



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918052BS

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-52-200W-TC10

Rating..... : AC220V, 50/60Hz, 200W, 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-52-200W-TC10
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	200W
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:

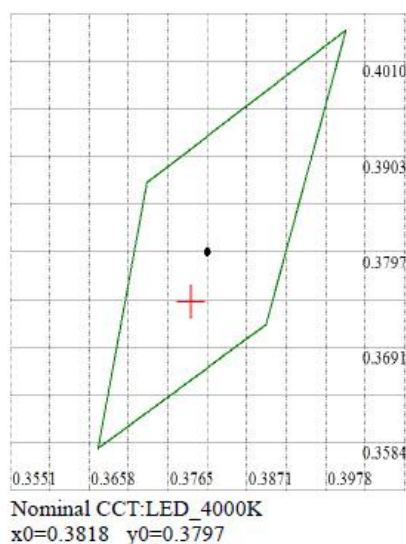
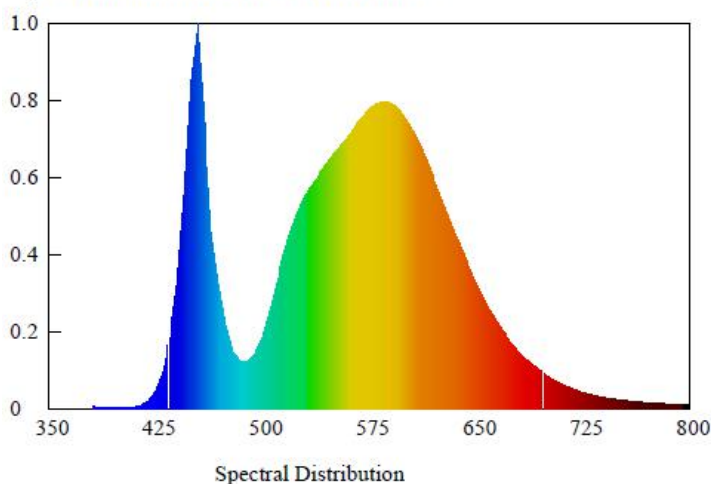
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	219.96	50.0	0.9419	0.9708	201.12

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	4006	74.0	-0.00098	27203.49	135.26

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3795 y=0.3741 u'=0.2256 v'=0.5003

Correlated Color Temperature: 4006 K

Colour Fidelity Index: Rf=72

Luminous Flux: 27203.49 lm

Chromaticity Difference: -0.00098Duv

Color Ratio: Kr=37.8% Kg=55.1% Kb=7.0%

Bandwidth: 16.9nm

Photosynthetically Active Radiation(PAR): 82.04W

Rendering Index: Ra=74.0

R1=72 R2=82 R3=89 R4=71 R5=70 R6=73 R7=82 R8=54

R9=-22 R10=56 R11=65 R12=40 R13=75 R14=93 R15=66 Re=64

Dominant Wavelength: 578.0 nm(E)

Gamut Index: Rg=92

Purity: 0.2620

Peak Wavelength: 455.0 nm

Radiant Flux: 83.953 W

Photosynthetic Photon Flux(PPF):385.64μmol/s



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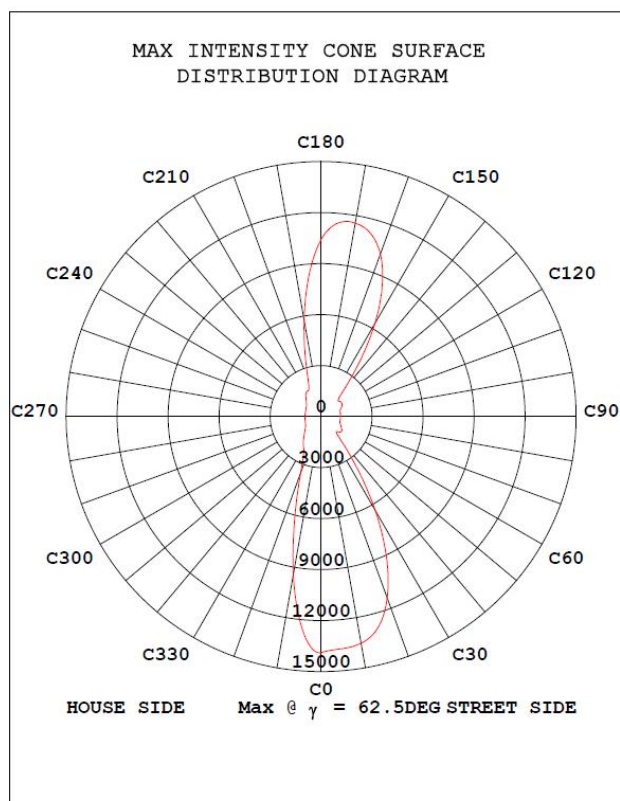
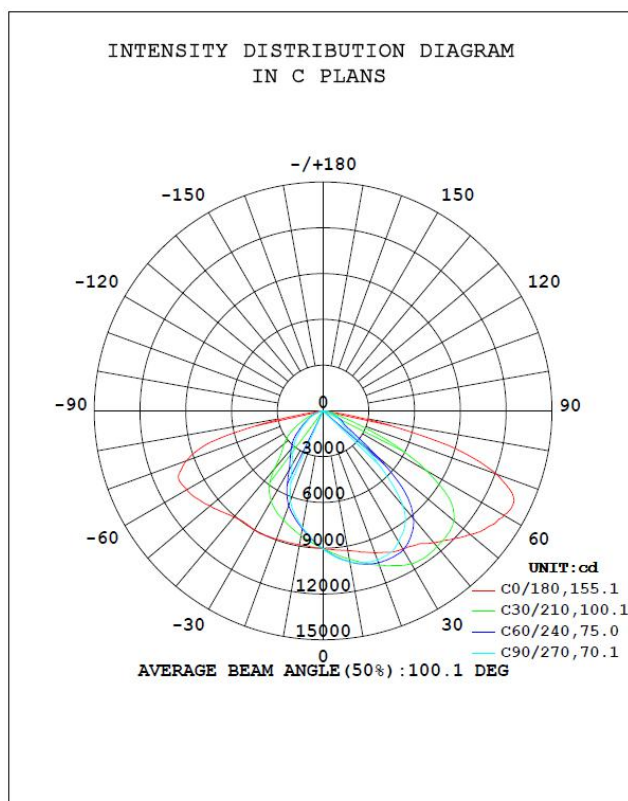
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.1	50.01	0.9412	0.9708	201.1

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	27236.4	135.44	100%	0.5%

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	930.0	997.7	1005	970.8	889.8	803.3	776.7	829.9	0- 10	861.0	861.0	3.16, 3.16
20	989.1	1073	1039	1024	893.9	706.3	625.5	755.4	10- 20	2537	3398	12.5, 12.5
30	1045	1104	989.2	1050	901.1	552.8	408.6	624.6	20- 30	3996	7395	27.2, 27.2
40	1127	1041	813.9	1001	908.9	376.6	299.3	418.9	30- 40	4988	12383	45.5, 45.5
50	1261	761.9	293.9	761.1	969.2	267.4	189.7	301.5	40- 50	5232	17615	64.7, 64.7
60	1366	216.3	127.9	248.2	1032	151.9	109.1	173.4	50- 60	4404	22019	80.8, 80.8
70	1206	89.63	73.72	90.52	953.3	66.31	56.62	69.16	60- 70	3392	25411	93.3, 93.3
80	206.5	25.91	21.81	25.09	197.2	12.91	4.587	14.57	70- 80	1695	27105	99.5, 99.5
90	0	0	0	0	0	0.0299	0.0119	0	80- 90	130.9	27236	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0013	27236	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	27236	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	27236	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	27236	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	27236	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	27236	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	27236	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	27236	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	27236	100, 100
DEG	LUMINOUS INTENSITY: ×10cd									UNIT: lm		



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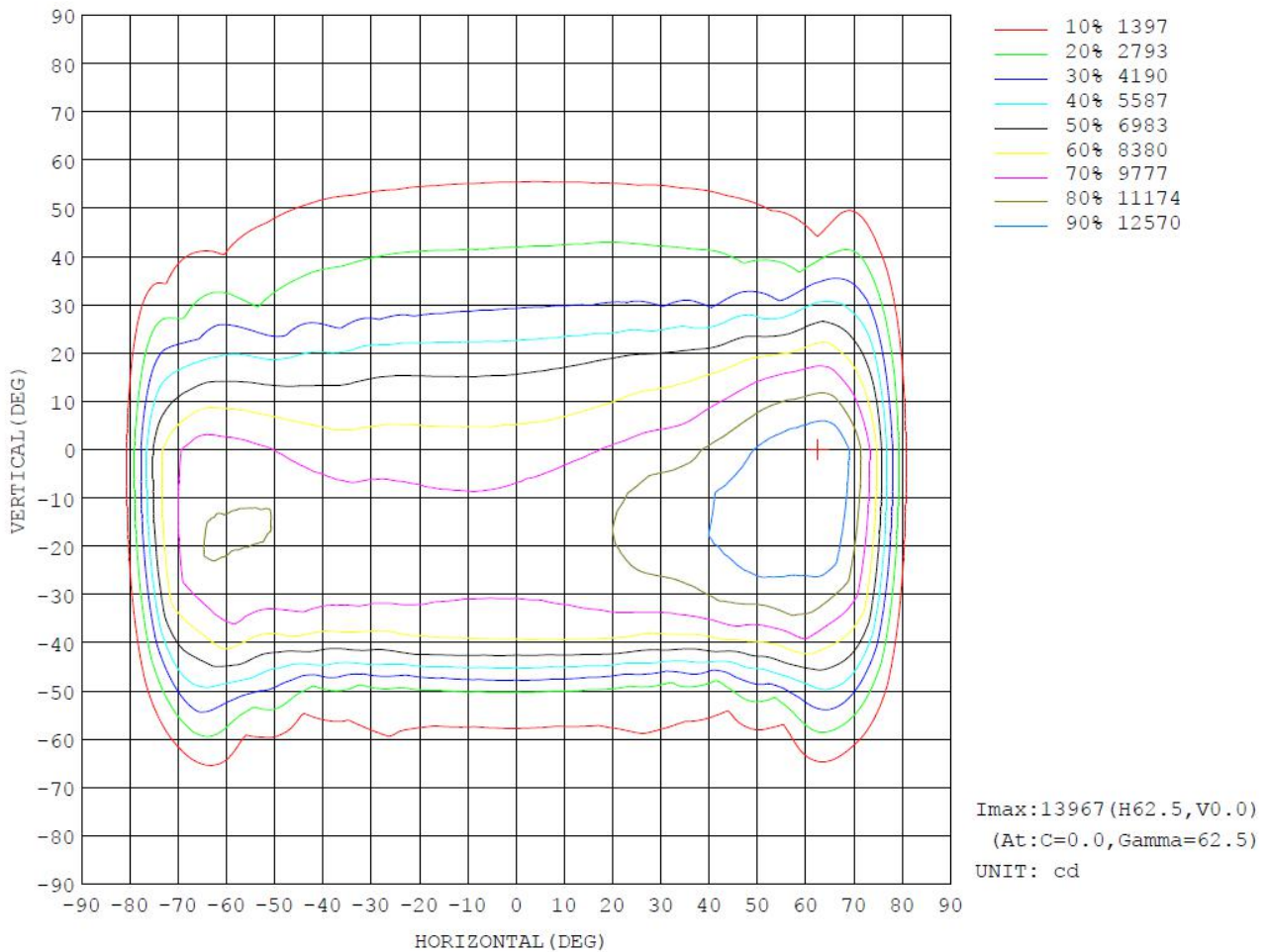
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5.4 Isocandela Diagram





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5.5 Luminous Distribution Intensity Data

Table--1

UNIT: $\times 10\text{cd}$

γ (DEG) \ C (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	903	903	903	903	903	903	903	903	903	903	903	903	903	903	903	903	903	903	903
5	914	927	933	942	949	956	959	961	960	961	956	954	948	944	935	926	915	908	894
10	930	955	970	985	995	1001	1003	1006	1003	1005	996	993	984	978	964	951	934	913	890
15	958	991	1012	1031	1038	1041	1039	1034	1030	1030	1022	1017	1012	1007	994	977	956	926	892
20	989	1032	1061	1076	1077	1070	1059	1049	1040	1039	1030	1027	1026	1027	1021	1005	979	945	894
25	1022	1081	1112	1117	1107	1085	1061	1047	1034	1030	1026	1031	1034	1039	1039	1036	1008	967	900
30	1045	1121	1157	1157	1122	1086	1050	1019	992	989	990	1006	1027	1045	1055	1059	1035	980	901
35	1070	1157	1187	1169	1124	1066	1003	961	936	931	931	953	984	1032	1058	1067	1051	987	895
40	1127	1222	1221	1162	1085	997	922	867	827	814	825	859	908	970	1033	1064	1077	1023	909
45	1190	1288	1259	1149	1005	857	766	654	586	572	590	666	765	845	977	1057	1103	1064	936
50	1261	1348	1271	1119	866	657	453	361	306	294	312	371	474	667	856	1022	1113	1111	969
55	1323	1376	1253	1014	645	313	212	170	157	157	158	174	219	349	649	944	1100	1144	1005
60	1366	1362	1185	781	266	166	150	133	127	128	128	134	150	167	329	749	1055	1152	1032
65	1380	1342	1065	487	139	124	117	105	101	101	101	106	120	123	147	519	983	1151	1045
70	1206	1180	790	201	92.0	87.2	80.0	75.1	73.1	73.7	73.1	75.7	80.8	87.2	93.8	259	770	1044	953
75	795	850	476	91.1	56.5	54.1	49.5	46.6	44.3	44.5	44.2	46.5	49.9	53.7	55.6	108	492	792	716
80	206	253	146	44.4	26.5	25.3	23.7	22.0	21.4	21.8	21.3	21.7	23.3	24.4	25.8	49.3	165	239	197
85	12.2	16.3	17.6	9.71	6.69	6.25	5.89	5.82	5.75	5.85	5.61	5.59	5.61	5.82	6.11	9.16	14.0	12.7	10.4
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



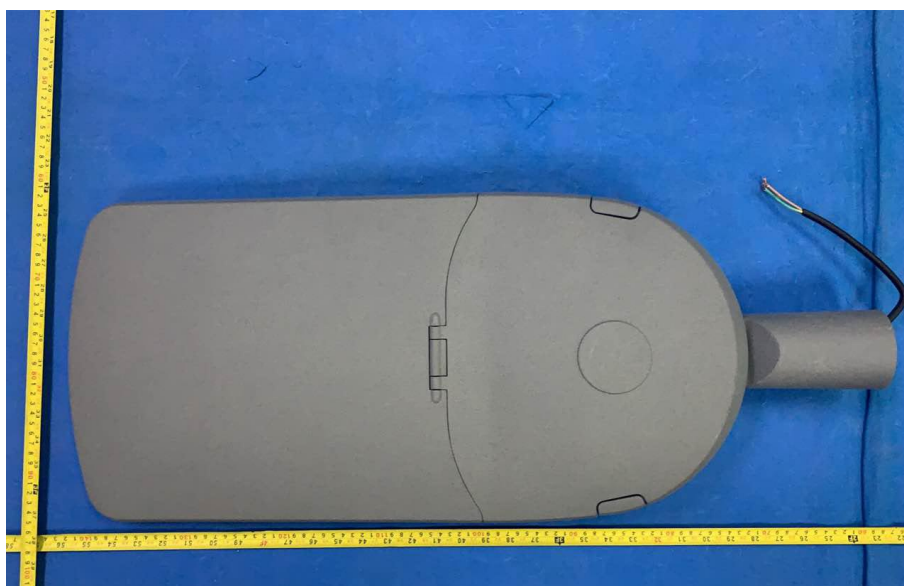
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6. Photo of sample:



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