

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230707018GZU-001

ISSUE DATE

01-August-2023

REVISION DATE

None

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

Report format for LM-79:2008_F

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Report No.: 230707018GZU-001

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. CDFM17927**

(Remark: “**” are denoted finish color)

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: QGZ230703012.
<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 IES LM-79: 2019 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 CDFM17927**. The sample was received in undamaged condition. The sample designation was S230707018-001.
<u>DATES OF TESTS:</u>	14-July-2023
<u>ISSUED BY:</u>	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
<u>TEST LOCATION:</u>	Room101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu Science City, Guangzhou, Guangdong, China

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TEST REPORT

SUMMARY

Model Number:	CDFM17927**
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For CDFM17927**

Criteria	Result
Total Lumen Output	1958.6 lm
Total Power	27.2 W
Luminaire Efficacy	72.1 lm/W
S/MH(C0/180)	1.29
S/MH(C90/270)	1.32
Correlated Color Temperature (CCT)	2750 K
Color Rendering Index (CRI)	93
R9	71
Chromaticity Coordinate (x)	0.4585
Chromaticity Coordinate (y)	0.4146
Chromaticity Coordinate (u')	0.2599
Chromaticity Coordinate (v')	0.5287

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	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 DC

Standard lamp used for integrating sphere:

Model: D204

Current: 3.9480A DC

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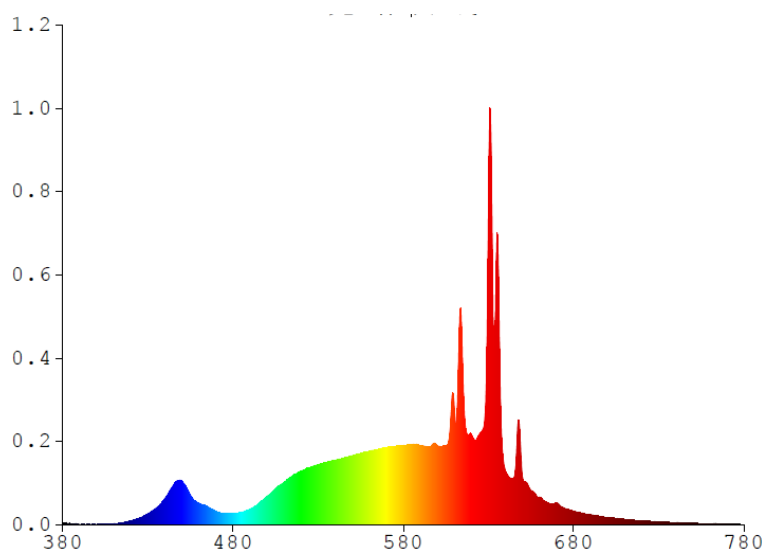
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For CDFM17927**

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.2134	480	0.8810	580	5.9721	680	1.0343	780	0.0022
385	0.0307	485	0.9662	585	6.0632	685	0.8995		
390	0.0091	490	1.1803	590	6.0003	690	0.7762		
395	0.0500	495	1.6084	595	5.8815	695	0.6670		
400	0.0378	500	2.1411	600	5.9413	700	0.5667		
405	0.0578	505	2.7209	605	5.9494	705	0.4915		
410	0.0972	510	3.2486	610	8.5581	710	0.4214		
415	0.1674	515	3.6853	615	11.2230	715	0.3648		
420	0.3038	520	4.0416	620	6.8122	720	0.3121		
425	0.5178	525	4.3177	625	6.8983	725	0.2705		
430	0.8441	530	4.5300	630	24.0550	730	0.2313		
435	1.2898	535	4.7082	635	21.8220	735	0.1982		
440	1.9970	540	4.8995	640	4.0376	740	0.1756		
445	2.9955	545	5.0396	645	3.5530	745	0.1501		
450	3.2899	550	5.1962	650	3.6250	750	0.1290		
455	2.2081	555	5.3696	655	2.5913	755	0.1131		
460	1.6141	560	5.5369	660	2.0910	760	0.1002		
465	1.3737	565	5.6643	665	1.6388	765	0.0856		
470	1.0318	570	5.8287	670	1.6589	770	0.0765		
475	0.8694	575	5.9335	675	1.1927	775	0.0633		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For CDFM17927**

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

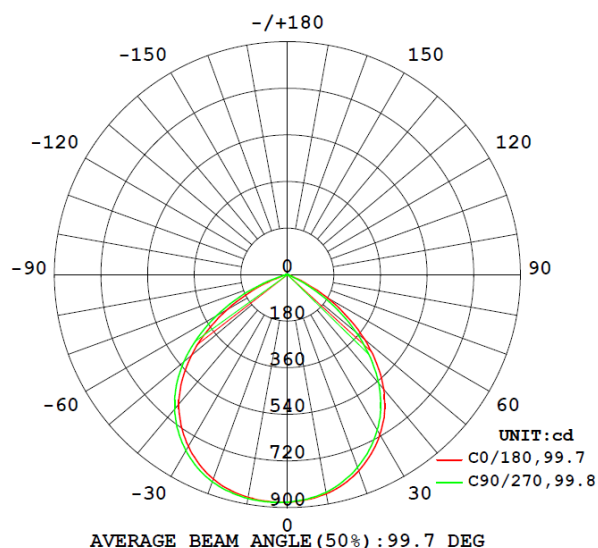
Photometric Measurements at 25°C – Distribution Method

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')
CDFM17927**								
S2307070 18-001	--	2750	93	71	0.4585	0.4146	0.2599	0.5287

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 Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
CDFM17927**							
S2307070 18-001	--	120.2	227.1	27.2	0.995	1958.6	72.1

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For CDFM17927**

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	878.7	878.6	878.0	878.2	878.4
5	872.5	870.6	868.4	868.2	869.9
10	860.1	855.8	852.1	852.0	854.2
15	837.9	830.6	825.3	825.0	827.7
20	806.0	795.6	788.4	787.7	792.1
25	764.6	751.6	742.6	742.0	747.4
30	713.9	697.8	688.2	686.9	693.4
35	653.1	633.3	621.8	620.5	628.2
40	578.5	554.3	541.2	539.4	548.4
45	488.8	461.6	446.3	444.0	452.8
50	388.0	358.4	341.3	337.2	346.5
55	280.8	250.8	231.0	224.7	235.6
60	173.7	143.6	123.8	118.1	127.5
65	74.1	52.6	41.6	38.8	43.1
70	16.6	11.7	10.2	9.8	9.8
75	7.9	6.5	5.7	5.3	5.3
80	3.3	2.5	2.0	1.7	1.7
85	0.9	0.4	0.1	0.1	0.2
90	0.1	0.1	0.1	0.1	0.1
95	0.1	0.1	0.1	0.1	0.1
100	0.1	0.1	0.2	0.2	0.2
105	0.2	0.2	0.2	0.2	0.2
110	0.2	0.2	0.2	0.2	0.2
115	0.2	0.3	0.3	0.3	0.3
120	0.3	0.3	0.4	0.4	0.4
125	0.5	0.5	0.5	0.5	0.5
130	0.6	0.6	0.6	0.6	0.6
135	0.8	0.8	0.8	0.8	0.8
140	0.9	0.9	1.0	1.0	1.0
145	1.1	1.1	1.1	1.1	1.1
150	1.2	1.2	1.2	1.2	1.2
155	1.3	1.3	1.3	1.3	1.3
160	1.4	1.4	1.4	1.4	1.4
165	1.4	1.4	1.4	1.4	1.4
170	1.3	1.4	1.4	1.4	1.4
175	1.3	1.3	1.3	1.3	1.3
180	1.3	1.3	1.3	1.3	1.3

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For CDFM17927**

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
CDFM17927**		
0-30	684.4	34.9
0-40	1110.6	56.7
0-60	1812.0	92.5
0-90	1955.9	99.9
60-90	143.9	7.4
0-180	1958.6	100.0

Beam Angle

Total Beam Angle (°)

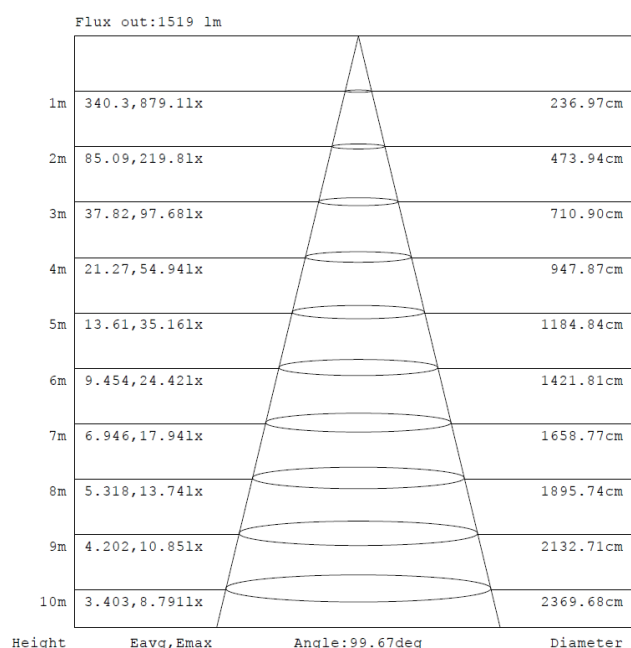
99.7

Illumination Plots

Model No.: CDFM17927**

Mount Height: 2.5 m

Illuminance - Cone of Light



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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TEST REPORT

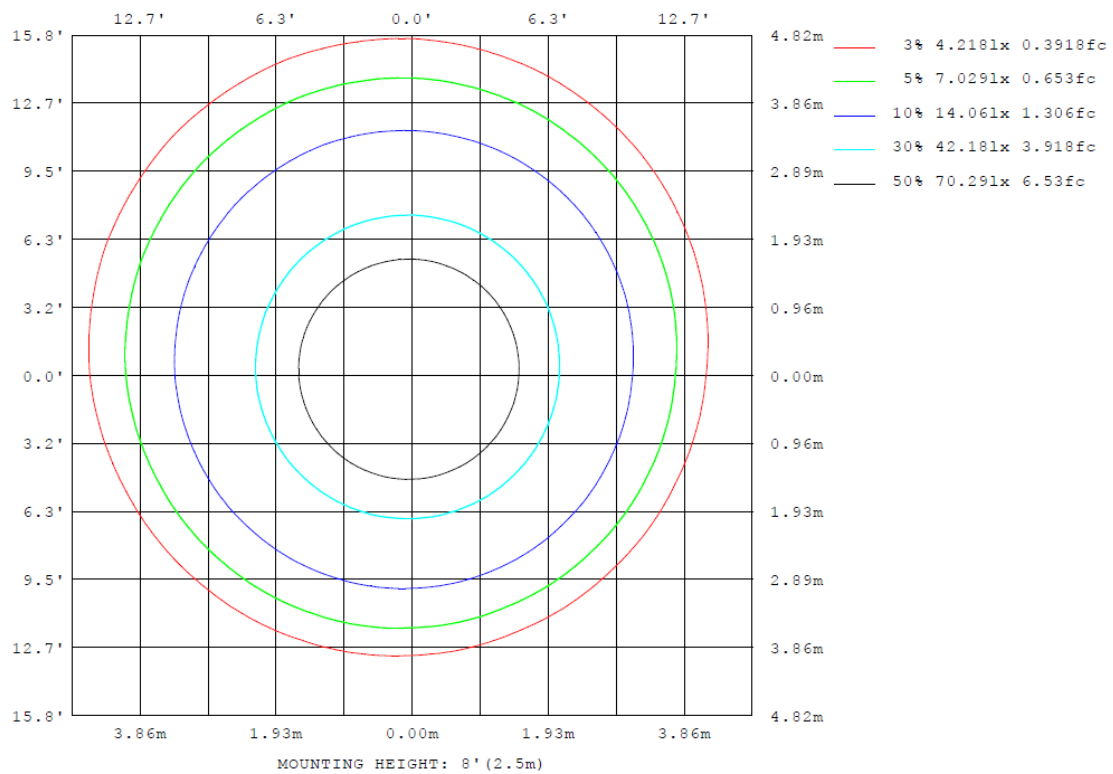
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For CDFM17927**

Model No.: CDFM17927**

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For CDFM17927**

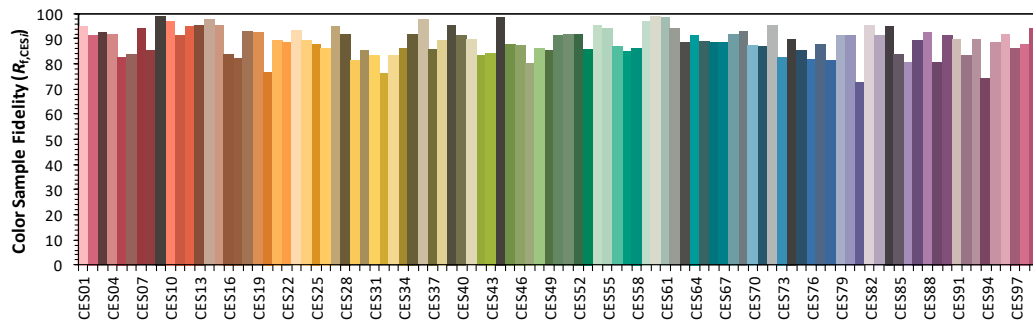
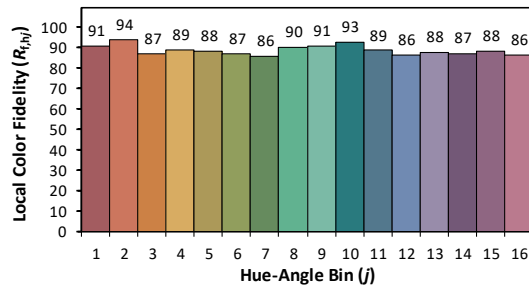
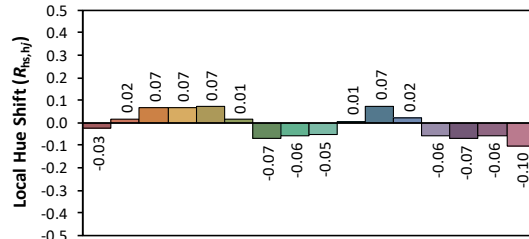
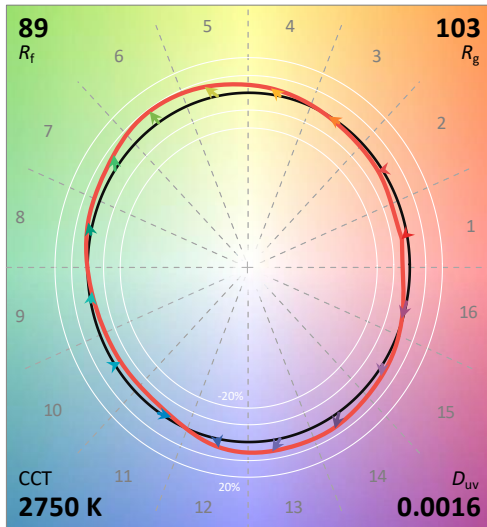
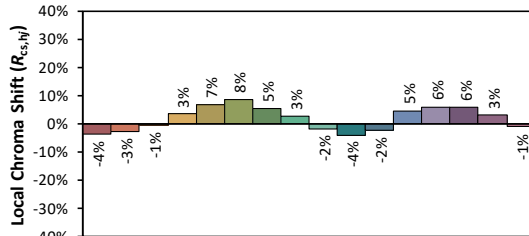
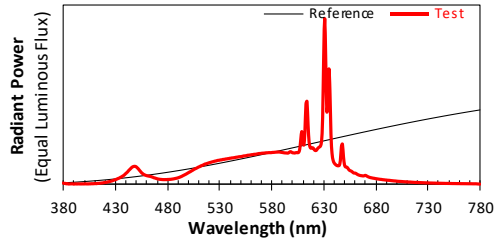
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/7/14

Model: CDFM17927**



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

x 0.4585
 y 0.4146
 u' 0.2599
 v' 0.5287

CIE 13.3-1995
(CRI)

R_a 93

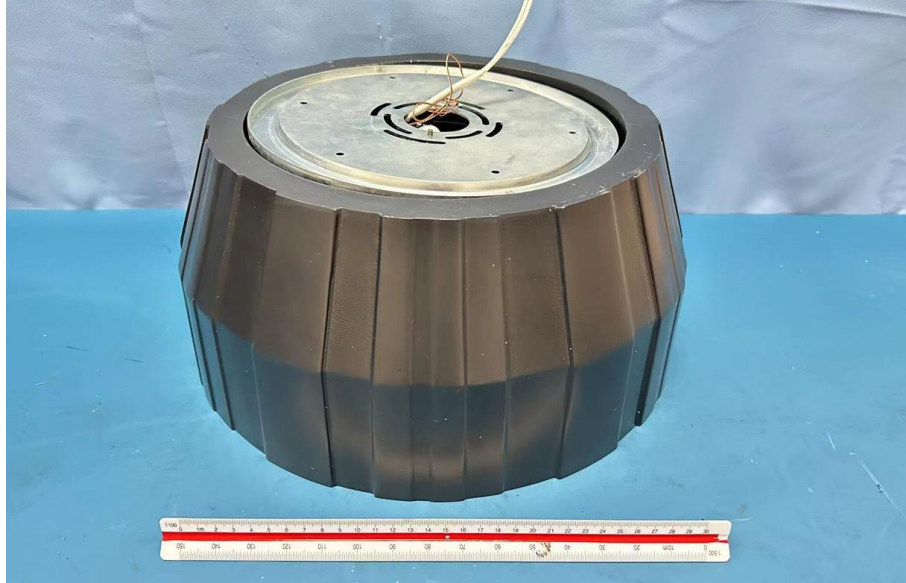
R_g 71

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 LED luminaire CDFM17927**

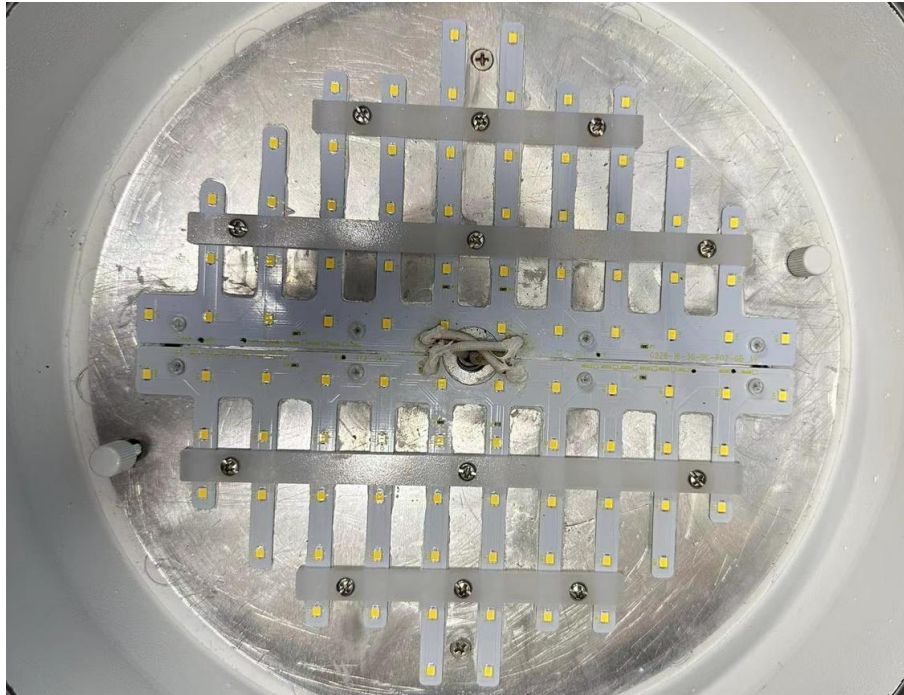


External view of LED luminaire CDFM17927**

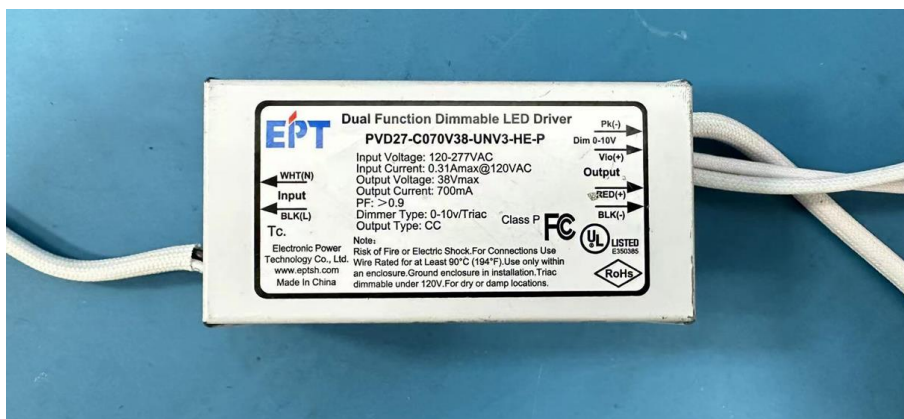
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED board



View of LED driver PVD27-C070V38-UNV3-HE-P

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

***** End of Report *****