

# Visual Comfort & Co.

## TEST REPORT

**SCOPE OF WORK**

LM-79 testing report

**REPORT NUMBER**

240621176GZU-012

**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-012  
Modification 1: 06 November 2024

## TEST REPORT

### TEST OF ONE LED LUMINAIRE

MODEL NO. PBCH36927XX

Remark: "XX" are denoted appearance color.

#### RENDERED TO

Visual Comfort & Co.

Contact Name: Adam Same

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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 PBCH36927XX. The sample was received by Intertek in undamaged condition and tested as received. The sample designation was S240621176-013.
<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>	31 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:	PBCH36927XX
Description:	LED Luminaries
Brand Name:	--

#### Test Condition: 120V, 60Hz For PBCH36927XX

Criteria	Result
Total Lumen Output	2252.7 lm
Total Power	28.9 W
Luminaire Efficacy	77.9 lm/W
S/MH(C0/180)	1.60
S/MH(C90/270)	1.61
Correlated Color Temperature (CCT)	2806 K
Color Rendering Index (CRI)	92
R9	67
Chromaticity Coordinate (x)	0.4510
Chromaticity Coordinate (y)	0.4079
Chromaticity Coordinate (u')	0.2580
Chromaticity Coordinate (v')	0.5250

#### Remark:

#### Revision history:

Modification 1: Based on and superseded the previous report 240621176GZU-012 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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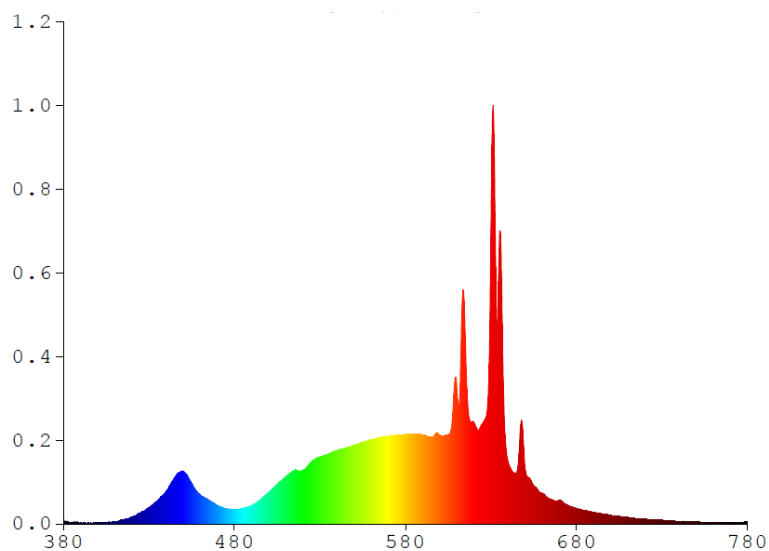
## TEST REPORT

### RESULTS OF TESTS

**Test Condition: 120V, 60Hz For PBCH36927XX**

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.1211	480	0.3680	580	2.2812	680	0.3988	780	0.0745
385	0.0470	485	0.3994	585	2.2986	685	0.3417		
390	0.0270	490	0.4677	590	2.2559	690	0.2983		
395	0.0142	495	0.6128	595	2.2154	695	0.2548		
400	0.0268	500	0.8049	600	2.2504	700	0.2204		
405	0.0357	505	1.0148	605	2.2821	705	0.1932		
410	0.0581	510	1.2028	610	3.3661	710	0.1656		
415	0.0966	515	1.3685	615	4.5075	715	0.1415		
420	0.1770	520	1.3595	620	2.5860	720	0.1225		
425	0.2777	525	1.5791	625	2.5615	725	0.1085		
430	0.4215	530	1.7088	630	7.7769	730	0.0942		
435	0.5928	535	1.7932	635	7.3612	735	0.0819		
440	0.8304	540	1.8804	640	1.5559	740	0.0706		
445	1.1718	545	1.9383	645	1.3219	745	0.0615		
450	1.3408	550	2.0063	650	1.3800	750	0.0517		
455	1.0343	555	2.0808	655	0.9723	755	0.0455		
460	0.7361	560	2.1445	660	0.7748	760	0.0389		
465	0.6063	565	2.1960	665	0.6200	765	0.0366		
470	0.4732	570	2.2402	670	0.6139	770	0.0318		
475	0.3908	575	2.2558	675	0.4497	775	0.0276		



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH36927XX**

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

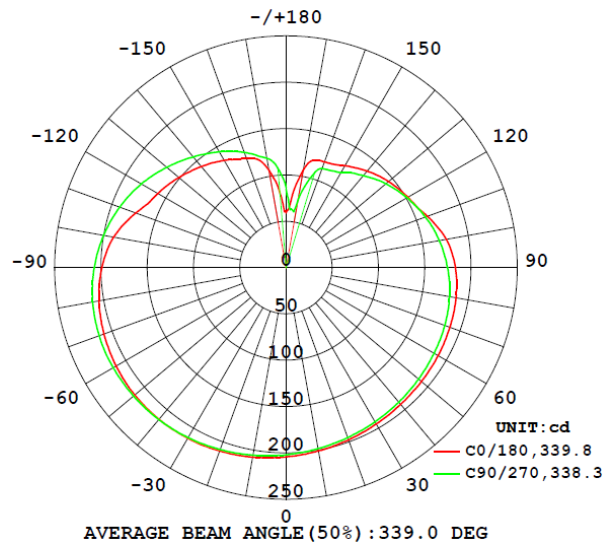
#### Photometric Measurements at 25°C – Distribution Method

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')
PBCH36927XX								
S2406211 76-013	base-up	2806	92	67	0.4510	0.4079	0.2580	0.5250

#### 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)
PBCH36927XX							
S2406211 76-013	base-up	120.1	247.1	28.9	0.975	2252.7	77.9

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



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH36927XX**

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	204.2	202.7	201.5	201.5	201.9
5	202.6	200.5	199.0	199.2	200.1
10	200.8	198.3	196.6	197.0	198.3
15	199.2	196.2	194.4	194.8	196.7
20	197.6	194.2	192.2	192.8	195.1
25	196.2	192.4	190.3	190.9	193.6
30	194.9	190.7	188.5	189.2	192.2
35	193.7	189.2	187.0	187.6	190.8
40	192.6	187.9	185.6	186.2	189.5
45	191.8	186.8	184.4	184.8	188.2
50	191.1	186.1	183.4	183.6	187.0
55	190.5	185.7	183.2	182.6	185.7
60	189.9	184.9	182.8	182.0	184.8
65	189.1	184.1	181.9	181.3	183.7
70	188.4	183.2	180.9	180.7	182.5
75	187.6	182.2	179.7	179.8	181.1
80	186.6	180.9	178.2	178.3	179.3
85	185.1	179.2	176.3	176.2	177.1
90	183.0	177.0	174.0	173.6	174.5
95	180.1	174.4	171.3	170.6	171.5
100	175.9	170.1	168.0	167.3	168.2
105	169.7	164.0	163.8	163.5	164.5
110	162.5	157.8	159.1	159.2	160.3
115	155.7	152.4	154.0	154.5	155.7
120	152.2	147.8	148.6	149.5	150.9
125	148.5	143.6	143.3	144.7	146.1
130	144.6	139.5	138.1	139.5	141.0
135	140.7	135.5	132.9	133.9	135.5
140	136.2	130.9	128.0	128.4	129.8
145	131.6	126.3	123.5	123.3	125.0
150	127.2	123.2	120.4	119.2	118.6
155	123.2	120.8	118.9	116.9	115.7
160	121.6	119.7	116.8	115.9	114.2
165	120.0	113.7	102.5	100.3	99.1
170	106.5	89.3	76.1	73.5	73.2
175	79.0	61.6	60.1	62.6	64.0
180	59.7	69.8	85.6	87.3	84.9

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## TEST REPORT

### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH36927XX**

#### Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
PBCH36927XX		
0-30	170.6	7.6
0-40	297.7	13.2
0-60	634.4	28.2
0-90	1252.4	55.6
60-90	618.0	27.4
0-180	2252.7	100.0

#### Beam Angle

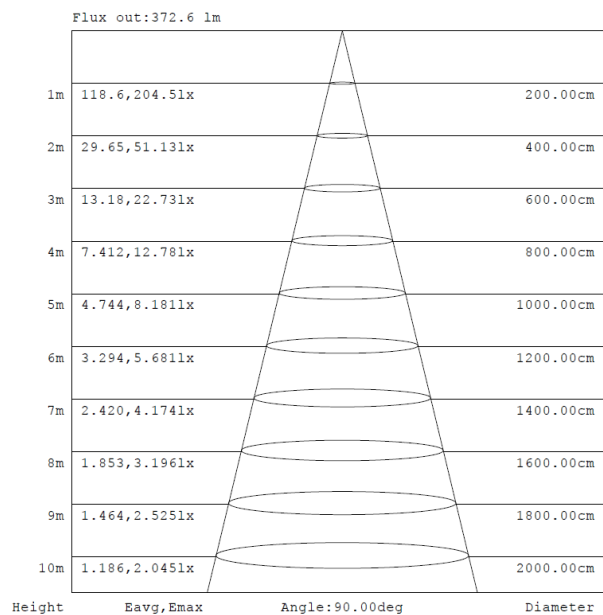
**Total Beam Angle(°)**  
339.0

#### Illumination Plots

Model No.: PBCH36927XX

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

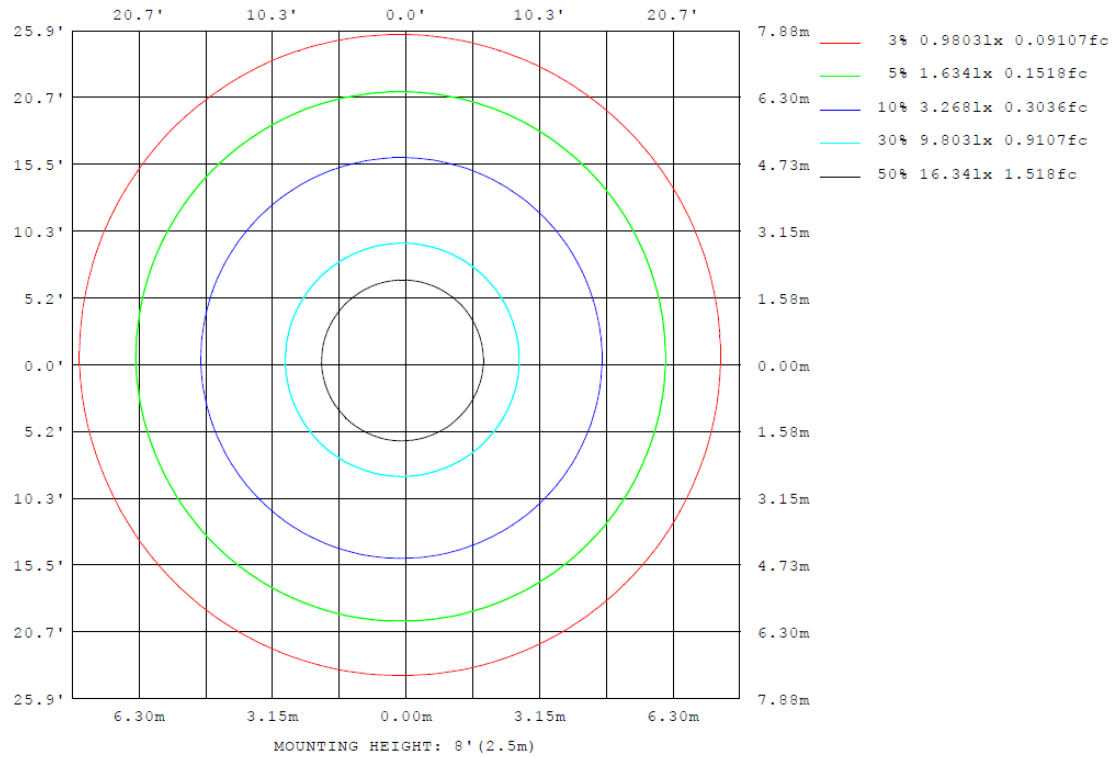
### RESULTS OF TESTS (cont'd)

**Test Condition: 120V, 60Hz For PBCH36927XX**

Model No.: PBCH36927XX

Mount Height: 2.5 m

Isoillumination Plot



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## TEST REPORT

### RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For PBCH36927XX

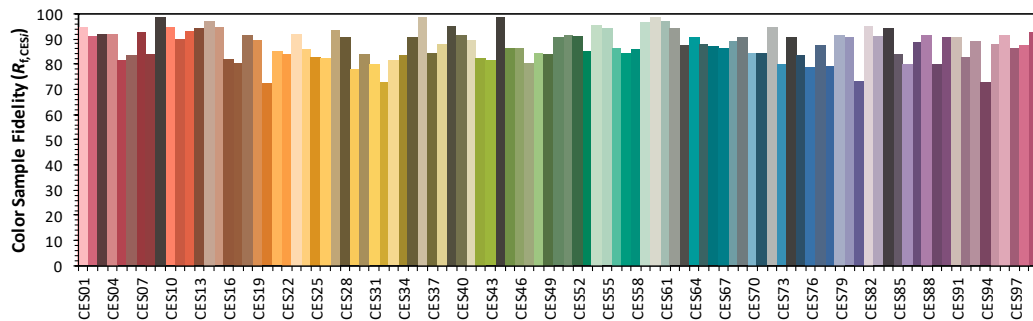
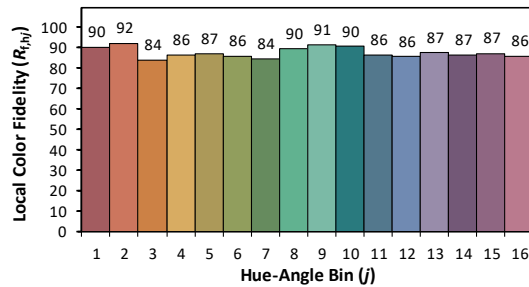
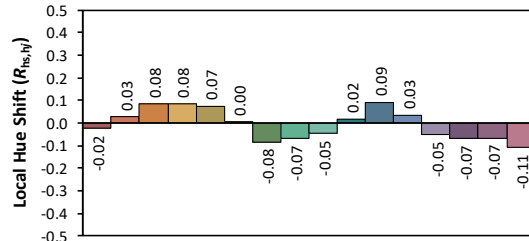
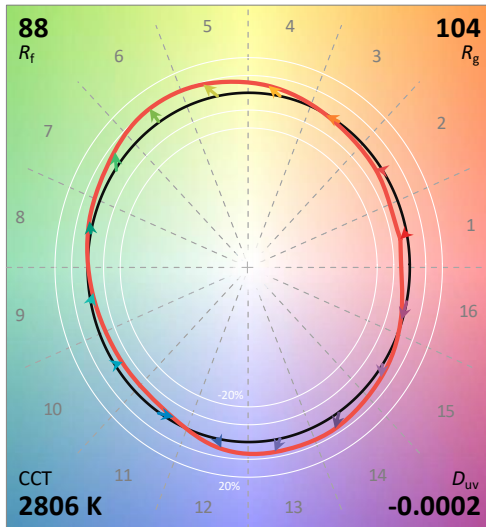
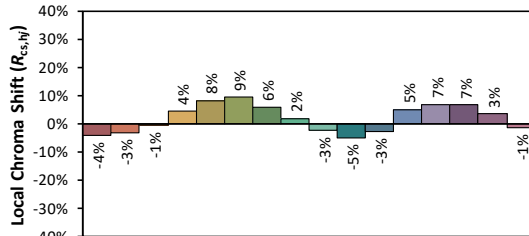
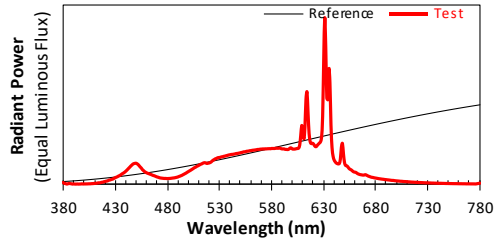
#### ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2024/7/31

Model: PBCH36927XX



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

$x$  0.4510  
 $y$  0.4079  
 $u'$  0.2580  
 $v'$  0.5250

CIE 13.3-1995  
(CRI)

$R_a$  92  
 $R_g$  67

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 PBCH36927XX**



**External view of PBCH36927XX**

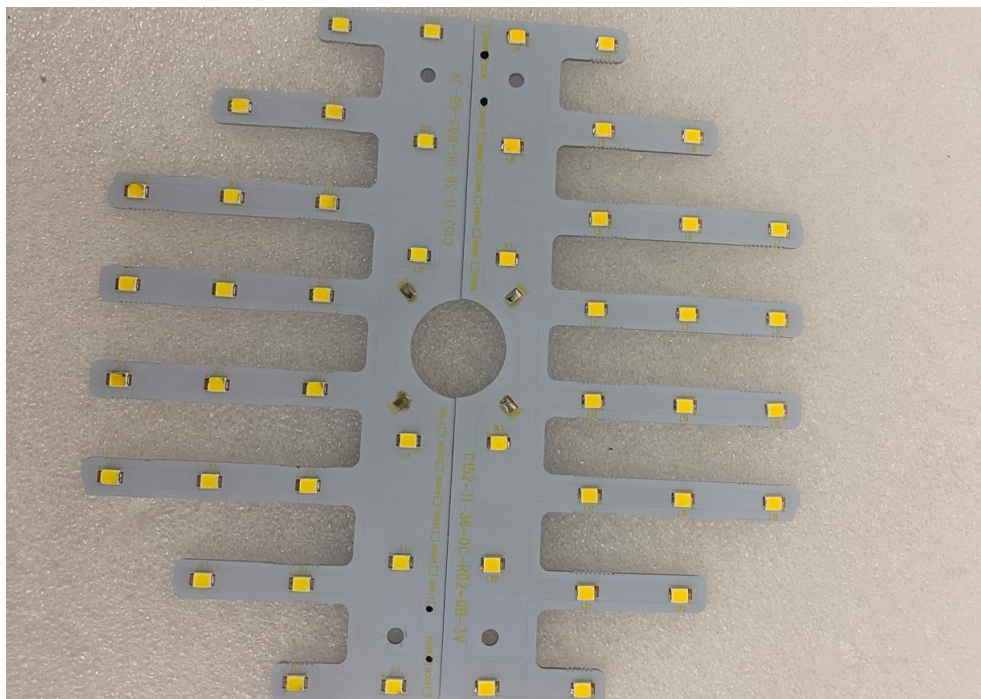
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## TEST REPORT

### PRODUCT PICTURE (not to scale)



View of LED driver ISDU-D56-30W



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 \*\*\*\*\*