

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-001

ISSUE DATE

09 April 2022

REVISION DATE

None

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

Report format for LM-79:2008_F
© 2021 INTERTEK



Report No.: 220401100GZU-001

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700FMPHB28xx-LED927

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

7400 LINDER AVE. SKOKIE, IL, 60077

Email: Tgallagher@visualcomfortco.com

Phone No.: 8474104774

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 700FMPHB28xx-LED927. The sample was received, in undamaged condition. The sample designation was S220401100-001.

DATES OF TESTS: 09 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

***** End of Page *****

TEST REPORT

SUMMARY

Model Number:	700FMPHB28xx-LED927 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

Criteria	Result
Total Lumen Output	1068.2 lm
Total Power	22.4 W
Luminaire Efficacy	47.79 lm/W
S/MH(C0/180)	1.52
S/MH(C90/270)	1.50
Correlated Color Temperature (CCT)	2730 K
Color Rendering Index (CRI)	92
R9	73
Chromaticity Coordinate (x)	0.4577
Chromaticity Coordinate (y)	0.4106
Chromaticity Coordinate (u')	0.2611
Chromaticity Coordinate (v')	0.5270

Remark:

Measurement uncertainty for applicable tests has been established.

***** End of Page *****

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

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

When determining for test conclusion, measurement uncertainty of tests has been considered.

Throughout this report a ☐ comma ☒ point is used as the decimal separator.

***** End of Page *****

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

***** End of Page *****

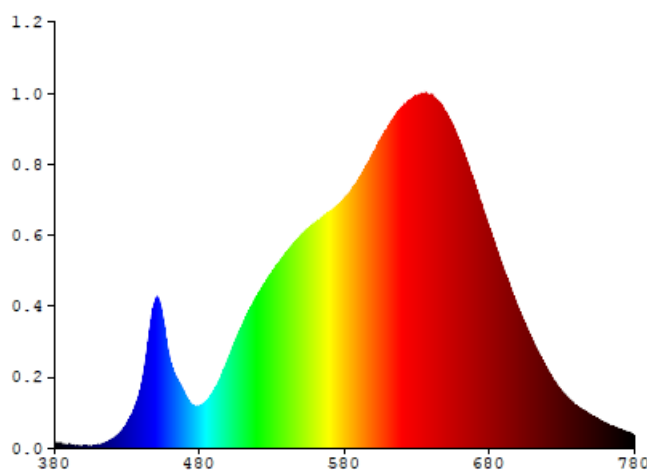
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0424	480	0.2222	580	1.3315	680	1.1711	780	0.0676
385	0.0179	485	0.2516	585	1.3806	685	1.0597		
390	0.0175	490	0.3052	590	1.4402	690	0.9487		
395	0.0065	495	0.3812	595	1.5107	695	0.8478		
400	0.0094	500	0.4788	600	1.5796	700	0.7441		
405	0.0087	505	0.5747	605	1.6483	705	0.6549		
410	0.0152	510	0.6632	610	1.7137	710	0.5688		
415	0.0258	515	0.7462	615	1.7743	715	0.4919		
420	0.0467	520	0.8164	620	1.8227	720	0.4193		
425	0.0791	525	0.8788	625	1.8598	725	0.3553		
430	0.1302	530	0.9388	630	1.8776	730	0.3026		
435	0.2051	535	0.9899	635	1.8937	735	0.2608		
440	0.3370	540	1.0426	640	1.8867	740	0.2277		
445	0.5817	545	1.0941	645	1.8510	745	0.1982		
450	0.7963	550	1.1384	650	1.7954	750	0.1741		
455	0.6718	555	1.1734	655	1.7190	755	0.1523		
460	0.4542	560	1.2033	660	1.6239	760	0.1320		
465	0.3576	565	1.2328	665	1.5223	765	0.1150		
470	0.2836	570	1.2644	670	1.4058	770	0.0982		
475	0.2280	575	1.2950	675	1.2651	775	0.0841		



***** End of Page *****

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

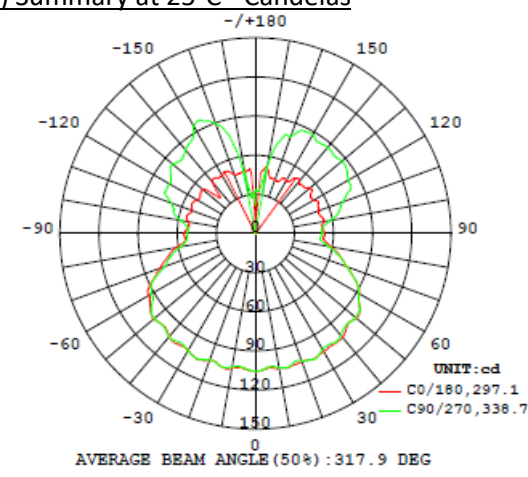
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700FMPHB28xx-LED927								
S2204011 00-001	--	2730	92	73	0.4577	0.4106	0.2611	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	Lumen
						Luminous Flux (Lumens)	Efficacy (Lumens Per Watt)
700FMPHB28xx-LED927							
S2204011 00-001	--	120.0	190.0	22.4	0.980	1068.2	47.79

Intensity (Candlepower) Summary at 25°C - Candelas



***** End of Page *****

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	105.8	105.8	105.7	105.7	105.6
5	103.8	103.6	102.9	103.2	103.0
10	105.1	102.8	100.4	102.9	104.7
15	105.4	102.3	104.3	102.8	104.6
20	104.5	101.8	104.3	100.3	104.0
25	106.2	104.5	101.5	104.2	106.3
30	104.4	103.8	103.2	103.2	102.9
35	104.0	102.2	105.3	101.0	102.7
40	103.9	102.9	101.6	103.7	102.0
45	99.8	103.3	102.6	101.1	98.7
50	100.9	100.8	103.2	99.9	100.4
55	97.4	102.8	100.6	100.5	97.8
60	92.1	96.9	102.0	97.0	91.6
65	84.7	98.0	99.7	96.3	84.5
70	74.7	93.4	100.1	89.2	74.9
75	67.4	89.8	101.2	86.3	66.6
80	59.1	88.1	99.9	80.6	57.3
85	52.9	77.1	83.9	70.8	50.2
90	52.8	60.4	64.6	55.0	51.4
95	51.6	74.8	84.0	73.9	51.6
100	53.5	74.2	83.6	77.1	58.7
105	51.8	73.4	83.1	81.1	66.5
110	51.8	83.7	83.3	84.5	71.1
115	53.2	89.8	85.4	87.7	80.4
120	51.1	88.7	85.6	87.0	82.6
125	51.9	94.0	86.2	91.2	85.5
130	54.0	91.6	91.9	90.9	86.3
135	51.7	91.8	90.0	90.5	85.1
140	52.5	93.7	88.8	93.0	86.1
145	52.0	75.9	94.2	87.5	85.3
150	46.5	71.1	92.6	93.3	87.7
155	45.4	66.1	87.6	96.4	87.3
160	44.3	51.9	81.1	95.8	79.7
165	43.8	47.4	74.4	82.8	73.9
170	51.3	48.9	50.9	49.7	52.7
175	46.3	26.1	27.5	30.7	33.2
180	7.0	4.4	2.5	23.5	32.9

***** End of Page *****

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700FMPHB28xx-LED927		
0-30	86.9	8.1
0-40	151.5	14.2
0-60	320.1	30.0
0-90	583.6	54.6
60-90	263.5	24.6
0-180	1068.2	100

Beam Angle

Total Beam Angle (°)

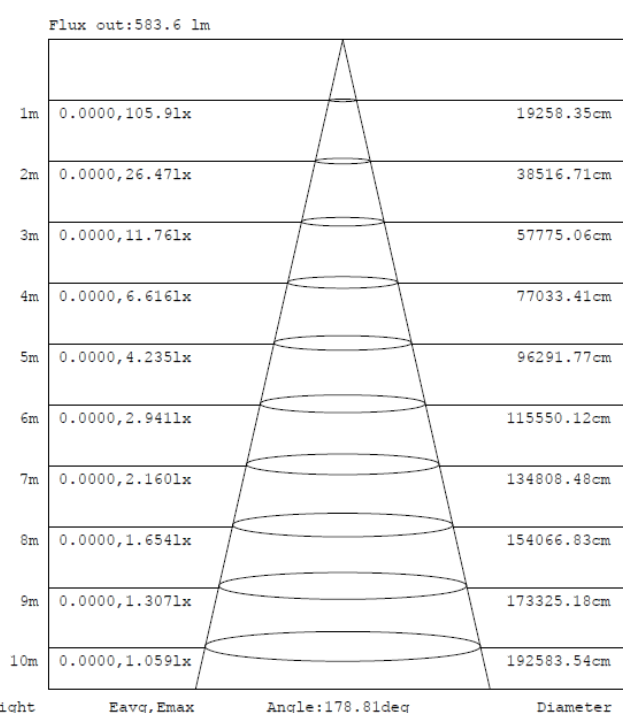
317.9

Illumination Plots

Model No.: 700FMPHB28xx-LED927

Mount Height: 2.5 m

Illuminance - Cone of Light



***** End of Page *****

TEST REPORT

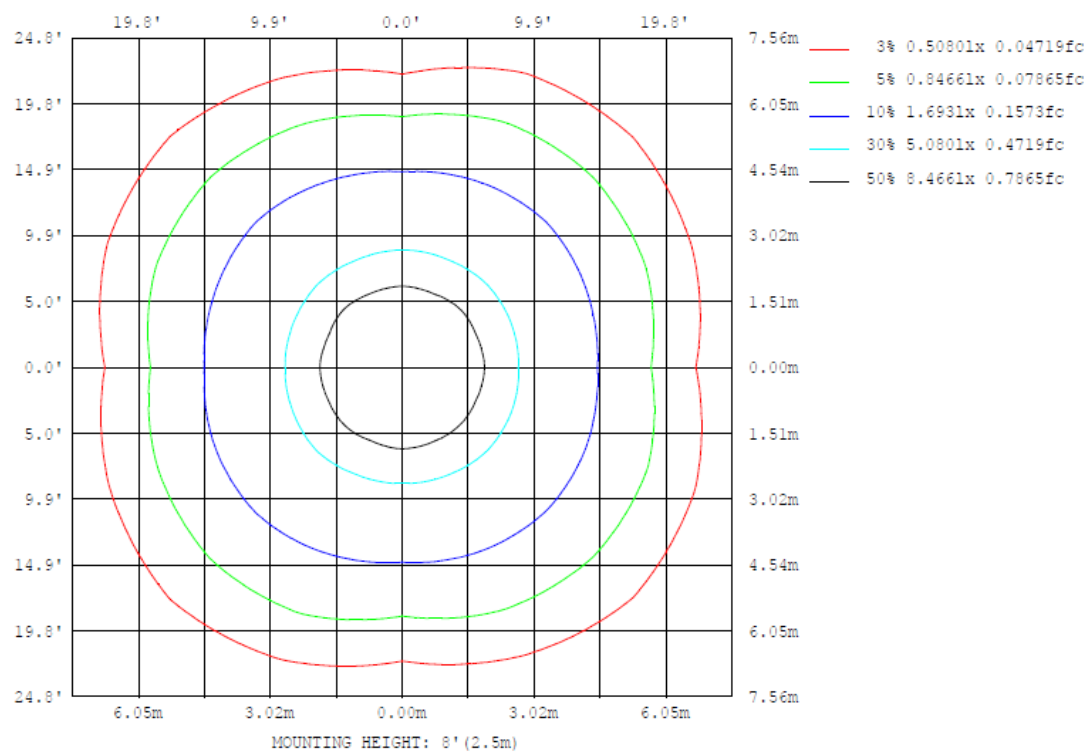
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

Model No.: 700FMPHB28xx-LED927

Mount Height: 2.5 m

Isoillumination Plot



***** End of Page *****

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMPHB28xx-LED927

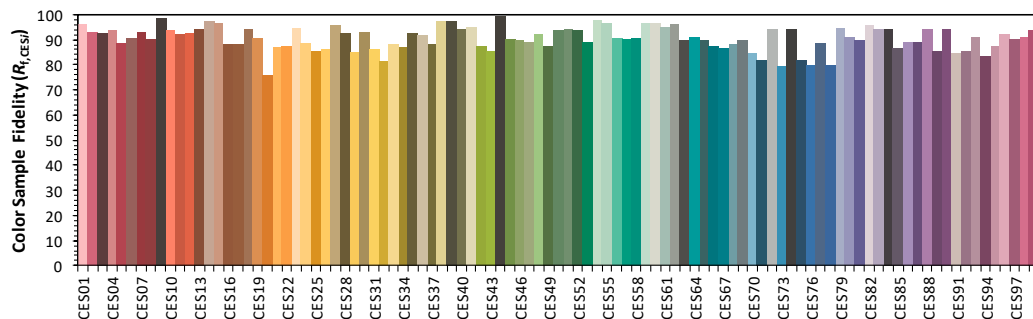
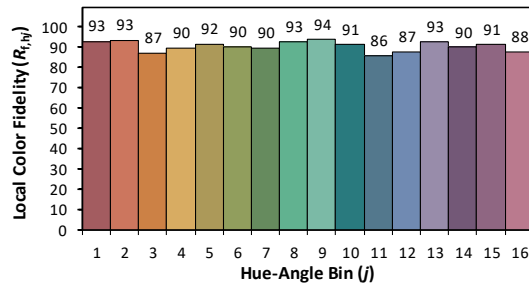
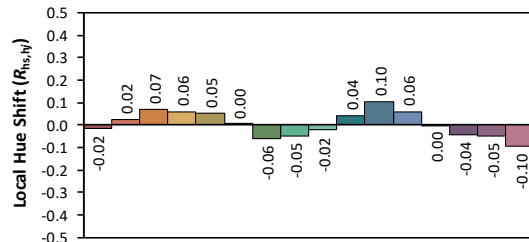
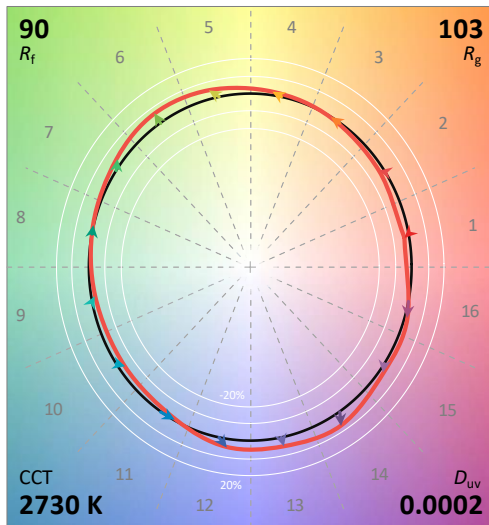
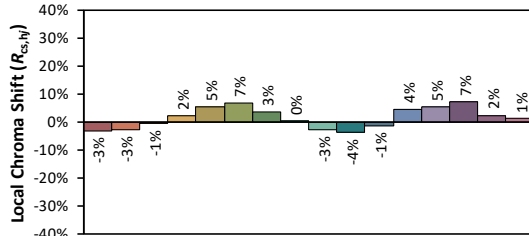
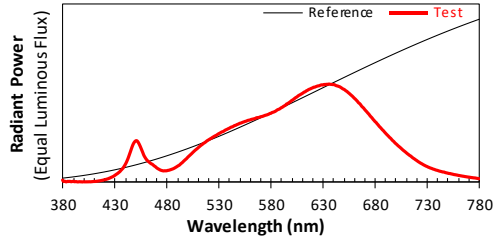
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/9

Model: 700FMPHB28xx-LED927



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

x 0.4577
 y 0.4106
 u' 0.2611
 v' 0.5270

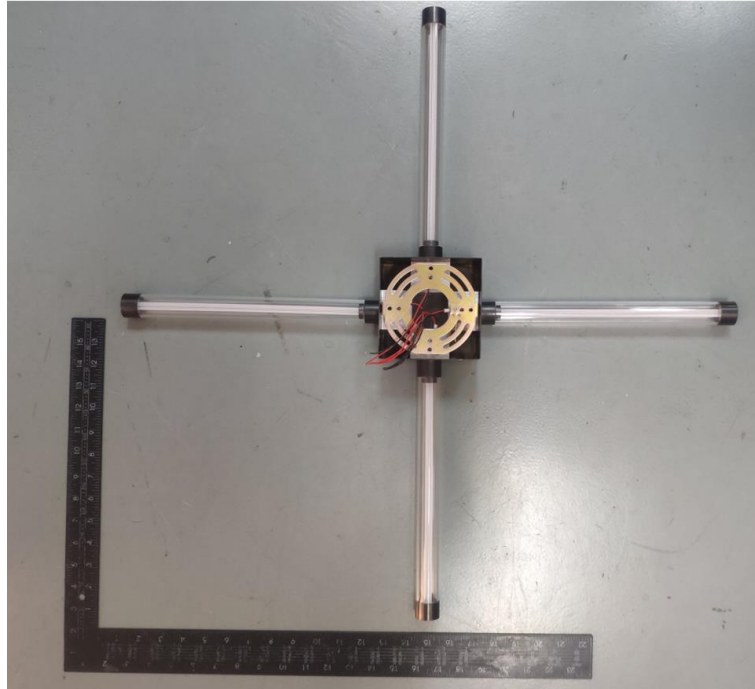
CIE 13.3-1995
(CRI)
 R_a 92
 R_g 73

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

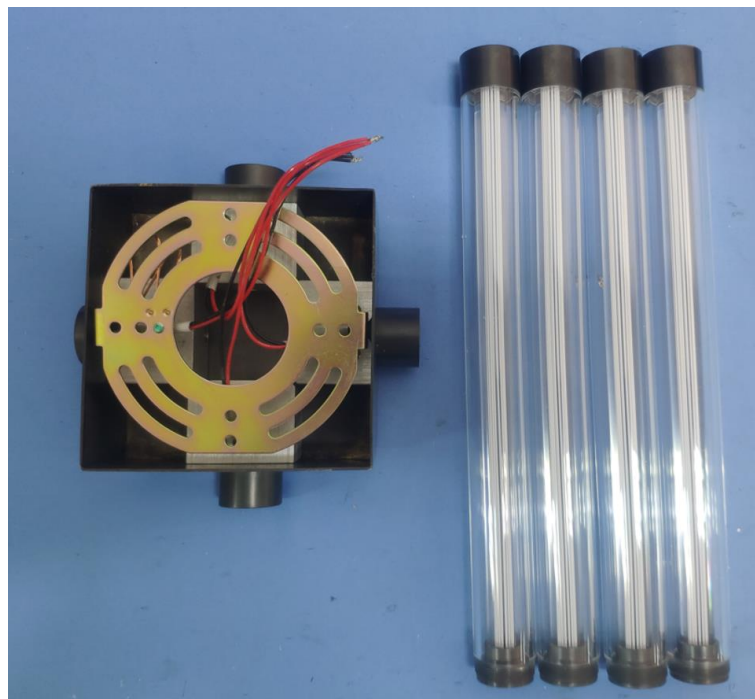
***** End of Page *****

TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700FMPHB28xx-LED927



External view of 700FMPHB28xx-LED927

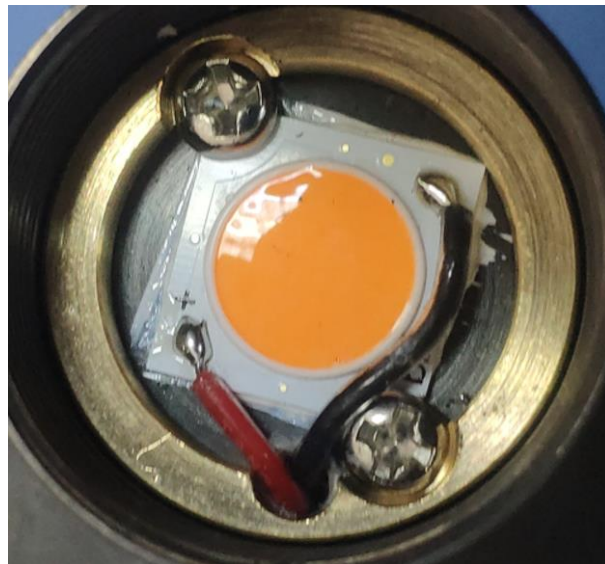
***** End of Page *****

TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver DA25W600C2742BF1-3001



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 *****