

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220706027GZU-006

ISSUE DATE

13 July 2022

REVISION DATE

None

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

Report format for LM-79:2008_F

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Report No.: 220706027GZU-006

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700TDPHB224x-LED927

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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<u>TEST:</u>	Electrical and Photometric as required to the IES LM-79 test standard.
<u>STATEMENT OF LIMITATION:</u>	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.
<u>AUTHORIZATION:</u>	The testing performed was authorized by signed quote number: QGZ220704064.
<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: 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
<u>DESCRIPTION OF SAMPLE:</u>	The client submitted one sample of model 700TDPHB224x-LED927. The sample was received, in undamaged condition. The sample designation was S220706027-007.
<u>DATES OF TESTS:</u>	13 July 2022
<u>ISSUED BY:</u>	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
<u>TEST LOCATION:</u>	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:	700TDPHB224x-LED927 (Remark: "X" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

Criteria	Result
Total Lumen Output	607.36 lm
Total Power	10.41 W
Luminaire Efficacy	58.37 lm/W
S/MH(C0/180)	5.06
S/MH(C90/270)	6.49
Correlated Color Temperature (CCT)	2489 K
Color Rendering Index (CRI)	92
R9	71
Chromaticity Coordinate (x)	0.4789
Chromaticity Coordinate (y)	0.4153
Chromaticity Coordinate (u')	0.2727
Chromaticity Coordinate (v')	0.5320

Remark:

Measurement uncertainty for applicable tests has been established.

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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	DS215S	SA063-16-06
Digital Power Meter	PLM3000	SA063-16-09
AC power source for Goniophotometer	PCR-1000WH	SA063-16-10
Temperature Meter	RC-HT601A	SA047-62

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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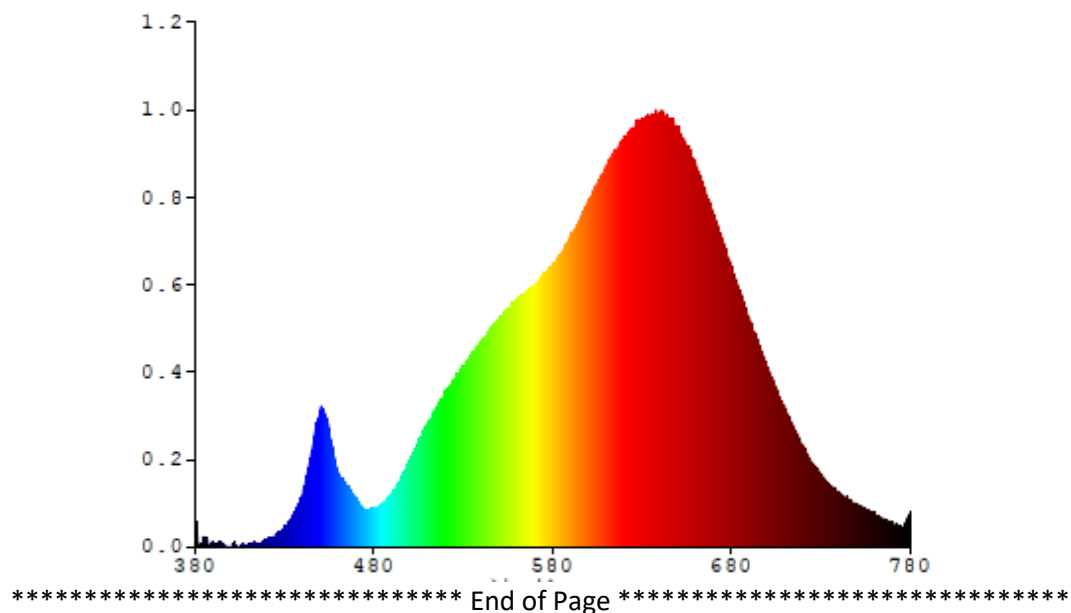
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0000	480	0.0096	580	0.0699	680	0.0693	780	0.0084
385	0.0022	485	0.0109	585	0.0728	685	0.0629		
390	0.0000	490	0.0130	590	0.0775	690	0.0562		
395	0.0000	495	0.0168	595	0.0803	695	0.0506		
400	0.0000	500	0.0214	600	0.0859	700	0.0445		
405	0.0000	505	0.0260	605	0.0898	705	0.0393		
410	0.0000	510	0.0305	610	0.0944	710	0.0343		
415	0.0002	515	0.0347	615	0.0979	715	0.0291		
420	0.0007	520	0.0379	620	0.1016	720	0.0248		
425	0.0027	525	0.0415	625	0.1036	725	0.0210		
430	0.0049	530	0.0447	630	0.1055	730	0.0177		
435	0.0078	535	0.0481	635	0.1071	735	0.0152		
440	0.0123	540	0.0507	640	0.1079	740	0.0136		
445	0.0229	545	0.0540	645	0.1063	745	0.0117		
450	0.0336	550	0.0567	650	0.1042	750	0.0104		
455	0.0280	555	0.0591	655	0.0992	755	0.0090		
460	0.0183	560	0.0610	660	0.0948	760	0.0081		
465	0.0147	565	0.0631	665	0.0890	765	0.0066		
470	0.0121	570	0.0648	670	0.0822	770	0.0060		
475	0.0088	575	0.0677	675	0.0746	775	0.0048		



TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

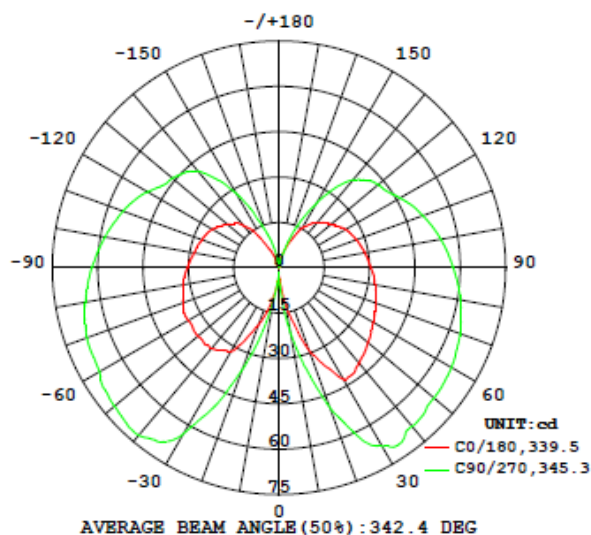
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700TDPHB224x-LED927								
S2207060 27-007	--	2489	92	71	0.4789	0.4153	0.2727	0.5320

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)
700TDPHB224x-LED927							
S2207060 27-007	--	120.0	87.7	10.41	0.988	607.36	58.37

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	2.6	2.6	2.6	2.6	2.6
5	4.9	6.7	8.2	9.3	9.9
10	12.4	16.1	19.3	20.7	21.5
15	19.1	30.4	33.4	34.0	34.5
20	29.1	42.7	44.7	47.2	49.2
25	35.7	56.1	58.1	59.7	61.2
30	42.5	66.1	66.9	66.7	68.1
35	42.7	69.1	69.5	69.0	70.5
40	41.2	69.8	70.5	69.7	68.4
45	39.9	71.5	69.7	68.4	68.0
50	38.5	72.6	68.0	66.4	66.9
55	37.2	72.5	66.4	64.7	66.5
60	36.0	71.6	64.9	63.6	65.8
65	35.0	70.2	63.7	62.6	64.8
70	34.0	68.8	62.2	61.3	63.7
75	33.1	67.0	61.1	59.9	62.4
80	32.3	65.4	59.6	58.5	60.9
85	31.5	63.6	58.0	57.2	59.3
90	30.4	61.8	56.4	55.7	57.6
95	29.6	60.1	54.9	54.3	56.1
100	28.9	58.1	53.4	52.8	54.4
105	28.0	55.8	51.7	51.3	52.6
110	27.3	53.8	50.0	50.1	50.6
115	26.4	51.5	48.3	48.5	48.7
120	25.5	48.7	46.9	47.1	46.3
125	24.0	43.9	45.3	45.2	43.9
130	22.5	39.7	43.1	43.1	42.9
135	21.2	36.1	39.5	40.9	40.9
140	19.5	31.9	35.1	37.2	37.9
145	17.6	27.1	29.7	32.0	32.2
150	15.2	21.7	23.4	25.4	24.5
155	11.1	13.4	17.1	16.2	17.4
160	7.9	6.1	10.1	9.2	10.5
165	4.8	2.9	5.6	5.6	4.6
170	2.2	0.7	2.0	1.6	1.3
175	0.4	0.3	0.1	0.1	0.1
180	0.1	0.1	0.1	0.1	0.1

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700TDPHB224x-LED927		
0-30	31.90	5.25
0-40	71.60	11.79
0-60	177.97	29.30
0-90	360.84	59.41
60-90	182.87	30.11
0-180	607.36	100

Beam Angle

Total Beam Angle (°)

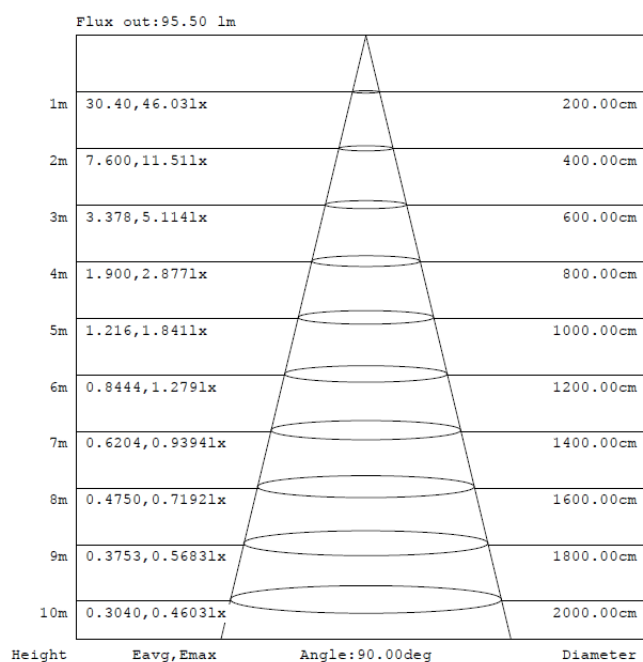
342.4

Illumination Plots

Model No.: 700TDPHB224x-LED927

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

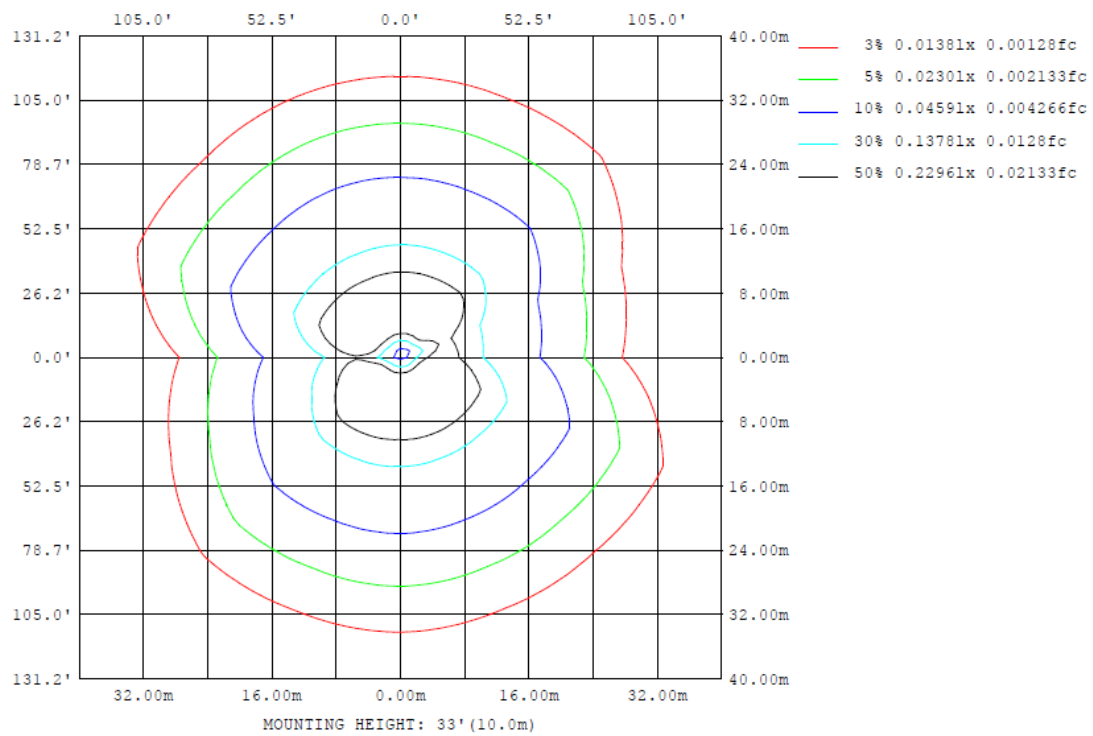
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

Model No.: 700TDPHB224x-LED927

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDPHB224x-LED927

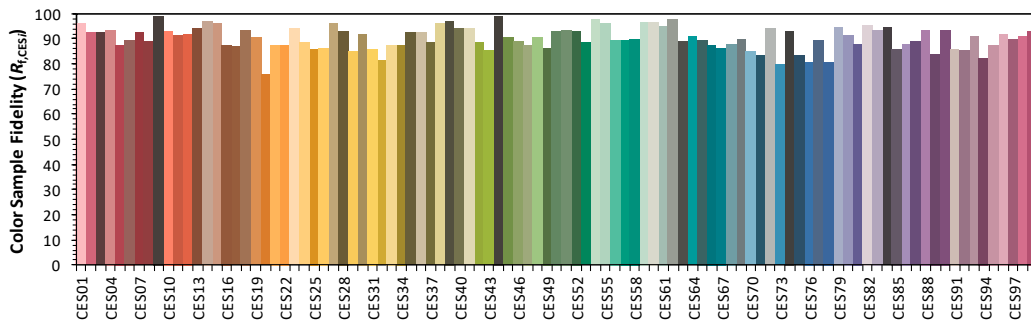
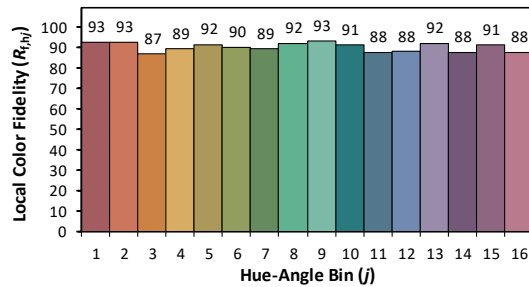
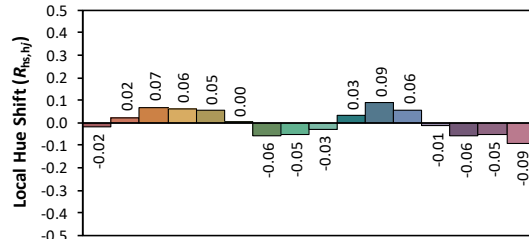
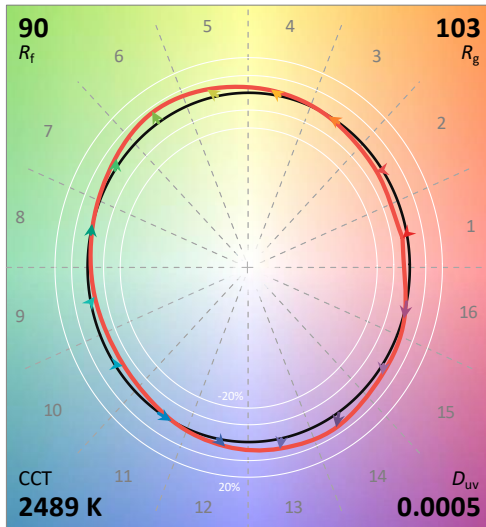
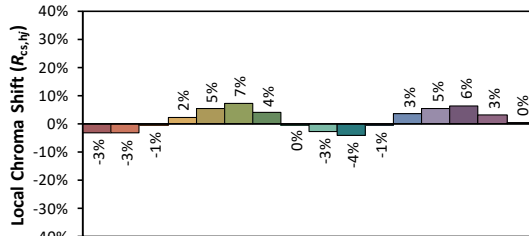
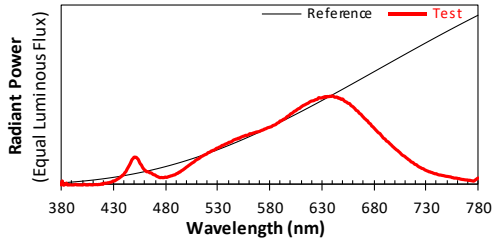
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/7/13

Model: 700TDPHB224x-LED927



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

x 0.4789
 y 0.4153
 u' 0.2727
 v' 0.5320

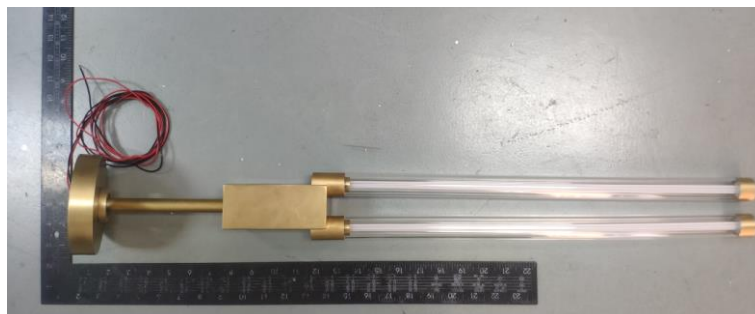
CIE 13.3-1995
(CRI)
 R_a 92
 R_g 71

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

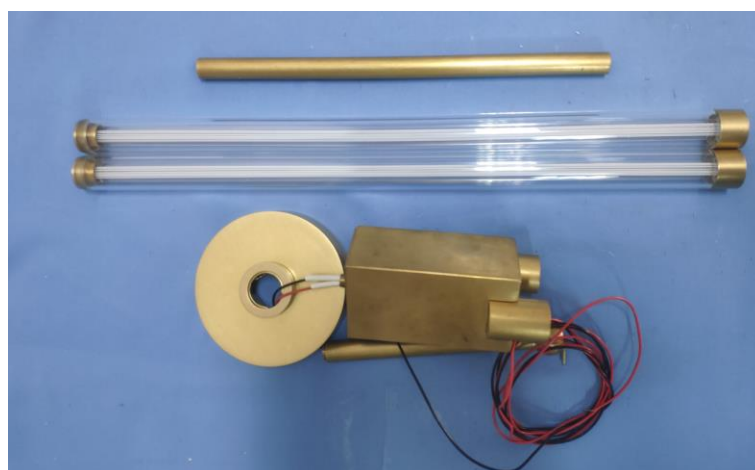
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700TDPHB224x-LED927

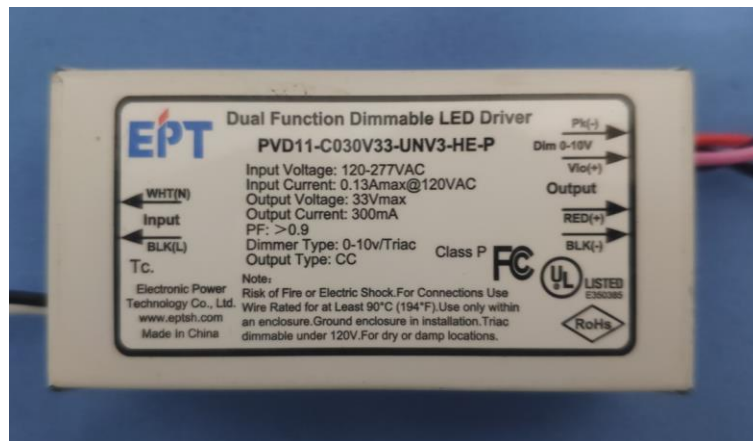


External view of 700TDPHB224x-LED927

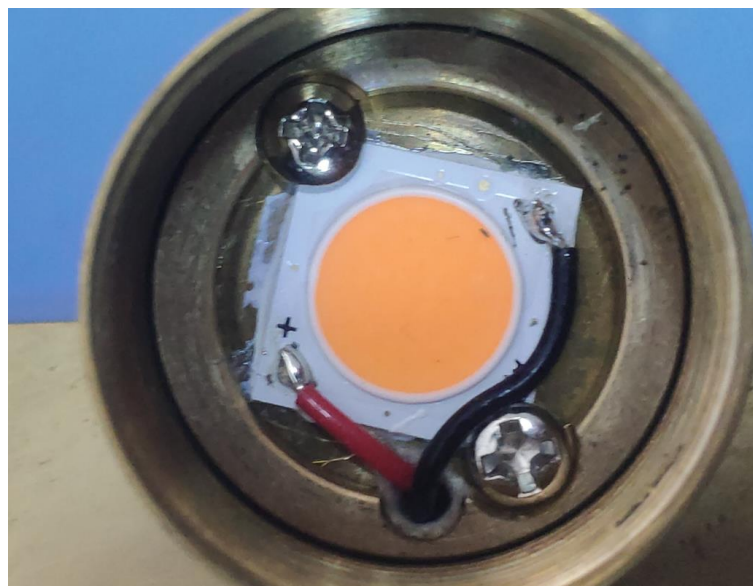
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TEST REPORT

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 *****