

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

221205125GZU-001

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29 January 2023

REVISION DATE

None

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13

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Report No.: 221205125GZU-001

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700FMEBL2*

(Remark: "*" denote other appearance colors for the characters that change)

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

7400 LINDER AVE. SKOKIE, IL, 60077

Email: Tgallagher@visualcomfortco.com
Phone No.: 8474104774

<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: QGZ221129088.
<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 700FMEBL2*. The sample was received, in undamaged condition. The sample designation was S221205125-001.
<u>DATES OF TESTS:</u>	07 January 2023
<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:	700FMEBL2*
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700FMEBL2*

Criteria	Result
Total Lumen Output	1037.1 lm
Total Power	10.6 W
Luminaire Efficacy	97.7 lm/W
S/MH(C0/180)	1.08
S/MH(C90/270)	1.14
Correlated Color Temperature (CCT)	2767 K
Color Rendering Index (CRI)	90
R9	64
Chromaticity Coordinate (x)	0.4541
Chromaticity Coordinate (y)	0.4087
Chromaticity Coordinate (u')	0.2596
Chromaticity Coordinate (v')	0.5258

Remark:

Measurement uncertainty for applicable tests has been established.

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

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	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 EVERFINE - Digital Power Meter., model PLM3000.

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

Standard lamp used for Goniophotometer method:

Model: D215S

Current: 4.809A

Standard lamp used for integrating sphere:

Model: S82134

Current: 1.830

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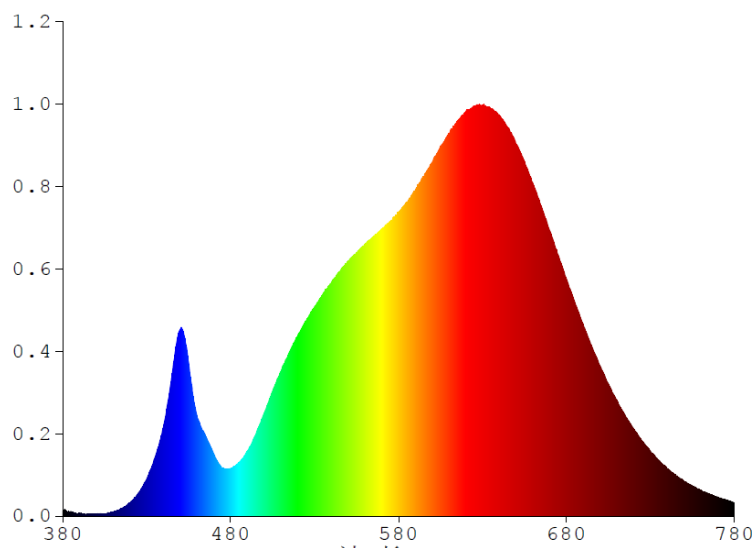
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700FMEBL2*

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0128	480	0.1014	580	0.6465	680	0.5023	780	0.0276
385	0.0091	485	0.1140	585	0.6676	685	0.4522		
390	0.0060	490	0.1392	590	0.6928	690	0.4051		
395	0.0044	495	0.1744	595	0.7225	695	0.3595		
400	0.0044	500	0.2190	600	0.7519	700	0.3185		
405	0.0055	505	0.2658	605	0.7868	705	0.2799		
410	0.0091	510	0.3085	610	0.8137	710	0.2446		
415	0.0163	515	0.3491	615	0.8395	715	0.2126		
420	0.0290	520	0.3827	620	0.8602	720	0.1846		
425	0.0490	525	0.4153	625	0.8709	725	0.1596		
430	0.0788	530	0.4453	630	0.8720	730	0.1364		
435	0.1248	535	0.4724	635	0.8649	735	0.1184		
440	0.1913	540	0.4966	640	0.8506	740	0.1008		
445	0.2993	545	0.5201	645	0.8244	745	0.0866		
450	0.3964	550	0.5418	650	0.7904	750	0.0747		
455	0.3200	555	0.5611	655	0.7514	755	0.0636		
460	0.2108	560	0.5781	660	0.7063	760	0.0550		
465	0.1697	565	0.5943	665	0.6581	765	0.0471		
470	0.1311	570	0.6100	670	0.6060	770	0.0402		
475	0.1027	575	0.6274	675	0.5427	775	0.0342		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL2*

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

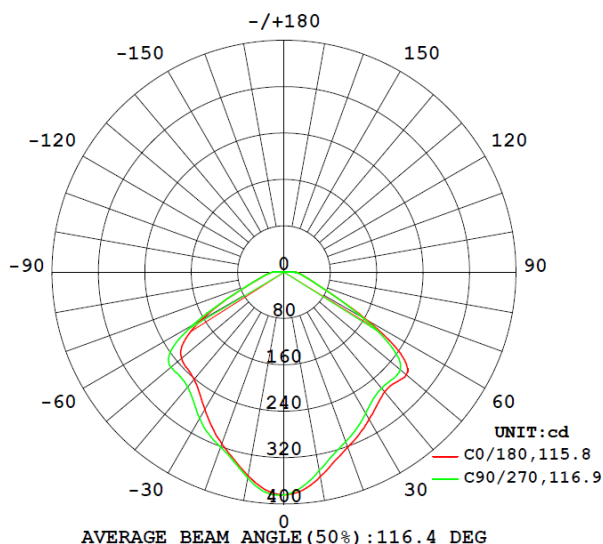
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700FMEBL2*								
S2212051 25-001	--	2767	90	64	0.4541	0.4087	0.2596	0.5258

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)
700FMEBL2*							
S2212051 25-001	--	120.2	89.3	10.6	0.989	1037.1	97.7

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL2*

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	384.2	384.2	384.2	384.2	384.2
5	376.9	375.2	373.1	371.6	371.0
10	358.6	355.0	351.4	349.0	348.1
15	337.8	333.0	329.3	326.8	326.6
20	321.6	315.3	311.0	309.4	311.1
25	307.8	300.2	295.4	294.5	297.0
30	293.5	284.7	281.1	281.3	281.5
35	279.9	273.5	273.0	272.7	267.9
40	270.0	270.4	273.8	270.2	261.9
45	270.2	275.8	282.8	275.4	262.5
50	275.2	278.7	285.3	276.2	261.6
55	245.0	239.5	241.4	235.9	228.3
60	164.2	156.6	156.1	155.8	156.9
65	93.5	89.9	89.3	90.0	92.6
70	58.7	58.8	58.6	58.4	59.1
75	43.3	42.9	42.6	42.5	42.7
80	32.7	32.5	32.5	32.5	32.8
85	25.4	24.7	24.7	24.5	24.5
90	19.0	18.7	18.5	18.4	18.1
95	13.3	13.1	12.8	12.6	12.4
100	6.7	8.0	7.8	7.2	7.5
105	3.1	4.4	4.2	3.3	3.9
110	1.2	2.0	1.8	1.6	1.5
115	0.4	0.5	0.4	0.4	0.4
120	0.2	0.2	0.2	0.2	0.2
125	0.2	0.2	0.2	0.2	0.2
130	0.3	0.3	0.3	0.3	0.3
135	0.3	0.3	0.3	0.3	0.4
140	0.4	0.4	0.4	0.4	0.4
145	0.4	0.5	0.5	0.5	0.5
150	0.5	0.5	0.5	0.5	0.5
155	0.5	0.5	0.5	0.6	0.5
160	0.5	0.5	0.6	0.6	0.6
165	0.5	0.5	0.6	0.6	0.6
170	0.5	0.5	0.5	0.5	0.5
175	0.5	0.5	0.5	0.5	0.5
180	0.5	0.5	0.5	0.5	0.5

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL2*

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700FMEBL2*		
0-30	268.3	25.9
0-40	437.1	42.2
0-60	836.9	80.7
0-90	1016.7	98.0
60-90	179.8	17.3
0-180	1037.1	100.0

Beam Angle

Total Beam Angle (°)

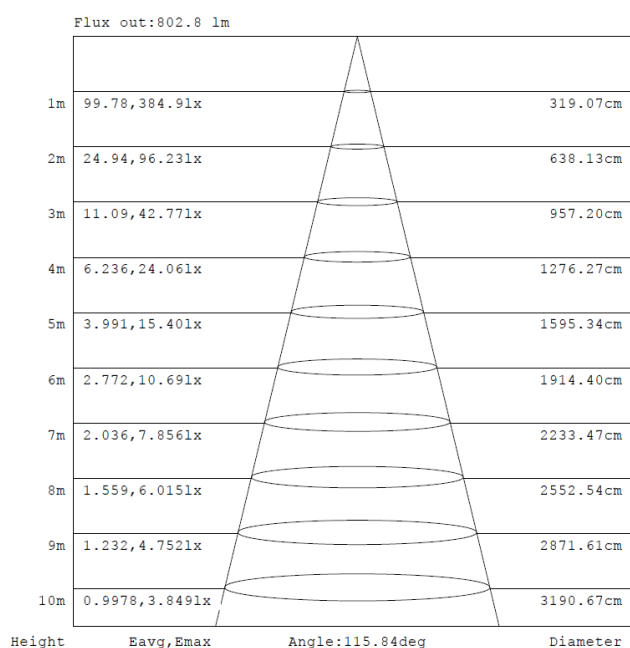
116.4

Illumination Plots

Model No.: 700FMEBL2*

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

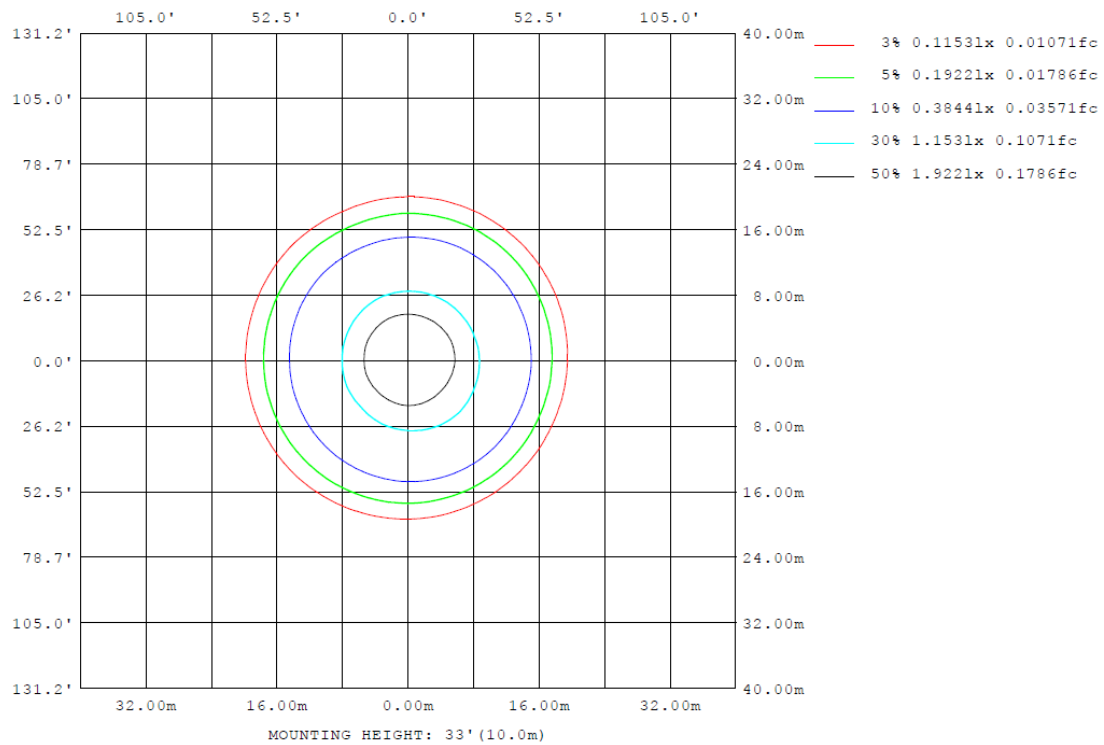
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL2*

Model No.: 700FMEBL2*

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL2*

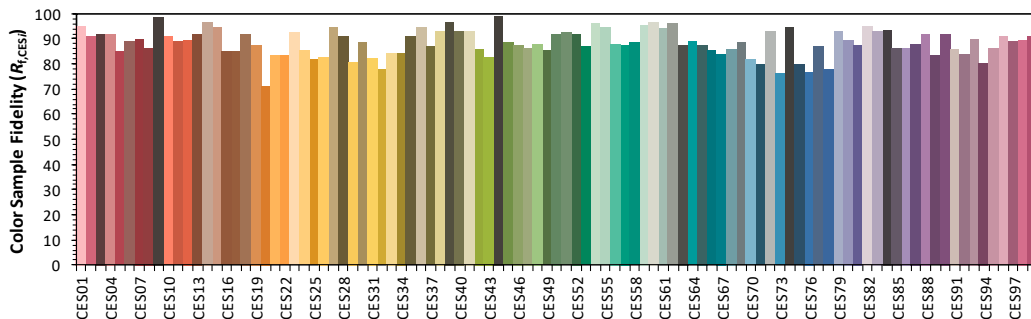
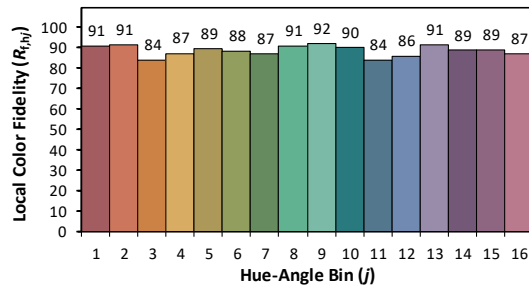
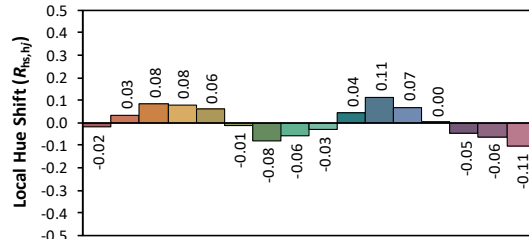
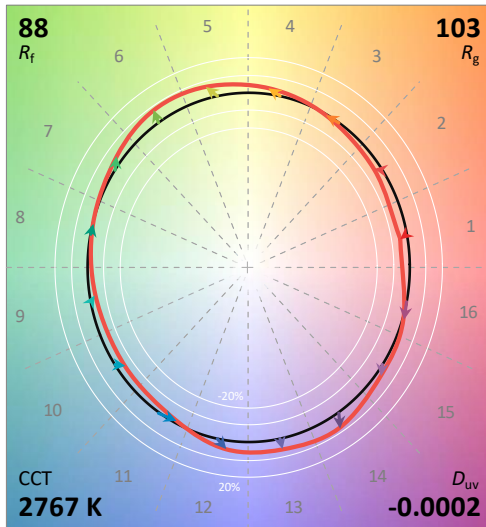
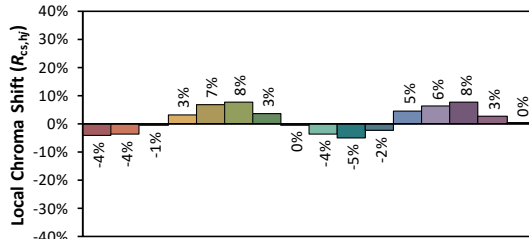
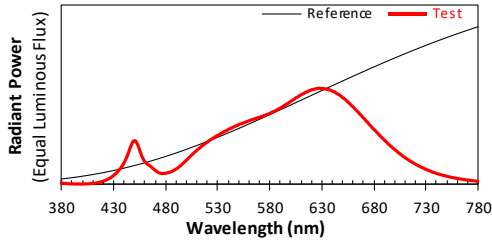
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/1/7

Model: 700FMEBL2*



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

x 0.4541
 y 0.4087
 u' 0.2596
 v' 0.5258

CIE 13.3-1995
(CRI)

R_a 90

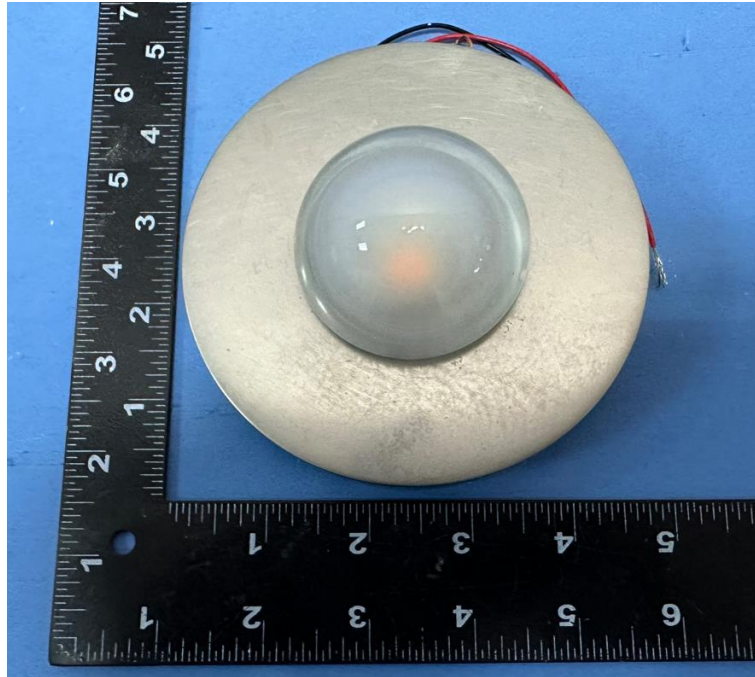
R_g 64

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

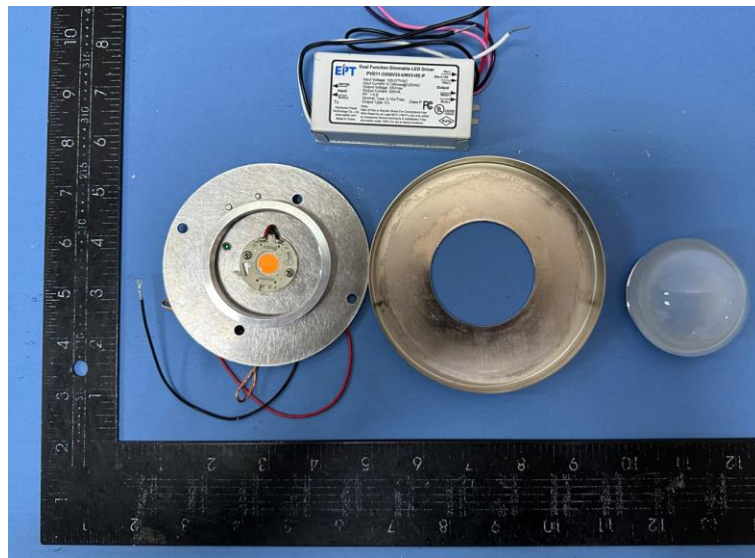
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700FMEBL2*

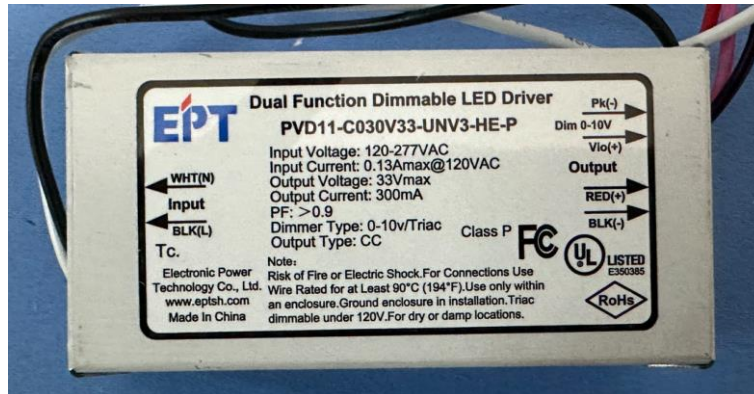


Internal view of 700FMEBL2*

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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 *****