

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

221205125GZU-002

ISSUE DATE

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REVISION DATE

None

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13

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Report No.: 221205125GZU-002

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700FMEBL6*

(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 700FMEBL6*. The sample was received, in undamaged condition. The sample designation was S221205125-002.
<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:	700FMEBL6*
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700FMEBL6*

Criteria	Result
Total Lumen Output	661.4 lm
Total Power	10.6 W
Luminaire Efficacy	62.2 lm/W
S/MH(C0/180)	1.09
S/MH(C90/270)	0.99
Correlated Color Temperature (CCT)	2738 K
Color Rendering Index (CRI)	91
R9	64
Chromaticity Coordinate (x)	0.4571
Chromaticity Coordinate (y)	0.4105
Chromaticity Coordinate (u')	0.2608
Chromaticity Coordinate (v')	0.5269

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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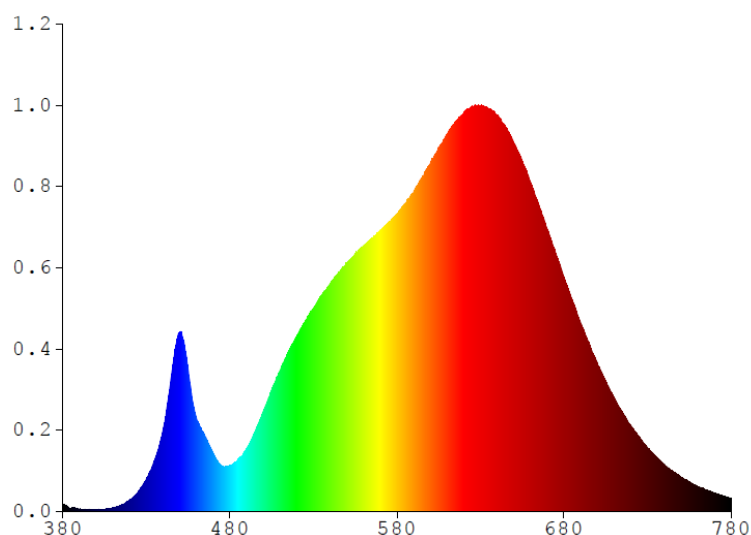
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700FMEBL6*

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0133	480	0.0959	580	0.6194	680	0.4881	780	0.0273
385	0.0073	485	0.1087	585	0.6410	685	0.4391		
390	0.0049	490	0.1315	590	0.6644	690	0.3920		
395	0.0043	495	0.1656	595	0.6947	695	0.3505		
400	0.0038	500	0.2089	600	0.7243	700	0.3095		
405	0.0043	505	0.2526	605	0.7592	705	0.2705		
410	0.0079	510	0.2939	610	0.7847	710	0.2371		
415	0.0138	515	0.3329	615	0.8113	715	0.2062		
420	0.0241	520	0.3643	620	0.8299	720	0.1794		
425	0.0407	525	0.3958	625	0.8438	725	0.1551		
430	0.0685	530	0.4234	630	0.8441	730	0.1330		
435	0.1068	535	0.4493	635	0.8378	735	0.1150		
440	0.1712	540	0.4739	640	0.8243	740	0.0981		
445	0.2832	545	0.4978	645	0.7994	745	0.0842		
450	0.3729	550	0.5179	650	0.7671	750	0.0719		
455	0.2925	555	0.5370	655	0.7291	755	0.0618		
460	0.1935	560	0.5534	660	0.6854	760	0.0529		
465	0.1574	565	0.5695	665	0.6383	765	0.0456		
470	0.1207	570	0.5846	670	0.5875	770	0.0387		
475	0.0954	575	0.6021	675	0.5284	775	0.0329		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL6*

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

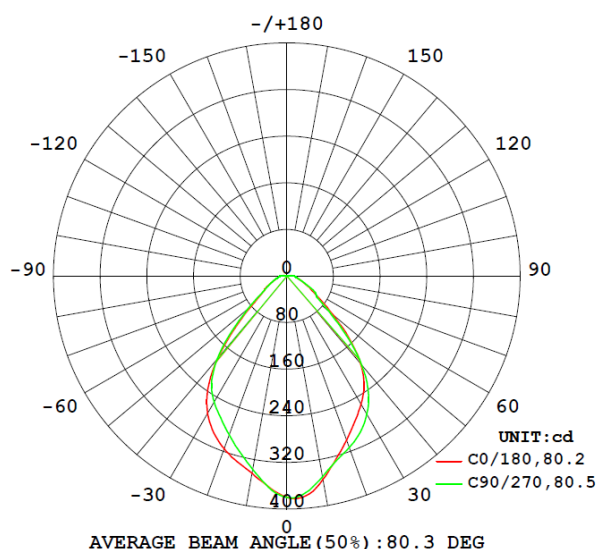
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700FMEBL6*								
S2212051 25-002	--	2738	91	64	0.4571	0.4105	0.2608	0.5269

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)
700FMEBL6*							
S2212051 25-002	--	120.3	89.4	10.6	0.988	661.4	62.2

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL6*

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	379.9	379.9	379.9	379.9	379.9
5	378.4	380.2	379.5	377.3	373.3
10	355.1	359.3	358.9	355.2	350.2
15	325.4	331.2	333.0	331.7	328.0
20	299.5	306.5	312.3	314.1	313.1
25	275.6	282.1	290.3	295.7	296.7
30	253.8	258.2	266.6	272.7	273.9
35	231.1	233.0	240.0	243.8	243.2
40	197.2	197.7	202.4	202.4	199.8
45	150.7	150.2	151.9	149.0	144.5
50	102.3	101.1	100.5	97.1	93.3
55	68.6	69.8	68.7	65.0	62.0
60	50.6	49.0	53.8	57.8	56.6
65	37.6	37.8	38.5	39.6	40.0
70	28.2	28.8	28.7	29.1	29.0
75	21.6	21.9	21.9	21.8	21.6
80	17.0	16.9	16.8	16.9	16.6
85	14.4	14.4	14.8	15.1	14.8
90	12.5	12.6	12.7	12.6	12.2
95	9.8	9.9	10.0	9.9	9.7
100	6.0	8.0	8.0	7.9	7.7
105	1.7	6.5	6.5	6.4	6.2
110	1.5	5.1	5.0	5.0	4.9
115	0.7	3.7	3.8	3.8	3.7
120	0.2	2.7	2.8	2.9	2.8
125	0.2	1.9	2.1	2.1	2.1
130	0.7	1.3	1.4	1.5	1.5
135	0.7	0.9	1.1	1.3	1.3
140	0.7	0.8	1.1	1.3	1.3
145	0.5	0.8	1.1	1.2	1.4
150	0.5	0.6	0.7	0.9	1.2
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

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL6*

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700FMEBL6*		
0-30	257.5	38.9
0-40	402.8	60.9
0-60	565.7	85.5
0-90	638.3	96.5
60-90	72.6	11.0
0-180	661.4	100.0

Beam Angle

Total Beam Angle (°)

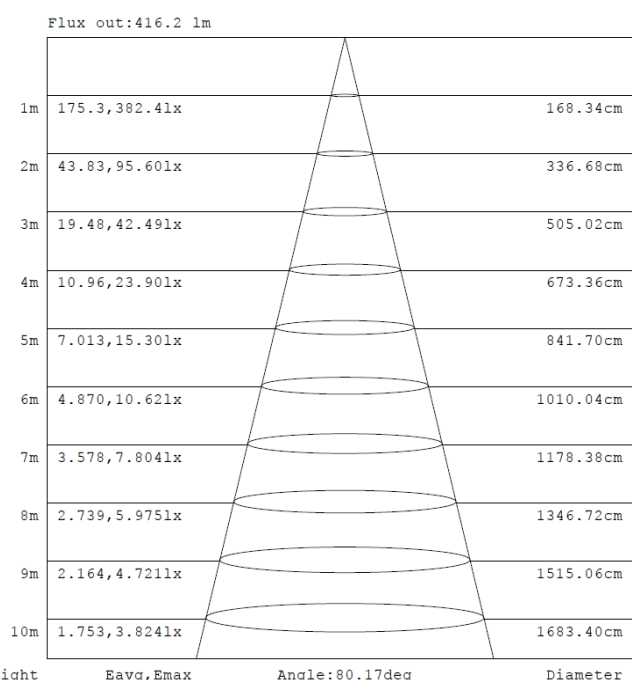
80.3

Illumination Plots

Model No.: 700FMEBL6*

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

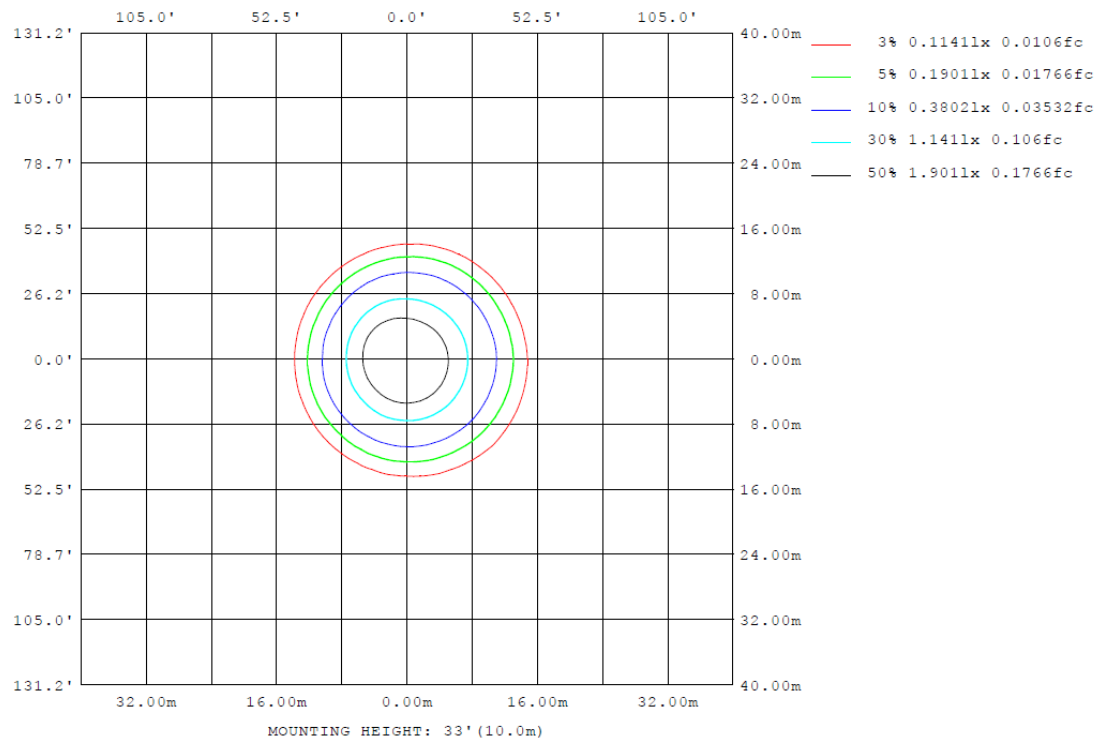
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL6*

Model No.: 700FMEBL6*

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMEBL6*

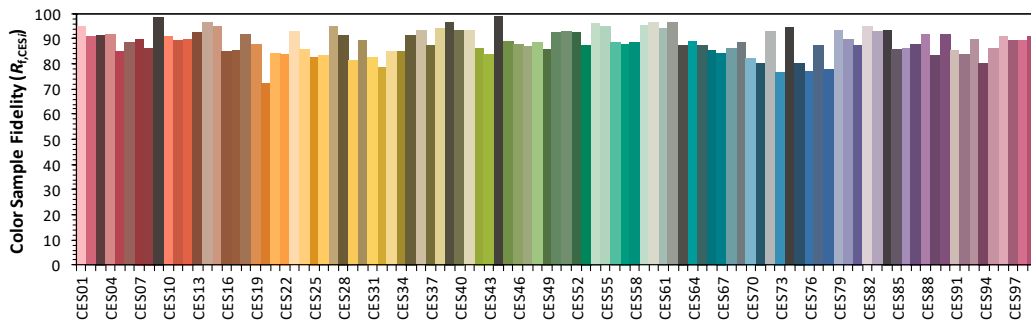
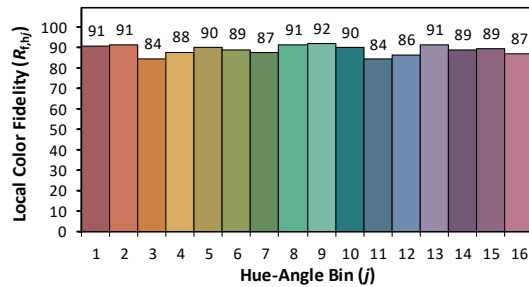
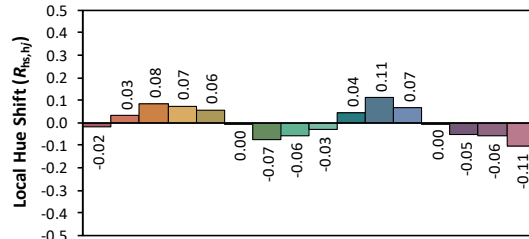
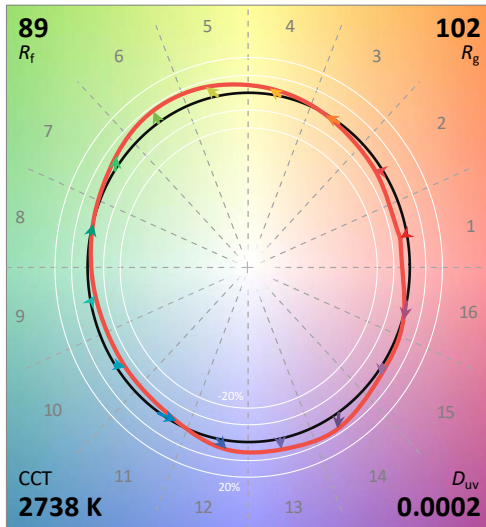
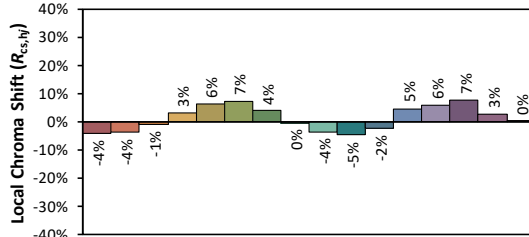
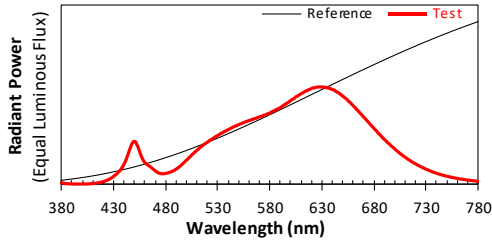
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/1/7

Model: 700FMEBL6*



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

x 0.4571
 y 0.4105
 u' 0.2608
 v' 0.5269

CIE 13.3-1995
(CRI)

R_a 91
 R_g 64

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

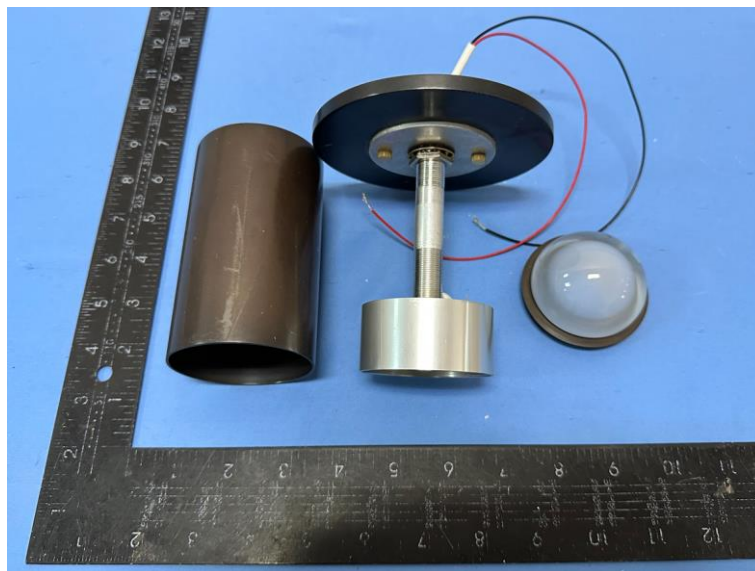
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700FMEBL6*

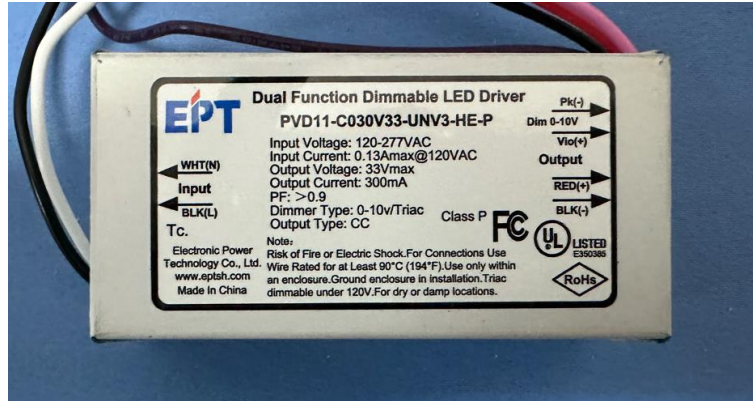


Internal view of 700FMEBL6*

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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 *****