



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

REPORT NO.:LCS211111007BS

TEST REPORT of IES LM-79-08

Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

Client..... : La-Luce Di Marletta SNC
Address..... : Via Archimede, 365, 97100,
Ragusa, Italy.
Brand Name..... : N/A
Testing laboratory..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
Address..... : B Area, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming
Street, Guangming New District, Shenzhen, Guangdong Prov.518000 China
Product description ... : N/A
Models..... : LL-FL3528-9.6W-930-20
Rating..... : DC24V, 9.6W
Date of Test..... : November 14, 2021
Date of Issue..... : November 15, 2021

Test by:

Wade

Wade Liu/ Project Engineer

Check by:

Ian Luo

Ian Luo/ Director

Approved by:



Jesse Liu/ Manager

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1. Test Method

Test Item.....:	Integrating Sphere Test
Ambient Condition	25.1℃
Stabilization time(h):	0.5h
Orientation(burning position) of SSL product during test	down
Test Method	The sample was tested according to the IES LM-79-2008. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.
Test Item.....:	Goniophotometer Test
Ambient Condition.....:	25.1℃
Total operated time of the product for measurements including stabilization..... (h):	1.0h
Orientation(burning position) of SSL product during test	down
Test Method.....:	The sample was tested according to the IES LM-79-2008. Photometric paramters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2. Product Information

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Product description.....	N/A
Model Number.....	LL-FLW3528-9.6W-940-20
Rated Inputs.....	DC24V
Rated Power.....	9.6W
Declared CCT.....	4000K
LED Manufacturer.....	N/A
LED Model.....	N/A
LED Package, Array or Module.....	N/A
Forward current of the LED chip.....	N/A
Date of Receipt Samples.....	November 14, 2021
Quantity of Receipt Samples.....	1 unit

3. Test equipment list:

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2021/07/01	2022/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2021/07/01	2022/07/01
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2021/07/01	2022/07/01
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2021/07/08	2022/07/08
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2021/07/01	2022/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2021/07/01	2022/07/01
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2021/07/01	2022/07/01
SENSING	Standard Lamp	SLCS-S-118	S11010017	2021/07/08	2022/07/08

4. Integrating Sphere Test Results:

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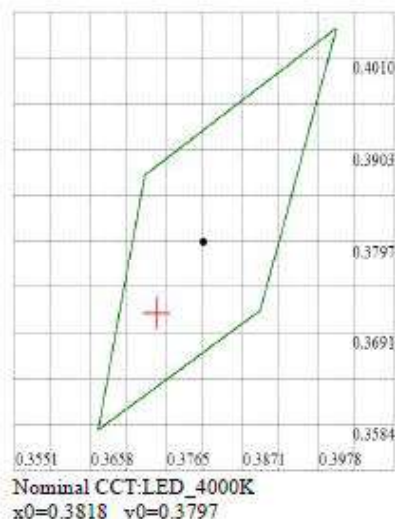
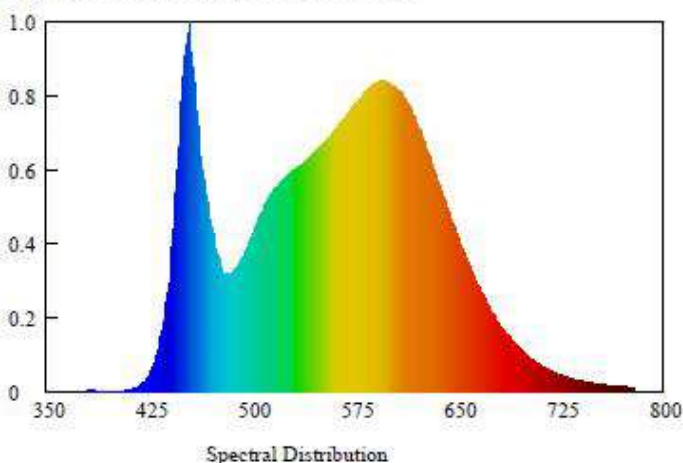
4.1 Test Data

Test type	Voltage (V DC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	23.99	-	0.3814	1.0000	9.15

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	4107	85.7	-0.00104	1435.38	156.872

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3752 y=0.3713 u'=0.2239 v'=0.4984

Correlated Color Temperature: 4107 K

Colour Fidelity Index: Rf=82

Luminous Flux: 1435.38 lm

Chromaticity Difference: -0.00104Duv

Color Ratio: Kr=38.2% Kg=51.6% Kb=10.3%

Bandwidth: 21.3nm

Photosynthetically Active Radiation(PAR): 4.69W

Rendering Index: Ra=85.7

R1=85 R2=94 R3=96 R4=83 R5=85 R6=90 R7=86 R8=67

R9=20 R10=83 R11=83 R12=64 R13=88 R14=98 R15=80 Re=80

Dominant Wavelength: 578.0 nm(E)

Gamut Index: Rg=94

Purity: 0.2404

Peak Wavelength: 455.0 nm

Radiant Flux: 4.791 W

Photosynthetic Photon Flux(PPF):22.06μmol/s

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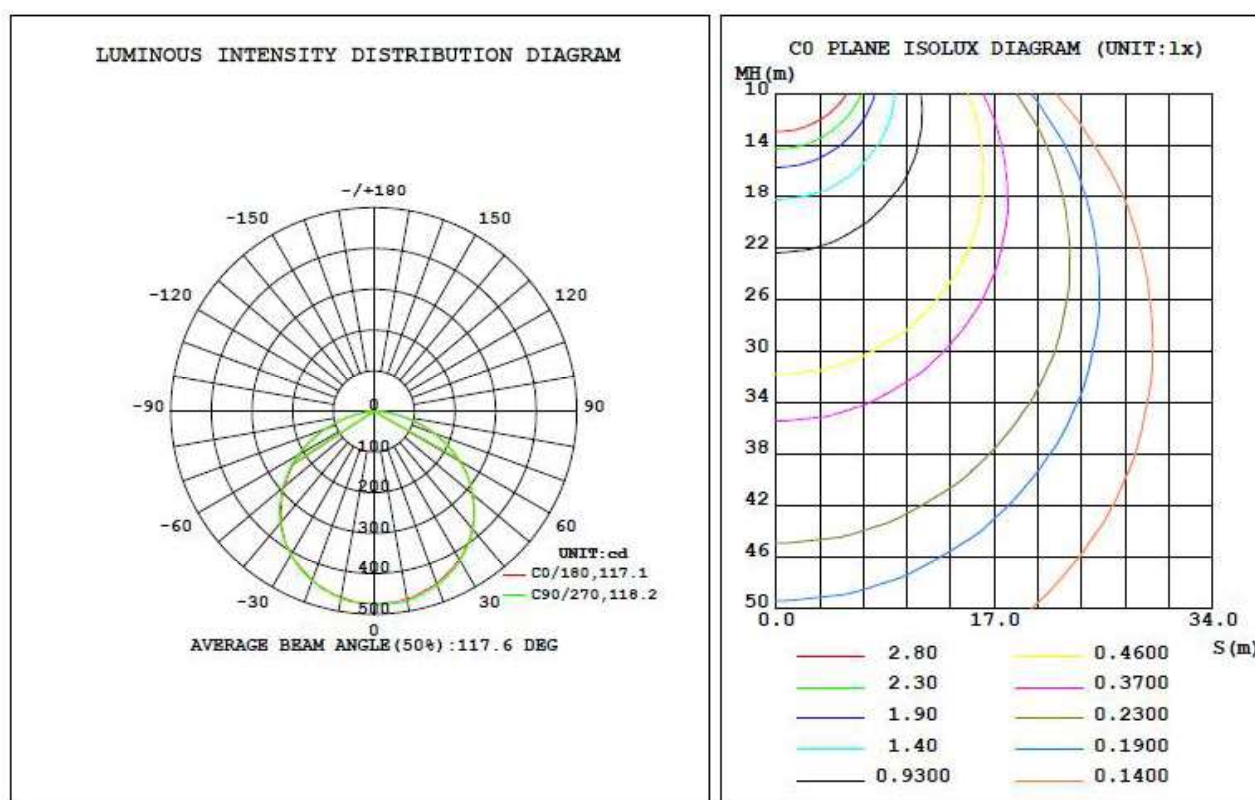
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V DC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	24.005	-	0.3810	1.0000	9.1466

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	Imax (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	1439.45	157.37	476	1.28	1.28

5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)



5.3 Zonal Flux Diagram

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y	C0	C45	C90	C135	C180	C225	C270	C315	y	Φ zone	Φ total	%lum, lamp
10	469.2	475.0	474.4	468.5	464.3	467.3	469.3	468.7	0- 10	45.06	45.06	3.13,3.13
20	452.5	459.4	456.7	448.5	442.2	444.1	444.3	449.6	10- 20	130.1	175.2	12.2,12.2
30	421.2	428.4	423.9	413.2	408.0	405.5	408.4	417.0	20- 30	200.0	375.2	26.1,26.1
40	375.6	382.8	379.8	365.4	355.6	353.1	358.4	368.4	30- 40	245.7	620.9	43.1,43.1
50	316.3	323.6	319.3	302.0	288.6	287.5	293.8	306.3	40- 50	260.2	881.2	61.2,61.2
60	241.7	251.3	244.9	227.2	211.3	208.6	216.4	232.2	50- 60	239.7	1121	77.9,77.9
70	157.0	160.3	158.9	140.6	125.6	122.0	127.7	145.2	60- 70	184.5	1305	90.7,90.7
80	66.73	71.80	71.71	55.21	43.04	41.83	42.07	59.93	70- 80	104.0	1409	97.9,97.9
90	4.527	9.858	11.43	6.707	0.1492	0.4391	0.0738	2.819	80- 90	27.86	1437	99.8,99.8
100	0	0	0	0	0	0	0.3695	0	90-100	0.7800	1438	99.9,99.9
110	0	0.1479	0	0.9548	0	0.1472	0.8131	0.2181	100-110	0.1384	1438	99.9,99.9
120	0	0	0	0.0734	0.0760	0.2226	1.254	0.2919	110-120	0.3089	1438	99.9,99.9
130	0	0	0	0.0734	0.1521	0.2968	1.402	0.2202	120-130	0.2081	1439	99.9,99.9
140	0.0760	0.1446	0.2221	0.0734	0.3041	0.2968	1.328	0.3671	130-140	0.2159	1439	100,100
150	0.0760	0.0742	0.2951	0.0734	0.3041	0.2968	1.254	0.5139	140-150	0.2080	1439	100,100
160	0.0760	0.1486	0.5147	0.2202	0.3041	0.2968	1.180	0.5139	150-160	0.1746	1439	100,100
170	0.1521	0.2968	1.624	0.2937	0.3041	0.2968	1.180	0.5139	160-170	0.1419	1439	100,100
180	0.3041	0.4452	1.697	0.3671	0.3041	0.2968	1.180	0.5891	170-180	0.0584	1439	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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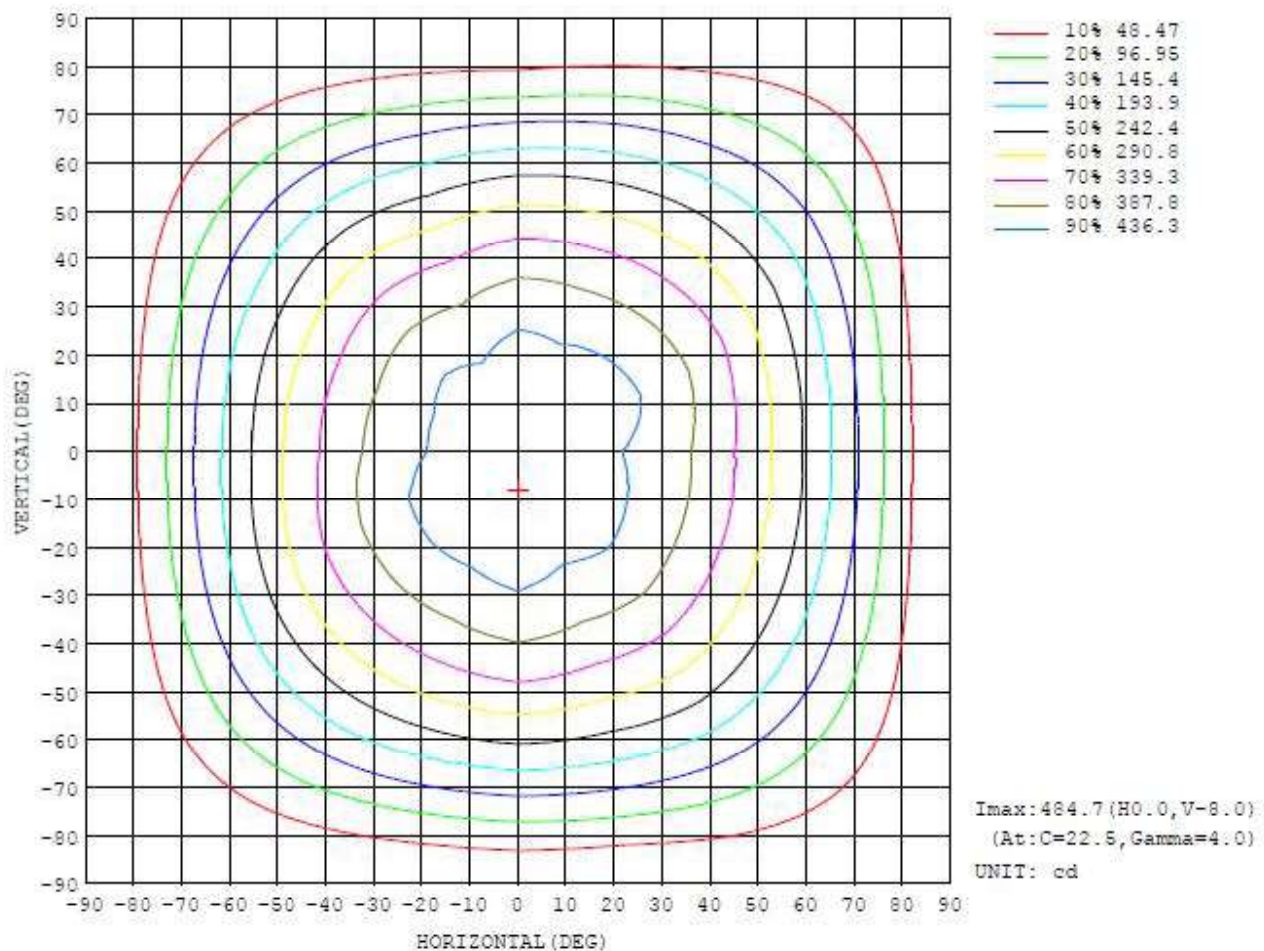
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5.4 Isocandela Diagram

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5.5 Luminous Distribution Intensity Data

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Table--1

UNIT: cd

C (DEG) Y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	475	475	475	475	475	475	475	475	475	475	475	475	475	475	475	475			
5	473	476	476	475	476	475	474	473	473	472	471	472	473	471	474	474			
10	469	473	475	473	474	470	468	467	464	465	467	463	469	467	469	469			
15	461	467	468	466	467	463	459	458	455	455	455	454	458	456	460	465			
20	452	457	459	456	457	449	448	445	442	441	444	441	444	444	450	455			
25	437	444	445	443	441	434	433	429	426	424	426	425	429	430	435	441			
30	421	426	428	426	424	415	413	408	408	403	405	405	408	409	417	422			
35	402	405	407	405	404	395	391	385	384	379	381	381	385	388	394	402			
40	376	380	383	382	380	370	365	358	356	352	353	353	358	362	368	377			
45	349	352	354	353	351	341	335	329	322	319	322	322	328	332	339	348			
50	316	320	324	321	319	310	302	294	289	286	287	287	294	300	306	316			
55	283	285	289	287	283	275	267	258	250	249	250	249	257	264	271	280			
60	242	245	251	248	245	236	227	218	211	208	209	209	216	225	232	241			
65	201	203	208	206	203	194	185	176	170	165	166	168	174	183	190	199			
70	157	160	160	162	159	150	141	131	126	121	122	124	128	140	145	155			
75	110	113	115	117	114	105	96.6	87.0	81.7	78.5	79.3	81.6	82.5	96.0	102	109			
80	66.7	69.7	71.8	66.6	71.7	63.5	55.2	46.5	43.0	40.7	41.8	43.6	42.1	54.4	59.9	65.1			
85	28.1	31.0	34.3	35.5	35.2	28.8	22.4	15.5	12.6	12.0	12.9	14.3	11.0	21.0	25.4	28.5			
90	4.53	6.43	9.86	12.7	11.4	10.2	6.71	3.03	0.15	0.29	0.44	0.52	0.07	1.50	2.82	4.40			
95	0.00	0.00	0.00	3.67	0.00	3.89	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00			
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00			
105	0.00	0.00	0.07	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.22	0.66	0.07	0.07	0.00			
110	0.00	0.00	0.15	1.50	0.00	1.62	0.95	0.00	0.00	0.00	0.15	0.37	0.81	0.15	0.22	0.00			
115	0.00	0.00	0.00	1.12	0.00	1.25	0.37	0.00	0.08	0.07	0.15	0.37	1.18	0.22	0.15	0.07			
120	0.00	0.00	0.00	0.38	0.00	0.59	0.07	0.00	0.08	0.15	0.22	0.37	1.25	0.22	0.29	0.15			
125	0.00	0.00	0.00	0.22	0.00	0.37	0.07	0.00	0.08	0.15	0.22	0.37	1.40	0.22	0.22	0.15			
130	0.00	0.00	0.00	0.22	0.00	0.37	0.07	0.00	0.15	0.22	0.30	0.45	1.40	0.37	0.22	0.22			
135	0.00	0.00	0.00	0.22	0.14	0.37	0.07	0.00	0.23	0.22	0.30	0.45	1.40	0.44	0.29	0.22			
140	0.08	0.00	0.14	0.22	0.22	0.37	0.07	0.00	0.30	0.30	0.30	0.45	1.33	0.59	0.37	0.29			
145	0.08	0.00	0.07	0.22	0.30	0.37	0.07	0.00	0.30	0.30	0.30	0.45	1.25	0.74	0.51	0.37			
150	0.08	0.00	0.07	0.22	0.30	0.37	0.07	0.00	0.30	0.30	0.30	0.45	1.25	0.96	0.51	0.37			
155	0.08	0.07	0.07	0.22	0.37	0.37	0.22	0.07	0.30	0.30	0.30	0.45	1.18	1.10	0.51	0.37			
160	0.08	0.07	0.15	0.22	0.51	0.37	0.22	0.07	0.30	0.30	0.30	0.45	1.18	1.55	0.51	0.37			
165	0.23	0.15	0.22	0.52	1.40	0.37	0.29	0.15	0.30	0.30	0.30	0.45	1.18	1.69	0.51	0.37			
170	0.15	0.22	0.30	0.52	1.62	0.37	0.29	0.22	0.30	0.30	0.30	0.45	1.18	1.69	0.51	0.37			
175	0.38	0.30	0.45	1.27	1.70	0.37	0.37	0.22	0.30	0.30	0.30	0.45	1.18	1.69	0.51	0.37			
180	0.30	0.30	0.45	1.20	1.70	0.59	0.37	0.22	0.30	0.30	0.30	0.45	1.18	1.69	0.59	0.37			



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6. Photo of sample:



----- End of test report-----