

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220601181GZU-002

ISSUE DATE

23 June 2022

REVISION DATE

None

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Report No.: 220601181GZU-002

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700OWKLM927xxUNV

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: QGZ210406068.

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 700OWKLM927xxUNV. The sample was received, in undamaged condition. The sample designation was S220601181-001.

DATES OF TESTS: 14 June 2022

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:	700OWKLM927xxUNV (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700OWKLM927xxUNV

Criteria	Result
Total Lumen Output	194.56 lm
Total Power	7.54 W
Luminaire Efficacy	25.80 lm/W
S/MH(C0/180)	1.24
S/MH(C90/270)	0.97
Correlated Color Temperature (CCT)	2630 K
Color Rendering Index (CRI)	91
R9	56
Chromaticity Coordinate (x)	0.4626
Chromaticity Coordinate (y)	0.4063
Chromaticity Coordinate (u')	0.2662
Chromaticity Coordinate (v')	0.5261

Remark:

Measurement uncertainty for applicable tests has been established.

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TEST REPORT

EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Temperature Meter	RS210	SA047-126
Sensing - DC Power Supply	IT6122	SA063-12-09
Sensing- AC power source for Integrating Sphere System	APW-105N	SA063-12-05
Everfine - AC power source for Goniophotometer System	DPS1060	SA063-16-03
Two meter integrating sphere unit	Sensing – 2M	SA063-12-01
YOKOGAWA – Digital Power Meter	WT-210	SA011-122
Everfine – Goniophotometer	Go-R5000	SA063-16
KONICA MINOLTA - Illuminance meter	CX-2B_WL	SA063-16-01
Standard lamp	S82134	SA063-12-13
Standard lamp	S1320039	SA063-12-24
Standard lamp	D908S	SA063-16-05
Standard lamp	D215S	SA063-16-06

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 YOKOGAWA - Digital Power Meter., model WT210.

Correction factor (self-absorption) has been considered when doing measurement.

Standard lamp used for Goniophotometer method:

Model: D908S

Current: 7.255A

Standard lamp used for integrating sphere:

Model: S82134

Current: 1.830

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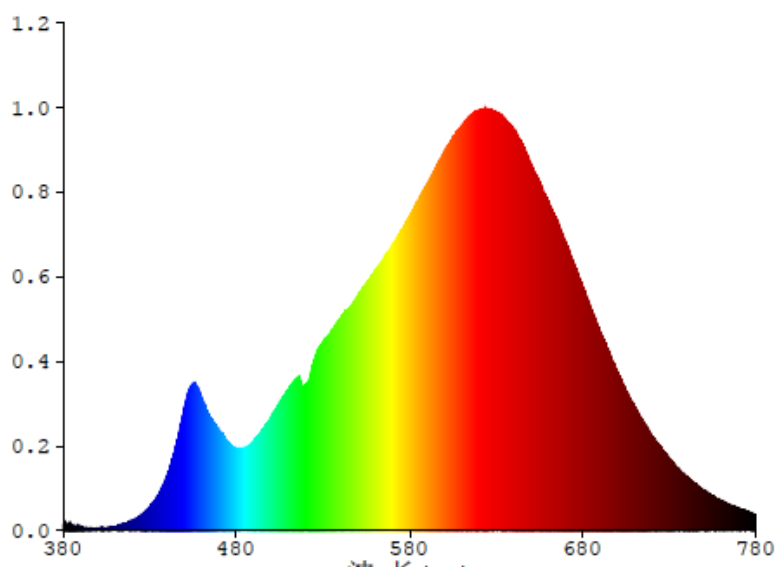
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700OWKLM927xxUNV

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0199	480	0.3182	580	1.2246	680	0.9474	780	0.0584
385	0.0148	485	0.3233	585	1.2839	685	0.8603		
390	0.0163	490	0.3480	590	1.3462	690	0.7739		
395	0.0107	495	0.3943	595	1.4145	695	0.6942		
400	0.0105	500	0.4440	600	1.4790	700	0.6160		
405	0.0121	505	0.4989	605	1.5289	705	0.5439		
410	0.0169	510	0.5516	610	1.5750	710	0.4804		
415	0.0279	515	0.5940	615	1.6151	715	0.4219		
420	0.0400	520	0.5704	620	1.6362	720	0.3685		
425	0.0617	525	0.6666	625	1.6383	725	0.3237		
430	0.0941	530	0.7358	630	1.6283	730	0.2804		
435	0.1403	535	0.7798	635	1.6033	735	0.2421		
440	0.2163	540	0.8261	640	1.5622	740	0.2100		
445	0.3289	545	0.8661	645	1.5056	745	0.1813		
450	0.4816	550	0.9147	650	1.4272	750	0.1576		
455	0.5732	555	0.9641	655	1.3560	755	0.1353		
460	0.5152	560	1.0118	660	1.2824	760	0.1172		
465	0.4368	565	1.0553	665	1.2113	765	0.0988		
470	0.3893	570	1.1109	670	1.1246	770	0.0864		
475	0.3459	575	1.1665	675	1.0177	775	0.0748		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 7000WKLM927xxUNV

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

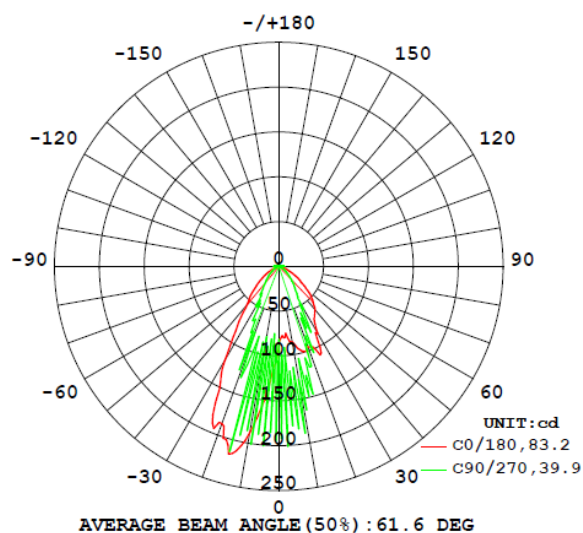
Photometric Measurements at 25°C – Integrating Sphere Method

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')
7000WKLM927xxUNV								
S2206011 81-001	--	2630	91	56	0.4626	0.4063	0.2662	0.5261

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)
700OWKLM927xxUNV							
S2206011 81-001	--	120.0	64.1	7.54	0.980	194.56	25.80

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700OWKLM927xxUNV

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	88.0	85.8	85.0	82.1	81.6
5	79.4	101.7	171.0	122.7	178.2
10	85.4	89.2	206.2	203.9	127.6
15	97.2	101.6	158.6	118.8	147.4
20	95.7	101.0	125.6	69.1	91.5
25	108.7	87.4	84.2	73.6	57.0
30	86.6	87.3	78.9	54.4	55.7
35	68.9	67.8	49.0	38.0	32.6
40	62.8	57.0	34.1	29.3	24.9
45	53.2	40.6	25.4	21.3	18.0
50	42.0	29.2	19.1	15.5	12.7
55	29.8	20.8	13.8	11.2	9.0
60	22.1	13.4	9.5	7.8	6.0
65	14.3	9.2	6.5	5.0	3.7
70	8.6	5.3	4.0	2.9	2.0
75	4.5	3.0	2.3	1.5	0.8
80	2.0	1.7	1.3	0.9	0.7
85	2.5	1.9	3.1	3.3	2.3
90	1.9	3.3	5.7	5.7	6.2
95	1.4	2.7	4.6	5.5	6.0
100	1.4	2.4	3.6	4.6	5.0
105	1.3	2.0	2.9	4.0	4.4
110	1.0	1.8	2.5	3.3	3.5
115	0.7	1.8	2.3	2.8	2.8
120	0.1	1.9	2.2	2.4	2.2
125	0.2	2.1	2.3	2.1	1.8
130	0.2	2.2	2.4	2.1	1.6
135	0.3	2.4	2.7	2.4	1.6
140	0.3	2.6	3.2	3.0	1.8
145	0.4	3.1	3.3	3.2	2.2
150	0.4	3.0	3.7	3.4	2.5
155	0.4	2.9	3.7	3.4	2.3
160	0.4	2.6	3.4	3.1	2.3
165	0.4	2.7	2.9	2.8	2.1
170	0.3	1.5	2.2	1.9	1.5
175	0.2	0.5	0.7	0.7	0.7
180	0.1	0.0	0.0	0.0	0.0

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700OWKLM927xxUNV

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700OWKLM927xxUNV		
0-30	95.6	49.1
0-40	129.4	66.5
0-60	166.9	85.8
0-90	179.1	92.1
60-90	12.2	6.3
0-180	194.6	100

Beam Angle

Total Beam Angle (°)

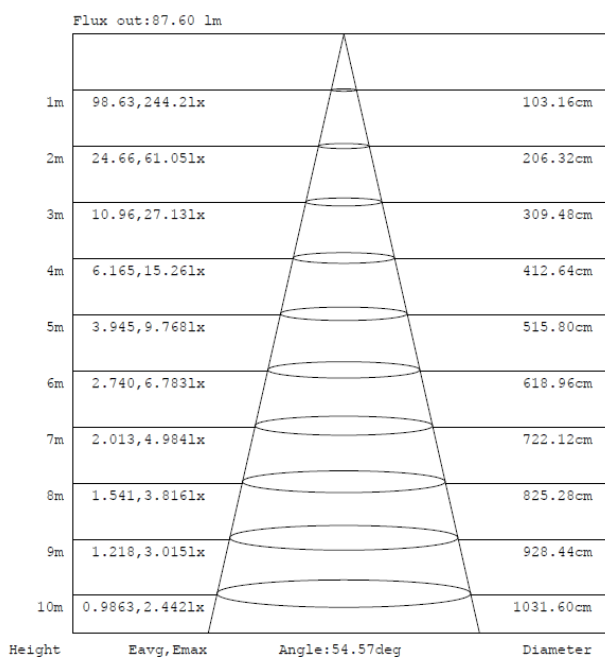
61.6

Illumination Plots

Model No.: 700OWKLM927xxUNV

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

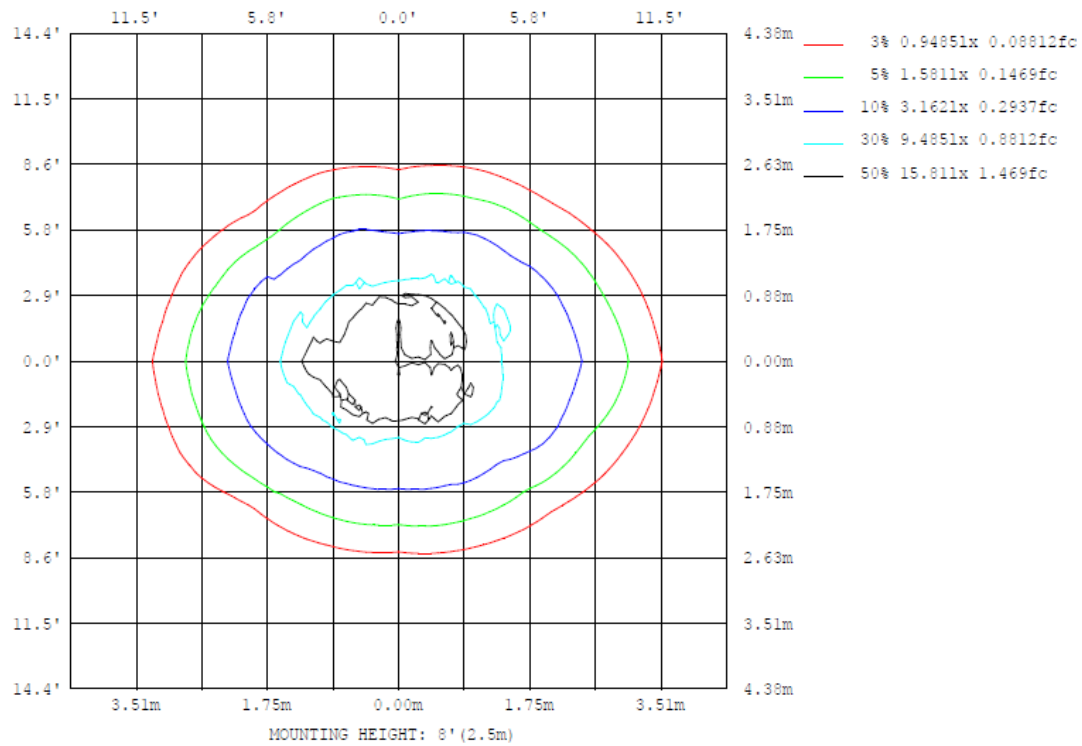
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 7000WKLM927xxUNV

Model No.: 7000WKLM927xxUNV

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 7000WKLM927xxUNV

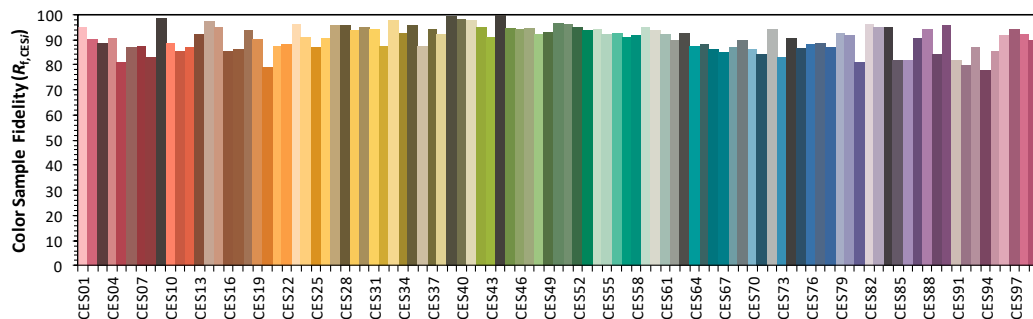
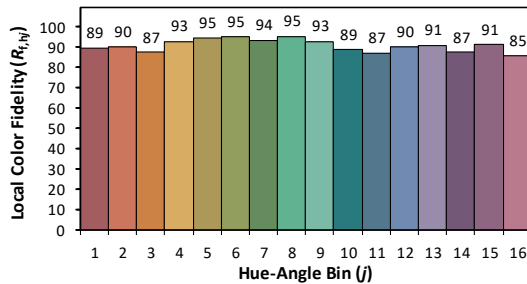
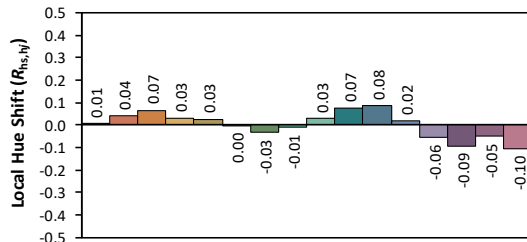
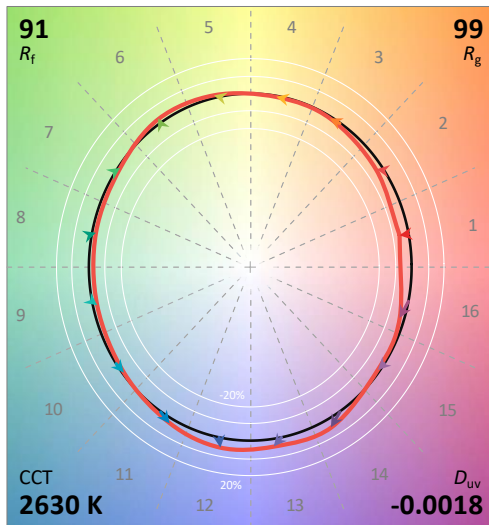
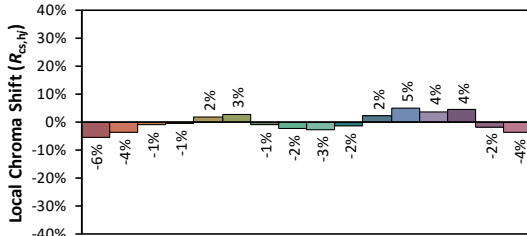
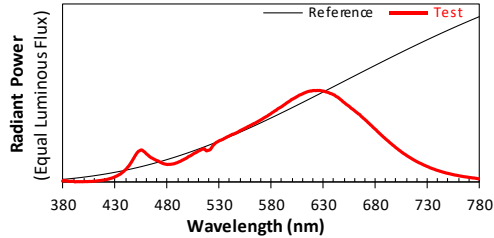
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/6/14

Model: 7000WKLM927xxUNV



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

x 0.4626
 y 0.4063
 u' 0.2662
 v' 0.5261

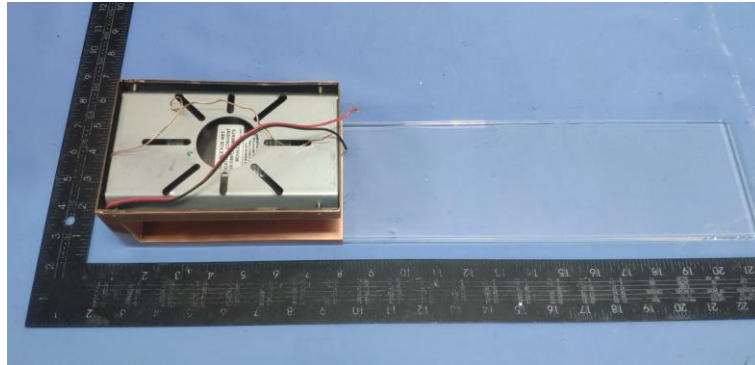
CIE 13.3-1995
(CRI)
 R_a 91
 R_g 56

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 7000WKLM927xxUNV



External view of 7000WKLM927xxUNV

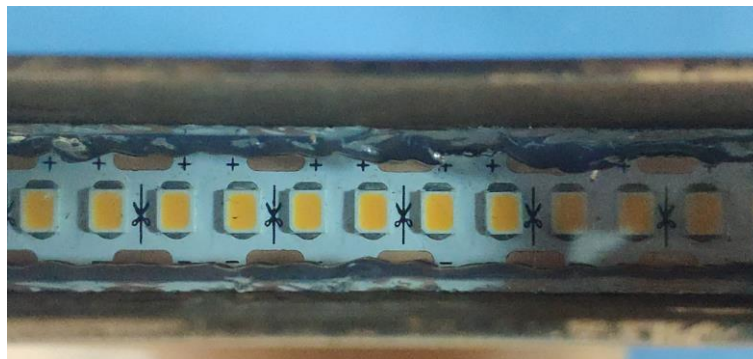
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver 7000WKLM927xxUNV



View of LED

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Zi

Shelley Ying
Reviewer

Attachment: None

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