



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200901057BS

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-52-100W-T3-4000K

Rating..... : AC220V, 50/60Hz, 100W, 4000K

Date of Test..... : September 02, 2020

Date of Issue..... : September 08, 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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Add: B Area, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming Street, Guangming New District, Shenzhen, Guangdong Prov .518000 China

Tel: +(86) 0755-29871520 | Fax: +(86) 0755-2987 1521 | E-mail: webmaster@lcs-cert.com | [http:// www.lcs-cert.com](http://www.lcs-cert.com)

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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-52-100W-T3-4000K
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	100W
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 02, 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:

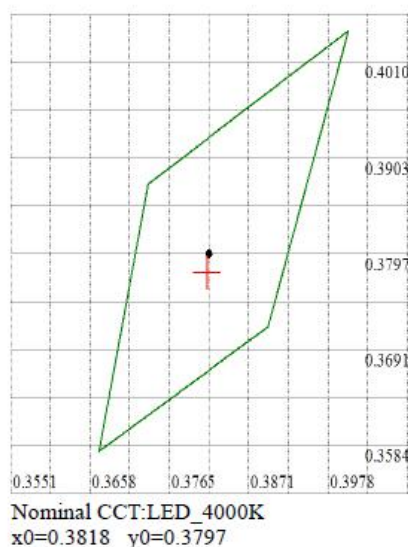
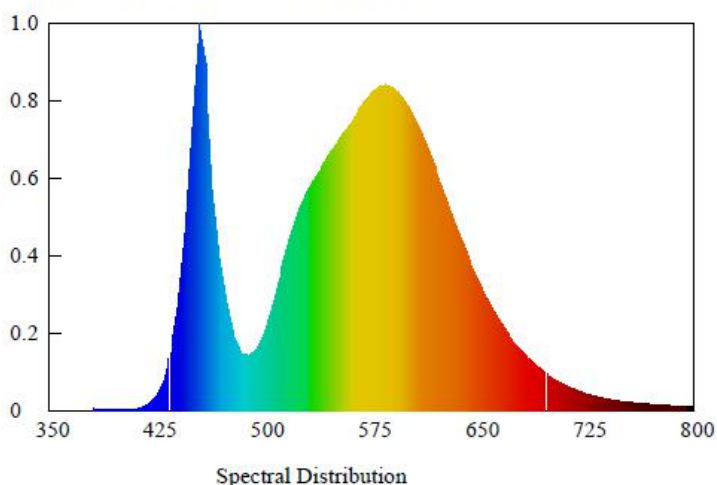
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.09	50.0	0.4582	0.9830	99.13

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3979	73.6	+0.00012	15680.38	158.18

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3815$ $y=0.3776$ $u'=0.2254$ $v'=0.5021$

Correlated Color Temperature: 3979 K

Colour Fidelity Index: $R_f=71$

Luminous Flux: 15680.38 lm

Chromaticity Difference: $+0.00012D_{uv}$

Color Ratio: $K_r=37.9\%$ $K_g=54.9\%$ $K_b=7.1\%$

Bandwidth: 22.3nm

Photosynthetically Active Radiation(PAR): 43.52W

Rendering Index: $R_a=73.6$

$R_1=71$ $R_2=83$ $R_3=90$ $R_4=69$ $R_5=69$ $R_6=74$ $R_7=81$ $R_8=52$

$R_9=-26$ $R_{10}=58$ $R_{11}=62$ $R_{12}=40$ $R_{13}=74$ $R_{14}=94$ $R_{15}=65$ $R_e=64$

Dominant Wavelength: 578.0 nm(E)

Gamut Index: $R_g=90$

Purity: 0.2783

Peak Wavelength: 455.0 nm

Radiant Flux: 44.521 W

Photosynthetic Photon Flux(PPF):204.79 μ mol/s



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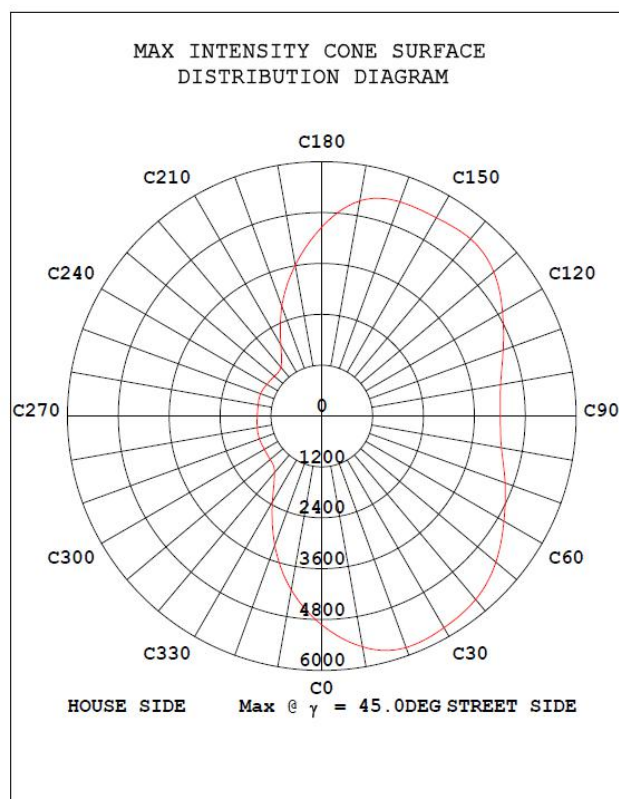
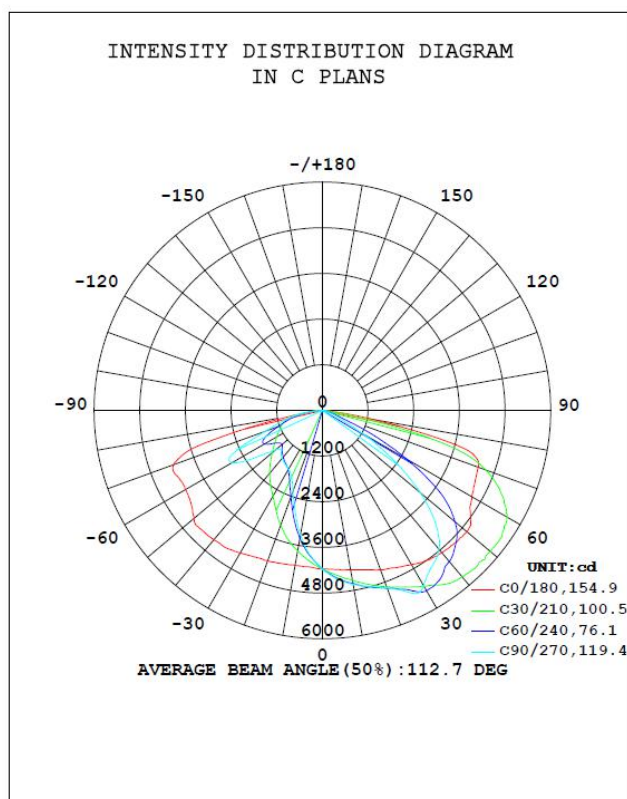
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.01	0.4580	0.9835	99.10

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	15693.6	158.37	100%	1.2%

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	Φ lum, lamp
10	4252	4604	4639	4534	4136	3572	3321	3658	0- 10	393.9	393.9	2.51, 2.51
20	4458	4969	4963	4833	4205	2747	2274	2938	10- 20	1133	1527	9.73, 9.73
30	4678	5413	5322	5246	4328	2046	1785	2266	20- 30	1803	3330	21.2, 21.2
40	4881	5528	4766	5361	4440	1627	1648	1819	30- 40	2402	5732	36.5, 36.5
50	4953	5377	3361	5245	4407	1363	1616	1526	40- 50	2807	8540	54.4, 54.4
60	4532	4370	1259	4308	4158	1220	2738	1316	50- 60	2901	11441	72.9, 72.9
70	4359	2139	260.3	2043	4161	964.8	1589	1035	60- 70	2559	14000	89.2, 89.2
80	1270	149.3	12.09	81.92	764.7	599.2	642.9	695.1	70- 80	1509	15509	98.8, 98.8
90	0	0	0	0	0	0	0	0	80- 90	184.2	15694	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	15694	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	15694	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	15694	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	15694	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	15694	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	15694	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	15694	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	15694	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	15694	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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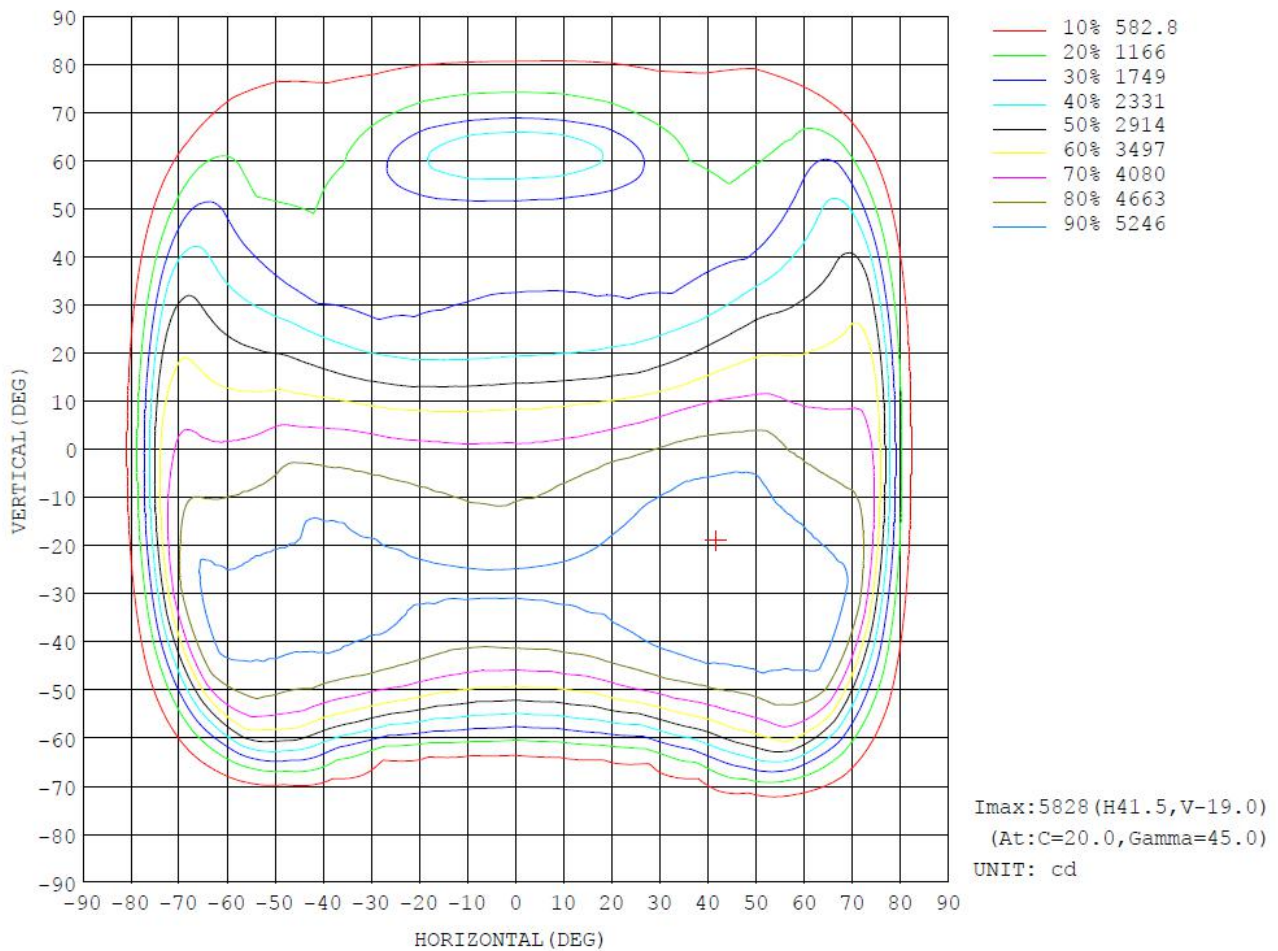
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5.4 Isocandela Diagram





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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	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164	4164
5	4196	4256	4303	4347	4393	4403	4419	4439	4443	4454	4439	4423	4406	4383	4348	4312	4259	4198	4124
10	4252	4367	4465	4534	4598	4609	4616	4628	4637	4639	4619	4600	4587	4561	4507	4456	4373	4256	4136
15	4336	4511	4652	4735	4789	4795	4799	4791	4801	4790	4786	4751	4745	4704	4659	4600	4496	4359	4164
20	4458	4697	4849	4931	4973	4965	4981	4981	4968	4963	4944	4919	4881	4866	4800	4757	4656	4471	4205
25	4560	4867	5039	5117	5166	5169	5192	5238	5254	5262	5231	5170	5108	5034	4957	4900	4815	4586	4245
30	4678	5025	5238	5333	5387	5440	5473	5463	5375	5322	5347	5369	5338	5298	5194	5090	4958	4711	4328
35	4804	5201	5444	5579	5599	5490	5402	5169	5055	5011	5015	5106	5294	5312	5318	5290	5140	4857	4414
40	4881	5362	5696	5713	5617	5438	5180	4975	4822	4766	4783	4905	5128	5332	5390	5373	5318	4982	4440
45	4923	5522	5808	5762	5645	5360	4958	4602	4302	4208	4281	4551	4920	5294	5456	5402	5379	5155	4460
50	4953	5571	5723	5774	5608	5147	4548	3903	3482	3361	3490	3924	4514	5068	5421	5477	5364	4999	4407
55	4748	5328	5710	5764	5386	4684	3800	2931	2469	2298	2472	2921	3760	4612	5255	5502	5450	4997	4225
60	4532	5288	5709	5611	4878	3862	2557	1852	1395	1259	1410	1786	2559	3783	4831	5372	5482	5058	4158
65	4426	5260	5631	5188	4104	2647	1273	705	530	488	514	617	1159	2545	4138	5107	5567	5196	4175
70	4359	5287	5397	4564	3022	1256	450	344	283	260	279	335	423	1160	2924	4381	5169	5099	4161
75	3838	4385	4193	3168	1430	355	210	140	107	96.0	103	129	192	320	1053	2303	3027	3325	2929
80	1270	1444	1271	750	220	78.5	42.8	22.7	14.5	12.1	12.7	18.0	32.3	50.6	113	353	596	773	765
85	105	103	70.9	26.0	8.14	5.34	3.38	2.29	1.82	1.58	1.58	1.74	2.37	3.89	5.81	8.27	12.2	20.0	36.3
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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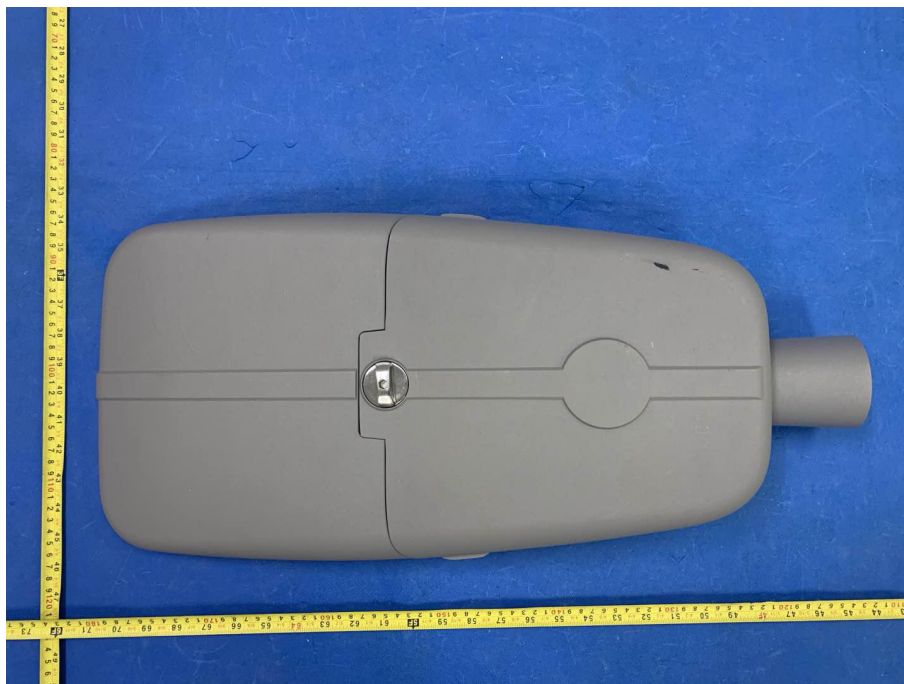
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6. Photo of sample:



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