

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230301038GZU-004

ISSUE DATE

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REVISION DATE

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13

DOCUMENT CONTROL NUMBER

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TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWCH19727X

(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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<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: QGZ230224053.
<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 KWCH19727X. The sample was received, in undamaged condition. The sample designation was S230301038-004.
<u>DATES OF TESTS:</u>	15 March 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:	KWCH19727X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWCH19727X

Criteria	Result
Total Lumen Output	5760.8 lm
Total Power	92.5 W
Luminaire Efficacy	62.3 lm/W
S/MH(C0/180)	1.06
S/MH(C90/270)	1.09
Correlated Color Temperature (CCT)	2693 K
Color Rendering Index (CRI)	93
R9	56
Chromaticity Coordinate (x)	0.4596
Chromaticity Coordinate (y)	0.4093
Chromaticity Coordinate (u')	0.2629
Chromaticity Coordinate (v')	0.5268

Remark:

Measurement uncertainty for applicable tests has been established.

Revision history:

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

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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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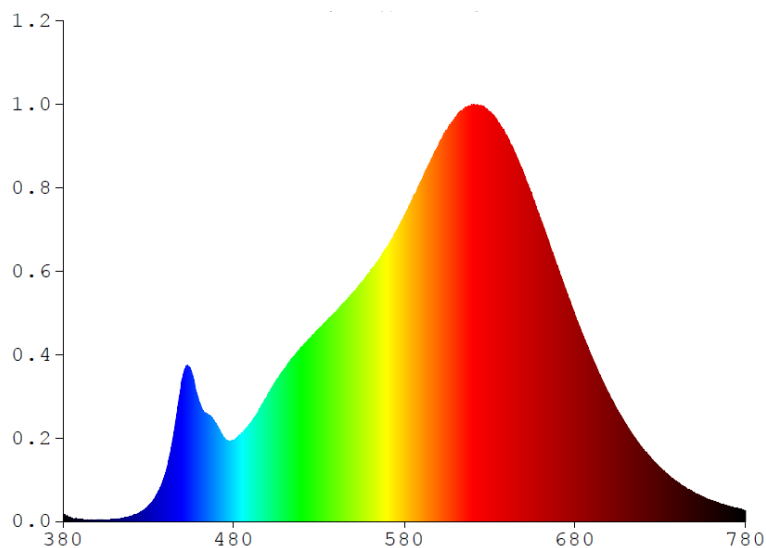
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWCH19727X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.2446	480	3.3904	580	12.6800	680	8.5527	780	0.4338
385	0.1492	485	3.6812	585	13.4310	685	7.6647		
390	0.0898	490	4.0829	590	14.1460	690	6.8272		
395	0.0767	495	4.6556	595	14.9150	695	5.9897		
400	0.0655	500	5.2614	600	15.6210	700	5.2822		
405	0.0648	505	5.8605	605	16.2480	705	4.5919		
410	0.0906	510	6.3507	610	16.7750	710	4.0135		
415	0.1418	515	6.8307	615	17.1220	715	3.4646		
420	0.2266	520	7.2607	620	17.2880	720	2.9861		
425	0.3722	525	7.6487	625	17.2930	725	2.5747		
430	0.6386	530	7.9978	630	17.0160	730	2.2167		
435	1.1306	535	8.3804	635	16.5580	735	1.8974		
440	1.9809	540	8.7067	640	16.0240	740	1.6228		
445	3.6764	545	9.0979	645	15.2850	745	1.3912		
450	5.9358	550	9.5149	650	14.4350	750	1.1976		
455	6.2469	555	9.9488	655	13.4800	755	1.0179		
460	4.9185	560	10.3630	660	12.5070	760	0.8687		
465	4.4262	565	10.8560	665	11.5390	765	0.7357		
470	3.9995	570	11.3990	670	10.5200	770	0.6336		
475	3.4257	575	12.0310	675	9.3131	775	0.5517		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19727X

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

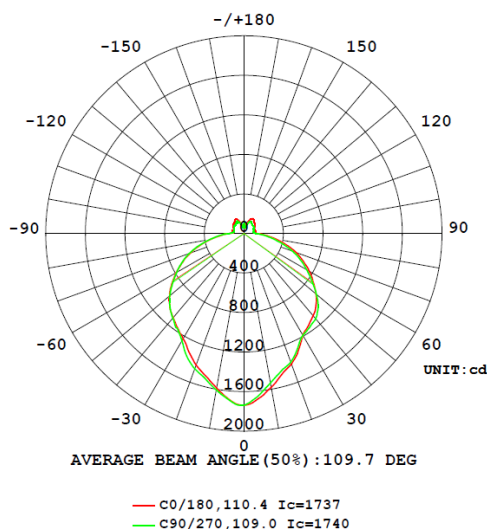
Photometric Measurements at 25°C – Integrating Sphere Method

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')
KWCH19727X								
S2303010 38-004	--	2693	93	56	0.4596	0.4093	0.2629	0.5268

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)
KWCH19727X							
S2303010 38-004	--	120.1	780.4	92.5	0.987	5760.8	62.3

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19727X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	1737.2	1737.2	1737.2	1737.2	1737.2
5	1676.5	1665.2	1663.1	1656.7	1649.7
10	1579.7	1578.6	1578.3	1553.2	1535.1
15	1476.7	1499.1	1514.5	1482.8	1444.1
20	1405.8	1453.1	1479.4	1453.1	1383.5
25	1304.8	1386.2	1412.5	1383.8	1283.6
30	1189.8	1313.7	1342.0	1311.6	1190.5
35	1136.3	1264.2	1303.2	1266.7	1158.6
40	1086.8	1191.7	1228.9	1204.6	1127.5
45	1030.2	1072.2	1121.8	1088.4	1059.4
50	950.4	945.0	973.2	957.7	954.3
55	854.3	827.4	841.3	834.2	837.4
60	761.2	728.0	736.7	728.1	729.8
65	660.1	632.7	634.6	626.1	629.3
70	558.4	534.1	531.6	514.6	521.2
75	442.2	418.7	411.9	400.4	403.4
80	326.9	298.5	291.6	290.4	291.2
85	222.5	204.3	194.8	195.4	196.7
90	148.1	138.6	129.1	129.6	131.1
95	113.1	110.6	104.0	102.6	105.1
100	113.6	111.4	101.9	95.9	99.6
105	120.8	109.1	108.1	98.9	101.1
110	116.0	103.5	103.5	104.1	108.4
115	118.2	103.2	105.4	102.9	106.9
120	126.5	120.9	110.4	105.0	111.4
125	136.3	127.6	118.1	111.3	121.0
130	147.5	137.9	130.7	116.7	123.3
135	154.5	137.0	137.6	128.9	123.8
140	156.6	146.2	137.1	126.0	129.8
145	171.0	155.4	152.5	137.1	132.8
150	176.2	155.7	145.5	140.0	144.1
155	158.2	138.4	125.6	126.3	128.9
160	135.7	116.4	103.2	104.1	102.2
165	100.6	89.3	76.2	75.7	74.9
170	77.1	73.3	66.3	62.0	61.9
175	85.8	88.0	88.0	86.5	89.0
180	99.1	99.5	97.7	97.4	98.5

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19727X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWCH19727X		
0-30	1220.0	21.2
0-40	1996.8	34.7
0-60	3614.9	62.8
0-90	4998.6	86.8
60-90	1383.7	24.0
0-180	5760.8	100.0

Beam Angle

Total Beam Angle (°)

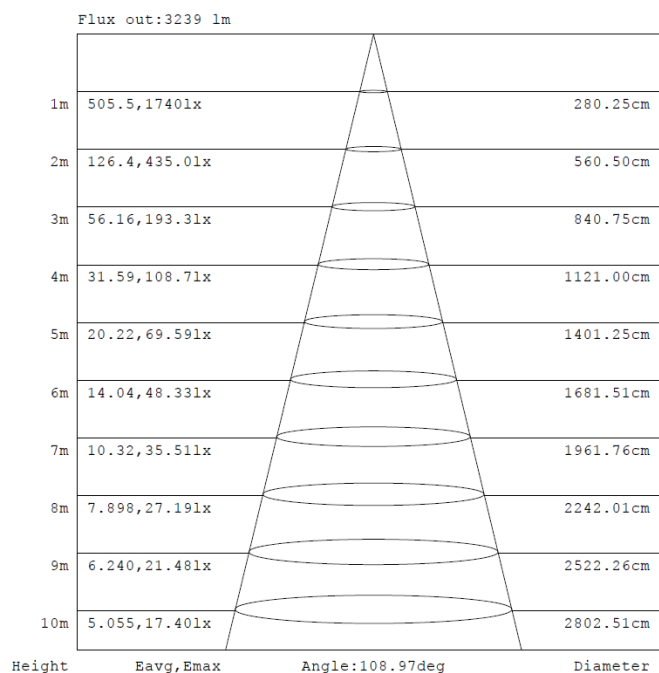
109.7

Illumination Plots

Model No.: KWCH19727X

Mount Height: 2.5 m

Illuminance - Cone of Light



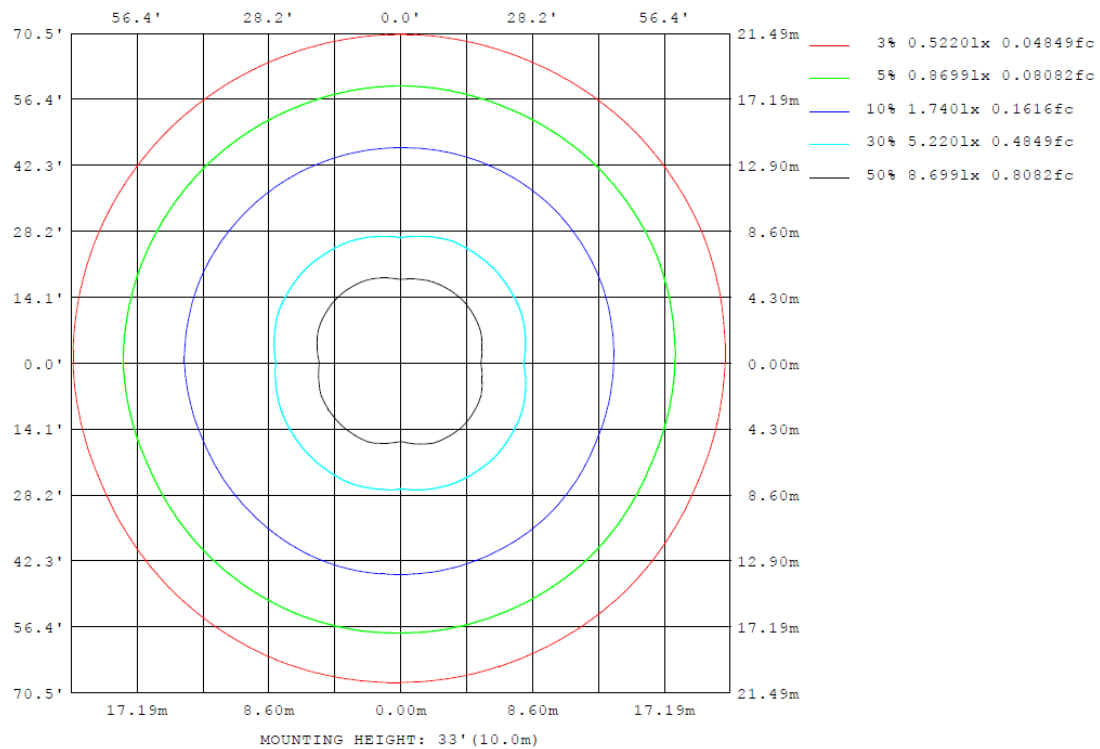
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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19727X

Model No.: KWCH19727X
Mount Height: 2.5 m
Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19727X

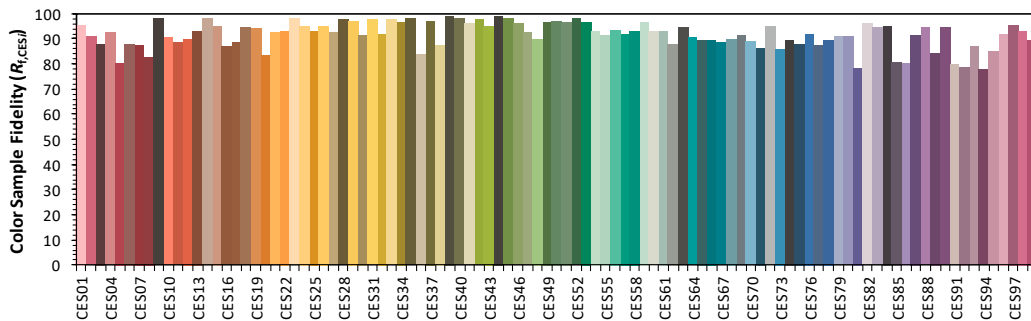
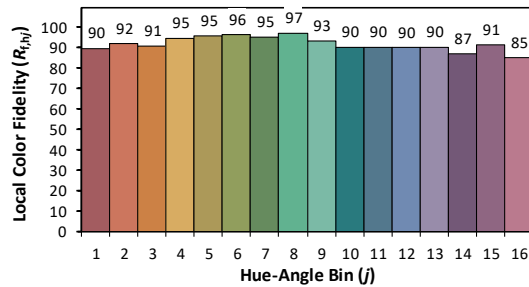
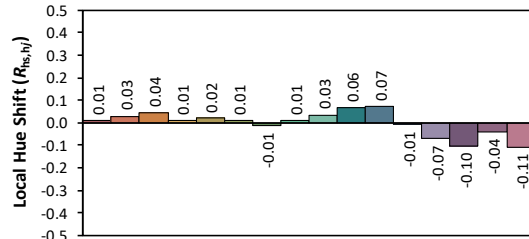
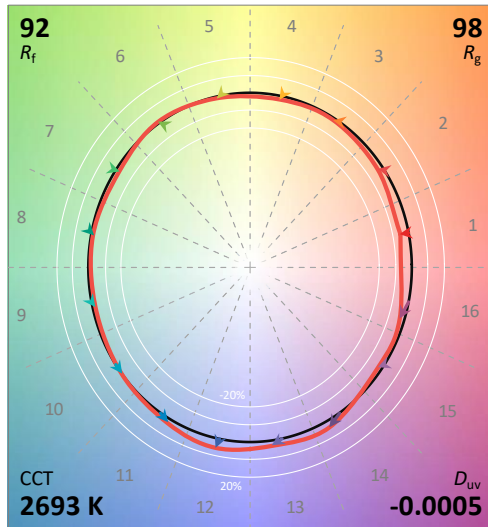
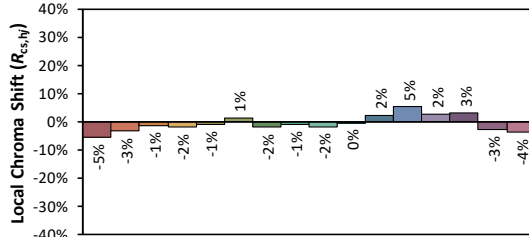
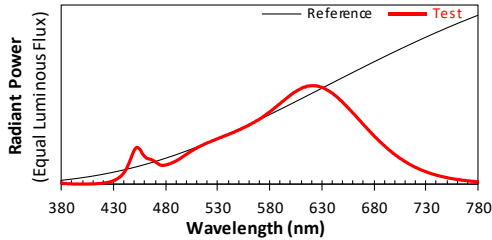
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/3/15

Model: KWCH19727X



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

x 0.4596
 y 0.4093
 u' 0.2629
 v' 0.5268

CIE 13.3-1995
 (CRI)

R_a 93

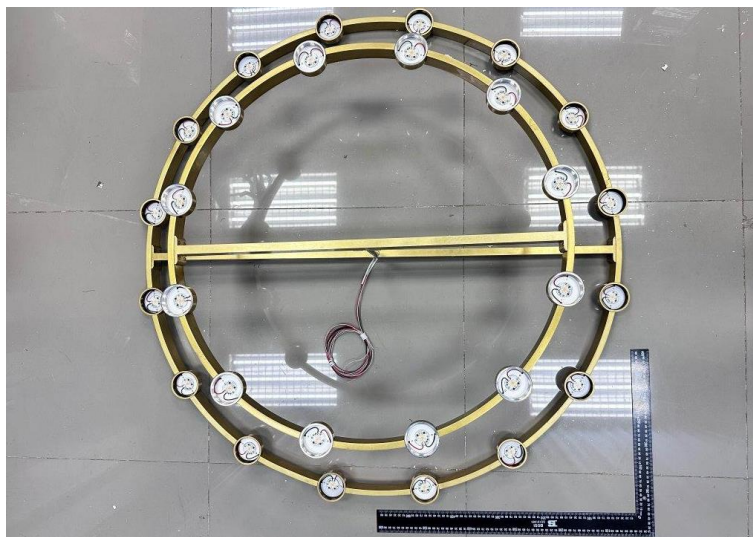
R_g 56

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

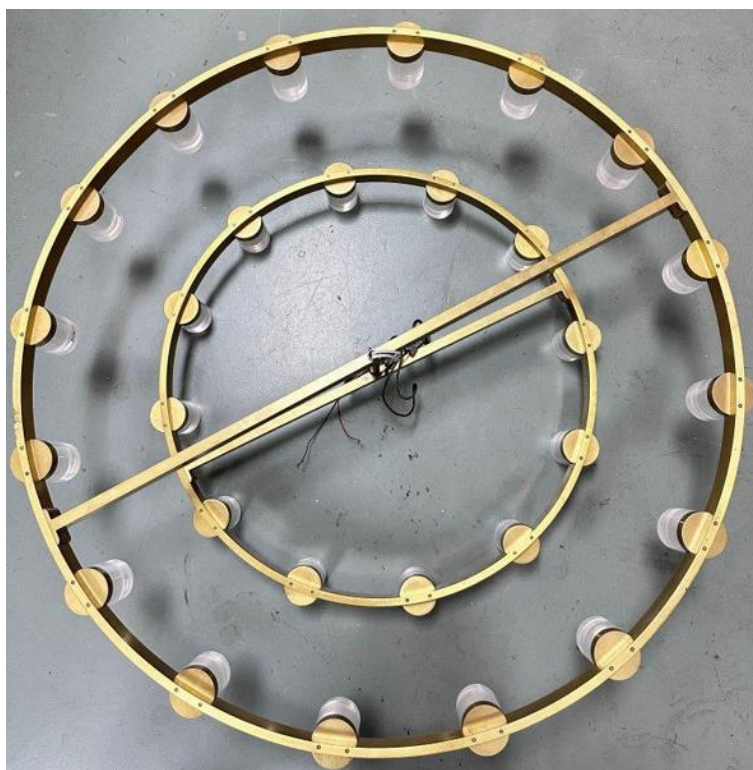
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of KWCH19727X



External view of KWCH19727X

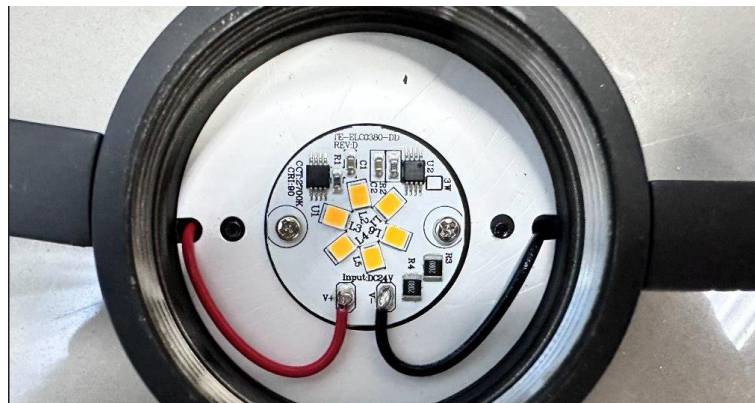
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TEST REPORT

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 *****