



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918049BS

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-TC10
Rating..... : AC220V, 50/60Hz, 100W, 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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TRF No. LM-79-2008

Page 1 of 10

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

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Table of Contents

1. Test Method.....	3
2. Product Information.....	4
3. Test equipment list:.....	4
4. Integrating Sphere Test Results:	5
4.1 Test Data.....	5
4.2 Spectrum.....	5
5. Goniophotometer Test results.....	6
5.1 Test Data.....	6
5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx).....	6
5.3 Zonal Flux Diagram.....	7
5.4 Isocandela Diagram.....	8
5.5 Luminous Distribution Intensity Data.....	9
6. Photo of sample:.....	10

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.

Report No.: LCS200918049BS

2. Product Information

Product description.....:	LED Street Light
Model Number.....:	ST-52-100W-TC10
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 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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TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918049BS

4. Integrating Sphere Test Results:

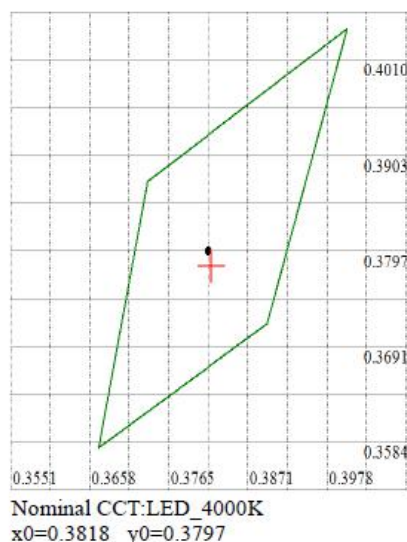
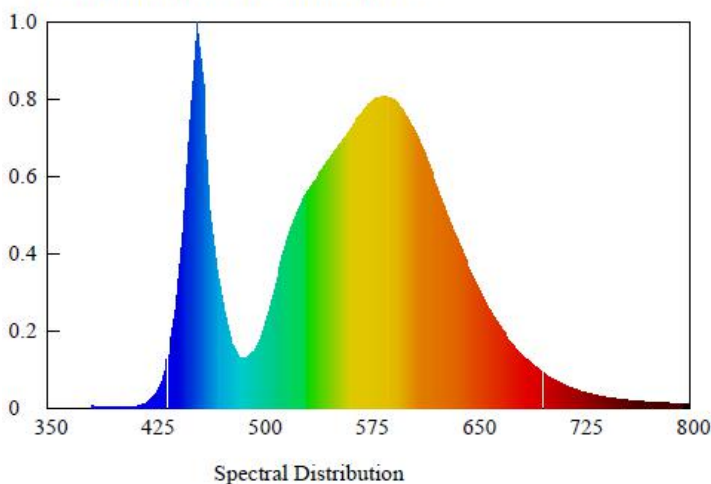
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.10	50.0	0.4675	0.9837	101.12

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3961	73.8	+0.00005	15767.64	155.93

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3822 y=0.3780 u'=0.2258 v'=0.5024

Correlated Color Temperature: 3961 K

Colour Fidelity Index: Rf=72

Luminous Flux: 15767.64 lm

Chromaticity Difference: +0.00005Duv

Color Ratio: Kr=38.0% Kg=54.9% Kb=7.1%

Bandwidth: 23.8nm

Photosynthetically Active Radiation(PAR): 46.87W

Rendering Index: Ra=73.8

R1=71 R2=83 R3=90 R4=69 R5=69 R6=74 R7=82 R8=52

R9=-25 R10=57 R11=63 R12=40 R13=74 R14=94 R15=66 Re=64

Dominant Wavelength: 578.0 nm(E)

Gamut Index: Rg=91

Purity: 0.2816

Peak Wavelength: 455.0 nm

Radiant Flux: 47.972 W

Photosynthetic Photon Flux(PPF):220.69μmol/s



Testing Lab.

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TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918049BS

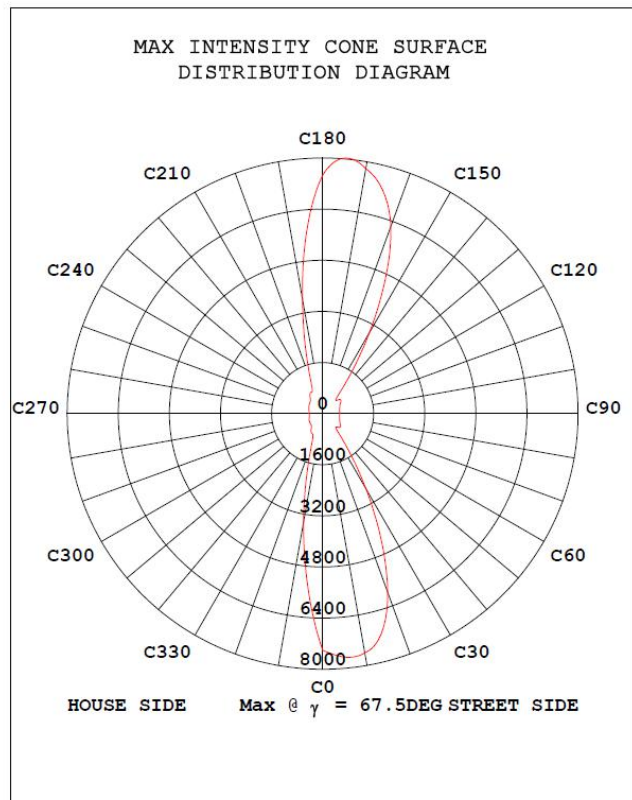
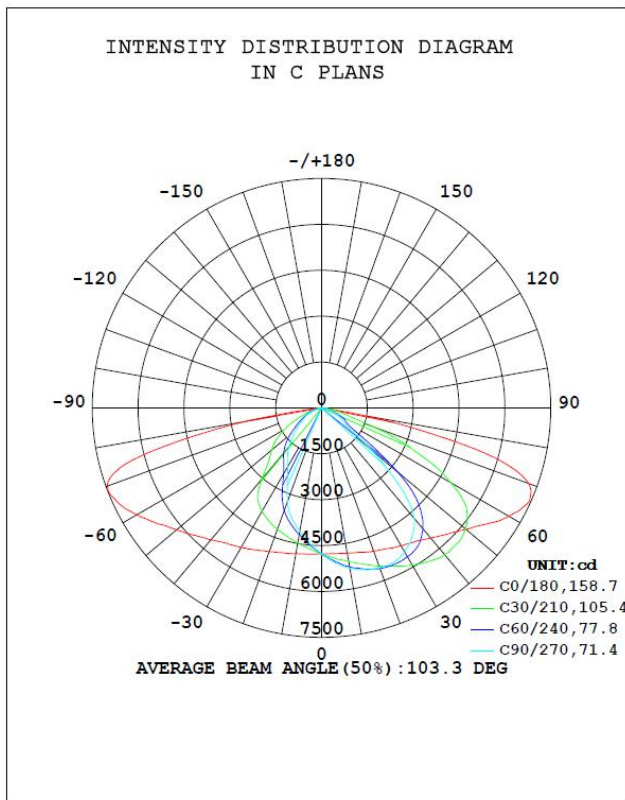
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.2	50.01	0.4674	0.9837	101.2

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	15787.3	155.96	100%	0.8%

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





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Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918049BS

5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	ηlum, lamp
10	4816	5199	5319	5234	4838	4333	4102	4328	0- 10	455.3	455.3	2.88, 2.88
20	4983	5580	5553	5609	4999	3885	3253	3866	10- 20	1346	1801	11.4, 11.4
30	5200	5799	5441	5850	5268	3095	2220	3059	20- 30	2131	3932	24.9, 24.9
40	5552	5745	4715	5861	5627	2272	1666	2235	30- 40	2743	6676	42.3, 42.3
50	6175	4750	2074	4857	6200	1672	1070	1637	40- 50	3012	9687	61.4, 61.4
60	7075	1707	782.4	1792	6980	992.1	656.5	954.6	50- 60	2619	12306	77.9, 77.9
70	7205	581.4	444.0	600.3	7457	461.0	307.9	425.9	60- 70	2123	14429	91.4, 91.4
80	1335	175.9	133.2	189.6	2477	103.3	20.98	87.27	70- 80	1236	15666	99.2, 99.2
90	0	0	0	0	0	0	0	0	80- 90	121.6	15787	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0002	15787	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	15787	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	15787	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	15787	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	15787	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	15787	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	15787	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	15787	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	15787	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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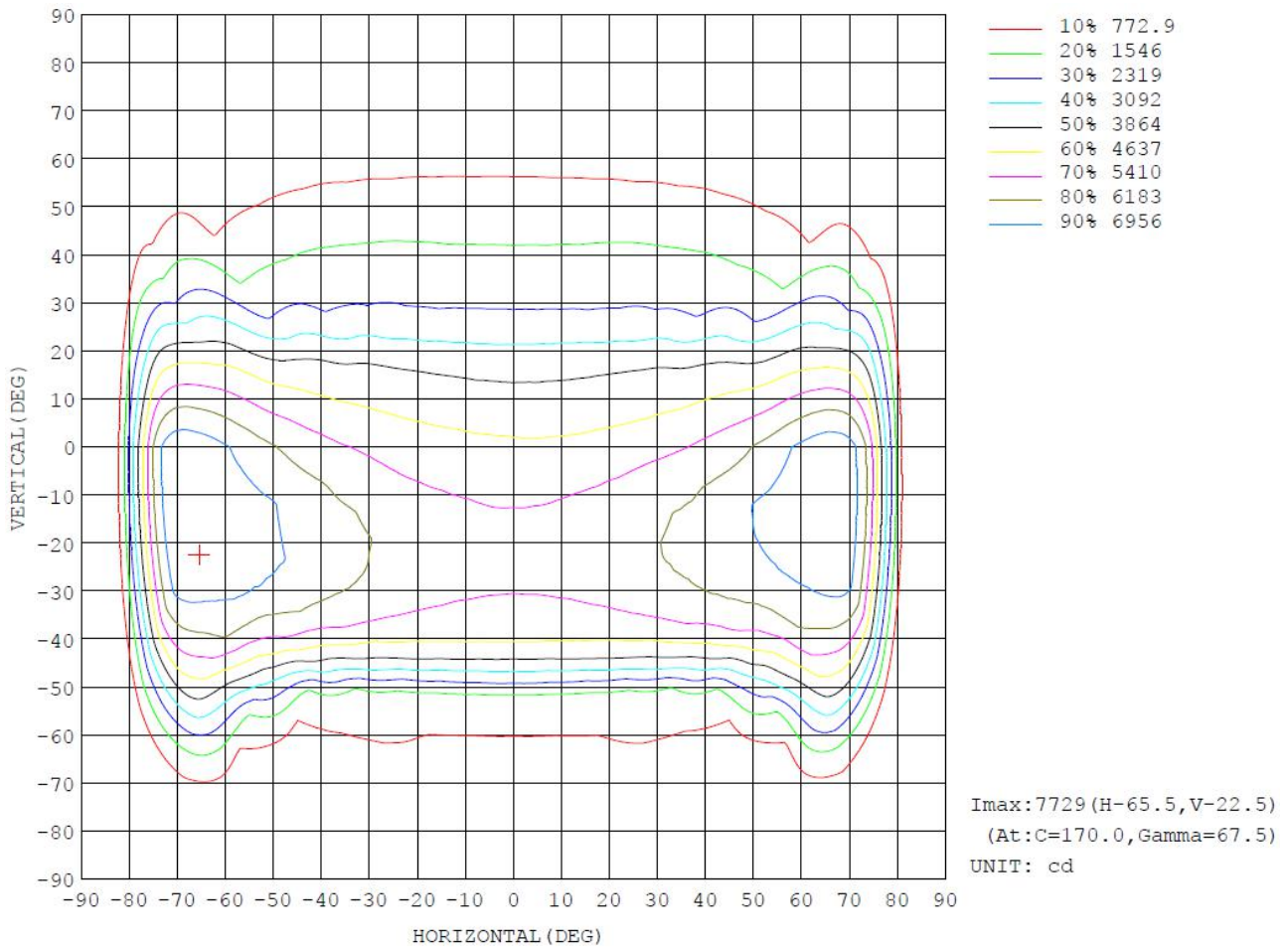
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NVLAP LAB CODE 600112-0

Report No.: LCS200918049BS

5.4 Isocandela Diagram





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TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918049BS

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	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773	4773
5	4781	4840	4893	4932	4971	4999	5036	5050	5063	5074	5064	5053	5046	5017	4996	4945	4901	4841	4792
10	4816	4929	5017	5099	5172	5227	5271	5287	5302	5319	5297	5290	5284	5258	5210	5140	5052	4950	4838
15	4880	5055	5181	5278	5367	5430	5452	5460	5469	5471	5463	5471	5469	5449	5416	5346	5218	5072	4903
20	4983	5196	5369	5500	5579	5582	5588	5565	5557	5553	5548	5573	5605	5622	5596	5539	5418	5225	4999
25	5075	5360	5583	5709	5744	5699	5641	5598	5565	5566	5551	5601	5665	5719	5765	5764	5635	5427	5117
30	5200	5575	5841	5922	5857	5742	5615	5523	5458	5441	5463	5546	5672	5791	5908	5984	5907	5658	5268
35	5335	5813	6137	6130	5962	5710	5504	5285	5184	5152	5183	5322	5550	5804	6029	6230	6215	5935	5405
40	5552	6135	6413	6245	5942	5547	5158	4890	4758	4715	4756	4923	5204	5638	6085	6418	6530	6259	5627
45	5826	6478	6609	6265	5766	5099	4520	4091	3736	3624	3741	4121	4573	5181	5948	6483	6798	6624	5885
50	6175	6854	6724	6155	5304	4195	3238	2473	2148	2074	2157	2491	3269	4261	5454	6410	6953	6979	6200
55	6609	7238	6724	5798	4212	2502	1453	1109	982	967	981	1118	1483	2572	4338	6090	7048	7347	6579
60	7075	7506	6625	4878	2327	1086	933	818	788	782	788	812	913	1103	2483	5170	6968	7636	6980
65	7416	7607	6271	3431	978	793	775	662	628	620	628	659	773	811	982	3675	6672	7744	7340
70	7205	7492	5420	1809	599	564	518	473	449	444	449	475	523	582	619	1974	5599	7713	7457
75	5211	6090	3882	754	367	349	319	291	273	269	273	294	326	358	387	848	4019	6415	6185
80	1335	2147	1493	396	180	172	155	140	134	133	136	144	162	181	199	416	1707	2783	2477
85	71.0	125	184	97.2	49.3	47.0	42.6	39.0	37.0	37.6	38.1	41.1	45.9	52.5	59.4	111	260	219	146
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



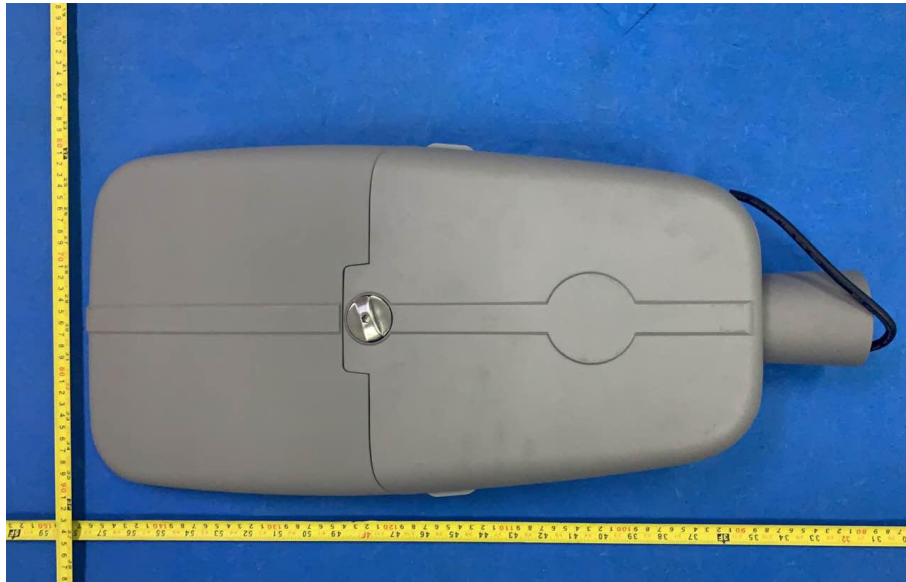
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6. Photo of sample:



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