

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

221205125GZU-003

ISSUE DATE

29 January 2023

REVISION DATE

None

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Report No.: 221205125GZU-003

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700FMEBL10*

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

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: 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 700FMEBL10*. The sample was received, in undamaged condition. The sample designation was S221205125-003.
<u>DATES OF TESTS:</u>	09 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:	700FMEBL10*
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700FMEBL10*

Criteria	Result
Total Lumen Output	750.8 lm
Total Power	10.6 W
Luminaire Efficacy	70.9 lm/W
S/MH(C0/180)	1.10
S/MH(C90/270)	1.11
Correlated Color Temperature (CCT)	2720 K
Color Rendering Index (CRI)	90
R9	64
Chromaticity Coordinate (x)	0.4589
Chromaticity Coordinate (y)	0.4114
Chromaticity Coordinate (u')	0.2615
Chromaticity Coordinate (v')	0.5275

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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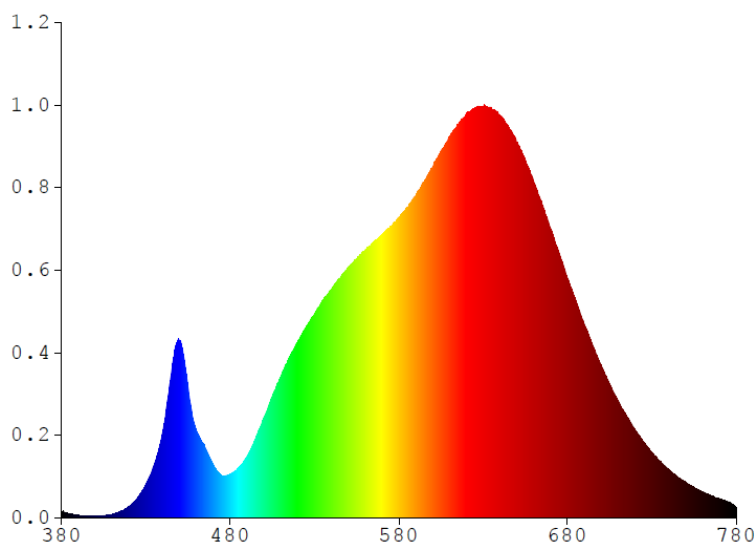
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700FMEBL10*

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0157	480	0.1008	580	0.6907	680	0.5517	780	0.0247
385	0.0095	485	0.1156	585	0.7144	685	0.4980		
390	0.0073	490	0.1424	590	0.7413	690	0.4448		
395	0.0045	495	0.1820	595	0.7729	695	0.3952		
400	0.0043	500	0.2316	600	0.8064	700	0.3502		
405	0.0052	505	0.2795	605	0.8443	705	0.3075		
410	0.0084	510	0.3258	610	0.8755	710	0.2692		
415	0.0150	515	0.3690	615	0.9048	715	0.2340		
420	0.0270	520	0.4038	620	0.9290	720	0.2029		
425	0.0463	525	0.4385	625	0.9428	725	0.1754		
430	0.0770	530	0.4692	630	0.9471	730	0.1509		
435	0.1223	535	0.5000	635	0.9400	735	0.1300		
440	0.1986	540	0.5260	640	0.9248	740	0.1109		
445	0.3286	545	0.5517	645	0.8990	745	0.0954		
450	0.4086	550	0.5766	650	0.8629	750	0.0820		
455	0.2969	555	0.5975	655	0.8222	755	0.0701		
460	0.1995	560	0.6167	660	0.7732	760	0.0604		
465	0.1621	565	0.6348	665	0.7206	765	0.0516		
470	0.1219	570	0.6529	670	0.6656	770	0.0443		
475	0.0975	575	0.6708	675	0.5975	775	0.0375		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL10*

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

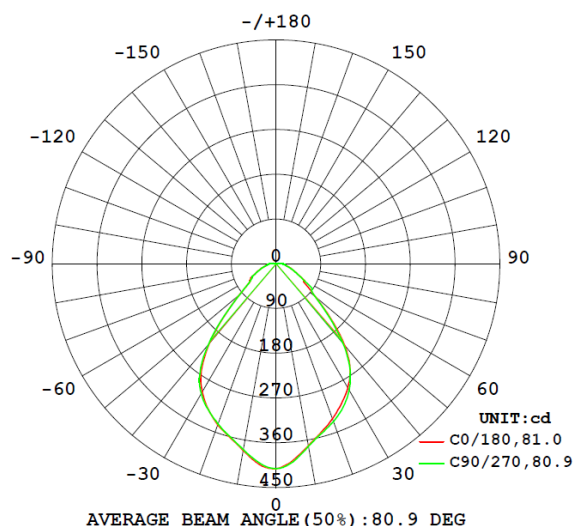
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700FMEBL10*								
S2212051 25-003	--	2720	90	64	0.4589	0.4114	0.2615	0.5275

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)
700FMEBL10*							
S2212051 25-003	--	120.2	89.2	10.6	0.989	750.8	70.9

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL10*

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	411.7	411.7	411.7	411.7	411.7
5	396.4	396.8	397.2	398.2	399.0
10	371.5	371.6	371.7	372.6	373.0
15	350.7	350.2	350.0	351.0	353.0
20	331.5	330.2	330.9	333.5	337.4
25	310.6	307.6	309.1	313.4	318.4
30	288.4	283.8	284.4	289.5	293.8
35	259.5	254.0	253.9	257.1	259.2
40	214.2	210.7	211.2	211.6	209.5
45	154.8	155.4	156.6	155.4	150.7
50	103.4	107.8	108.7	106.6	100.7
55	74.2	89.2	91.6	91.3	89.5
60	63.1	64.6	61.8	63.4	61.9
65	46.3	46.1	45.2	45.2	45.4
70	35.8	35.7	34.8	34.7	34.9
75	27.4	27.1	26.3	26.1	26.1
80	20.5	20.1	19.9	19.9	20.1
85	16.2	16.0	15.9	16.1	16.1
90	13.4	13.3	13.1	13.1	13.0
95	10.2	10.3	10.2	10.1	10.1
100	8.3	8.1	8.0	7.9	7.9
105	6.7	6.6	6.5	6.4	6.4
110	2.3	5.3	5.1	5.1	5.0
115	1.8	3.9	3.9	3.8	3.7
120	1.4	2.9	2.9	2.8	2.9
125	1.1	2.1	2.1	2.1	2.3
130	0.9	1.5	1.5	1.6	1.7
135	0.7	1.1	0.9	1.1	1.2
140	0.7	0.9	0.7	0.9	1.0
145	0.4	0.7	0.6	0.7	0.8
150	0.5	0.5	0.5	0.5	0.6
155	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5
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

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL10*

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700FMEBL10*		
0-30	285.2	38.0
0-40	447.3	59.6
0-60	631.8	84.2
0-90	724.5	96.5
60-90	92.7	12.3
0-180	750.8	100.0

Beam Angle

Total Beam Angle (°)

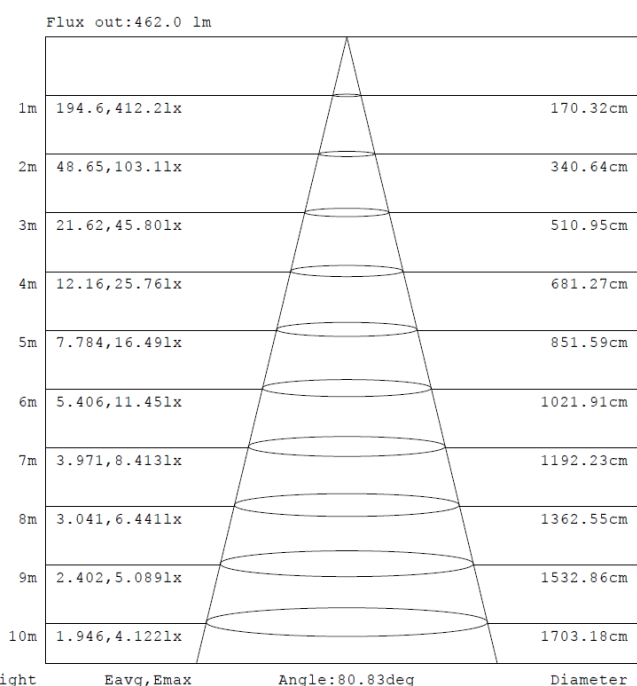
80.9

Illumination Plots

Model No.: 700FMEBL10*

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

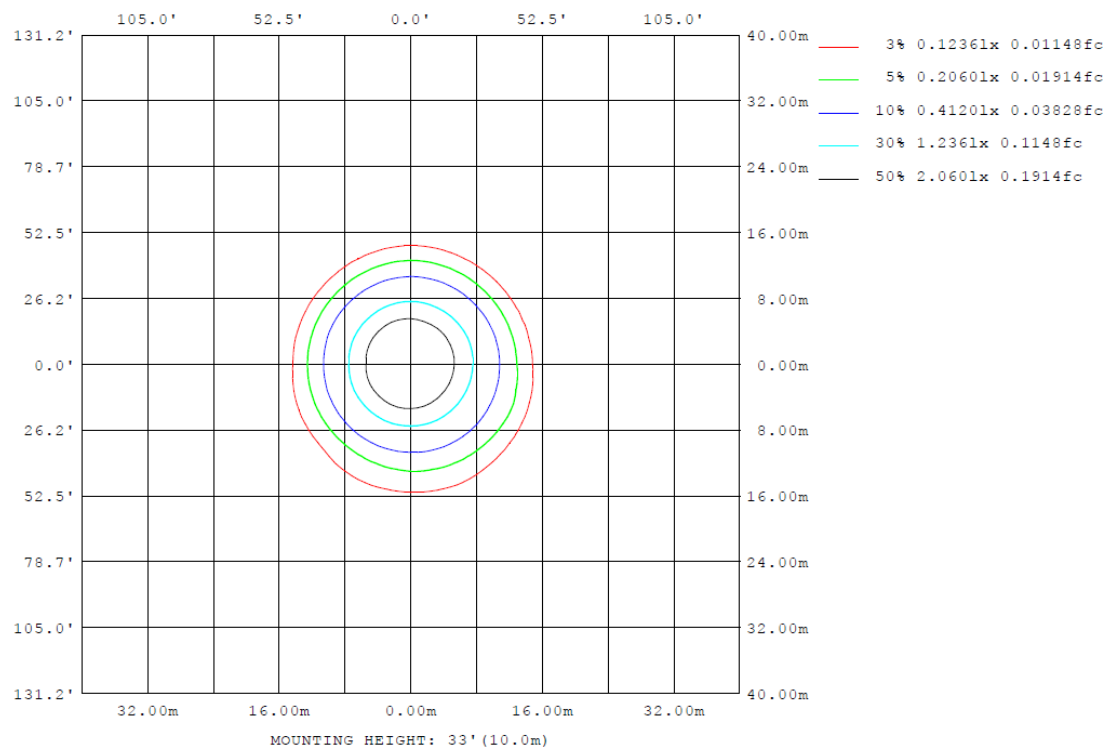
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL10*

Model No.: 700FMEBL10*

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL10*

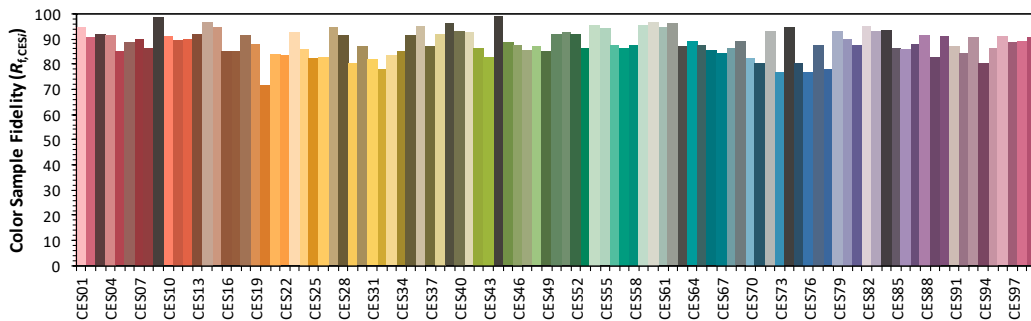
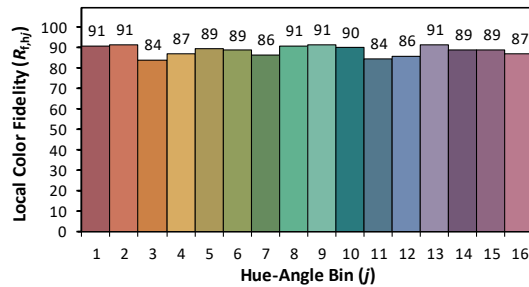
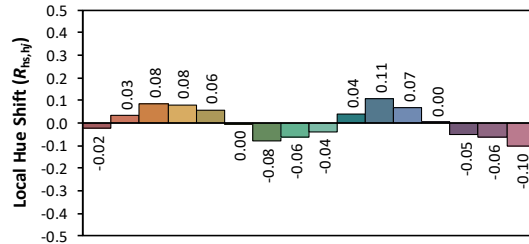
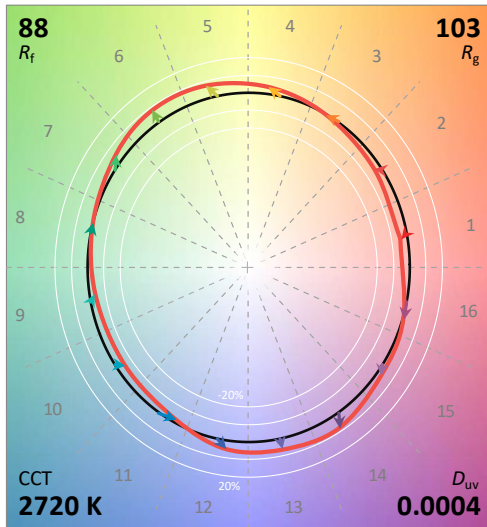
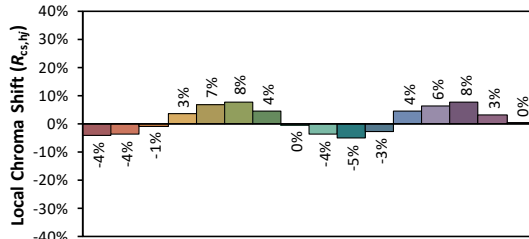
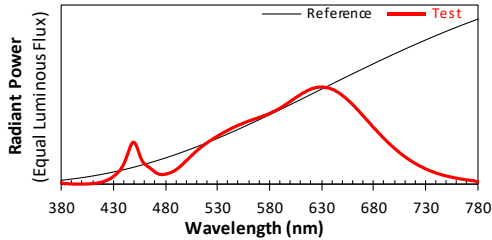
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/1/9

Model: 700FMEBL10*



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

x 0.4589
 y 0.4114
 u' 0.2615
 v' 0.5275

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.

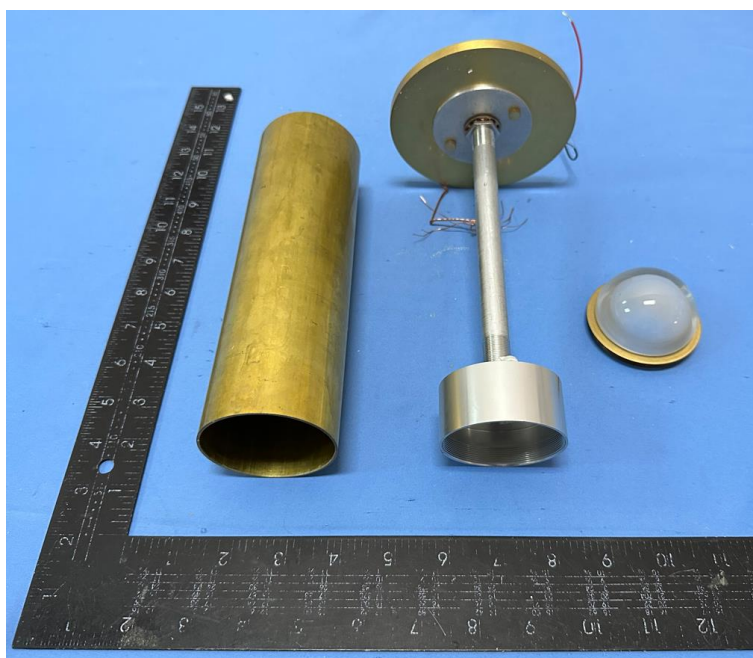
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700FMEBL10*

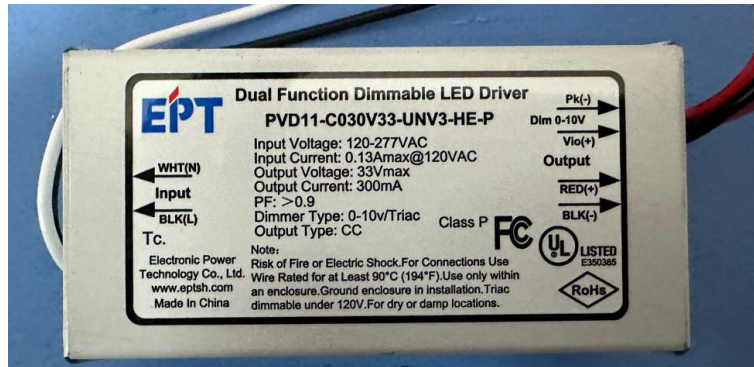


Internal view of 700FMEBL10*

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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 *****