

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

231225119GZU-002

ISSUE DATE

25-January-2024

REVISION DATE

None

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13

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Report No.: 231225119GZU-002

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. SLLS31927XX

(Remark: "XX" are denoted finish color)

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

7400 LINDER AVE. SKOKIE, IL, 60077

Email: Tgallagher@visualcomfortco.com
Phone No.: 8474104774

<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: QGZ231220004.
<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 SLLS31927N. The sample was received in undamaged condition. The sample designation was S231225119-002.
<u>DATES OF TESTS:</u>	12-January-2024
<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:	SLLS31927N
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For SLLS31927N

Criteria	Result
Total Lumen Output	1064.5 lm
Total Power	16.9 W
Luminaire Efficacy	62.9 lm/W
S/MH(C0/180)	1.35
S/MH(C90/270)	0.80
Correlated Color Temperature (CCT)	2714 K
Color Rendering Index (CRI)	92
R9	72
Chromaticity Coordinate (x)	0.4596
Chromaticity Coordinate (y)	0.4119
Chromaticity Coordinate (u')	0.2618
Chromaticity Coordinate (v')	0.5278

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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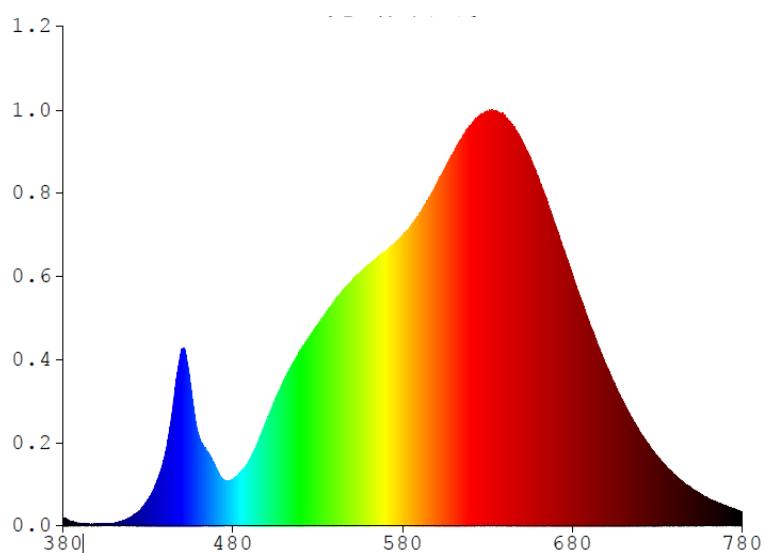
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For SLLS31927N

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.1058	480	0.7041	580	4.3710	680	3.7647	780	0.2069
385	0.0696	485	0.8173	585	4.5109	685	3.4002		
390	0.0379	490	1.0044	590	4.6990	690	3.0537		
395	0.0334	495	1.2763	595	4.9050	695	2.7218		
400	0.0341	500	1.5971	600	5.1261	700	2.4031		
405	0.0345	505	1.9066	605	5.3757	705	2.1256		
410	0.0471	510	2.1804	610	5.6210	710	1.8581		
415	0.0840	515	2.4272	615	5.8319	715	1.6174		
420	0.1389	520	2.6364	620	6.0175	720	1.4005		
425	0.2334	525	2.8411	625	6.1577	725	1.2147		
430	0.3980	530	3.0148	630	6.2299	730	1.0511		
435	0.6532	535	3.2043	635	6.2392	735	0.9006		
440	1.0629	540	3.3876	640	6.1693	740	0.7706		
445	1.8575	545	3.5448	645	6.0114	745	0.6606		
450	2.6496	550	3.6775	650	5.8105	750	0.5722		
455	2.1220	555	3.8017	655	5.5403	755	0.4884		
460	1.3510	560	3.9106	660	5.2321	760	0.4167		
465	1.1234	565	4.0157	665	4.8749	765	0.3571		
470	0.8766	570	4.1248	670	4.5146	770	0.3066		
475	0.6907	575	4.2380	675	4.0687	775	0.2598		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLLS31927N

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

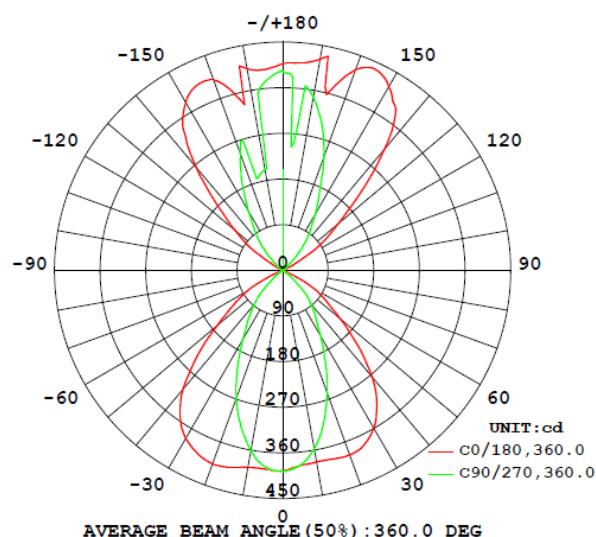
Photometric Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit	Chromaticit	Chromaticit	Chromaticit
					y	y	y	y
					Coordinate	Coordinate	Coordinate	Coordinate
					(x)	(y)	(u')	(v')
SLLS31927N								
S2312251 19-002	--	2714	92	72	0.4596	0.4119	0.2618	0.5278

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)
SLLS31927N							
S2312251 19-002	--	120.1	142.4	16.9	0.989	1064.5	62.9

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLLS31927N

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	93.3	93.3	93.4	93.4	93.5
5	91.4	91.3	90.9	90.6	91.2
10	90.7	90.1	87.6	84.9	84.6
15	91.0	89.4	83.5	77.1	73.7
20	91.5	88.9	78.6	67.9	60.7
25	89.7	86.5	72.5	56.3	47.2
30	84.8	81.1	65.2	45.4	35.4
35	76.6	73.1	53.5	34.7	26.9
40	64.8	60.1	40.2	24.9	20.8
45	49.6	44.9	27.9	17.3	14.3
50	35.1	31.4	19.7	11.1	6.2
55	24.8	22.6	13.0	4.4	1.4
60	16.3	13.6	5.1	0.9	0.1
65	5.3	4.0	0.8	0.1	0.0
70	0.2	0.3	0.1	0.0	0.0
75	0.1	0.1	0.0	0.1	0.1
80	0.1	0.1	0.1	0.1	0.1
85	0.2	0.1	0.1	0.1	0.1
90	0.0	0.0	0.0	0.0	0.1
95	0.0	0.0	0.0	0.0	0.0
100	0.1	0.1	0.1	0.1	0.1
105	0.1	0.1	0.1	0.1	0.1
110	0.1	0.1	0.1	0.1	0.1
115	0.6	0.2	0.1	0.1	0.1
120	9.1	6.9	0.8	0.1	0.0
125	22.2	18.9	7.3	0.9	0.1
130	33.6	30.0	16.5	5.6	1.2
135	51.5	45.3	25.6	12.9	6.9
140	74.0	66.6	39.0	20.1	15.1
145	92.0	87.0	56.1	30.5	22.0
150	98.9	100.0	71.9	43.4	30.4
155	103.1	107.1	84.0	57.1	41.3
160	99.4	106.8	81.6	68.9	56.3
165	86.8	88.3	91.1	80.2	70.6
170	99.8	99.0	94.4	88.8	82.0
175	97.0	96.8	95.6	93.1	59.5
180	96.4	95.6	94.9	93.5	92.2

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLLS31927N

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
SLLS31927N		
0-30	270.8	25.4
0-40	405.8	38.1
0-60	548.7	51.6
0-90	559.0	52.5
60-90	10.3	0.9
0-180	1064.5	100.0

Beam Angle

Total Beam Angle (°)

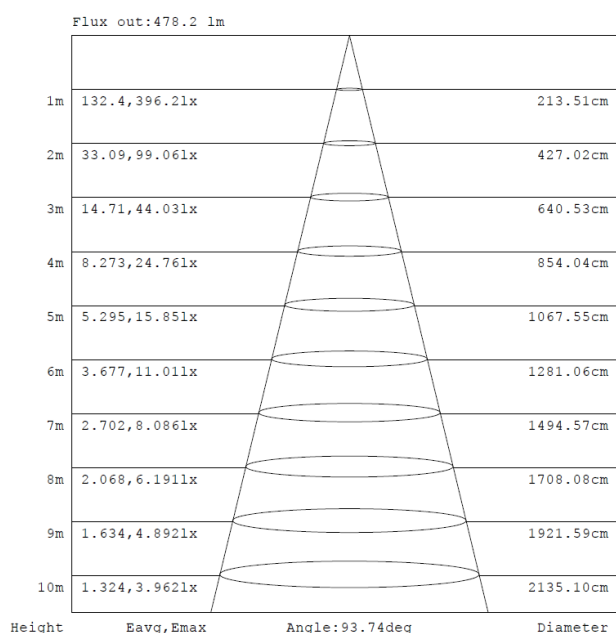
360.0

Illumination Plots

Model No.: SLLS31927N

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

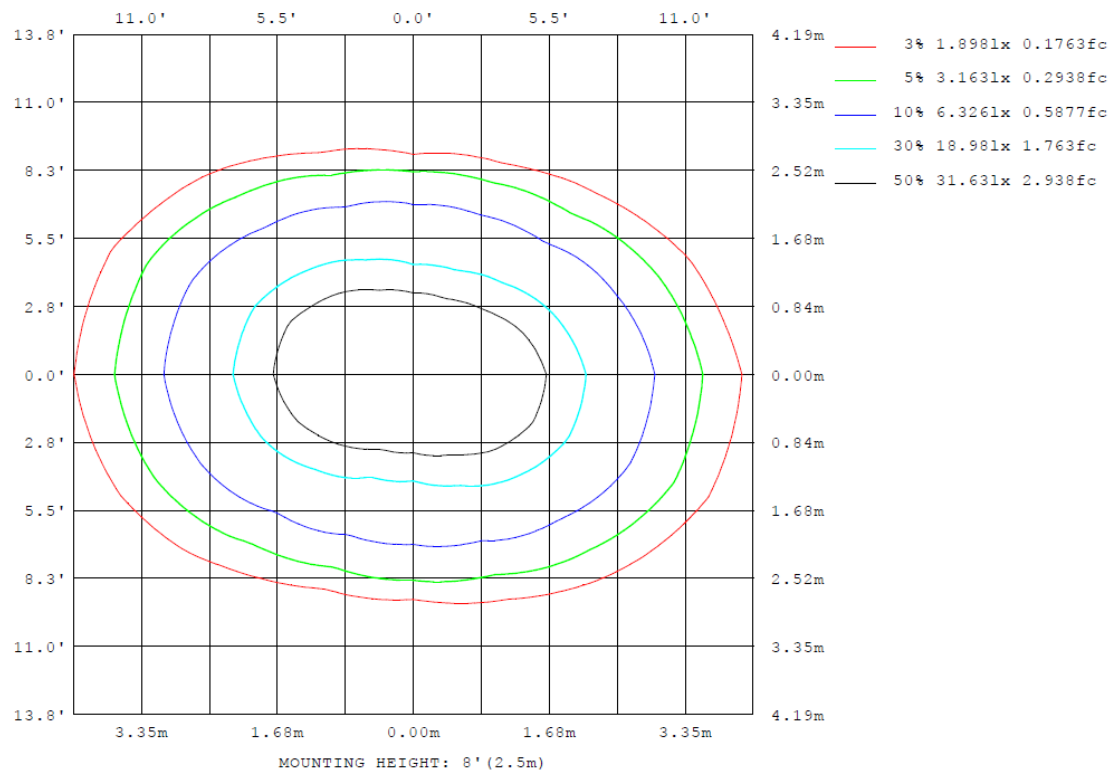
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLLS31927N

Model No.: SLLS31927N

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLLS31927N

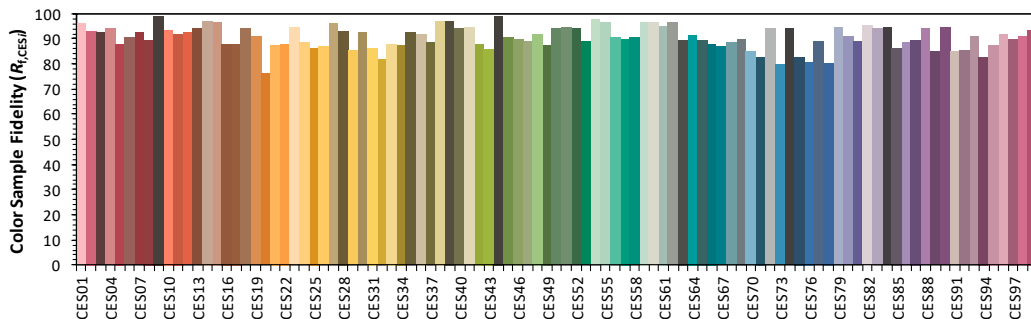
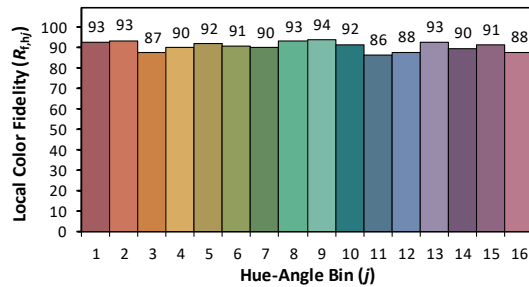
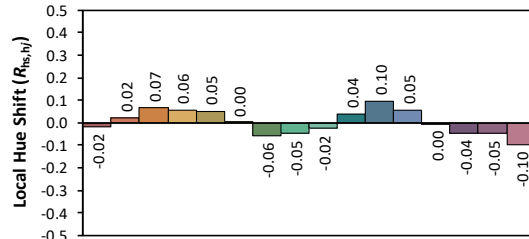
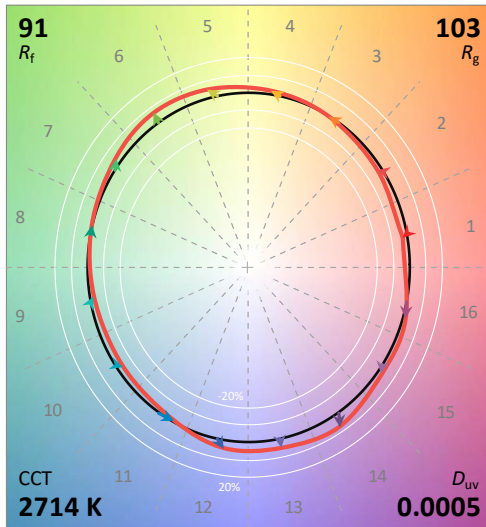
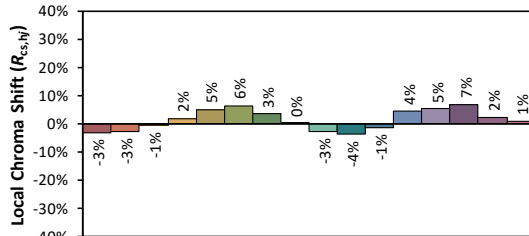
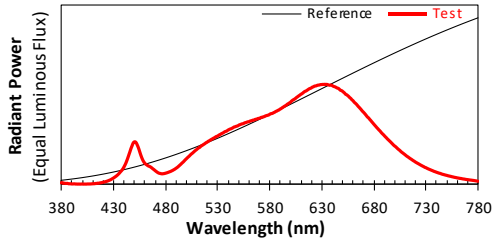
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2024/1/12

Model: SLLS31927N



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

x 0.4596
 y 0.4119
 u' 0.2618
 v' 0.5278

CIE 13.3-1995
(CRI)

R_a 92

R_g 72

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

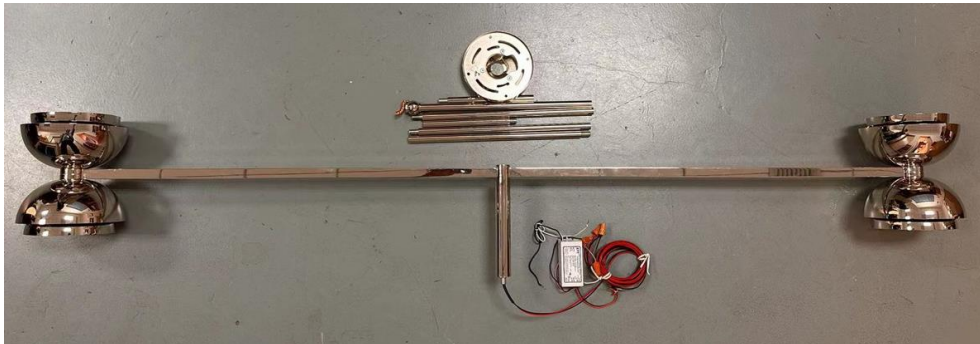
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of SLLS31927N

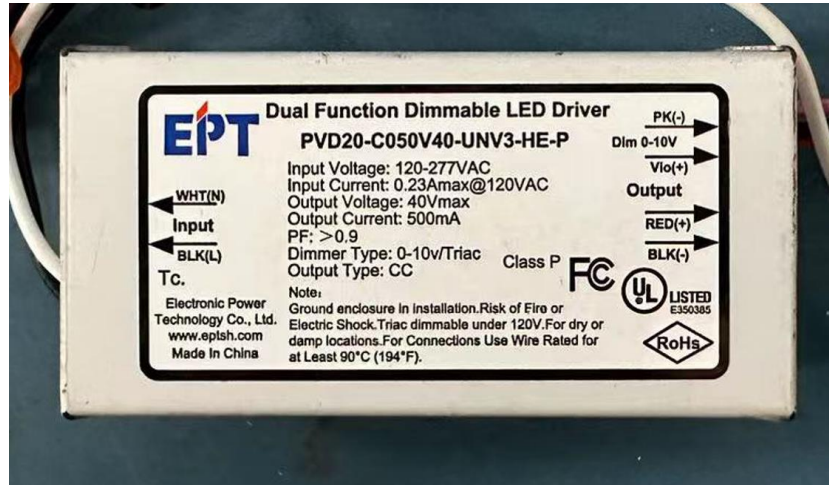


External view of SLLS31927N

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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED driver PVD20-C050V40-UNV3-HE-P



View of LED board

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

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