

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230301038GZU-005

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06-April-2023

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Report No.: 230301038GZU-005
Modification 1: 06 April 2023

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWCH19827X

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

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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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: QGZ230224053.

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 KWCH19827X. The sample was received, in undamaged condition. The sample designation was S230301038-005.

DATES OF TESTS: 16 March 2023

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

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TEST REPORT

SUMMARY

Model Number:	KWCH19827X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWCH19827X

Criteria	Result
Total Lumen Output	3994.2 lm
Total Power	67.1 W
Luminaire Efficacy	59.6 lm/W
S/MH(C0/180)	0.94
S/MH(C90/270)	1.02
Correlated Color Temperature (CCT)	2682 K
Color Rendering Index (CRI)	93
R9	56
Chromaticity Coordinate (x)	0.4604
Chromaticity Coordinate (y)	0.4093
Chromaticity Coordinate (u')	0.2634
Chromaticity Coordinate (v')	0.5269

Remark:

Measurement uncertainty for applicable tests has been established.

Revision history:

Modification 1: The changed model name form "KWCH19727X" to "KWCH19827X".

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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: 110V/100W

Current: 0.8851A

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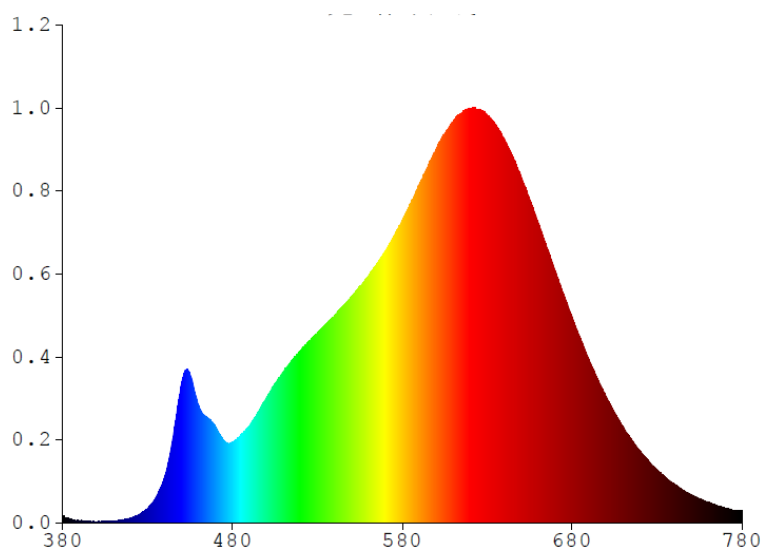
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWCH19827X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.2216	480	2.9198	580	10.9350	680	7.4510	780	0.4433
385	0.1374	485	3.1902	585	11.5750	685	6.6510		
390	0.0720	490	3.5216	590	12.2350	690	5.9237		
395	0.0518	495	4.0074	595	12.8870	695	5.1975		
400	0.0556	500	4.5388	600	13.5290	700	4.5732		
405	0.0653	505	5.0548	605	14.0860	705	3.9962		
410	0.0793	510	5.4621	610	14.5110	710	3.4805		
415	0.1151	515	5.8852	615	14.8290	715	3.0154		
420	0.1883	520	6.2104	620	14.9610	720	2.5942		
425	0.3142	525	6.5815	625	14.9560	725	2.2418		
430	0.5267	530	6.9041	630	14.7640	730	1.9413		
435	0.9377	535	7.1915	635	14.3830	735	1.6472		
440	1.6876	540	7.5031	640	13.9030	740	1.4153		
445	3.1036	545	7.8304	645	13.2560	745	1.2111		
450	5.0517	550	8.1807	650	12.5360	750	1.0361		
455	5.3596	555	8.5676	655	11.7020	755	0.8853		
460	4.2614	560	8.9155	660	10.8700	760	0.7521		
465	3.8330	565	9.3869	665	9.9863	765	0.6493		
470	3.4617	570	9.8491	670	9.1198	770	0.5522		
475	2.9871	575	10.3590	675	8.0927	775	0.4696		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19827X

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

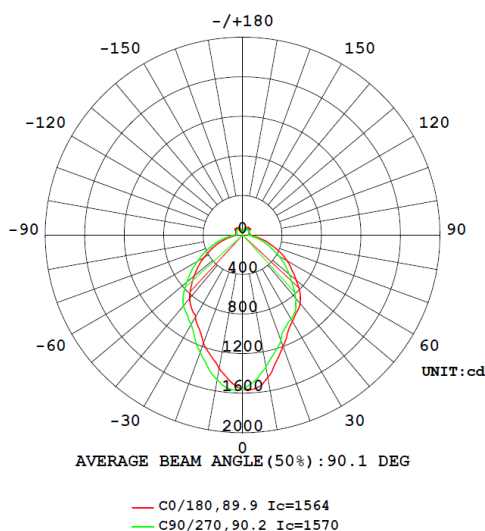
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit	Chromaticit	Chromaticit	Chromaticit
					y	y	y	y
					Coordinate	Coordinate	Coordinate	Coordinate
					(x)	(y)	(u')	(v')
KWCH19827X								
S2303010 38-005	--	2682	93	56	0.4604	0.4093	0.2634	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)
KWCH19827X							
S2303010 38-005	--	120.2	565.2	67.1	0.987	3994.2	59.6

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19827X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	1556.9	1556.9	1556.9	1556.9	1556.9
5	1555.6	1511.0	1504.7	1483.3	1474.8
10	1462.3	1412.6	1392.4	1364.1	1357.6
15	1323.0	1315.0	1306.3	1257.8	1237.6
20	1200.0	1230.7	1216.4	1162.6	1135.3
25	1082.2	1160.6	1151.4	1077.5	1030.5
30	1007.9	1101.7	1105.9	1034.6	980.3
35	953.9	1028.6	1028.1	977.2	931.7
40	904.8	901.2	901.2	859.8	839.6
45	821.0	776.4	760.3	735.0	721.3
50	711.8	656.7	645.7	628.2	614.8
55	605.5	560.8	558.2	545.8	522.9
60	518.3	464.5	463.4	441.9	427.8
65	423.0	381.3	355.9	340.7	329.5
70	326.5	287.2	268.8	256.1	252.7
75	242.8	205.6	187.3	179.2	175.9
80	167.2	132.0	119.7	113.1	112.4
85	105.5	86.2	77.8	76.9	77.1
90	76.7	72.0	66.2	65.5	67.0
95	68.1	64.8	59.4	58.9	61.6
100	71.5	68.4	64.1	60.0	61.1
105	70.0	61.5	63.6	61.0	63.6
110	69.8	59.4	58.4	60.4	67.7
115	71.2	64.0	61.5	60.9	70.0
120	72.1	71.0	65.3	65.2	75.0
125	87.9	72.7	74.6	68.7	82.2
130	98.9	75.1	74.8	75.8	84.1
135	97.6	83.7	75.9	80.5	75.3
140	93.9	79.5	81.0	75.8	79.3
145	96.5	72.2	75.7	73.2	77.9
150	87.2	75.7	73.1	74.2	72.7
155	84.1	73.3	66.3	68.3	74.1
160	72.4	53.3	45.9	46.6	50.5
165	47.4	37.0	33.8	28.3	26.8
170	28.1	23.4	22.4	17.3	16.3
175	25.5	25.1	28.7	28.7	26.7
180	30.1	29.6	29.1	28.1	30.5

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19827X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWCH19827X		
0-30	1044.1	26.1
0-40	1671.8	41.9
0-60	2810.5	70.4
0-90	3550.4	88.9
60-90	739.9	18.5
0-180	3994.2	100.0

Beam Angle

Total Beam Angle (°)

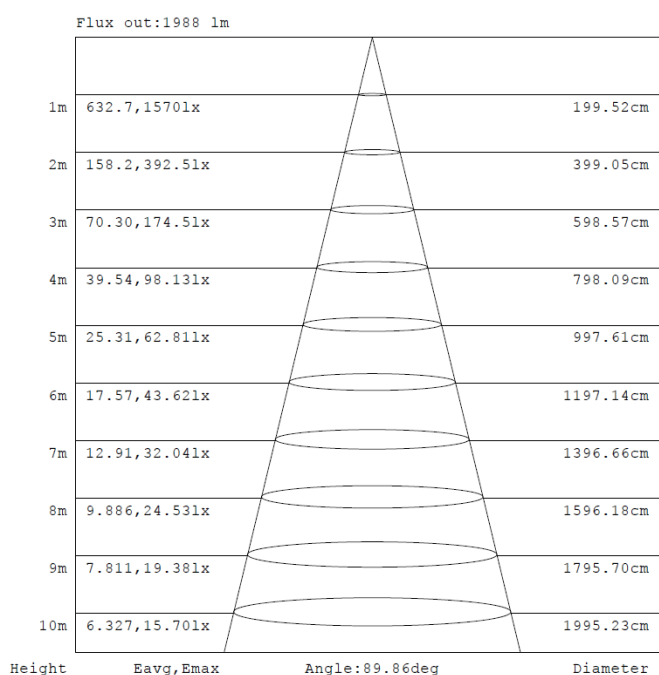
90.1

Illumination Plots

Model No.: KWCH19827X

Mount Height: 2.5 m

Illuminance - Cone of Light



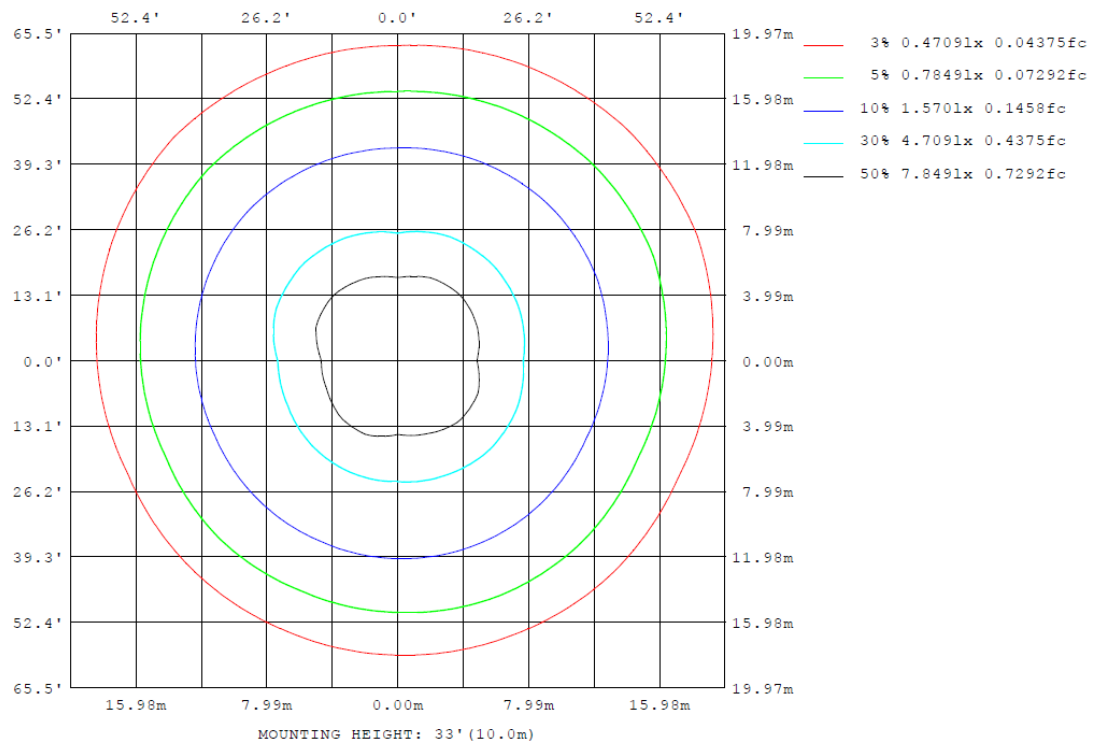
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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19827X

Model No.: KWCH19827X
Mount Height: 2.5 m
Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19827X

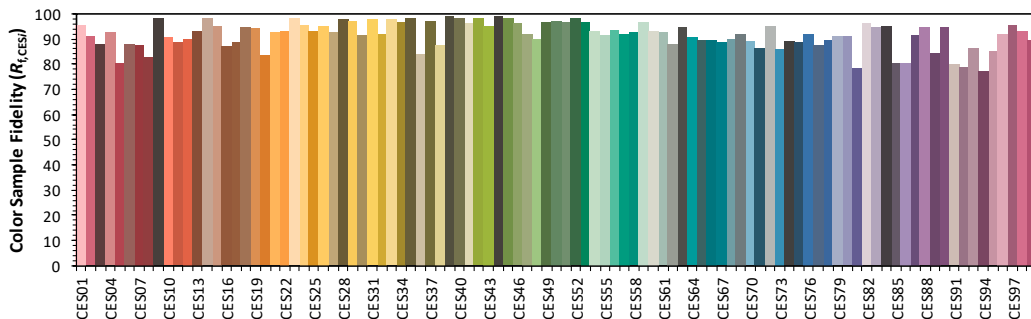
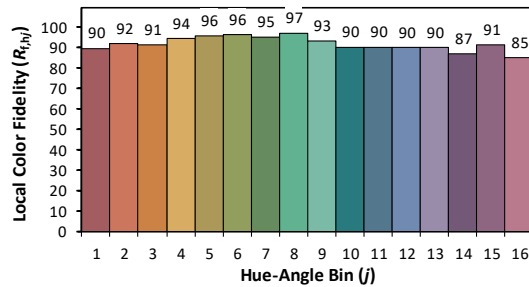
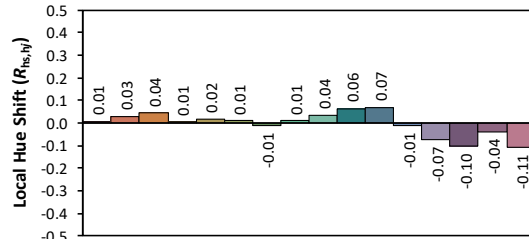
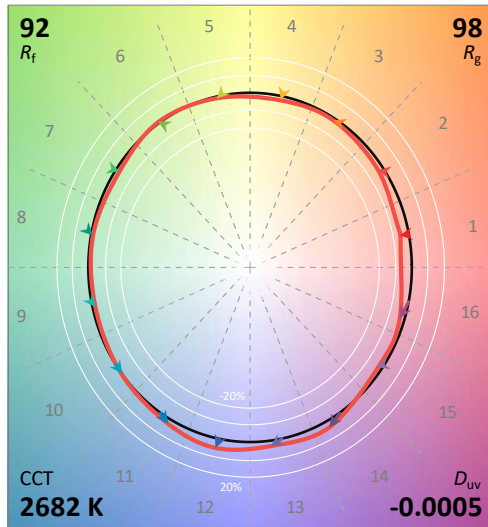
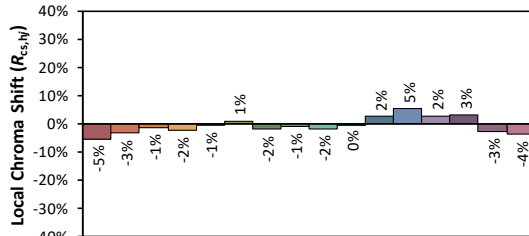
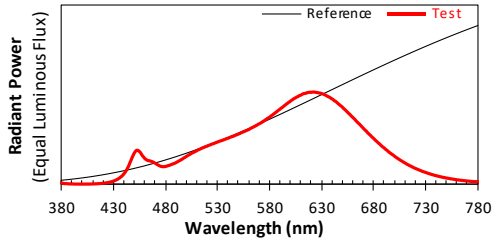
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/3/16

Model: KWCH19827X



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

x 0.4604
 y 0.4093
 u' 0.2634
 v' 0.5269

CIE 13.3-1995
 (CRI)

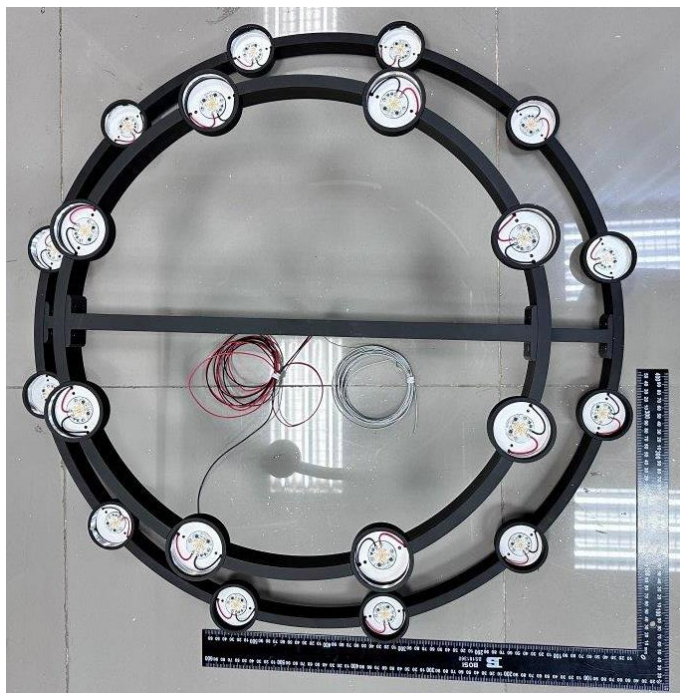
R_a 93
 R_g 56

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 KWCH19827X



External view of KWCH19827X

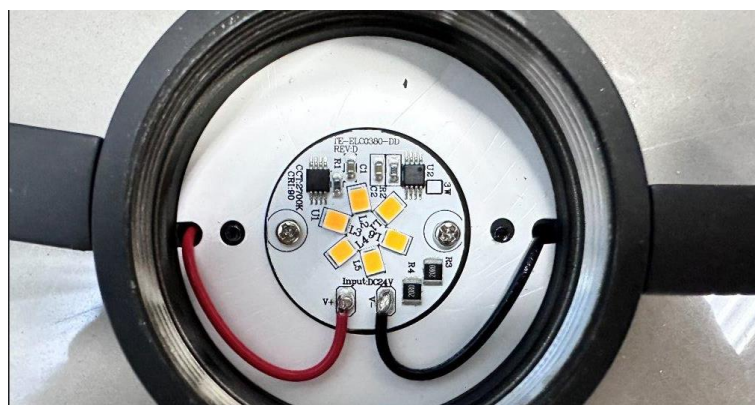
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver GBLD001



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 *****