



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918048BS

TEST REPORT of IES LM-79-08

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

Client..... : Shenzhen Sinoco Lighting Technologies Co.,Ltd.

Address..... : G building,Shasi , High-Tec ,Industrial park,Shajing Town,Baoan District,Shenzhen,
Guangdong,China

Brand Name..... : **SINOCO**[®]

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 .. : LED Street Light

Models..... : ST-52-80W-TC10

Rating..... : AC220V, 50/60Hz, 80W, 4000K

Date of Test..... : September 18, 2020

Date of Issue..... : September 23, 2020

Test by:

William Lian

William Lian/ 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℃
Number of hours operated prior to Measurement	: 0h
Stabilization time	: 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):	: 2.5h
Correction factors applied.....	: Intensity distribution
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.

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2. Product Information

Product description.....:	LED Street Light
Model Number.....:	ST-52-80W-TC10
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	80W
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.....:	September 18, 2020
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	2020/07/02	2021/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2020/06/24	2021/06/23
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2020/06/24	2021/06/23
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2020/07/02	2021/07/01
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2020/07/02	2021/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2020/06/24	2021/06/23
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2020/06/24	2021/06/23
SENSING	Standard Lamp	SLCS-S-118	S11010017	2020/07/02	2021/07/01



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4. Integrating Sphere Test Results:

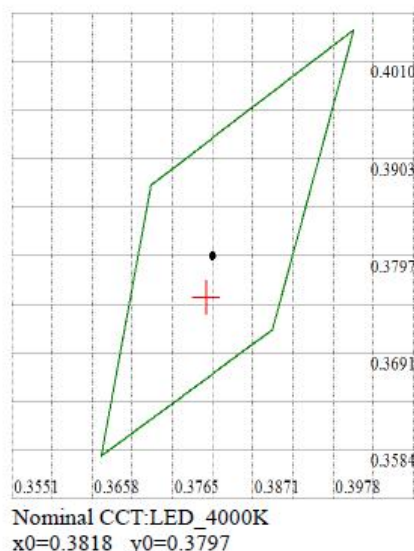
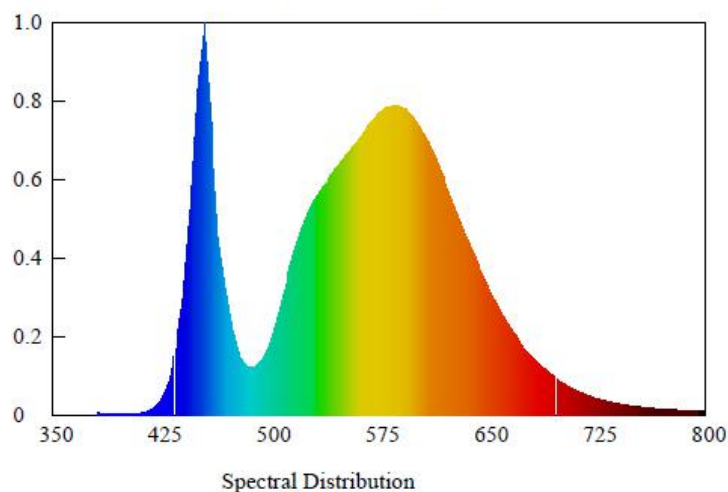
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.01	50.0	0.3719	0.9764	79.90

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy (lm/W)
Output	3976	74.1	-0.00092	12469.99	156.07

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3809$ $y=0.3751$ $u'=0.2261$ $v'=0.5009$

Correlated Color Temperature: 3976 K

Colour Fidelity Index: $R_f=72$

Luminous Flux: 12469.99 lm

Chromaticity Difference: $-0.00092D_{uv}$

Color Ratio: $K_r=38.0\%$ $K_g=55.0\%$ $K_b=7.0\%$

Bandwidth: 16.3nm

Photosynthetically Active Radiation(PAR): 36.09W

Rendering Index: $R_a=74.1$

$R_1=72$ $R_2=83$ $R_3=89$ $R_4=71$ $R_5=70$ $R_6=73$ $R_7=82$ $R_8=54$

$R_9=-22$ $R_{10}=56$ $R_{11}=65$ $R_{12}=40$ $R_{13}=75$ $R_{14}=93$ $R_{15}=67$ $R_e=65$

Dominant Wavelength: 578.0 nm(E)

Gamut Index: $R_g=92$

Purity: 0.2693

Peak Wavelength: 455.0 nm

Radiant Flux: 36.932 W

Photosynthetic Photon Flux(PPF): 169.84 $\mu\text{mol/s}$

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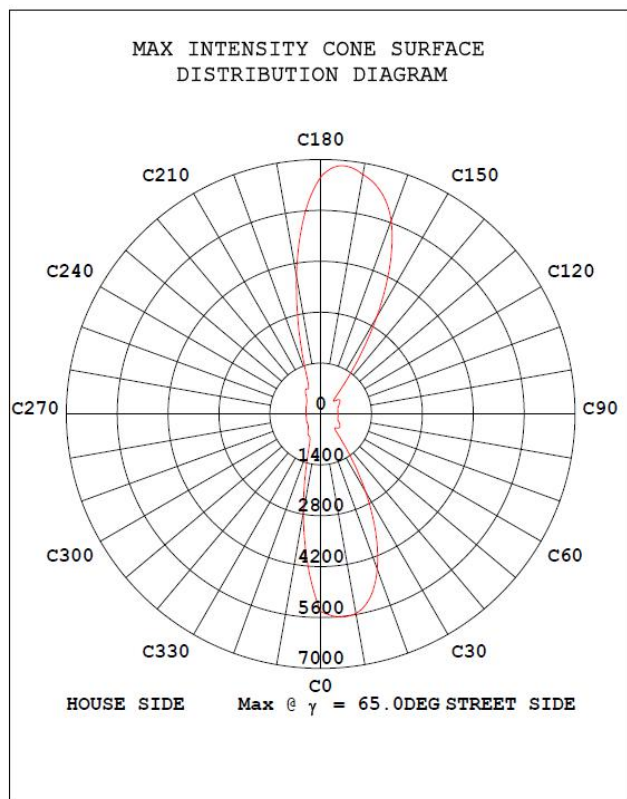
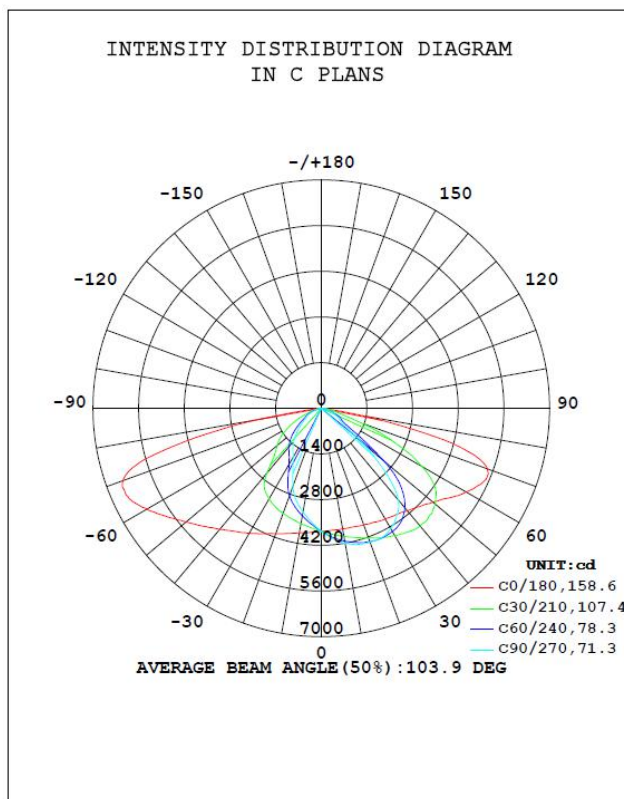
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.2	50.00	0.3716	0.9764	79.90

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	12482.7	156.24	100%	0.7%

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





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5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3752	4073	4197	4174	3873	3458	3231	3381	0- 10	359.9	359.9	2.88, 2.88
20	3802	4317	4369	4523	4092	3120	2553	2987	10- 20	1063	1423	11.4, 11.4
30	3918	4458	4254	4743	4418	2520	1732	2333	20- 30	1683	3106	24.9, 24.9
40	4104	4378	3675	4736	4848	1841	1312	1694	30- 40	2165	5271	42.2, 42.2
50	4473	3585	1615	3878	5420	1368	847.2	1248	40- 50	2375	7646	61.3, 61.3
60	5126	1273	603.5	1358	6179	813.6	520.5	733.5	50- 60	2069	9715	77.8, 77.8
70	5410	446.7	340.3	457.2	6471	370.3	261.3	334.6	60- 70	1687	11402	91.3, 91.3
80	1131	133.1	102.2	143.0	1831	83.51	17.56	68.43	70- 80	987.6	12390	99.3, 99.3
90	0	0	0	0	0	0.1176	0.0465	0.0886	80- 90	93.10	12483	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0023	12483	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	12483	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	12483	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	12483	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	12483	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	12483	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	12483	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	12483	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	12483	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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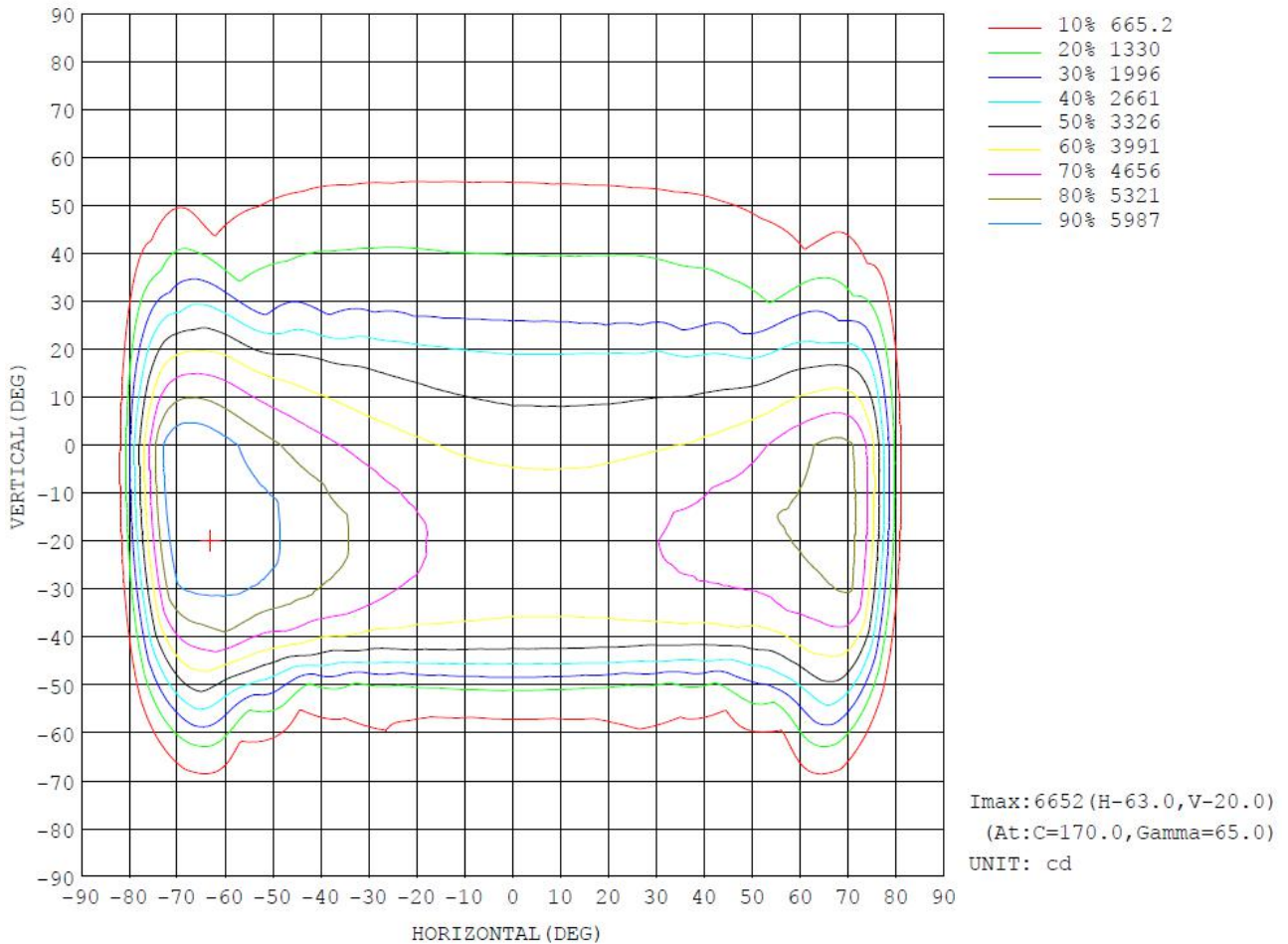
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5.4 Isocandela Diagram





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5.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769	3769
5	3752	3798	3829	3874	3908	3939	3968	3988	4002	4008	4019	4013	3998	3986	3970	3932	3902	3859	3818
10	3752	3832	3917	3984	4049	4098	4130	4163	4180	4197	4207	4209	4198	4182	4166	4114	4057	3976	3873
15	3766	3883	3999	4099	4173	4222	4257	4296	4312	4318	4332	4355	4357	4365	4350	4301	4222	4109	3971
20	3802	3969	4118	4232	4303	4331	4354	4357	4370	4369	4392	4436	4462	4512	4535	4510	4426	4275	4092
25	3850	4080	4263	4372	4415	4404	4386	4367	4370	4371	4400	4467	4518	4603	4696	4706	4648	4470	4240
30	3918	4204	4429	4510	4498	4418	4362	4314	4270	4254	4310	4410	4527	4671	4814	4920	4922	4726	4418
35	3985	4337	4602	4627	4532	4392	4254	4110	4046	4033	4089	4215	4396	4659	4916	5143	5210	5004	4608
40	4104	4531	4763	4711	4510	4246	3986	3807	3710	3675	3736	3877	4110	4508	4964	5321	5497	5342	4848
45	4260	4759	4890	4675	4368	3902	3486	3172	2881	2804	2884	3217	3595	4101	4848	5391	5770	5680	5110
50	4473	4996	4936	4545	3965	3205	2491	1929	1677	1615	1673	1924	2494	3353	4404	5346	5922	6010	5420
55	4787	5225	4898	4272	3154	1917	1129	870	764	751	757	864	1144	1914	3454	5092	6021	6348	5786
60	5126	5423	4757	3544	1714	833	721	631	609	603	605	626	703	838	1878	4303	5971	6553	6179
65	5432	5564	4541	2476	741	609	608	511	486	479	481	507	595	621	730	3076	5672	6687	6515
70	5410	5623	3975	1263	456	437	403	367	346	340	346	365	398	443	472	1571	4668	6472	6471
75	4154	4880	2962	539	280	270	247	224	209	206	209	225	247	273	299	661	3263	5139	5039
80	1131	1837	1255	284	136	130	119	107	102	102	104	110	122	136	150	313	1244	2085	1831
85	55.3	101	152	74.1	35.1	34.6	31.8	29.6	27.9	28.5	28.6	30.5	33.9	39.1	43.9	82.3	189	156	99.0
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



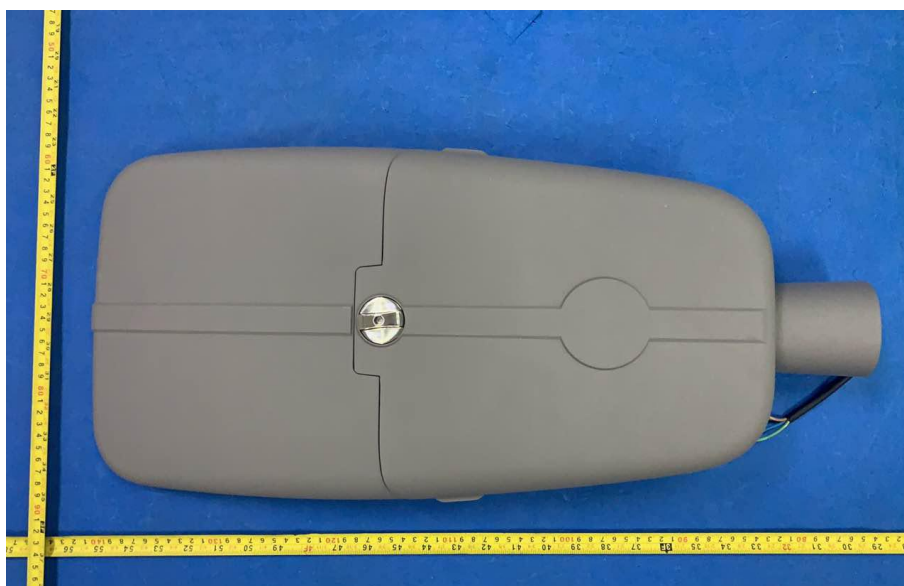
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6. Photo of sample:



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