



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221035BS

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, Bao' an District,
Shenzhen, Guangdong, China

Brand Name..... : Sinoco

Testing laboratory..... : Shenzhen 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-4000K

Rating..... : 100-240Vac, 50/60Hz, 30W, 4000K

Test by: William Lian

Signature: *William*

Reviewed by: *Hart Qiu*

Signature:



Test date: January 04, 2018

Reviewed date: January 12, 2018

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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-4000K
Rated Inputs.....:	100-240VAC, 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.....:	January 03, 2018
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	2017/08/15	2018/08/14
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2017/08/15	2018/08/14
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2017/08/15	2018/08/14
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2017/08/14	2018/08/13
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2017/08/15	2018/08/14
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2017/08/15	2018/08/14
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2017/08/15	2018/08/14
SENSING	Standard Lamp	SLCS-S-118	S11010017	2017/08/14	2018/08/13



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4. Integrating Sphere Test Results:

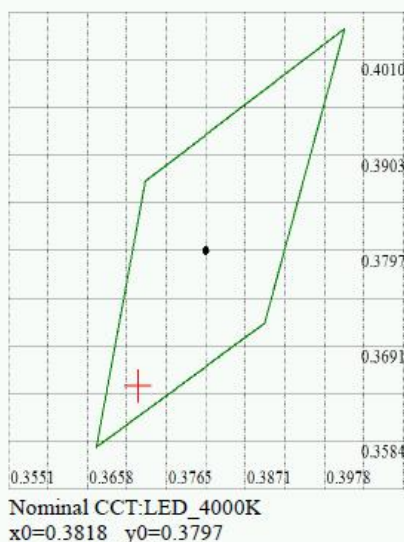
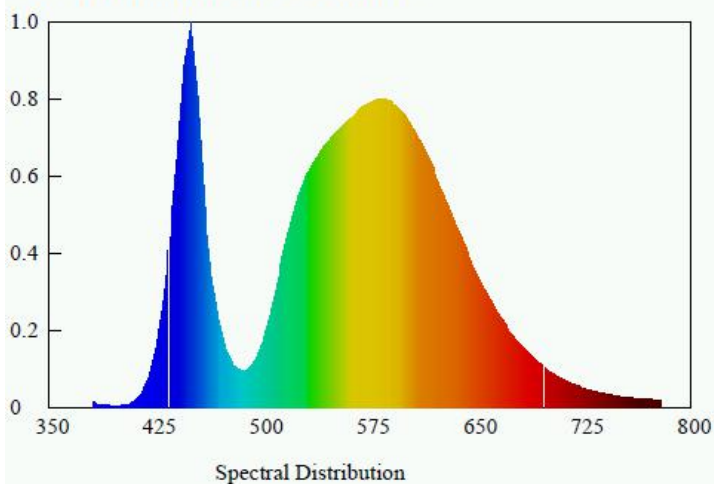
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.151	0.907	30.1

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	4135	72.6	3533.54	117.4

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3726 y=0.3646 u'=0.2248 v'=0.4949

Correlated Color Temperature: 4135 K

Colour Fidelity Index: Rf=69

Luminous Flux: 3533.54 lm

Chromaticity Difference: -0.00344Duv

Color Ratio: Kr=37.0% Kg=56.5% Kb=6.5%

Bandwidth: 28nm

Photosynthetically Active Radiation(PAR): 9.38W

Rendering Index: Ra=72.6

R1=71 R2=79 R3=82 R4=72 R5=70 R6=68 R7=81 R8=57

R9=-17 R10=47 R11=66 R12=40 R13=73 R14=89 R15=68 Re=63

Dominant Wavelength: 579.0 nm(E)

Gamut Index: Rg=95

Purity: 0.2131

Peak Wavelength: 450.0 nm

Radiant Flux: 9.622 W

Photosynthetic Photon Flux(PPF):43.89μmol/s

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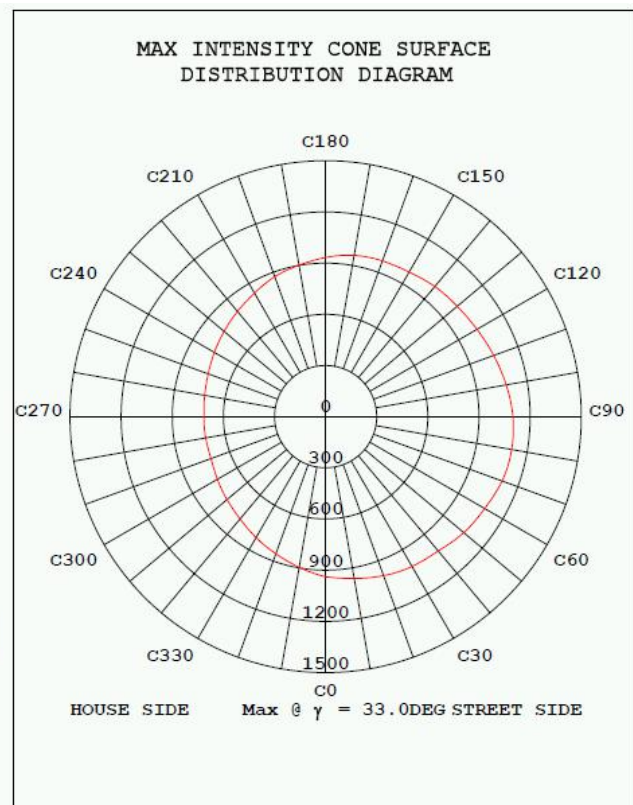
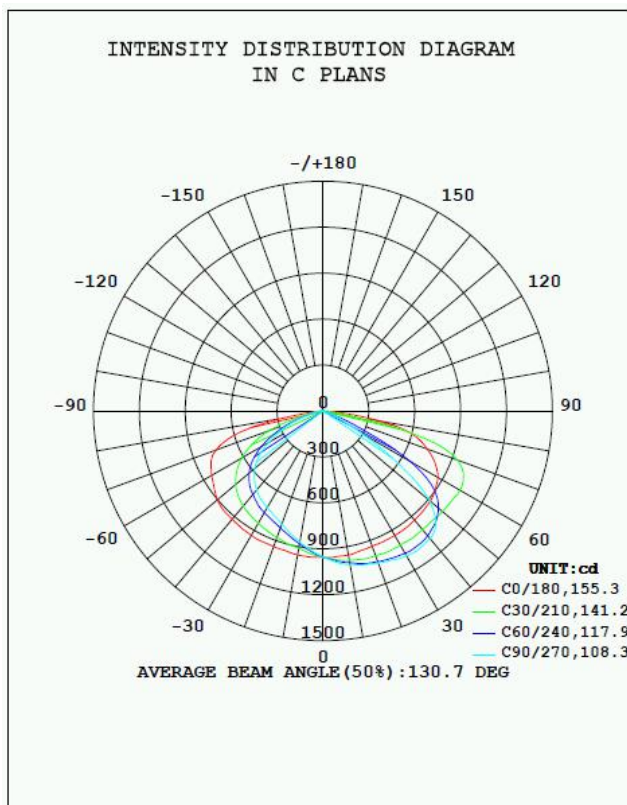
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.01	0.1508	0.9053	30.05

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	ZL (0~90°)	ZL (80~90°)
Output	3512.18	116.89	99.90%	0.70%

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





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5.3 Zonal Flux Diagram

y	C0	C45	C90	C135	C180	C225	C270	C315	y	Φ zone	Φ total	lum, lamp
10	955.3	1003	1021	993.2	954.8	895.8	869.4	887.4	0- 10	90.65	90.65	2.58,2.58
20	939.7	1028	1057	1002	943.3	844.7	786.4	831.3	10- 20	265.4	356.0	10.1,10.1
30	938.5	1040	1093	1002	937.2	803.9	728.4	783.3	20- 30	426.1	782.2	22.3,22.3
40	929.2	1036	1087	983.2	922.4	761.6	674.0	741.2	30- 40	568.2	1350	38.4,38.4
50	917.0	1005	904.5	958.7	901.5	681.7	582.6	672.2	40- 50	669.6	2020	57.5,57.5
60	868.0	936.9	278.8	850.4	840.4	530.9	409.0	546.8	50- 60	672.1	2692	76.7,76.7
70	724.8	453.8	57.18	330.8	742.5	271.3	182.2	318.3	60- 70	526.3	3218	91.6,91.6
80	376.0	16.12	0.5656	6.900	256.7	43.29	47.69	56.07	70- 80	264.4	3483	99.2,99.2
90	0.5581	0.0422	0	0	0.3986	0	0	0	80- 90	26.39	3509	99.9,99.9
100	0.3189	0	0	0	0.7175	0.1973	0	0.1200	90-100	0.1580	3509	99.9,99.9
110	0.3189	0	0	0	0.7973	0.7148	0	0.6364	100-110	0.2571	3510	99.9,99.9
120	0.3189	0	0	0	0.7973	0.7546	0.5571	0.9949	110-120	0.3570	3510	99.9,99.9
130	0.3189	0.0796	0.0796	0.0795	0.7973	0.7546	0.8754	1.034	120-130	0.4204	3510	100,100
140	0.5570	0.1589	0.1592	0.1193	0.7973	0.8731	1.190	1.113	130-140	0.4273	3511	100,100
150	0.5581	0.4767	0.3979	0.3953	1.036	1.192	1.353	1.392	140-150	0.4534	3511	100,100
160	0.7175	0.6355	0.6367	0.5568	1.276	1.311	1.353	1.352	150-160	0.4256	3512	100,100
170	1.196	1.192	1.110	0.9545	1.435	1.311	1.353	1.352	160-170	0.3067	3512	100,100
180	1.276	1.351	1.194	1.273	1.435	1.271	1.353	1.312	170-180	0.1224	3512	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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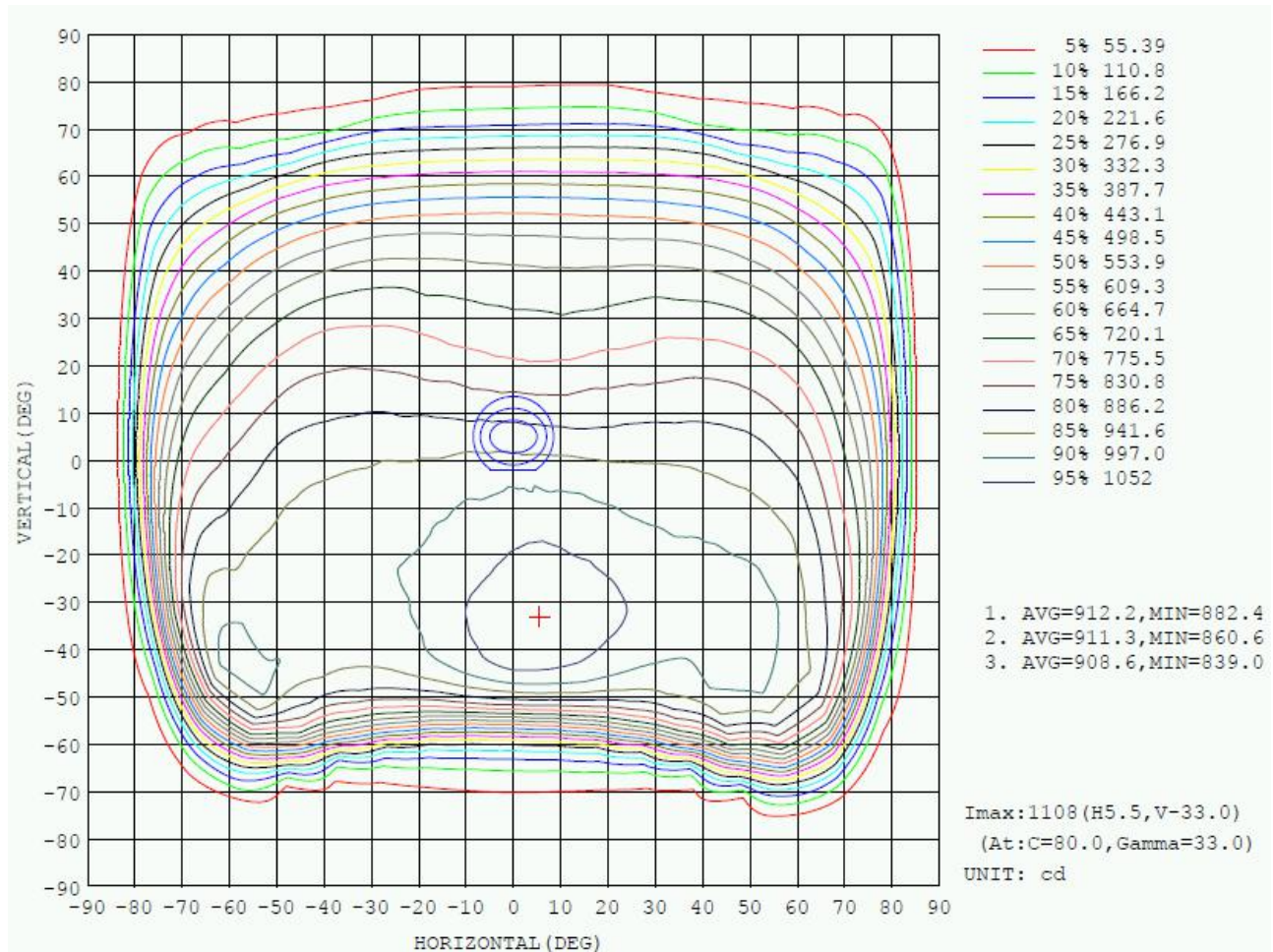
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5.4 Isocandela Diagram





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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	956	955	955	954	954	955	954	954	953	952	953	953	952	953	952	951	950	949	956
5	956	960	971	973	974	987	981	990	990	991	993	985	978	977	974	968	967	959	958
10	955	966	975	991	994	1012	1005	1016	1018	1021	1016	1010	1003	994	992	977	971	959	955
15	945	962	987	1002	1009	1030	1032	1039	1041	1039	1033	1028	1017	1003	999	984	972	959	945
20	940	966	986	1007	1018	1039	1048	1061	1063	1057	1045	1035	1021	1007	998	988	971	956	943
25	940	960	987	1012	1022	1046	1061	1079	1080	1074	1057	1042	1024	1007	996	981	968	960	941
30	938	965	989	1011	1028	1053	1073	1098	1102	1093	1072	1049	1027	1009	996	980	972	958	937
35	937	966	992	1014	1028	1057	1075	1102	1106	1098	1075	1044	1020	1001	992	981	973	962	931
40	929	970	997	1012	1022	1050	1064	1082	1092	1087	1058	1029	1002	983	983	979	973	960	922
45	924	963	1003	1011	1014	1026	1036	1048	1047	1042	1019	998	983	969	971	975	977	953	919
50	917	963	1006	1020	1009	1001	986	964	928	904	902	907	931	950	968	976	976	944	901
55	895	960	1013	1025	1001	962	882	763	655	610	630	706	813	903	958	978	975	934	870
60	868	947	1006	1035	998	876	656	431	312	279	293	374	563	777	924	993	980	923	840
65	809	912	980	1014	935	641	276	167	132	122	123	143	212	504	835	1003	1009	928	808
70	725	854	949	933	709	199	79.9	61.8	57.6	57.2	55.9	57.4	63.6	115	546	903	998	900	743
75	616	752	830	682	236	46.2	29.3	21.5	19.8	18.8	18.2	18.8	22.6	33.5	95.5	448	670	680	589
80	376	341	350	177	23.8	8.40	2.57	1.20	0.75	0.57	0.49	0.65	1.20	3.26	10.5	75.3	129	141	257
85	67.3	15.7	8.30	2.28	0.79	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.80	1.45	2.17	9.46
90	0.56	0.64	0.56	0.40	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.40	0.48	0.40
95	0.32	0.40	0.24	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.32	0.48
100	0.32	0.32	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.72
105	0.32	0.32	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.80
110	0.32	0.32	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.80
115	0.32	0.32	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.80
120	0.32	0.32	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.24	0.80
125	0.32	0.32	0.16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.24	0.80
130	0.32	0.32	0.16	0.16	0.00	0.16	0.00	0.16	0.00	0.08	0.00	0.00	0.15	0.16	0.00	0.08	0.24	0.24	0.80
135	0.40	0.32	0.16	0.16	0.08	0.16	0.08	0.24	0.08	0.08	0.08	0.08	0.08	0.16	0.08	0.08	0.24	0.24	0.80
140	0.56	0.32	0.24	0.16	0.16	0.16	0.23	0.24	0.16	0.16	0.08	0.08	0.08	0.16	0.08	0.24	0.40	0.48	0.80
145	0.56	0.56	0.56	0.32	0.24	0.24	0.48	0.40	0.32	0.31	0.24	0.31	0.24	0.16	0.16	0.24	0.40	0.56	0.88
150	0.56	0.48	0.48	0.56	0.48	0.48	0.48	0.48	0.40	0.40	0.32	0.40	0.32	0.40	0.39	0.32	0.40	0.56	1.04
155	0.72	0.64	0.71	0.64	0.71	0.56	0.56	0.56	0.56	0.48	0.48	0.40	0.40	0.40	0.48	0.47	0.56	0.56	1.12
160	0.72	0.72	0.72	0.79	0.63	0.64	0.63	0.71	0.64	0.64	0.56	0.56	0.63	0.56	0.56	0.56	0.56	0.64	1.28
165	1.12	1.11	1.04	0.72	0.86	1.03	1.03	0.80	0.72	0.95	0.79	0.71	0.79	0.64	0.72	0.80	0.87	0.96	1.28
170	1.20	1.19	1.19	1.19	1.11	1.27	1.34	1.20	1.03	1.11	1.11	0.96	1.11	0.95	0.96	1.03	1.19	1.12	1.44
175	1.20	1.27	1.27	1.27	1.27	1.35	1.27	1.27	1.34	1.19	1.27	1.28	1.27	1.19	1.19	1.43	1.28	1.28	1.44
180	1.28	1.35	1.27	1.27	1.27	1.43	1.43	1.27	1.35	1.19	1.27	1.35	1.35	1.27	1.27	1.35	1.27	1.36	1.44



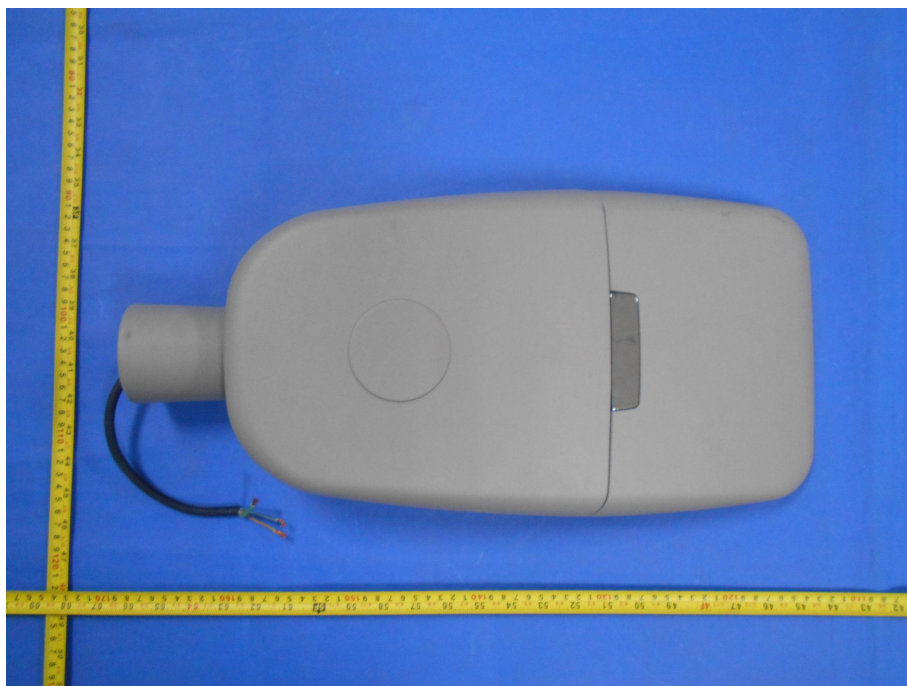
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6. Photo of sample:



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

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