



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS171221044BS

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-52-150W-3000K

Rating..... : 100-240Vac, 50/60Hz, 150W, 3000K

Test by: William Lian

Reviewed by: Hart Qiu

Signature: *William*

Signature: *Hart Qiu*



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-52-150W-3000K
Rated Inputs.....:	100-240VAC, 50/60Hz
Rated Power.....:	150W
Declared CCT.....:	3000K
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:

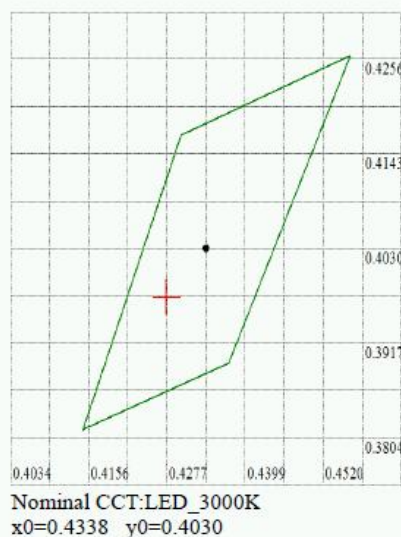
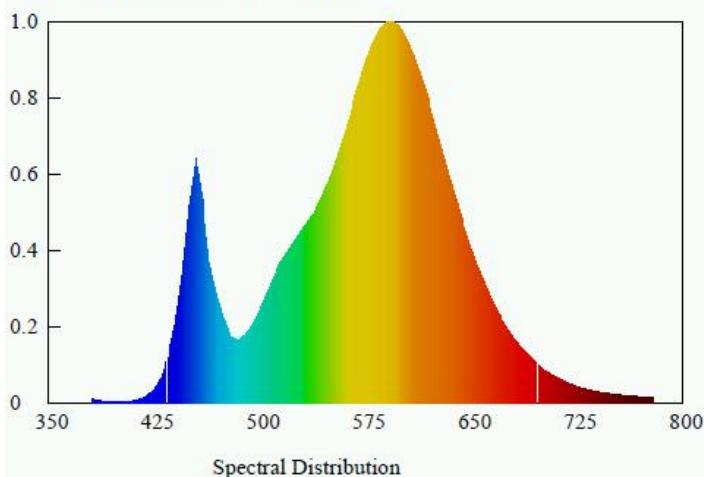
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.697	0.985	151.1

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	3107	72.6	19340.50	128.0

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4276$ $y=0.3972$ $u'=0.2475$ $v'=0.5172$

Correlated Color Temperature: 3107 K

Colour Fidelity Index: $R_f=73$

Luminous Flux: 19340.50 lm

Chromaticity Difference: -0.00144Duv

Color Ratio: $K_r=44.7\%$ $K_g=48.7\%$ $K_b=6.5\%$

Bandwidth: 103.8nm

Photosynthetically Active Radiation(PAR): 45.80W

Rendering Index: $R_a=72.6$

$R_1=69$ $R_2=86$ $R_3=93$ $R_4=66$ $R_5=69$ $R_6=81$ $R_7=75$ $R_8=41$

$R_9=-35$ $R_{10}=68$ $R_{11}=62$ $R_{12}=56$ $R_{13}=74$ $R_{14}=97$ $R_{15}=61$ $R_e=64$

Dominant Wavelength: 581.0 nm(E)

Gamut Index: $R_g=91$

Purity: 0.4786

Peak Wavelength: 590.0 nm

Radiant Flux: 46.786 W

Photosynthetic Photon Flux(PPF):220.02 $\mu\text{mol/s}$

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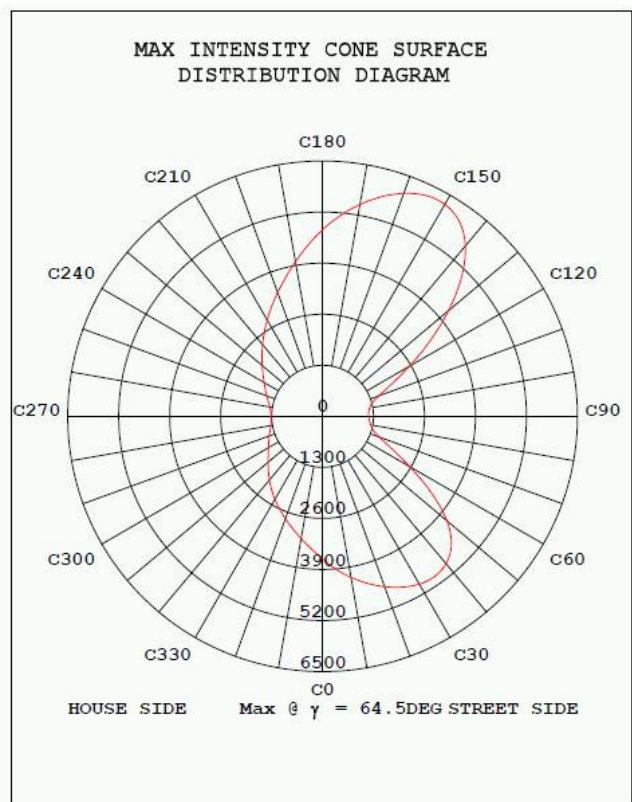
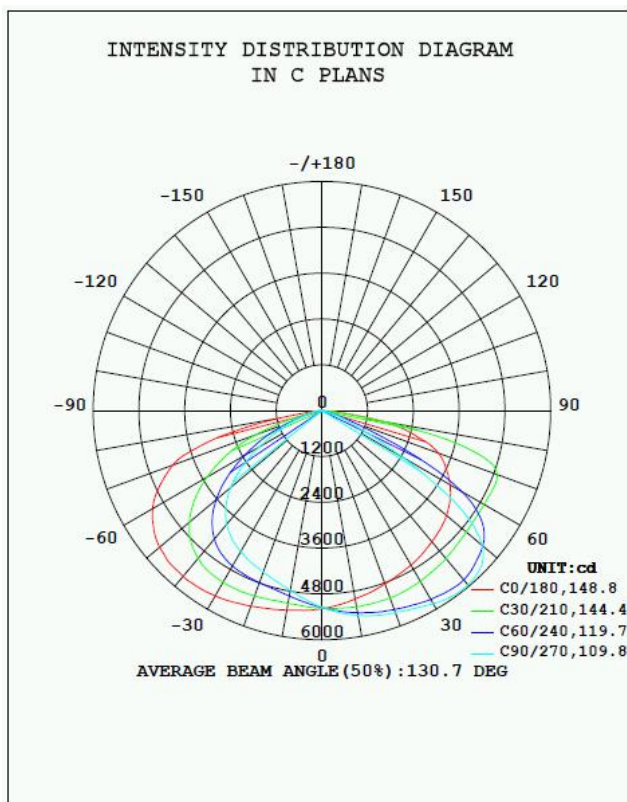
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.1	50.00	0.6984	0.9850	151.4

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	ZL (0~90°)	ZL (80~90°)
Output	19322.4	127.63	99.80%	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	Φlum, lamp
10	5006	5304	5441	5415	5302	5027	4785	4761	0- 10	490.3	490.3	2.54,2.54
20	4828	5397	5627	5549	5449	4978	4495	4399	10- 20	1446	1937	10,10
30	4671	5431	5835	5591	5600	4937	4258	4126	20- 30	2345	4282	22.2,22.2
40	4485	5400	5957	5593	5664	4718	3884	3824	30- 40	3143	7425	38.4,38.4
50	4266	5218	5492	5550	5560	4051	3118	3338	40- 50	3700	11126	57.6,57.6
60	3884	4955	2430	5365	5128	2857	1896	2485	50- 60	3729	14855	76.9,76.9
70	3249	3114	511.4	3204	4162	1175	772.2	1211	60- 70	2894	17749	91.9,91.9
80	1594	211.9	62.18	133.3	1133	190.2	208.9	216.8	70- 80	1409	19157	99.1,99.1
90	4.292	2.665	0.3189	1.670	3.894	1.153	0.1588	1.150	80- 90	130.0	19288	99.8,99.8
100	4.125	1.548	0.2382	0.7950	5.087	4.094	0.7145	4.060	90-100	2.404	19290	99.8,99.8
110	5.483	1.628	0.7901	1.388	6.920	6.635	3.260	7.480	100-110	3.645	19294	99.9,99.9
120	5.483	2.818	2.141	2.425	6.592	7.662	6.753	9.699	110-120	5.052	19299	99.9,99.9
130	7.310	5.397	4.922	3.973	5.801	6.671	7.542	8.659	120-130	5.333	19304	99.9,99.9
140	8.892	7.462	6.981	5.643	6.198	6.671	7.316	8.428	130-140	5.133	19309	99.9,99.9
150	10.25	9.723	8.971	7.670	6.998	8.191	9.132	9.462	140-150	5.099	19314	100,100
160	10.41	10.20	9.765	8.898	8.822	9.609	9.368	10.02	150-160	4.302	19318	100,100
170	11.36	11.40	10.32	10.10	9.853	10.56	10.40	10.77	160-170	2.831	19321	100,100
180	12.10	11.75	10.56	10.65	12.24	11.83	10.64	10.61	170-180	1.047	19322	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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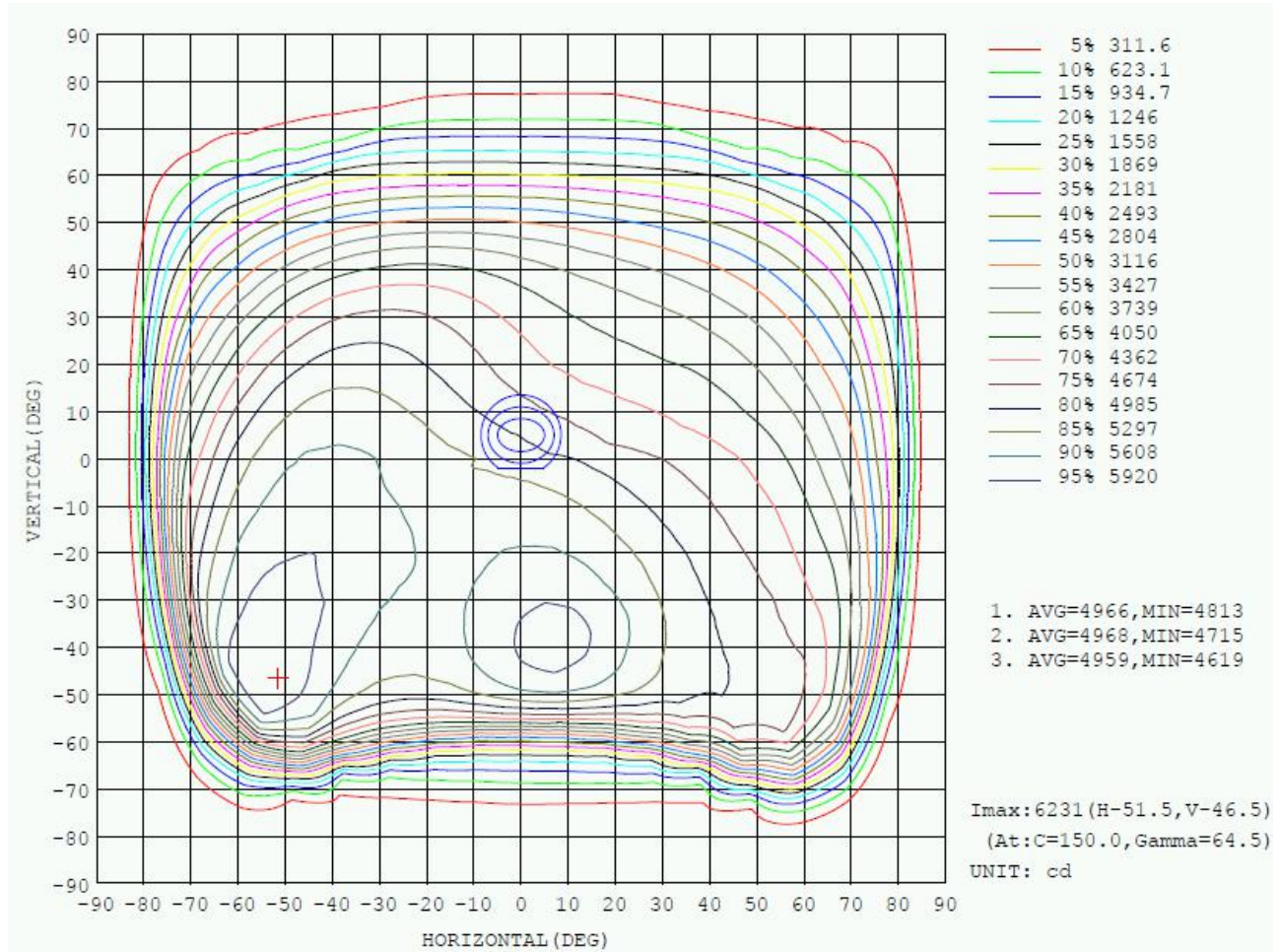
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5.4 Isocandela Diagram





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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	5182	5177	5172	5168	5164	5160	5156	5150	5148	5145	5141	5137	5135	5132	5129	5126	5120	5119	5182
5	5103	5131	5166	5194	5213	5243	5269	5294	5302	5308	5317	5315	5312	5295	5285	5263	5246	5204	5247
10	5006	5086	5140	5215	5273	5336	5372	5410	5437	5441	5452	5452	5443	5422	5409	5372	5345	5286	5302
15	4922	5012	5118	5219	5320	5405	5467	5518	5548	5550	5554	5540	5536	5512	5489	5457	5417	5360	5369
20	4828	4958	5083	5219	5333	5460	5541	5612	5636	5627	5614	5584	5574	5557	5541	5517	5484	5438	5449
25	4742	4887	5034	5197	5342	5501	5620	5715	5742	5716	5664	5604	5575	5575	5586	5579	5562	5524	5529
30	4671	4820	4981	5159	5345	5516	5708	5839	5890	5835	5728	5616	5567	5571	5611	5641	5652	5618	5600
35	4584	4753	4920	5107	5316	5541	5770	5957	6032	5937	5777	5617	5549	5558	5639	5694	5734	5697	5650
40	4485	4682	4860	5057	5268	5533	5782	5989	6059	5957	5768	5579	5504	5547	5639	5760	5821	5756	5664
45	4393	4593	4799	4993	5203	5432	5675	5875	5953	5861	5656	5482	5425	5479	5662	5826	5893	5788	5648
50	4266	4513	4739	4944	5126	5310	5507	5609	5607	5492	5348	5259	5292	5423	5676	5920	5949	5779	5560
55	4101	4430	4692	4914	5070	5185	5138	4862	4554	4396	4450	4655	4975	5317	5707	5999	6003	5739	5386
60	3884	4289	4655	4914	5021	4888	4233	3234	2633	2430	2549	3184	4135	4999	5732	6143	6042	5650	5128
65	3595	4149	4615	4933	4860	4005	2348	1401	1154	1091	1129	1377	2347	4053	5627	6228	6041	5450	4706
70	3249	3961	4599	4890	4260	1968	822	610	532	511	502	540	668	1814	4594	5935	5911	5104	4162
75	2546	3428	4116	4100	2195	442	308	247	227	224	219	226	265	339	1686	3458	3959	3540	2993
80	1594	1692	2214	1620	279	144	84.4	67.0	64.2	62.2	61.0	62.3	71.6	99.6	167	715	902	693	1133
85	247	107	137	99.6	30.4	10.8	5.26	3.45	2.39	1.96	1.84	2.17	3.24	5.60	11.8	25.7	36.0	39.8	86.7
90	4.29	4.70	4.78	4.15	3.18	2.15	1.20	0.72	0.48	0.32	0.32	0.48	0.56	1.19	2.15	3.42	4.31	4.69	3.89
95	3.81	3.81	3.49	2.78	2.07	1.43	0.79	0.40	0.32	0.24	0.24	0.32	0.32	0.63	1.19	2.07	2.95	3.73	4.29
100	4.12	3.66	3.25	2.62	1.91	1.19	0.64	0.40	0.32	0.24	0.24	0.32	0.32	0.56	1.03	1.83	2.71	3.42	5.09
105	4.84	3.74	3.25	2.62	1.91	1.19	0.64	0.40	0.32	0.24	0.24	0.32	0.40	0.63	1.19	1.83	2.71	3.42	6.04
110	5.48	4.29	3.26	2.62	1.91	1.35	1.11	0.95	0.72	0.79	0.72	0.79	0.87	1.27	1.51	2.07	2.79	3.65	6.92
115	5.48	5.24	3.88	3.18	2.46	2.21	1.82	1.43	1.59	1.59	1.35	1.35	1.50	1.75	2.14	2.54	3.10	4.05	6.99
120	5.48	5.25	4.13	3.73	3.02	2.62	2.53	2.30	2.15	2.14	1.83	1.90	2.06	2.38	2.46	2.78	3.50	3.97	6.59
125	6.35	5.71	5.23	4.84	4.43	3.89	3.73	3.89	3.65	3.81	3.49	3.17	3.26	3.02	3.34	3.81	4.21	4.84	5.80
130	7.31	6.60	6.35	5.80	5.55	5.24	4.68	5.09	4.92	4.92	4.29	4.13	4.05	3.82	4.13	4.29	4.85	5.48	5.80
135	7.63	7.15	6.75	6.52	6.43	5.96	5.79	5.72	5.56	5.40	5.01	5.15	5.08	4.45	5.01	5.16	5.33	5.80	5.96
140	8.89	8.82	8.56	8.18	7.78	7.15	7.62	7.22	7.07	6.98	6.50	6.35	6.36	5.80	5.49	6.27	6.84	7.14	6.20
145	10.3	9.86	9.52	9.06	8.81	8.74	9.05	8.90	8.42	8.09	7.55	7.54	7.39	7.15	6.52	6.68	7.08	7.94	6.36
150	10.3	10.1	10.2	9.69	9.52	9.93	9.61	9.46	9.29	8.97	8.74	8.26	8.03	7.87	7.47	6.99	7.40	8.02	7.00
155	10.3	10.3	10.2	10.2	10.2	10.2	10.2	10.2	9.61	9.45	8.98	8.90	8.50	8.35	8.58	7.79	7.87	8.34	7.95
160	10.4	10.3	10.2	10.3	10.2	10.2	10.2	10.3	10.1	9.77	9.45	9.04	8.90	8.82	8.98	8.19	8.20	8.74	8.82
165	10.8	10.7	10.7	10.4	10.3	10.6	10.7	10.3	10.3	10.2	10.3	9.53	9.54	9.22	9.14	8.90	9.15	9.53	8.98
170	11.4	11.4	11.6	11.5	11.4	11.4	11.4	10.9	10.4	10.3	10.5	10.4	10.3	10.1	10.1	10.2	10.1	10.2	9.85
175	12.5	12.2	12.5	11.9	11.8	11.8	11.4	11.1	10.6	10.6	11.0	10.9	10.7	10.4	10.6	10.7	11.2	11.5	11.4
180	12.1	12.3	12.5	11.9	11.7	11.8	11.4	11.1	10.6	10.6	10.9	10.8	10.7	10.6	10.7	11.0	11.3	11.4	12.2



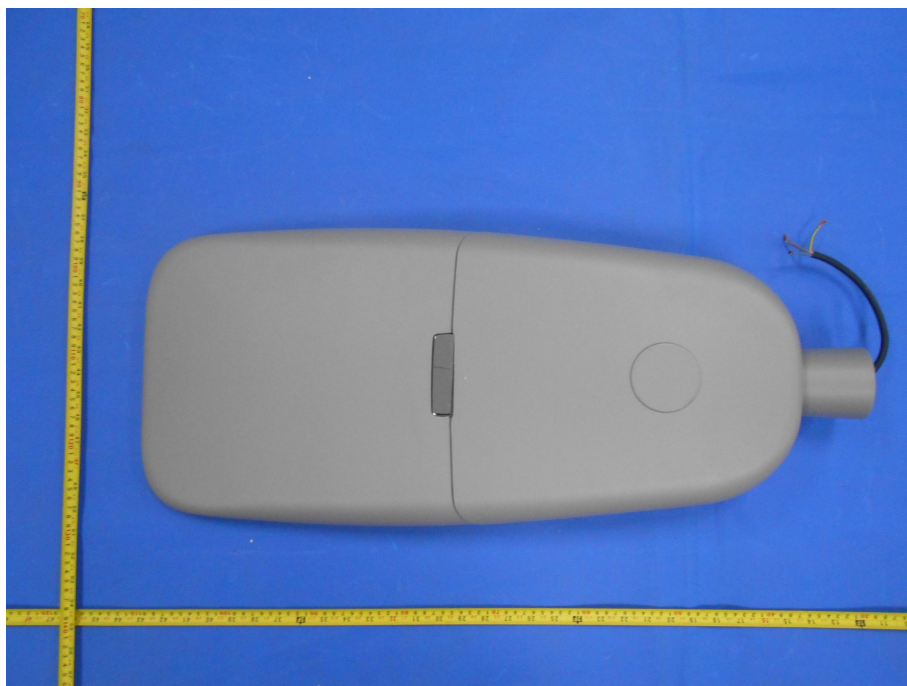
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6. Photo of sample:



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

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