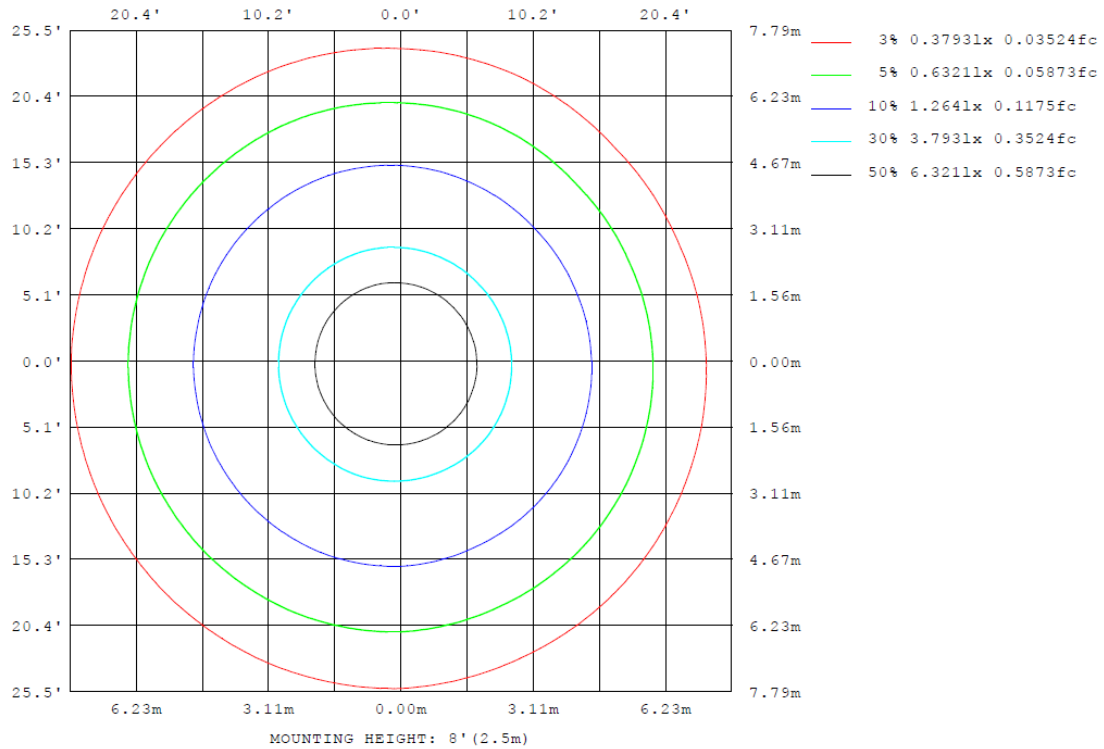
### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH35727XX**

Model No.: PBCH35727XX

Mount Height: 2.5 m

Isoillumination Plot



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBCH35727XX

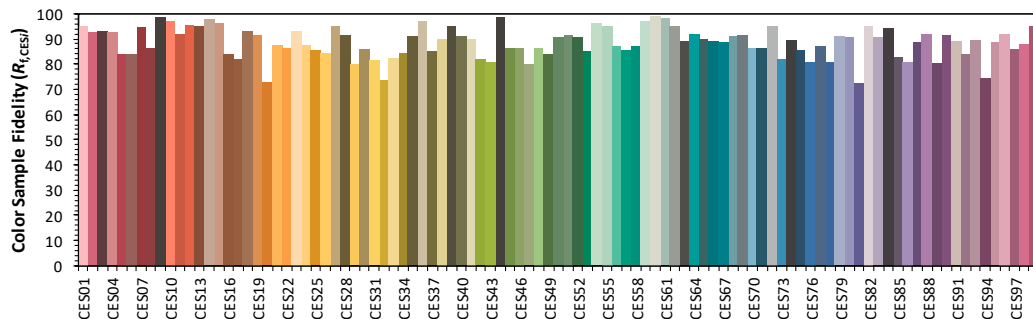
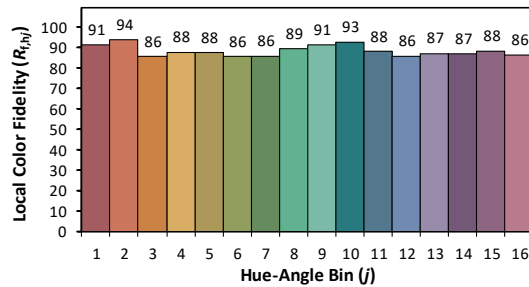
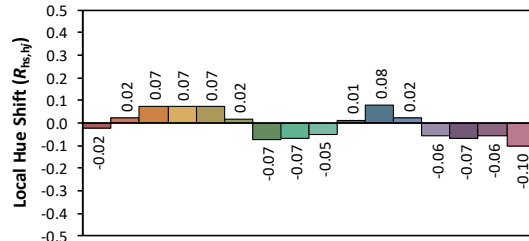
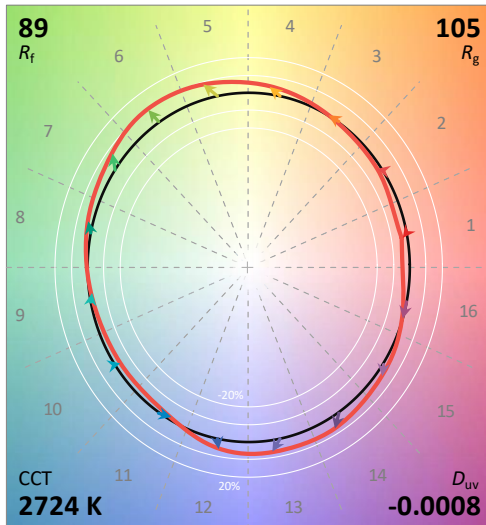
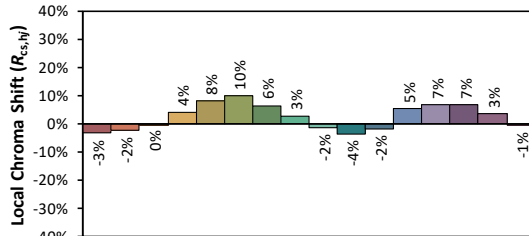
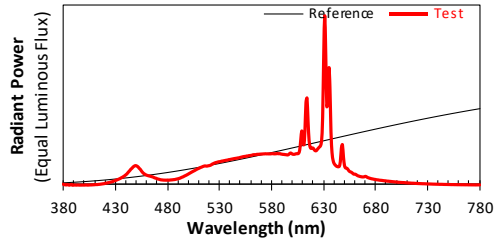
#### ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2024/7/29

Model: PBCH35727XX



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

$x$  0.4565  
 $y$  0.4076  
 $u'$  0.2617  
 $v'$  0.5257

CIE 13.3-1995  
(CRI)

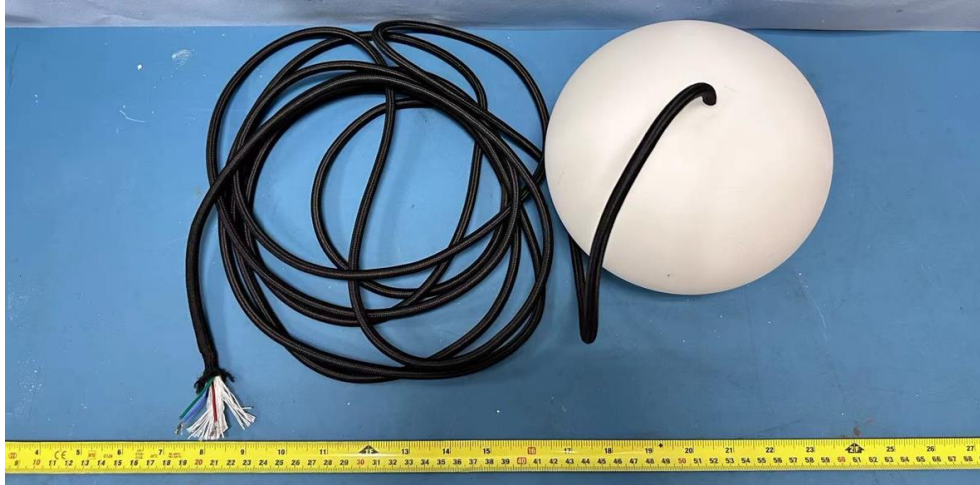
$R_a$  94  
 $R_g$  75

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 PBCH35727XX



External view of PBCH35727XX

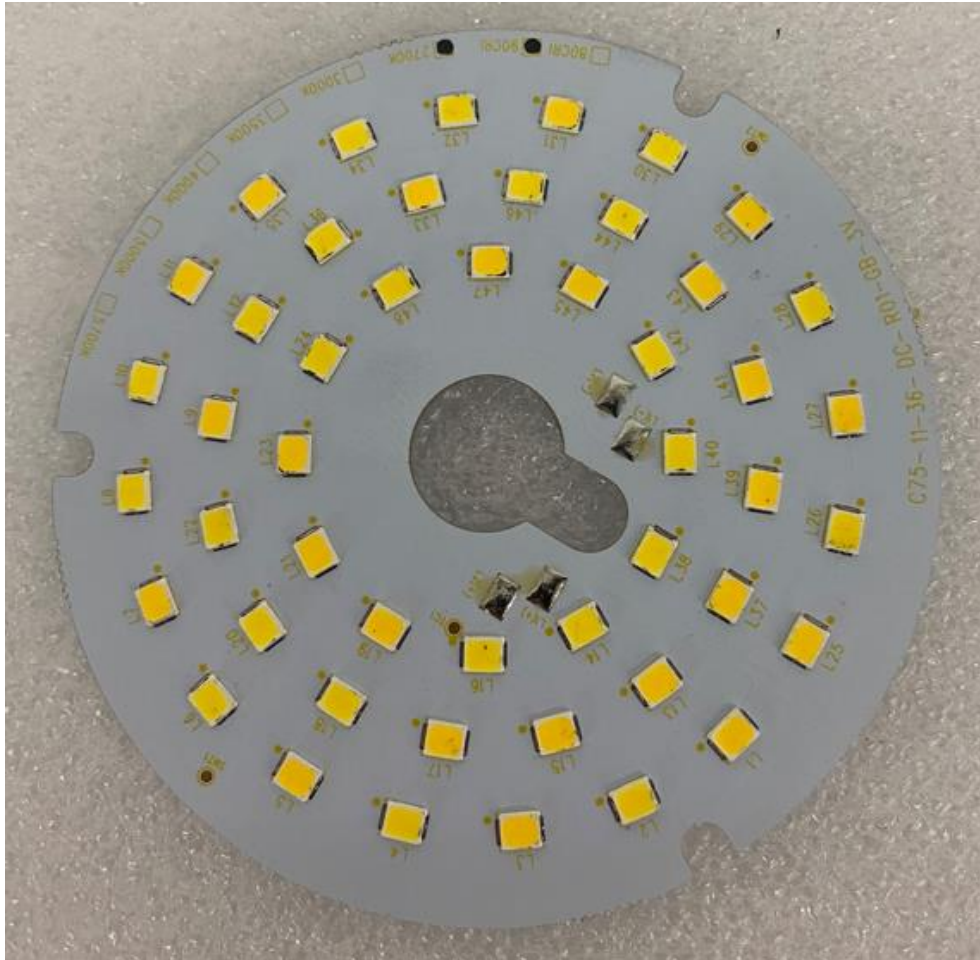


View of LED driver ISDU-D56-10W

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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 \*\*\*\*\*