

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-002

ISSUE DATE

07 April 2022

REVISION DATE

None

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

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Report No.: 220401100GZU-002

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700LSPHB68xx-LED927

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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TEST: Electrical and Photometric as required to the IES LM-79 test standard.

STATEMENT OF LIMITATION: The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

AUTHORIZATION: The testing performed was authorized by signed quote number: QGZ220329042.

STANDARDS USED: 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: 2008 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI C78.377:2017 Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one sample of model 700LSPHB68xx-LED927. The sample was received, in undamaged condition. The sample designation was S220401100-002.

DATES OF TESTS: 07 April 2022

ISSUED BY: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

TEST LOCATION: Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China

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TEST REPORT

SUMMARY

Model Number:	700LSPHB68xx-LED927 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

Criteria	Result
Total Lumen Output	558.5 lm
Total Power	10.4 W
Luminaire Efficacy	53.86 lm/W
S/MH(C0/180)	1.58
S/MH(C90/270)	1.53
Correlated Color Temperature (CCT)	2756 K
Color Rendering Index (CRI)	92
R9	74
Chromaticity Coordinate (x)	0.4563
Chromaticity Coordinate (y)	0.4112
Chromaticity Coordinate (u')	0.2599
Chromaticity Coordinate (v')	0.5270

Remark:

Measurement uncertainty for applicable tests has been established.

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TEST REPORT

EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Temperature Meter	RS210	SA047-126
Sensing - DC Power Supply	IT6122	SA063-12-09
Sensing- AC power source for Integrating Sphere System	APW-105N	SA063-12-05
Everfine - AC power source for Goniophotometer System	DPS1060	SA063-16-03
Two meter integrating sphere unit	Sensing – 2M	SA063-12-01
YOKOGAWA – Digital Power Meter	WT-210	SA011-122
Everfine – Goniophotometer	Go-R5000	SA063-16
KONICA MINOLTA - Illuminance meter	CX-2B_WL	SA063-16-01
Standard lamp	S82134	SA063-12-13
Standard lamp	S1320039	SA063-12-24
Standard lamp	D908S	SA063-16-05
Standard lamp	D215S	SA063-16-06

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 WT210.

Correction factor (self-absorption) has been considered when doing measurement.

Standard lamp used for Goniophotometer method:

Model: D908S

Current: 7.255A

Standard lamp used for integrating sphere:

Model: S82134

Current: 1.830

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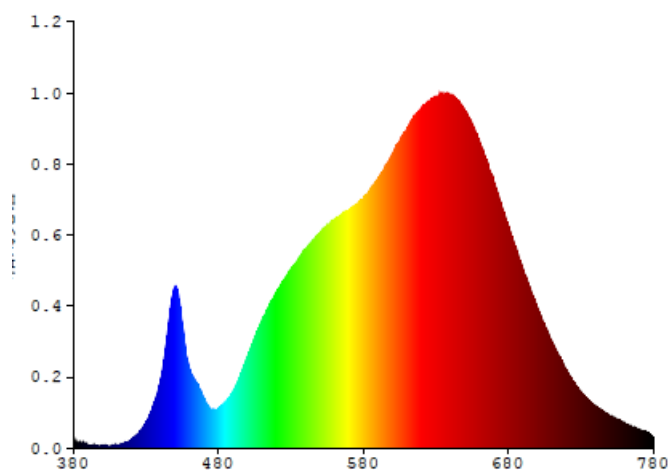
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0323	480	0.1055	580	0.6554	680	0.5799	780	0.0257
385	0.0125	485	0.1201	585	0.6776	685	0.5253		
390	0.0052	490	0.1481	590	0.7046	690	0.4675		
395	0.0023	495	0.1905	595	0.7404	695	0.4183		
400	0.0040	500	0.2397	600	0.7727	700	0.3666		
405	0.0045	505	0.2888	605	0.8035	705	0.3205		
410	0.0064	510	0.3346	610	0.8379	710	0.2785		
415	0.0125	515	0.3754	615	0.8683	715	0.2398		
420	0.0224	520	0.4093	620	0.8922	720	0.2039		
425	0.0373	525	0.4421	625	0.9092	725	0.1708		
430	0.0663	530	0.4691	630	0.9226	730	0.1466		
435	0.1109	535	0.4941	635	0.9271	735	0.1261		
440	0.1778	540	0.5220	640	0.9272	740	0.1087		
445	0.3047	545	0.5433	645	0.9119	745	0.0964		
450	0.4207	550	0.5635	650	0.8847	750	0.0849		
455	0.3209	555	0.5856	655	0.8497	755	0.0754		
460	0.2063	560	0.5996	660	0.8036	760	0.0658		
465	0.1692	565	0.6110	665	0.7528	765	0.0558		
470	0.1282	570	0.6254	670	0.6965	770	0.0480		
475	0.1005	575	0.6390	675	0.6249	775	0.0407		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

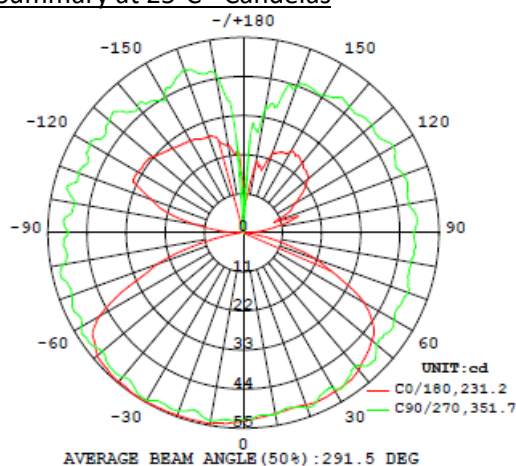
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit y	Chromaticit y	Chromaticit y	Chromaticit y
					Coordinate (x)	Coordinate (y)	Coordinate (u')	Coordinate (v')
700LSPHB68xx-LED927								
S2204011 00-002	--	2756	92	74	0.4563	0.4112	0.2599	0.5270

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)
700LSPHB68xx-LED927							
S2204011 00-002	--	120.0	87.4	10.4	0.988	558.5	53.86

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	52.9	52.9	52.8	52.6	52.6
5	52.2	52.3	51.5	51.3	51.5
10	51.7	51.0	51.4	51.4	51.7
15	51.2	50.9	50.6	50.4	50.8
20	51.5	51.2	50.2	51.7	52.4
25	51.8	51.4	51.6	50.4	50.7
30	51.5	50.3	52.0	49.5	50.6
35	51.3	51.7	50.4	50.3	50.6
40	50.4	52.0	51.3	48.6	49.0
45	48.8	49.0	49.3	50.9	51.3
50	47.2	47.9	50.4	49.5	48.8
55	44.4	47.3	49.4	49.2	49.3
60	39.1	45.4	48.7	49.0	49.0
65	29.6	41.7	47.4	48.5	48.6
70	21.7	38.0	47.7	48.8	49.2
75	12.2	33.9	46.4	47.7	47.8
80	5.4	29.0	45.8	47.6	47.8
85	1.0	27.0	45.8	47.3	48.5
90	0.5	25.1	45.7	47.4	47.8
95	3.6	26.3	45.3	47.9	48.9
100	8.5	28.3	45.3	46.4	47.4
105	14.0	31.3	44.8	46.9	47.7
110	9.2	32.6	45.4	46.7	47.9
115	14.5	33.7	44.9	46.5	47.2
120	16.9	34.2	43.5	47.8	48.6
125	20.6	35.5	43.7	45.9	46.7
130	23.7	35.2	42.5	46.7	47.1
135	24.8	34.5	43.1	45.9	46.7
140	25.8	33.6	41.9	46.3	46.3
145	26.7	31.9	40.9	46.7	46.7
150	26.4	33.6	41.7	45.1	44.7
155	25.0	35.1	41.0	45.6	45.0
160	23.9	33.7	39.4	45.6	43.4
165	19.1	23.0	39.0	44.0	36.9
170	19.6	3.5	32.3	45.6	36.1
175	9.7	2.1	4.0	5.6	31.2
180	9.0	8.9	5.5	5.8	6.7

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700LSPHB68xx-LED927		
0-30	44.2	7.9
0-40	77.1	13.8
0-60	162.6	29.1
0-90	299.8	53.7
60-90	137.2	24.6
0-180	558.5	100

Beam Angle

Total Beam Angle (°)

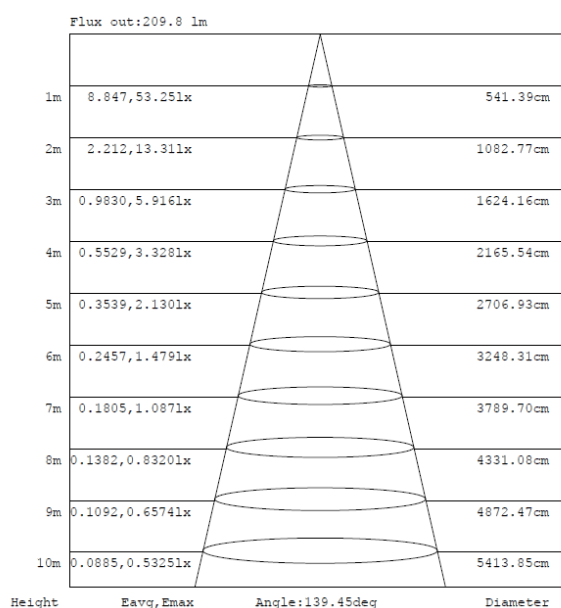
291.5

Illumination Plots

Model No.: 700LSPHB68xx-LED927

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

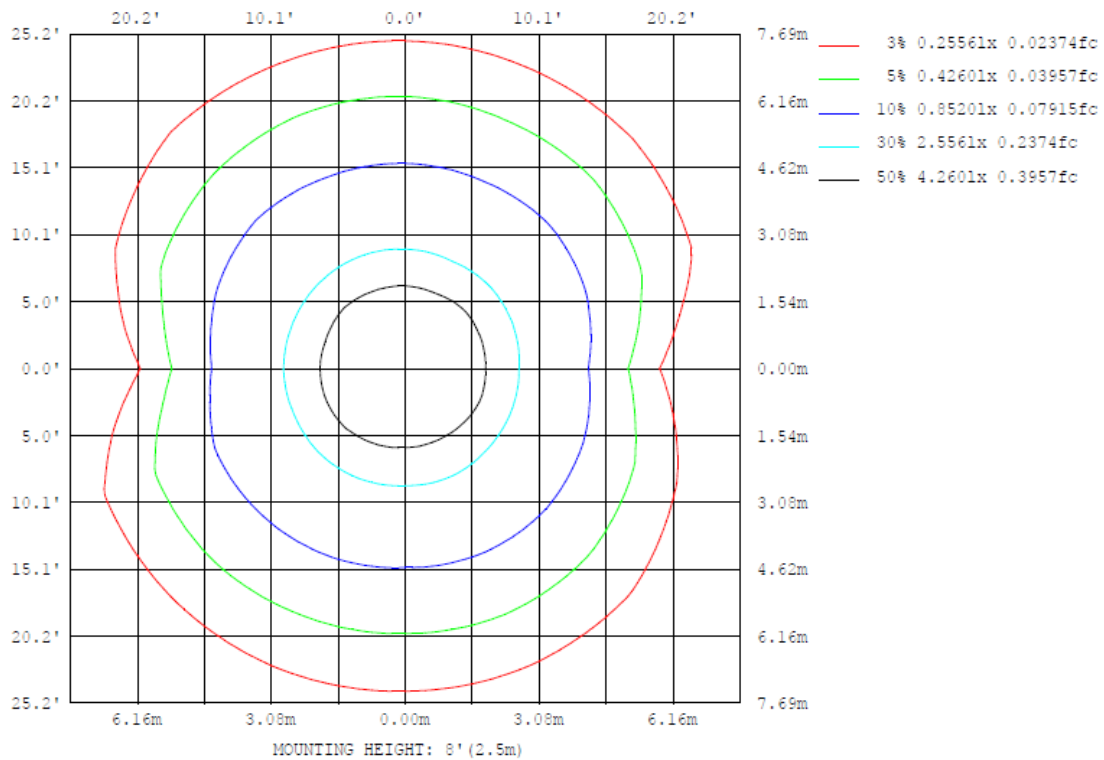
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

Model No.: 700LSPHB68xx-LED927

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700LSPHB68xx-LED927

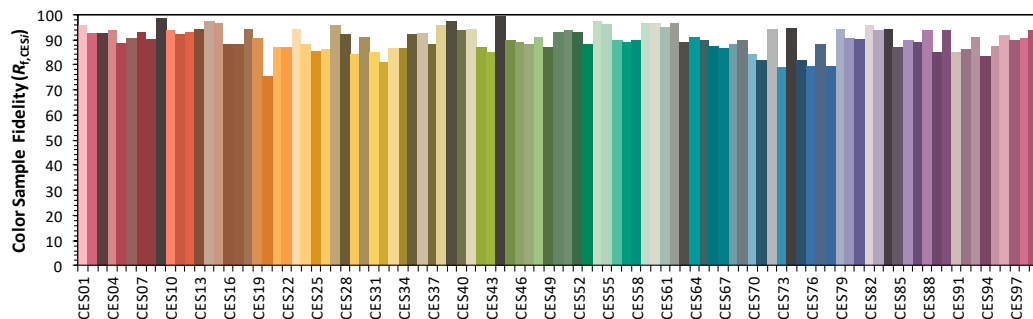
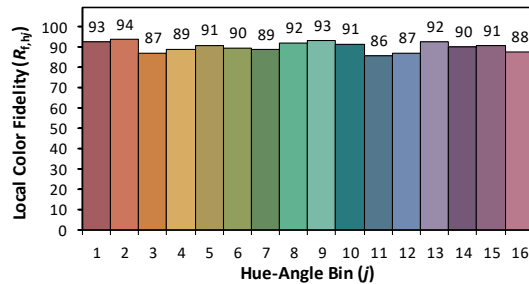
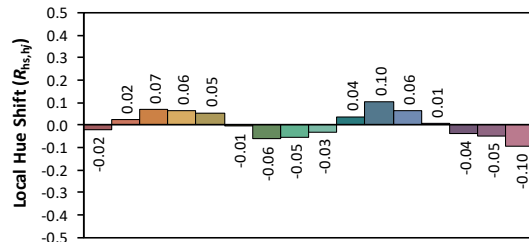
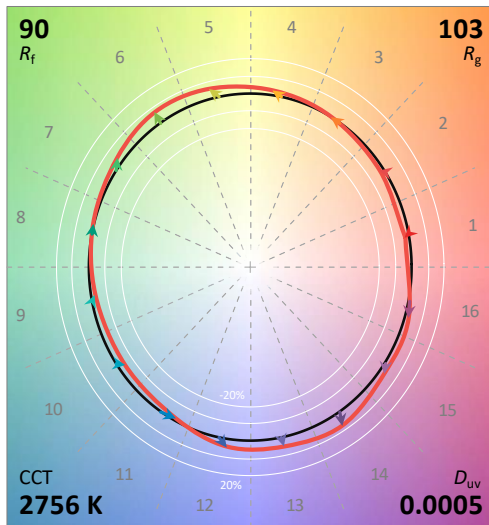
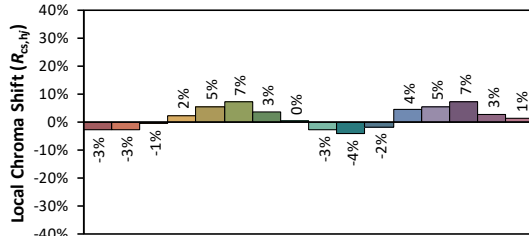
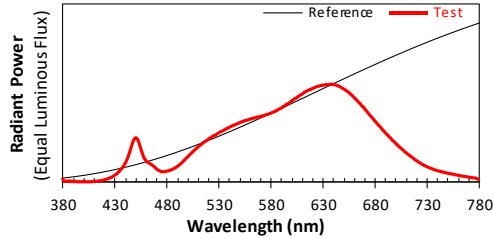
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/7

Model: 700LSPHB68xx-LED927



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

x 0.4563
 y 0.4112
 u' 0.2599
 v' 0.5270

CIE 13.3-1995
(CRI)
 R_a 92
 R_g 74

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

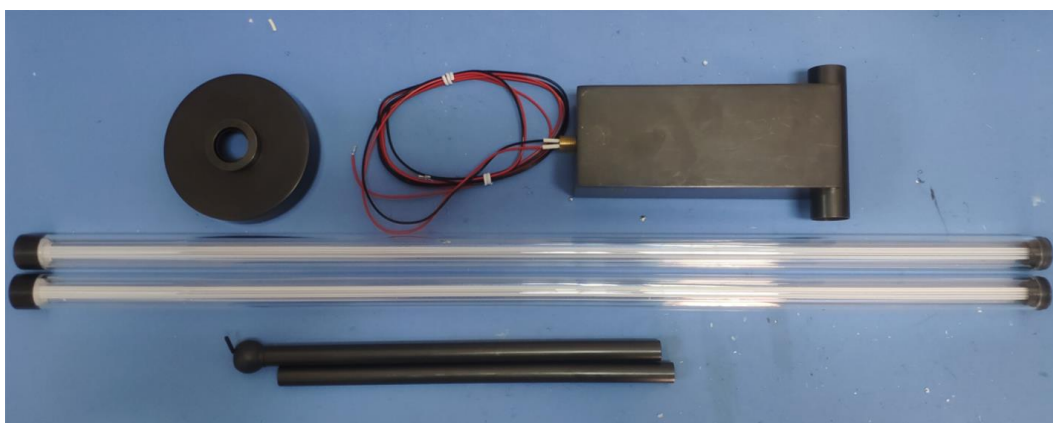
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700LSPHB68xx-LED927



External view of 700LSPHB68xx-LED927

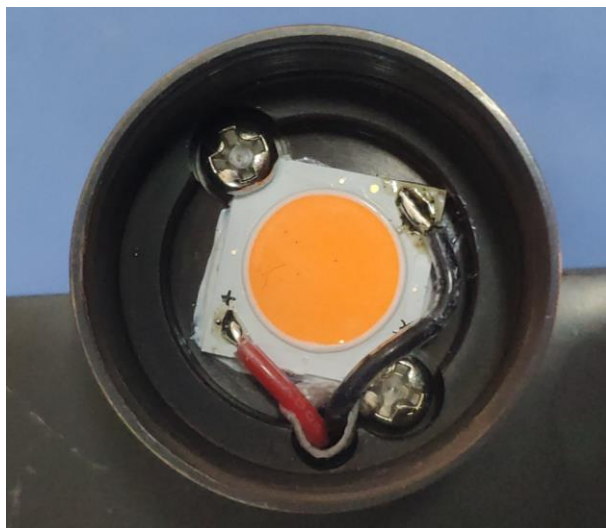
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TEST REPORT

PRODUCT PICTURE (not to scale)



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



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 *****