



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200918045BS

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-52-30W-TC10

Rating..... : AC220V, 50/60Hz, 30W, 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-52-30W-TC10
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	30W
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:

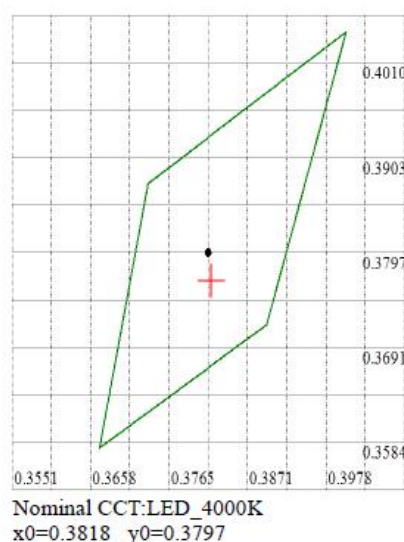
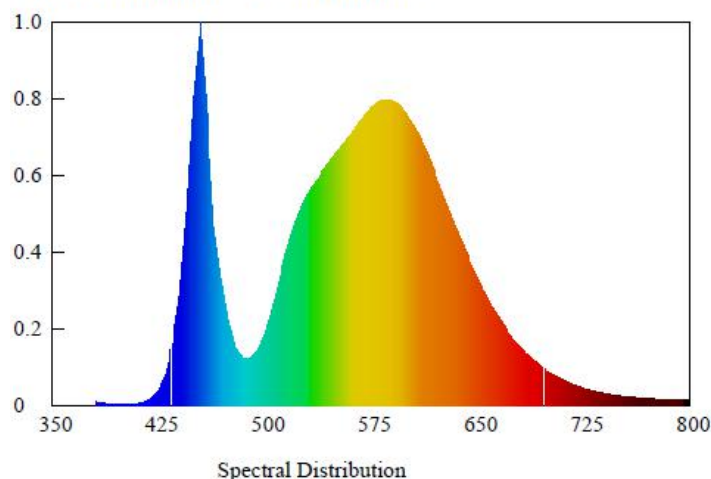
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.07	50.0	0.1451	0.9655	30.82

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3952	74.2	-0.00062	4639.33	150.53

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3822$ $y=0.3765$ $u'=0.2263$ $v'=0.5017$

Correlated Color Temperature: 3952 K

Colour Fidelity Index: $R_f=72$

Luminous Flux: 4639.33 lm

Chromaticity Difference: -0.00062Duv

Color Ratio: $K_r=38.1\%$ $K_g=54.9\%$ $K_b=7.0\%$

Bandwidth: 15.7nm

Photosynthetically Active Radiation(PAR): 13.79W

Rendering Index: $R_a=74.2$

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

$R_9=-22$ $R_{10}=57$ $R_{11}=65$ $R_{12}=40$ $R_{13}=75$ $R_{14}=94$ $R_{15}=67$ $R_e=65$

Dominant Wavelength: 578.0 nm(E)

Gamut Index: $R_g=92$

Purity: 0.2774

Peak Wavelength: 455.0 nm

Radiant Flux: 14.147 W

Photosynthetic Photon Flux(PPF):64.97 μ mol/s



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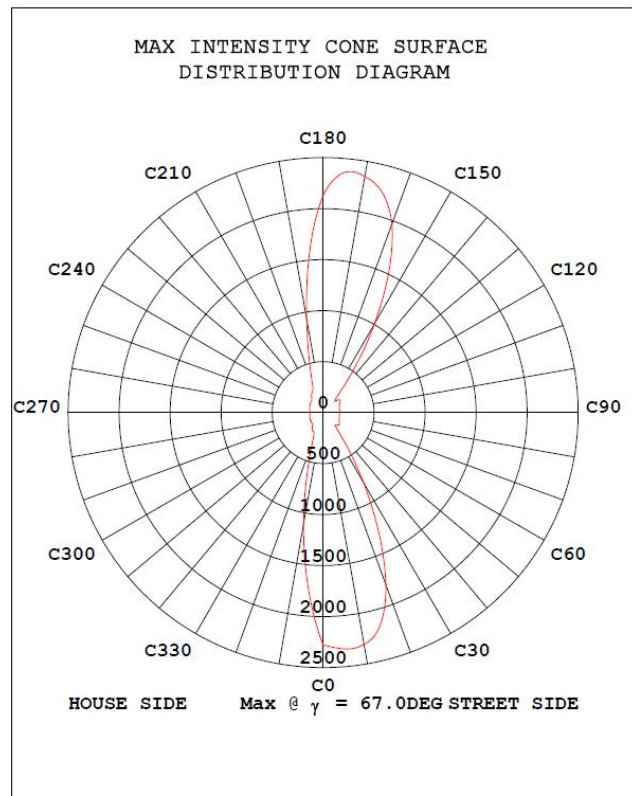
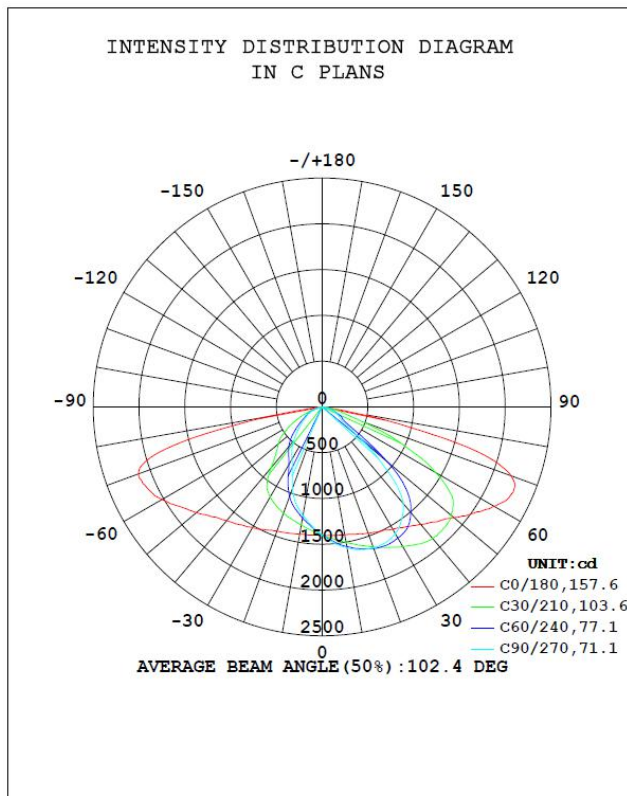
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.1	50.01	0.1450	0.9655	30.81

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	4635.9	150.49	100%	0.6%

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	1419	1533	1561	1531	1412	1269	1203	1275	0- 10	133.6	133.6	2.88, 2.88
20	1468	1647	1636	1643	1443	1134	946.0	1146	10- 20	395.2	528.8	11.4, 11.4
30	1540	1715	1598	1723	1524	893.0	660.1	908.5	20- 30	626.5	1155	24.9, 24.9
40	1675	1698	1379	1733	1622	669.3	487.1	672.6	30- 40	809.1	1964	42.4, 42.4
50	1880	1384	593.3	1458	1796	483.5	307.2	484.1	40- 50	888.4	2853	61.5, 61.5
60	2173	444.1	219.0	566.8	2021	279.4	194.8	273.9	50- 60	772.4	3625	78.2, 78.2
70	2196	160.3	134.8	172.0	2136	130.7	95.93	121.6	60- 70	626.5	4252	91.7, 91.7
80	268.1	46.24	33.70	52.17	566.8	22.06	1.079	17.46	70- 80	356.1	4608	99.4, 99.4
90	0	0	0	0	0	0	0	0	80- 90	28.03	4636	100, 100
100	0	0	0	0	0	0	0	0	90-100	0.0001	4636	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4636	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4636	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4636	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4636	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4636	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4636	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4636	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4636	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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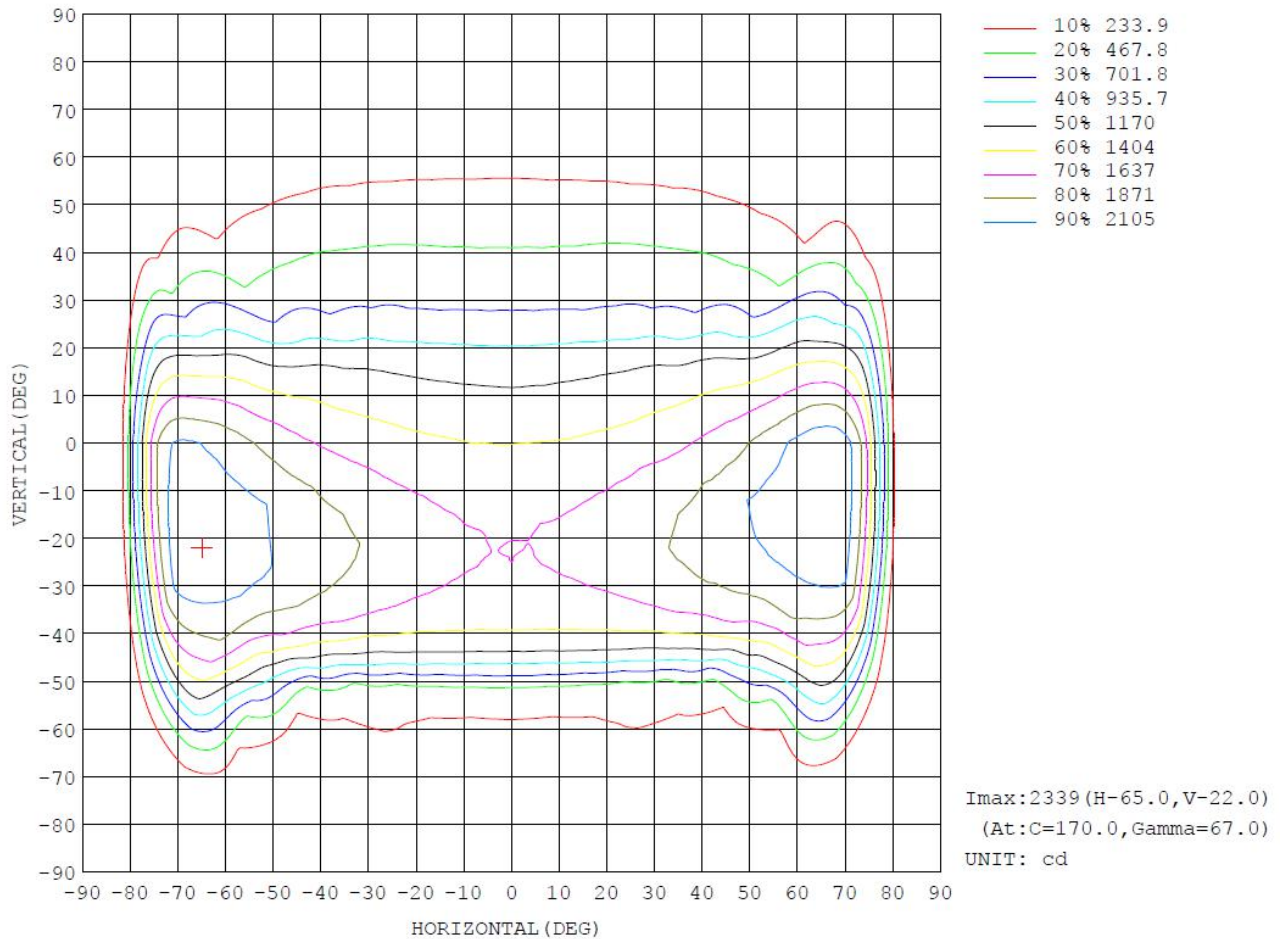
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5.4 Isocandela Diagram





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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	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399	1399
5	1410	1424	1439	1448	1464	1471	1476	1482	1489	1489	1486	1486	1475	1471	1460	1446	1426	1416	1404
10	1419	1448	1482	1502	1525	1542	1549	1557	1561	1561	1558	1557	1548	1538	1524	1501	1474	1446	1412
15	1438	1489	1530	1562	1586	1596	1604	1609	1609	1612	1609	1612	1605	1597	1584	1555	1526	1480	1427
20	1468	1540	1586	1627	1648	1647	1645	1641	1634	1636	1630	1641	1638	1644	1641	1619	1584	1524	1443
25	1500	1595	1659	1692	1701	1682	1667	1649	1630	1637	1633	1646	1660	1683	1695	1687	1645	1579	1481
30	1540	1669	1741	1763	1739	1690	1654	1624	1598	1598	1602	1630	1664	1705	1740	1755	1727	1647	1524
35	1598	1742	1828	1828	1771	1682	1619	1551	1512	1511	1518	1565	1637	1712	1782	1829	1819	1729	1570
40	1675	1848	1913	1876	1763	1633	1508	1427	1384	1379	1388	1441	1533	1672	1795	1900	1915	1818	1622
45	1773	1961	1988	1877	1711	1495	1320	1192	1088	1058	1101	1215	1343	1547	1767	1921	2001	1927	1698
50	1880	2083	2020	1839	1555	1213	927	702	611	593	624	734	988	1274	1642	1912	2065	2050	1796
55	2023	2205	2025	1742	1224	688	396	304	268	266	272	316	435	807	1339	1837	2109	2169	1898
60	2173	2272	1989	1432	599	290	256	227	219	219	220	229	256	315	819	1601	2103	2267	2021
65	2273	2309	1884	971	262	215	209	186	179	180	180	189	219	224	296	1159	2043	2331	2105
70	2196	2253	1600	453	164	157	147	139	134	135	135	142	151	164	180	708	1791	2317	2136
75	1520	1797	1110	205	105	100	93.0	84.7	79.5	80.1	80.8	88.1	96.8	106	115	285	1285	1927	1760
80	268	478	387	106	48.3	44.2	40.0	34.5	33.1	33.7	34.0	36.7	42.3	47.9	56.4	131	510	706	567
85	17.5	29.5	39.0	20.2	9.51	8.39	7.73	7.45	6.72	7.06	6.95	7.63	8.27	9.72	12.1	28.2	62.2	50.2	31.9
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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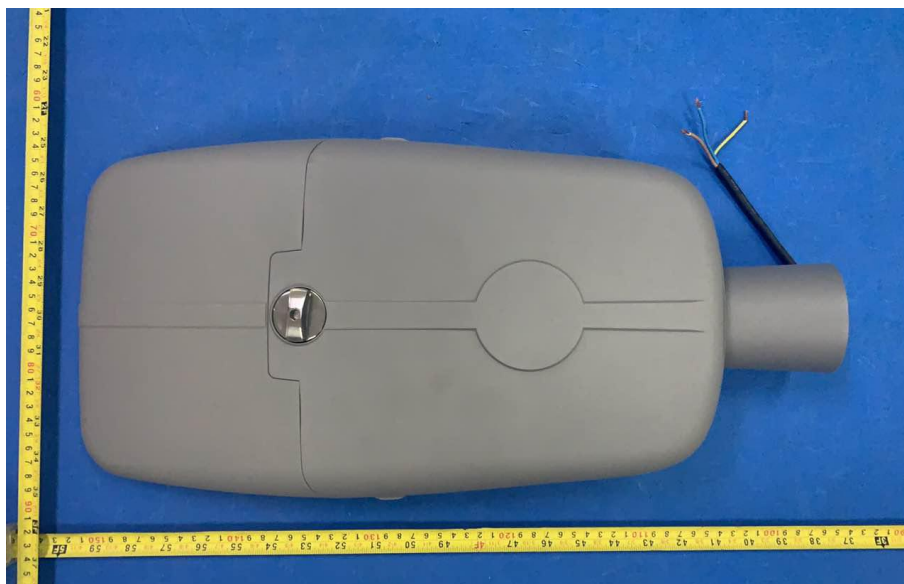
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6. Photo of sample:



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