

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230301038GZU-003

ISSUE DATE

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REVISION DATE

None

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Report No.: 230301038GZU-003

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. KWCH19627X

(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 KWCH19627X. The sample was received, in undamaged condition. The sample designation was S230301038-003.
<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:	KWCH19627X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For KWCH19627X

Criteria	Result
Total Lumen Output	7291.8 lm
Total Power	122.9 W
Luminaire Efficacy	59.3 lm/W
S/MH(C0/180)	0.99
S/MH(C90/270)	0.92
Correlated Color Temperature (CCT)	2690 K
Color Rendering Index (CRI)	93
R9	56
Chromaticity Coordinate (x)	0.4601
Chromaticity Coordinate (y)	0.4097
Chromaticity Coordinate (u')	0.2630
Chromaticity Coordinate (v')	0.5270

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

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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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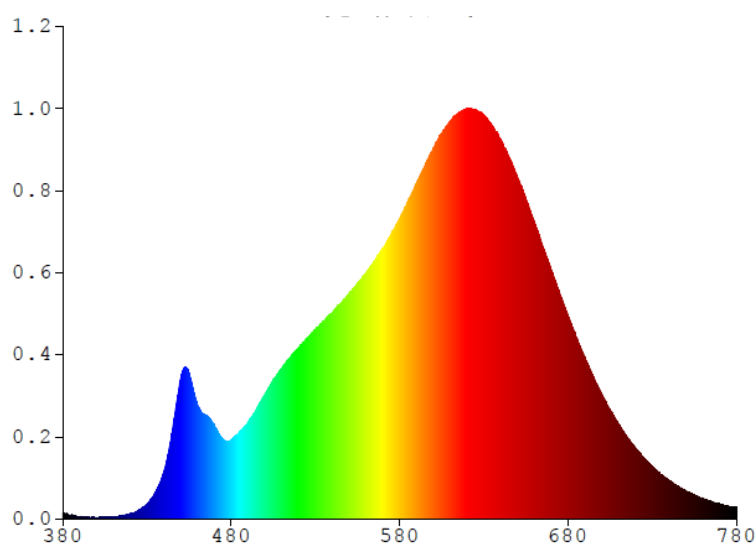
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For KWCH19627X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.4391	480	5.6013	580	21.2330	680	14.3900	780	0.8377
385	0.2129	485	6.1410	585	22.4670	685	12.8370		
390	0.1643	490	6.8061	590	23.7200	690	11.4240		
395	0.1416	495	7.7902	595	24.9600	695	10.0380		
400	0.0807	500	8.8029	600	26.1830	700	8.8528		
405	0.1247	505	9.8136	605	27.2500	705	7.7195		
410	0.1536	510	10.6540	610	28.1290	710	6.7305		
415	0.2338	515	11.4120	615	28.6770	715	5.8276		
420	0.3748	520	12.1120	620	29.0110	720	5.0556		
425	0.6056	525	12.8170	625	28.9510	725	4.3387		
430	1.0611	530	13.3960	630	28.5000	730	3.7269		
435	1.8760	535	14.0060	635	27.7810	735	3.1751		
440	3.3643	540	14.5800	640	26.8850	740	2.7353		
445	6.1958	545	15.2430	645	25.5940	745	2.3477		
450	9.9284	550	15.9510	650	24.2090	750	1.9989		
455	10.2410	555	16.6650	655	22.6080	755	1.7085		
460	8.0537	560	17.3830	660	21.0380	760	1.4627		
465	7.3386	565	18.2420	665	19.2970	765	1.2467		
470	6.6108	570	19.1150	670	17.6190	770	1.0639		
475	5.6509	575	20.1550	675	15.6750	775	0.9087		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19627X

Total operation burning time: 60 minutes
Stabilization time: 45 minutes

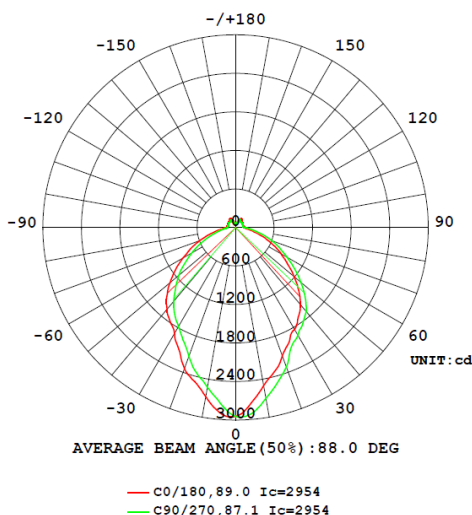
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperature (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')
KWCH19627X								
S2303010 38-003	--	2690	93	56	0.4601	0.4097	0.2630	0.5270

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)
KWCH19627X							
S2303010 38-003	--	120.1	1029.0	122.9	0.995	7291.8	59.3

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19627X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	2943.8	2943.8	2943.8	2943.8	2943.8
5	2749.6	2759.2	2786.2	2877.9	2906.5
10	2502.7	2559.3	2597.7	2674.6	2703.7
15	2327.8	2425.3	2465.3	2512.1	2506.8
20	2126.7	2304.1	2280.5	2354.2	2310.4
25	1970.0	2167.3	2145.6	2196.9	2057.0
30	1834.8	2006.2	1974.2	2062.4	1937.6
35	1702.1	1819.1	1849.4	1909.0	1825.8
40	1572.6	1600.4	1640.3	1725.5	1707.8
45	1390.6	1369.0	1407.0	1516.9	1532.2
50	1190.2	1155.5	1194.8	1311.4	1325.4
55	988.1	970.3	1015.0	1114.1	1121.4
60	814.1	833.0	835.7	912.2	924.8
65	649.8	672.2	682.4	744.4	759.7
70	488.1	510.3	515.3	576.5	597.0
75	337.8	350.0	357.7	424.1	442.5
80	230.6	242.4	244.7	295.3	306.7
85	156.1	167.4	168.2	203.8	211.4
90	133.6	137.8	131.7	140.3	144.3
95	135.9	135.0	122.2	120.9	124.6
100	133.7	134.6	129.2	117.7	115.8
105	123.4	120.8	121.9	116.2	118.2
110	124.1	116.0	121.0	117.2	126.2
115	124.1	123.5	116.1	116.9	120.3
120	129.9	129.4	120.1	116.2	126.9
125	138.0	139.7	133.8	121.2	130.2
130	135.8	141.6	135.0	119.5	128.1
135	139.4	139.2	140.6	127.3	123.7
140	156.3	140.8	149.3	116.6	118.6
145	167.9	148.0	151.7	125.8	126.9
150	161.5	141.4	138.2	145.7	143.8
155	136.3	117.8	118.5	132.9	137.7
160	108.5	104.1	94.2	105.9	104.0
165	77.9	77.0	66.2	76.1	76.0
170	64.8	63.1	60.0	55.9	55.3
175	67.3	68.8	69.2	64.3	66.9
180	75.0	74.9	79.5	75.6	73.8

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19627X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
KWCH19627X		
0-30	1950.2	26.7
0-40	3096.6	42.5
0-60	5167.0	70.9
0-90	6490.1	89.0
60-90	1323.1	18.1
0-180	7291.8	100.0

Beam Angle

Total Beam Angle (°)

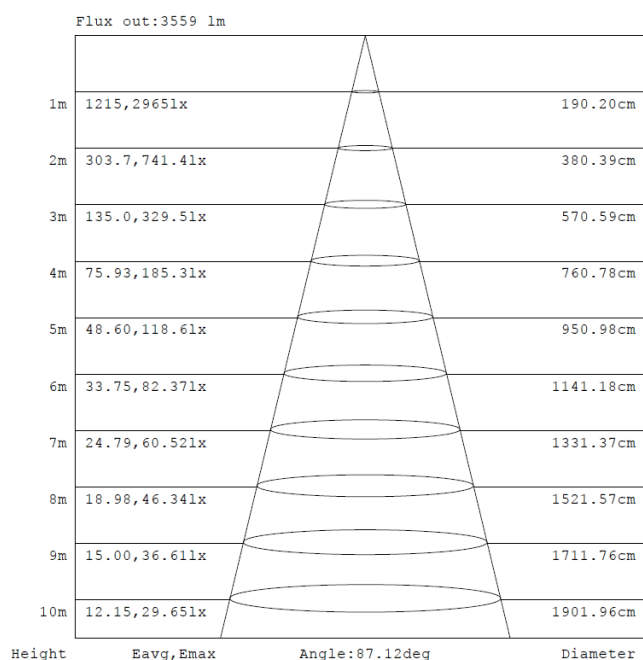
88.0

Illumination Plots

Model No.: KWCH19627X

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

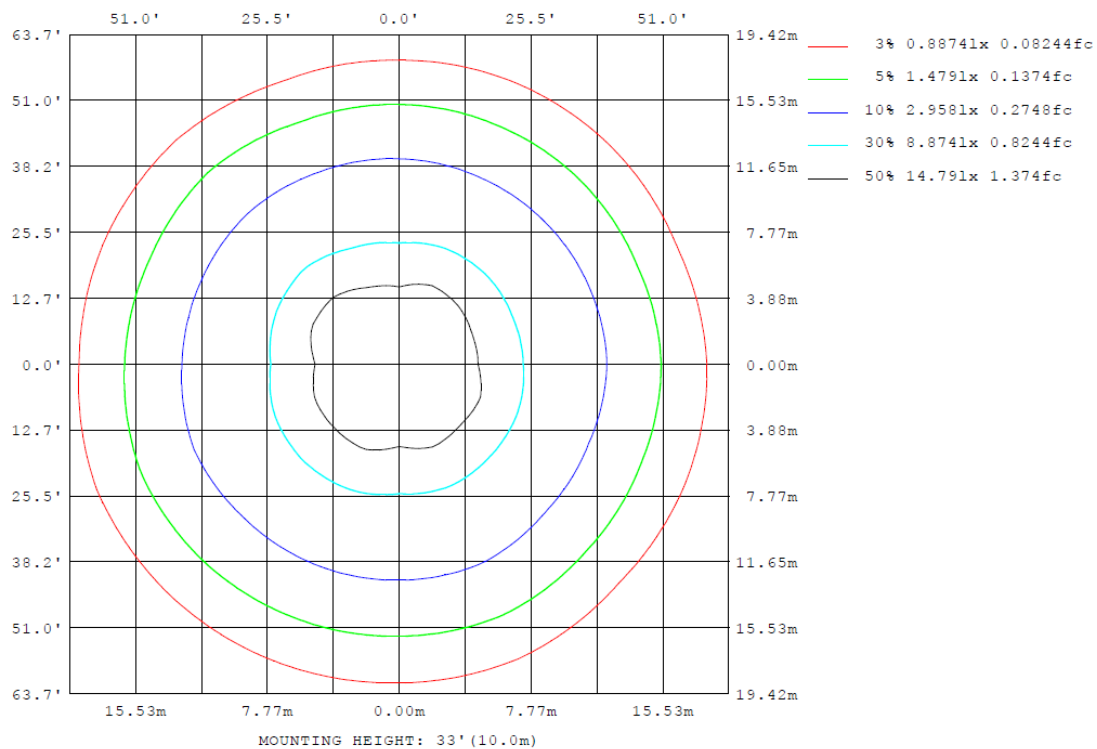
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19627X

Model No.: KWCH19627X

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For KWCH19627X

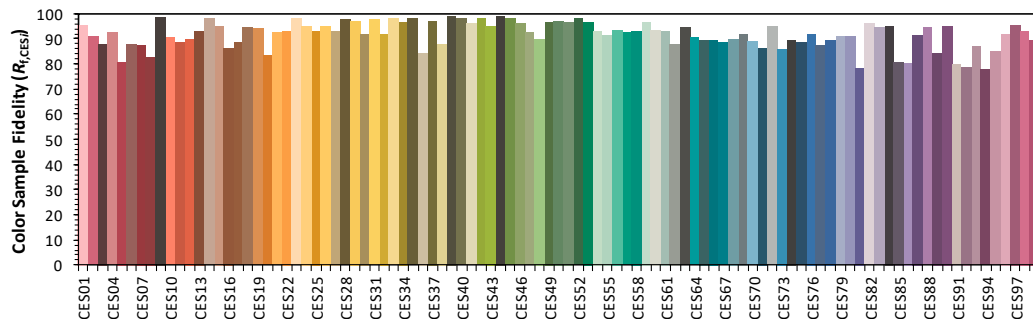
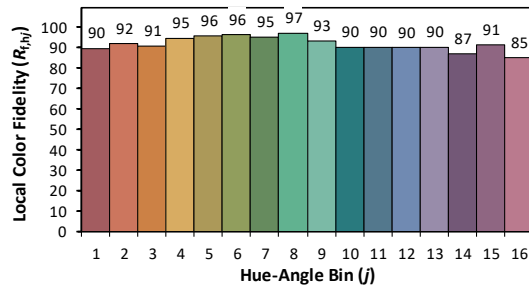
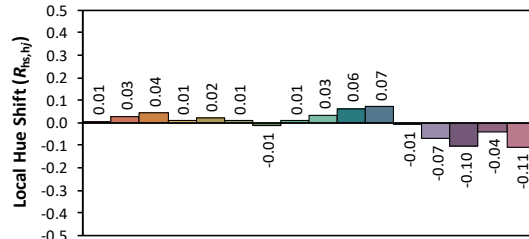
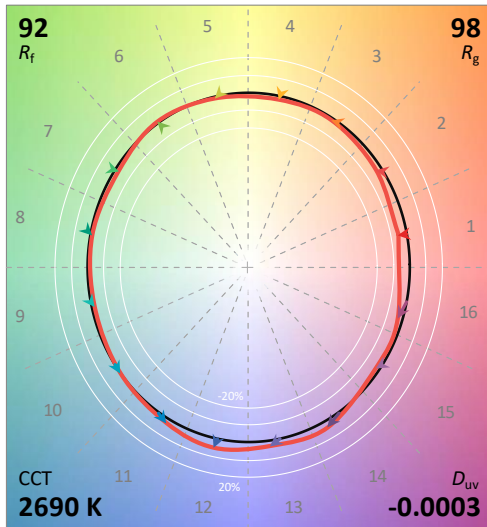
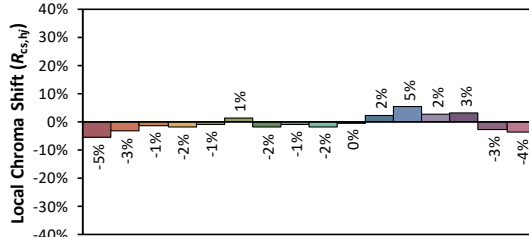
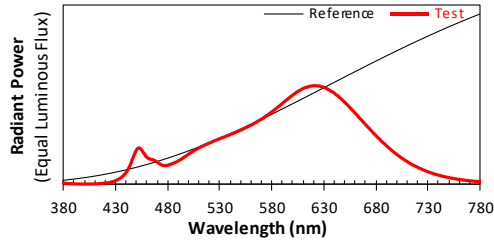
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/3/15

Model: KWCH19627X



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

x 0.4601
 y 0.4097
 u' 0.2630
 v' 0.5270

CIE 13.3-1995
(CRI)

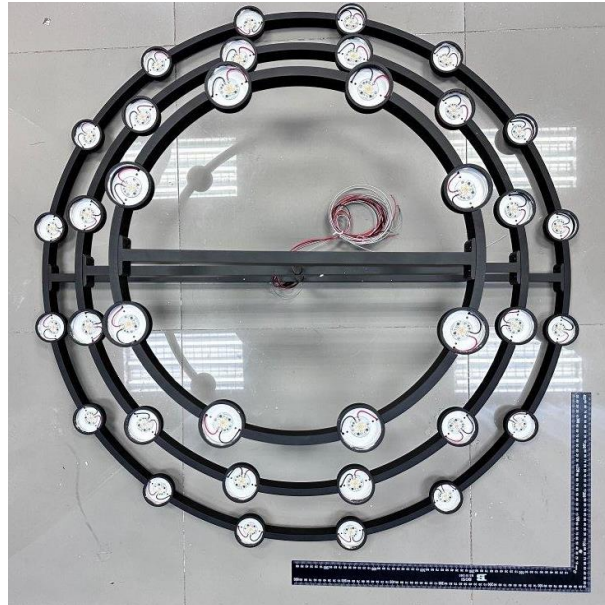
R_a 93
 R_g 56

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 KWCH19627X



External view of KWCH19627X

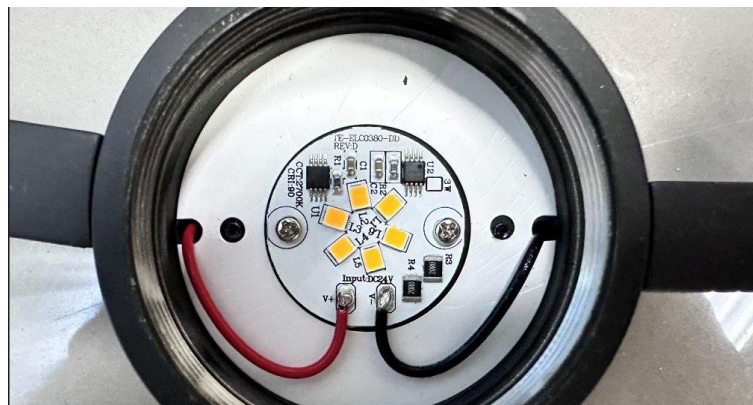
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver MDR-608-24-60-LD



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 *****