

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-003

ISSUE DATE

12 April 2022

REVISION DATE

None

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13

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Report No.: 220401100GZU-003

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700PHB24xx-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 700PHB24xx-LED927. The sample was received, in undamaged condition. The sample designation was S220401100-003.

DATES OF TESTS: 12 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:	700PHB24xx-LED927 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

Criteria	Result
Total Lumen Output	1077.8 lm
Total Power	22.2 W
Luminaire Efficacy	48.49 lm/W
S/MH(C0/180)	4.38
S/MH(C90/270)	4.33
Correlated Color Temperature (CCT)	2701 K
Color Rendering Index (CRI)	92
R9	73
Chromaticity Coordinate (x)	0.4607
Chromaticity Coordinate (y)	0.4122
Chromaticity Coordinate (u')	0.2623
Chromaticity Coordinate (v')	0.5281

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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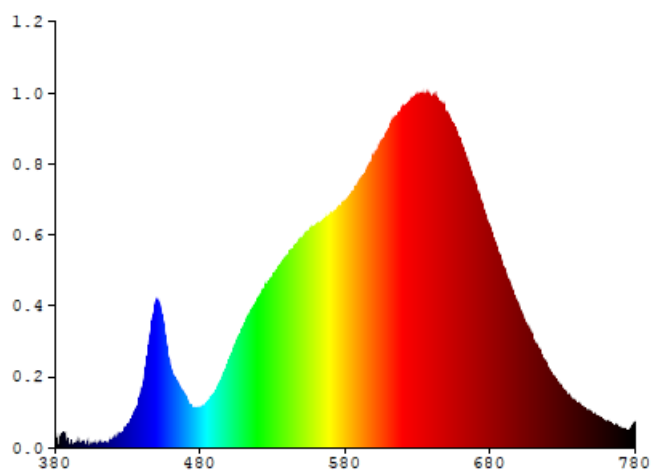
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0049	480	0.0220	580	0.1345	680	0.1202	780	0.0140
385	0.0076	485	0.0242	585	0.1399	685	0.1086		
390	0.0014	490	0.0300	590	0.1462	690	0.0982		
395	0.0002	495	0.0378	595	0.1522	695	0.0874		
400	0.0000	500	0.0477	600	0.1597	700	0.0771		
405	0.0017	505	0.0580	605	0.1674	705	0.0682		
410	0.0019	510	0.0668	610	0.1746	710	0.0589		
415	0.0018	515	0.0743	615	0.1801	715	0.0522		
420	0.0034	520	0.0820	620	0.1866	720	0.0437		
425	0.0071	525	0.0893	625	0.1898	725	0.0380		
430	0.0124	530	0.0934	630	0.1926	730	0.0317		
435	0.0198	535	0.0988	635	0.1931	735	0.0286		
440	0.0317	540	0.1043	640	0.1923	740	0.0240		
445	0.0581	545	0.1100	645	0.1893	745	0.0217		
450	0.0805	550	0.1145	650	0.1839	750	0.0191		
455	0.0656	555	0.1184	655	0.1771	755	0.0158		
460	0.0427	560	0.1226	660	0.1671	760	0.0139		
465	0.0339	565	0.1246	665	0.1562	765	0.0121		
470	0.0280	570	0.1286	670	0.1441	770	0.0105		
475	0.0205	575	0.1313	675	0.1300	775	0.0089		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

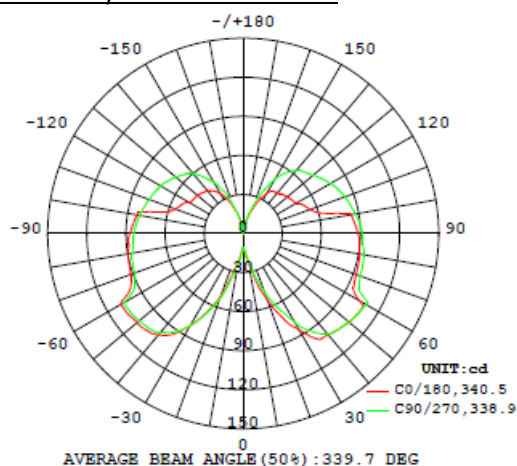
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700PHB24xx-LED927								
S2204011 00-003	--	2701	92	73	0.4607	0.4122	0.2623	0.5281

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	Lumen
						Luminous Flux (Lumens)	Efficacy (Lumens Per Watt)
700PHB24xx-LED927							
S2204011 00-003	--	120.0	188.5	22.2	0.982	1077.8	48.49

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	10.7	10.7	10.7	10.7	10.7
5	14.5	13.9	13.8	13.7	12.9
10	22.7	24.0	21.2	22.0	20.0
15	38.2	35.2	35.2	34.0	32.5
20	53.8	53.3	50.4	48.5	48.3
25	71.6	68.6	68.8	66.4	62.9
30	85.2	82.0	85.0	80.3	78.6
35	99.0	94.3	94.7	94.2	91.8
40	101.7	101.5	98.9	99.3	100.8
45	103.8	105.0	102.2	104.4	103.9
50	106.0	107.5	106.7	108.8	105.5
55	107.1	109.2	108.5	109.5	107.5
60	102.8	110.0	109.1	110.8	109.1
65	93.7	110.4	110.5	112.1	97.9
70	92.2	110.4	110.8	113.3	95.6
75	91.5	109.9	111.1	113.6	94.9
80	90.8	109.5	110.9	113.2	94.1
85	89.5	108.9	110.4	112.6	92.0
90	88.2	107.1	109.1	111.8	91.3
95	86.0	105.0	106.6	109.6	89.7
100	83.9	102.8	94.2	99.5	87.5
105	61.5	90.6	85.0	94.2	85.2
110	54.6	87.6	81.9	91.9	82.9
115	51.4	90.2	90.6	91.4	80.4
120	46.6	90.0	90.7	92.2	77.2
125	45.4	89.7	86.8	89.8	73.6
130	44.2	85.4	82.3	86.4	69.9
135	42.7	80.5	78.1	80.7	66.8
140	40.9	71.9	80.2	72.6	63.5
145	39.9	64.3	72.2	62.8	57.1
150	35.3	54.0	58.8	54.9	47.8
155	27.6	40.2	43.4	39.8	35.7
160	19.2	27.3	28.4	25.9	23.5
165	12.1	14.5	15.3	14.6	14.0
170	5.3	5.3	6.1	5.6	5.6
175	1.8	0.8	0.7	2.0	2.2
180	0.1	0.1	0.1	0.0	0.0

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700PHB24xx-LED927		
0-30	43.8	4.1
0-40	102.2	9.5
0-60	278.3	25.8
0-90	608.1	56.4
60-90	329.8	30.6
0-180	1077.8	100

Beam Angle

Total Beam Angle (°)

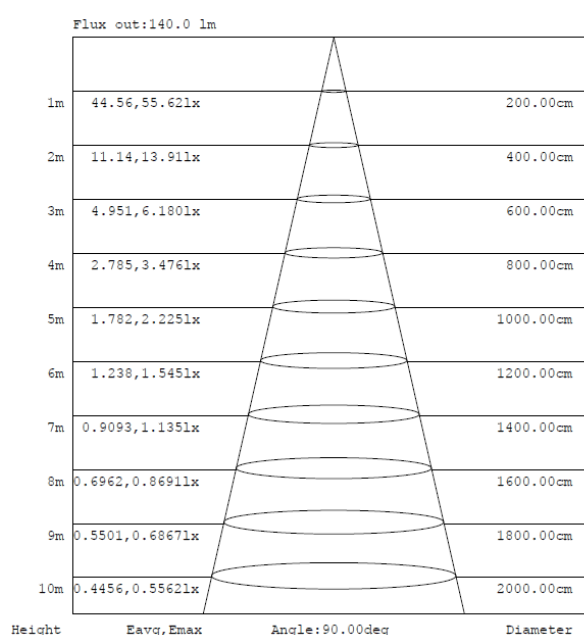
339.7

Illumination Plots

Model No.: 700PHB24xx-LED927

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

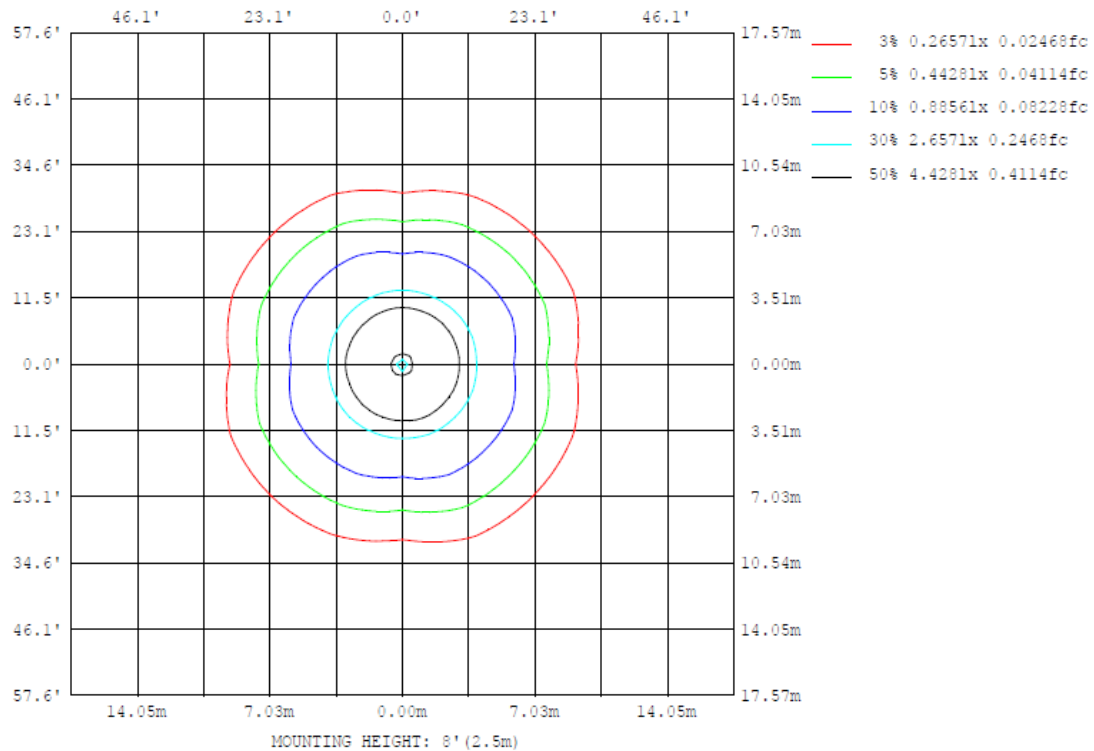
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

Model No.: 700PHB24xx-LED927

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700PHB24xx-LED927

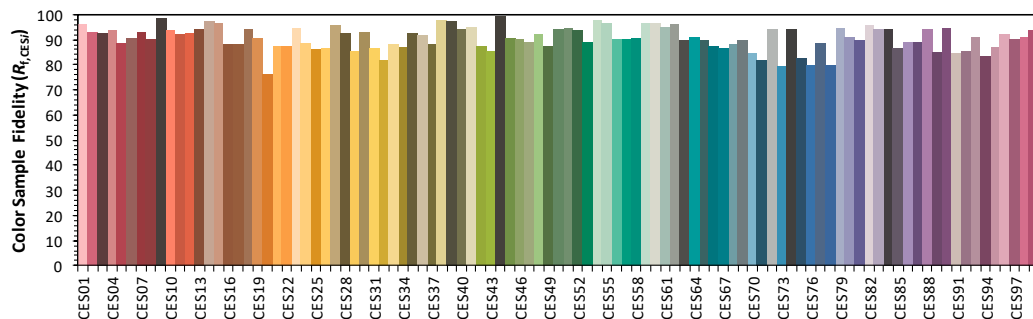
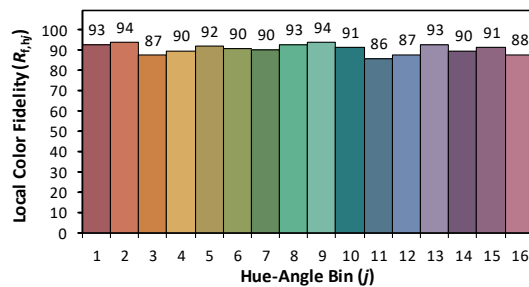
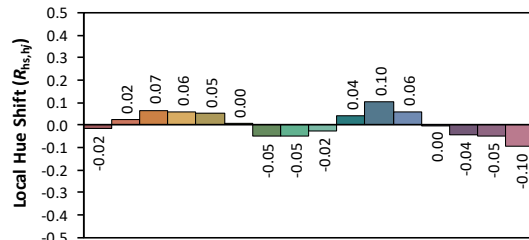
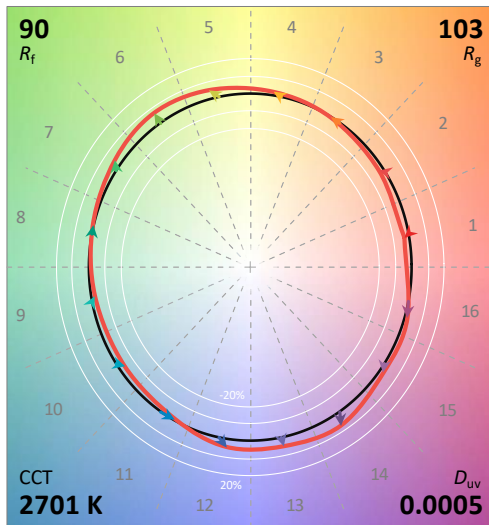
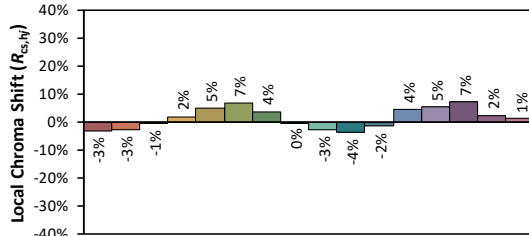
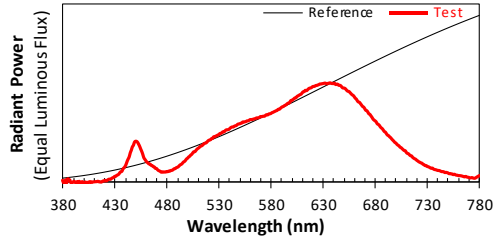
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/12

Model: 700PHB24xx-LED927



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

x 0.4607
 y 0.4122
 u' 0.2623
 v' 0.5281

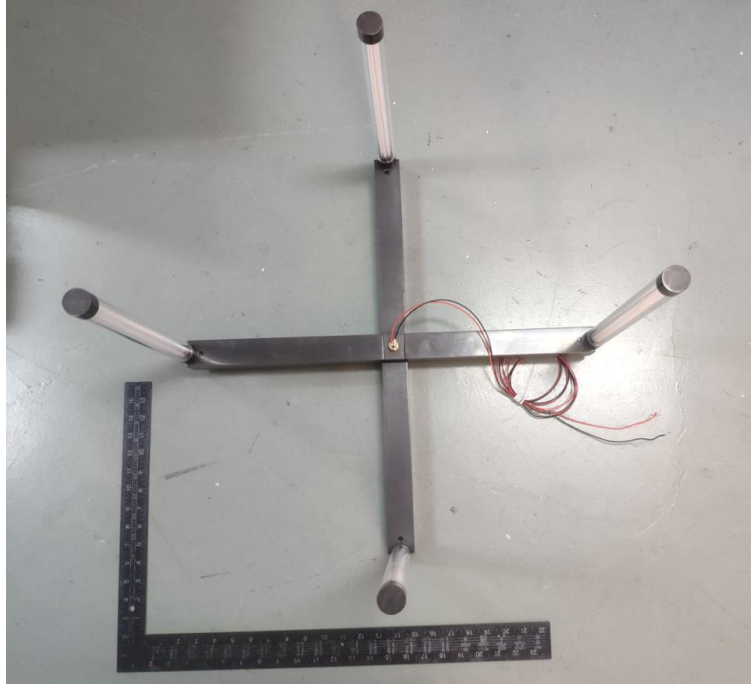
CIE 13.3-1995
(CRI)
 R_a 92
 R_g 73

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

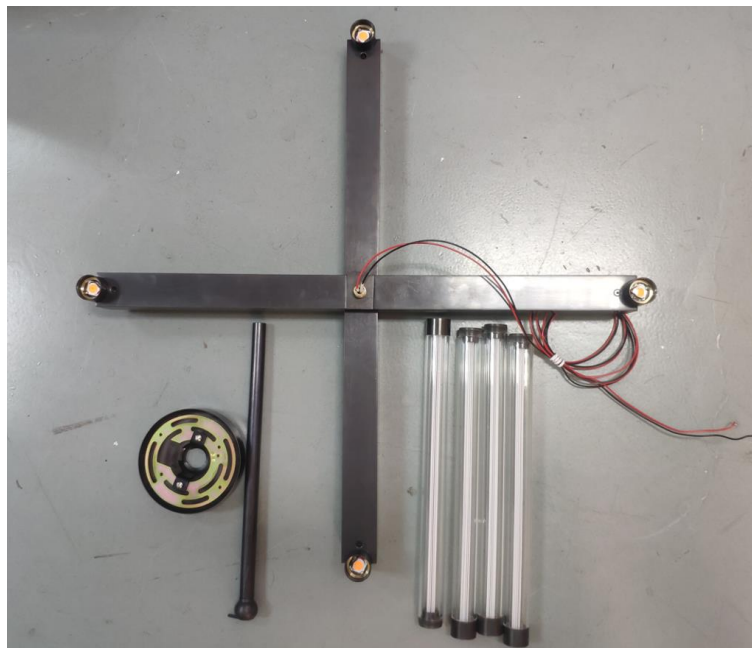
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700PHB24xx-LED927

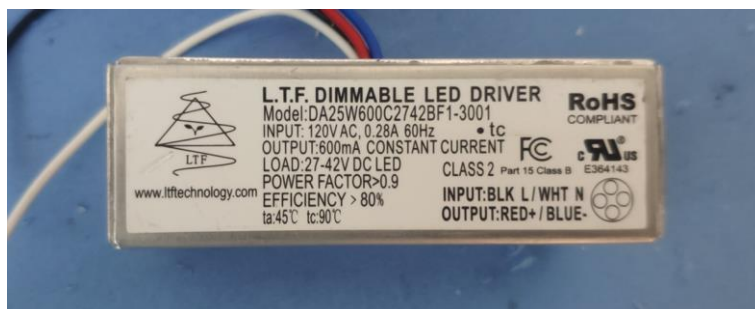


External view of 700PHB24xx-LED927

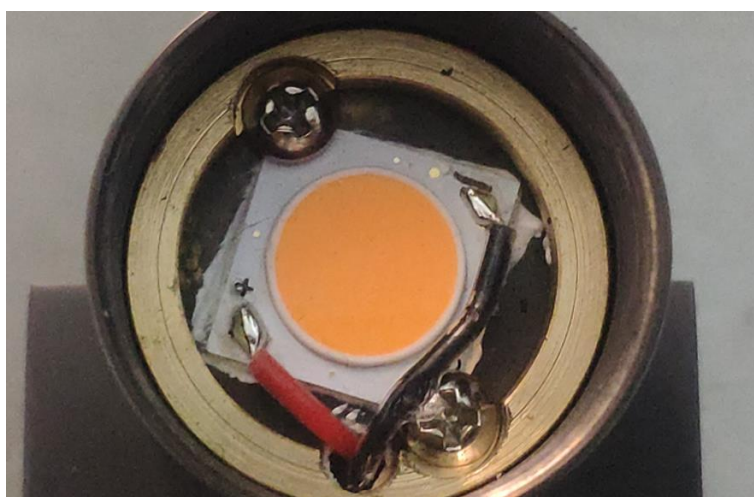
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver DA25W600C2742BF1-3001



View of LED

In Charge Of Tests:

Report Reviewed By

Done Ye

Done Ye
Engineer

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

***** End of Report *****