

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230301038GZU-010

ISSUE DATE

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REVISION DATE

None

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Report No.: 230301038GZU-010

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. SLWS12130X

(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 SLWS12130X. The sample was received, in undamaged condition. The sample designation was S230301038-010.
<u>DATES OF TESTS:</u>	10 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:	SLWS12130X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For SLWS12130X

Criteria	Result
Total Lumen Output	1434.6 lm
Total Power	27.1 W
Luminaire Efficacy	52.9 lm/W
S/MH(C0/180)	1.22
S/MH(C90/270)	1.27
Correlated Color Temperature (CCT)	2833 K
Color Rendering Index (CRI)	93
R9	65
Chromaticity Coordinate (x)	0.4489
Chromaticity Coordinate (y)	0.4072
Chromaticity Coordinate (u')	0.2569
Chromaticity Coordinate (v')	0.5244

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: 110V/100W

Current: 0.8851A

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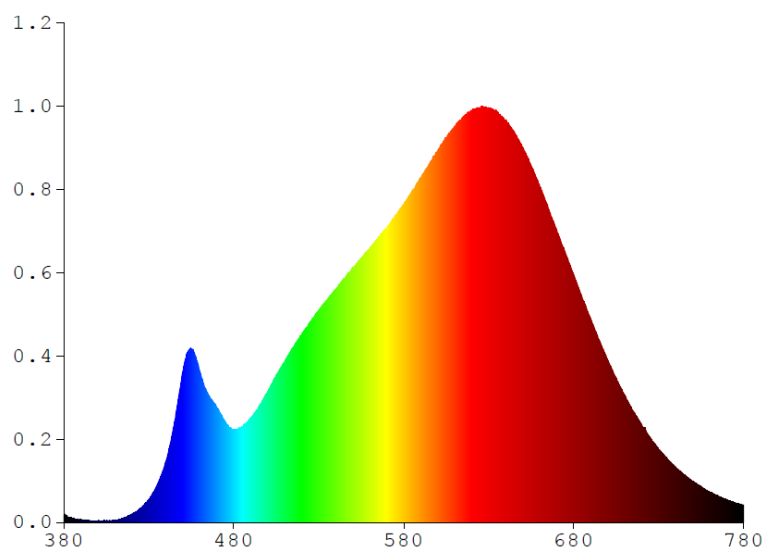
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For SLWS12130X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0571	480	0.8458	580	2.9010	680	2.2519	780	0.1577
385	0.0367	485	0.8737	585	3.0250	685	2.0397		
390	0.0279	490	0.9536	590	3.1416	690	1.8527		
395	0.0135	495	1.0672	595	3.2736	695	1.6609		
400	0.0132	500	1.1944	600	3.3963	700	1.4761		
405	0.0150	505	1.3427	605	3.5063	705	1.3105		
410	0.0216	510	1.4692	610	3.6118	710	1.1558		
415	0.0395	515	1.5970	615	3.6999	715	1.0103		
420	0.0765	520	1.7157	620	3.7541	720	0.8858		
425	0.1275	525	1.8351	625	3.7844	725	0.7682		
430	0.2109	530	1.9356	630	3.7782	730	0.6681		
435	0.3453	535	2.0314	635	3.7433	735	0.5785		
440	0.5557	540	2.1264	640	3.6714	740	0.4993		
445	0.9060	545	2.2202	645	3.5551	745	0.4335		
450	1.3723	550	2.3240	650	3.4184	750	0.3753		
455	1.5833	555	2.4130	655	3.2460	755	0.3243		
460	1.3718	560	2.4985	660	3.0607	760	0.2772		
465	1.1656	565	2.5962	665	2.8570	765	0.2405		
470	1.0422	570	2.6921	670	2.6571	770	0.2056		
475	0.9151	575	2.7990	675	2.4094	775	0.1779		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLWS12130X

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

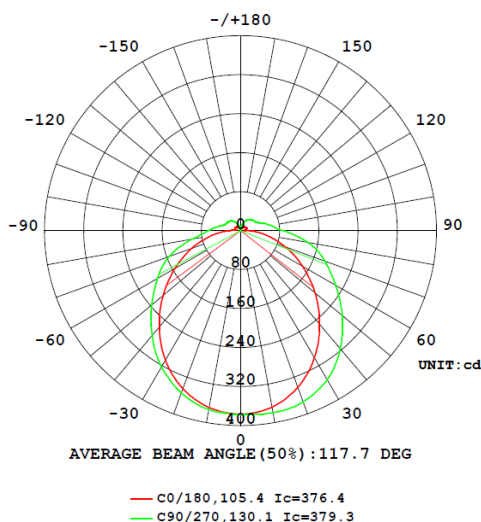
Photometric Measurements at 25°C – Integrating Sphere Method

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')
SLWS12130X								
S2303010 38-010	--	2833	93	65	0.4489	0.4072	0.2569	0.5244

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)
SLWS12130X							
S2303010 38-010	--	120.2	226.9	27.1	0.995	1434.6	52.9

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLWS12130X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	376.4	376.4	376.4	376.4	376.4
5	374.4	374.3	375.7	377.4	378.1
10	367.9	369.5	374.4	378.1	379.2
15	357.0	361.7	369.7	376.3	378.5
20	341.8	349.4	361.4	370.7	373.6
25	323.4	333.5	349.6	361.0	365.0
30	301.4	314.6	333.9	348.3	353.4
35	277.2	293.2	315.7	332.1	336.7
40	251.3	270.0	295.6	311.8	316.4
45	225.2	245.7	272.5	289.1	294.1
50	198.5	221.3	248.4	265.7	271.2
55	172.0	196.5	224.2	242.7	247.3
60	146.1	171.9	200.4	219.2	223.9
65	121.2	148.2	177.7	197.2	202.9
70	96.9	125.2	155.7	176.4	183.2
75	73.5	102.7	133.7	155.6	163.3
80	52.4	80.3	110.3	131.9	139.3
85	32.9	59.9	86.2	105.9	112.1
90	19.4	40.6	64.7	82.3	87.0
95	7.9	34.7	54.5	68.6	72.0
100	11.1	34.0	50.1	60.2	62.8
105	12.9	33.8	45.7	53.3	54.6
110	13.6	31.6	41.0	46.1	46.6
115	13.7	29.0	39.0	40.3	39.7
120	13.4	26.9	37.6	37.4	36.2
125	12.9	25.7	35.2	35.6	34.4
130	12.2	24.4	32.6	33.9	33.1
135	11.4	22.6	29.8	32.0	32.0
140	10.4	20.2	27.2	29.2	30.1
145	9.2	17.6	24.4	26.3	27.5
150	7.6	14.3	20.8	23.1	24.6
155	5.6	10.5	16.5	19.4	21.1
160	3.7	6.8	11.8	15.2	16.8
165	2.0	3.4	7.3	10.6	11.8
170	0.8	0.9	3.6	5.8	6.5
175	0.7	0.7	0.7	1.3	1.7
180	0.6	0.6	0.6	0.6	0.6

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLWS12130X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
SLWS12130X		
0-30	296.2	20.6
0-40	486.3	33.9
0-60	874.0	60.9
0-90	1244.9	86.8
60-90	370.9	25.9
0-180	1434.6	100.0

Beam Angle

Total Beam Angle (°)

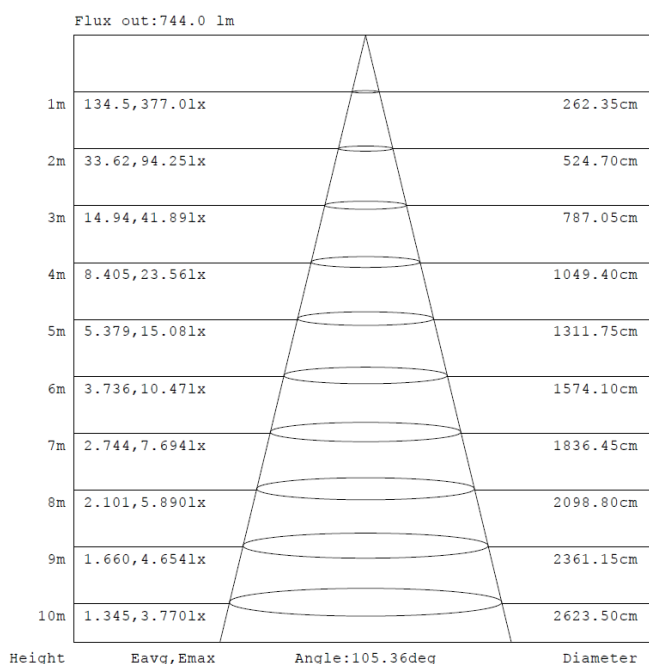
117.7

Illumination Plots

Model No.: SLWS12130X

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

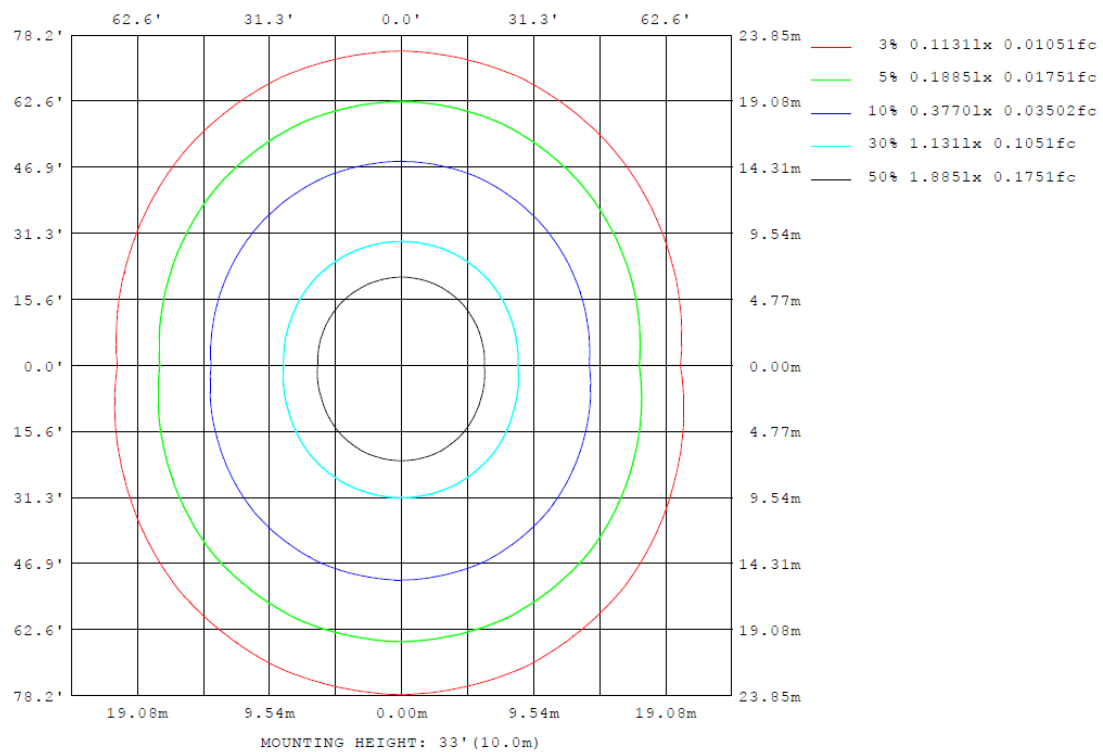
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLWS12130X

Model No.: SLWS12130X

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For SLWS12130X

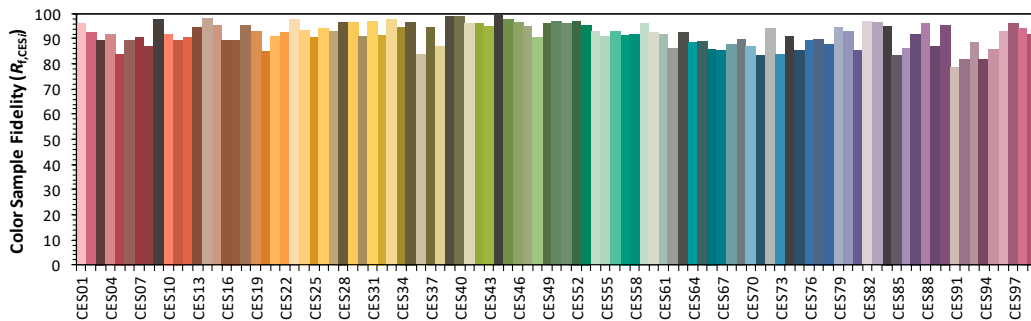
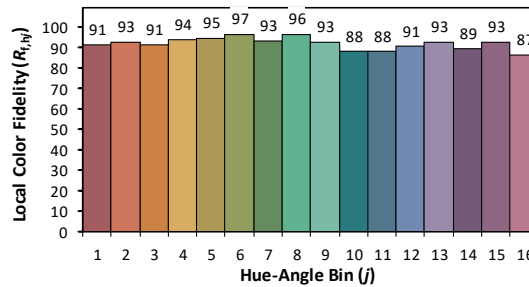
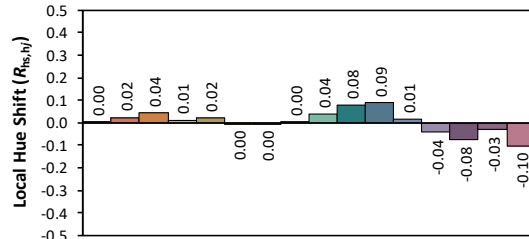
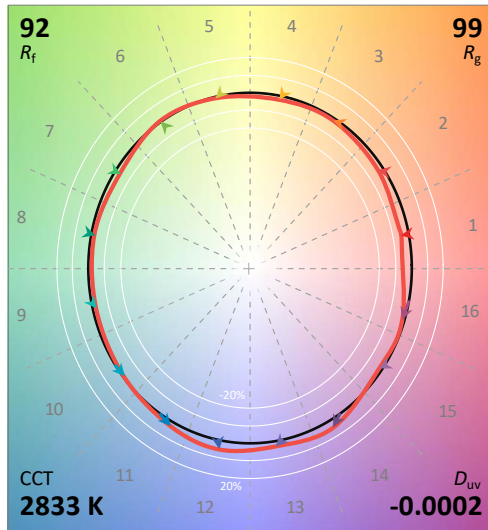
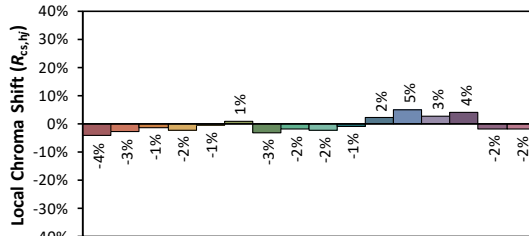
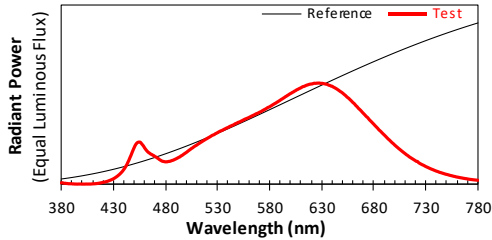
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/3/10

Model: SLWS12130X



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

x 0.4489
 y 0.4072
 u' 0.2569
 v' 0.5244

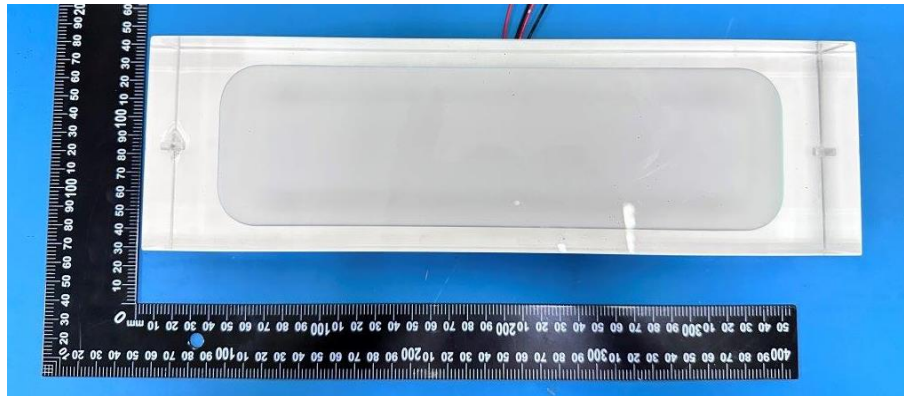
CIE 13.3-1995
(CRI)
 R_a 93
 R_g 65

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

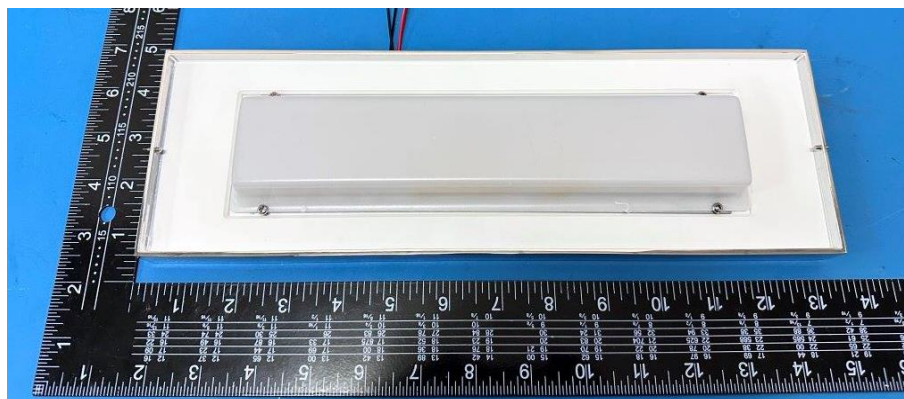
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TEST REPORT

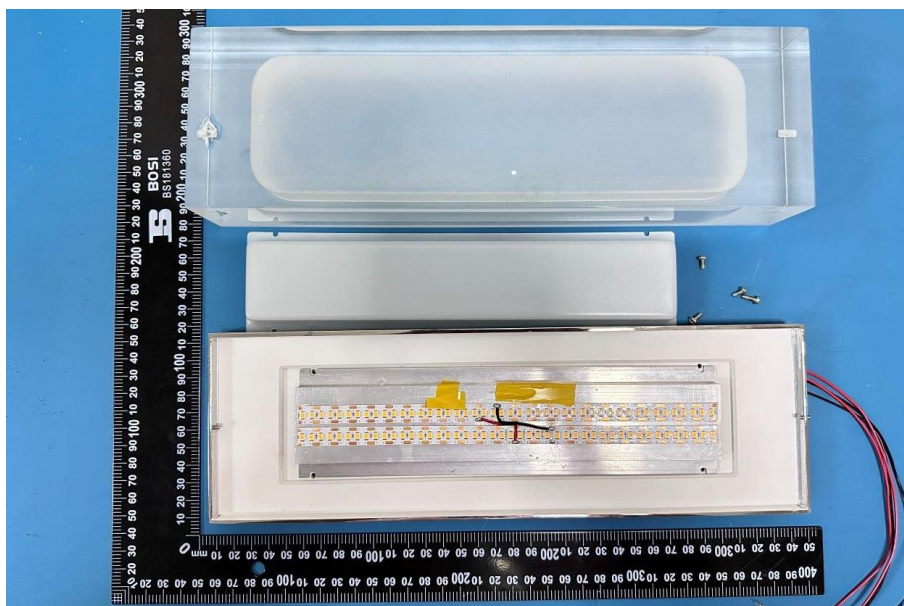
PRODUCT PICTURE (not to scale)



External view of SLWS12130X



External view of SLWS12130X



Internal view of SLWS12130X

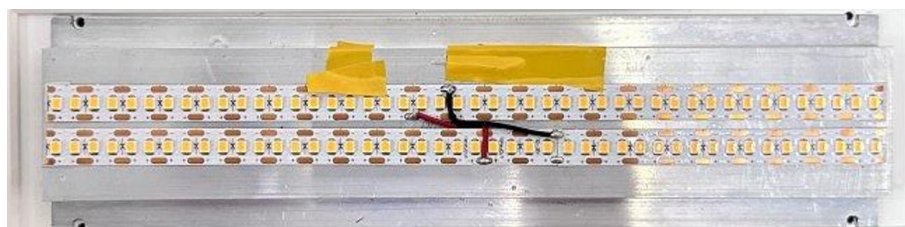
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver PVD11-C030V33-UNV3-HE-P



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 *****