



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS171221042BS

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-52-100W-4000K

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

Test by: William Lian

Signature: *William*

Reviewed by: Hart Qiu

Signature: *Hart Qiu*



Test date: January 04, 2018

Reviewed date: January 12, 2018

The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of examination of the product sample submitted by the appliance. A general statement concerning the quality of the products from the series manufacture cannot be derived therefore. This report can be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



Report No.:LCS171221042BS

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



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



Report No.:LCS171221042BS

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.



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221042BS

2.Product Information

Product description.....:	LED street light
Model Number.....:	ST-52-100W-4000K
Rated Inputs.....:	100-240VAC, 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.....:	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



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



Report No.:LCS171221042BS

4. Integrating Sphere Test Results:

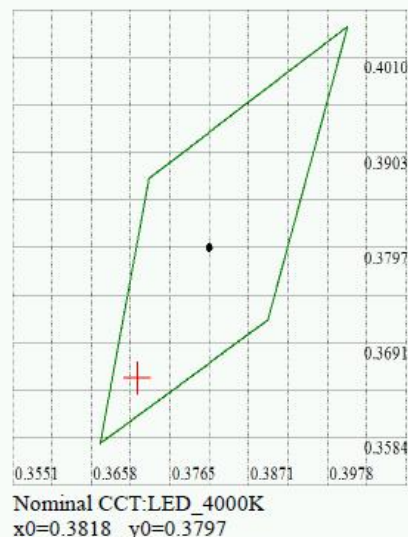
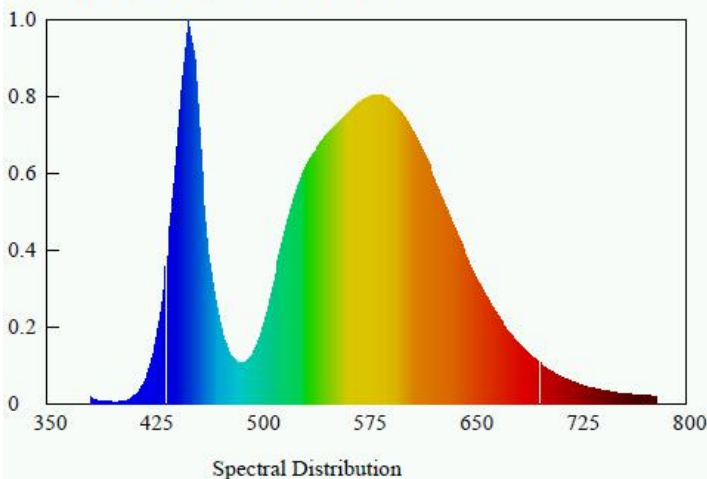
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.472	0.982	102.0

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	4158	72.9	12685.23	124.4

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3720$ $y=0.3651$ $u'=0.2242$ $v'=0.4951$

Correlated Color Temperature: 4158 K

Colour Fidelity Index: $R_f=69$

Luminous Flux: 12685.23 lm

Chromaticity Difference: -0.00299 Duv

Color Ratio: $K_r=36.9\%$ $K_g=56.5\%$ $K_b=6.6\%$

Bandwidth: 24.5nm

Photosynthetically Active Radiation(PAR): 32.39W

Rendering Index: $R_a=72.9$

$R_1=71$ $R_2=79$ $R_3=83$ $R_4=72$ $R_5=70$ $R_6=69$ $R_7=82$ $R_8=57$

$R_9=-17$ $R_{10}=49$ $R_{11}=66$ $R_{12}=40$ $R_{13}=73$ $R_{14}=90$ $R_{15}=68$ $R_e=63$

Dominant Wavelength: 579.0 nm(E)

Gamut Index: $R_g=94$

Purity: 0.2124

Peak Wavelength: 450.0 nm

Radiant Flux: 33.227 W

Photosynthetic Photon Flux(PPF):151.55 μ mol/s

TRF No. LM-79-2008

Page 5 of 10

Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: B Area, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming Street, Guangming New District, Shenzhen, Guangdong Prov. 518000 China

Tel: +(86) 0755-29871520 | Fax: +(86) 0755-2987 1521 | E-mail: webmaster@lcs-cert.com | [http:// www.lcs-cert.com](http://www.lcs-cert.com)



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221042BS

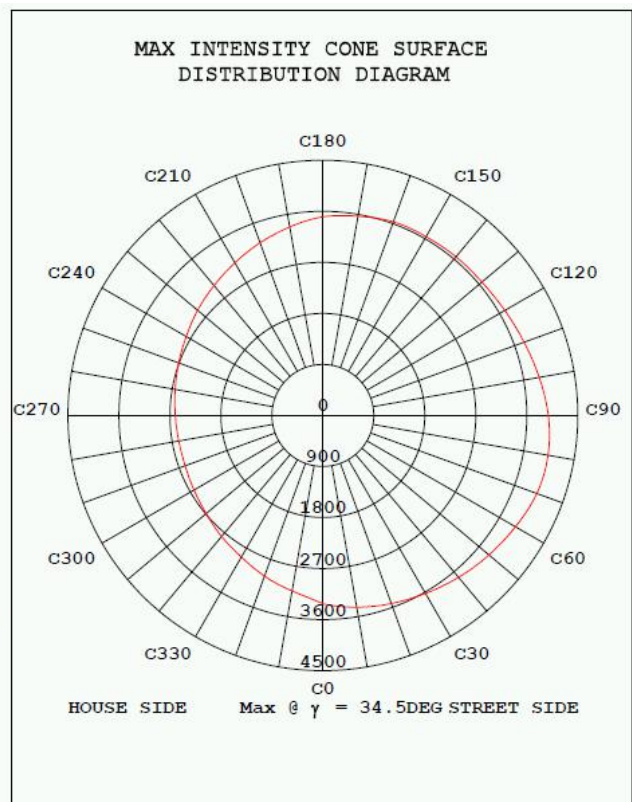
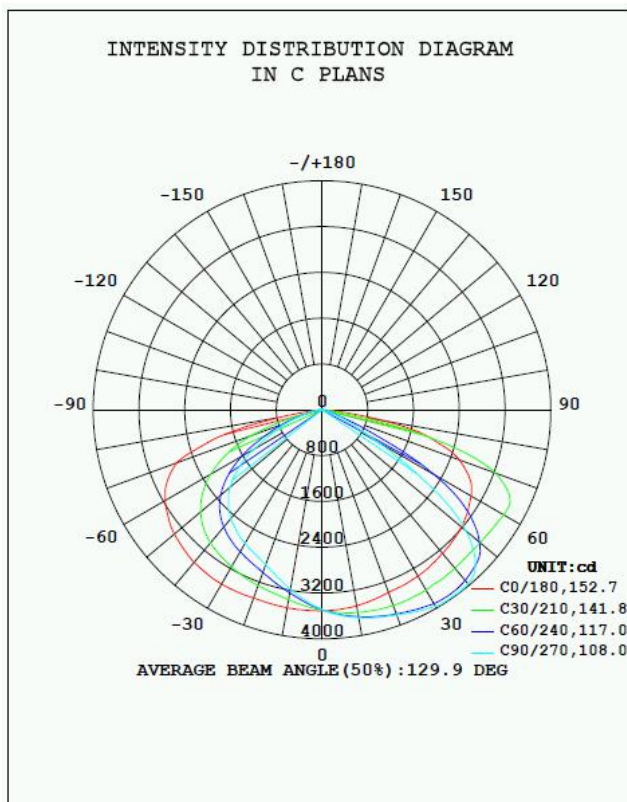
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.01	0.4730	0.9819	102.2

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	ZL (0~90°)	ZL (80~90°)
Output	12667.4	123.96	99.80%	0.60%

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





Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221042BS

5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Φlum, lamp
10	3475	3647	3686	3617	3511	3305	3185	3237	0- 10	331.1	331.1	2.61, 2.61
20	3397	3725	3812	3675	3497	3144	2884	3000	10- 20	968.3	1299	10.3, 10.3
30	3351	3775	3964	3671	3513	3001	2695	2812	20- 30	1556	2856	22.5, 22.5
40	3272	3750	3966	3634	3478	2845	2478	2634	30- 40	2073	4929	38.9, 38.9
50	3179	3651	3280	3570	3372	2523	2097	2360	40- 50	2438	7367	58.2, 58.2
60	3006	3231	1113	3172	3166	1908	1376	1871	50- 60	2427	9794	77.3, 77.3
70	2553	1502	236.2	1452	2697	904.6	608.1	1025	60- 70	1884	11678	92.2, 92.2
80	1099	62.13	13.44	40.23	742.5	145.5	163.0	183.1	70- 80	887.1	12565	99.2, 99.2
90	3.018	1.355	0.0013	0.7216	2.541	0.4747	0	0.5561	80- 90	80.63	12645	99.8, 99.8
100	2.541	0.7557	0.0022	0.4369	3.655	1.954	0.0794	1.758	90-100	1.322	12647	99.8, 99.8
110	3.097	0.9121	0.3131	0.8730	5.003	4.021	1.274	4.014	100-110	2.064	12649	99.9, 99.9
120	3.256	1.551	1.271	1.545	4.999	4.732	3.657	5.718	110-120	2.968	12652	99.9, 99.9
130	4.368	2.944	2.701	2.579	4.368	4.414	4.846	5.519	120-130	3.339	12655	99.9, 99.9
140	5.472	4.330	4.283	3.771	4.448	4.613	5.640	5.561	130-140	3.403	12659	99.9, 99.9
150	6.354	5.884	5.405	5.122	5.004	6.005	6.203	6.512	140-150	3.348	12662	100, 100
160	6.510	6.362	6.278	5.795	6.115	6.839	6.911	6.791	150-160	2.860	12665	100, 100
170	7.382	7.513	7.066	6.709	6.672	7.394	7.308	7.266	160-170	1.908	12667	100, 100
180	7.863	7.794	7.388	7.227	7.545	7.714	7.308	7.266	170-180	0.7039	12667	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



Testing Lab.

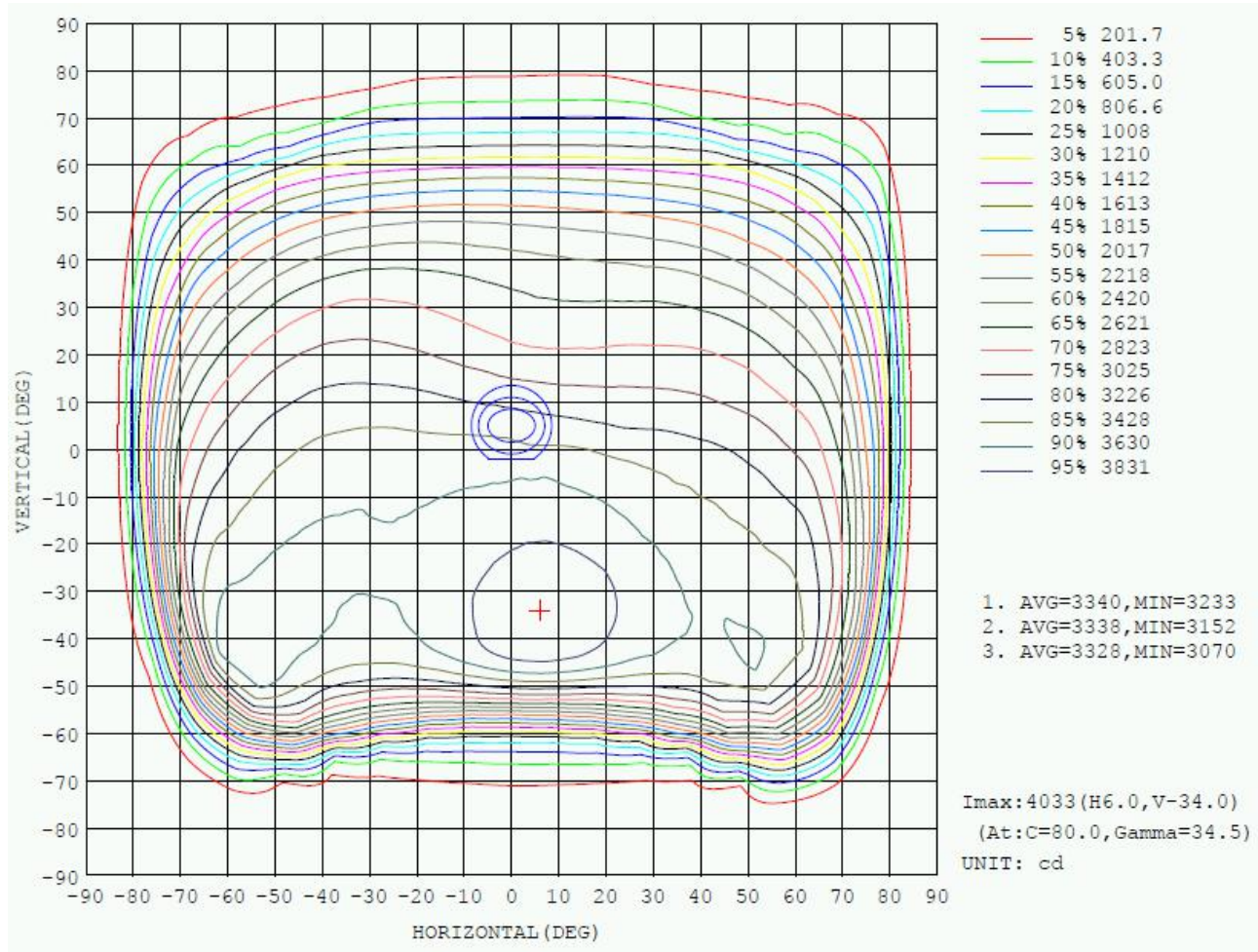
Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221042BS

5.4 Isocandela Diagram





Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221042BS

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	3509	3507	3504	3500	3496	3494	3492	3489	3487	3484	3481	3479	3476	3474	3472	3469	3466	3463	3509
5	3498	3517	3534	3553	3578	3579	3588	3604	3604	3601	3594	3587	3581	3566	3547	3530	3510	3485	3510
10	3475	3518	3550	3595	3641	3652	3668	3684	3687	3686	3676	3665	3655	3627	3607	3578	3540	3504	3511
15	3438	3507	3563	3620	3670	3707	3734	3753	3758	3757	3737	3716	3699	3672	3649	3600	3565	3513	3503
20	3397	3487	3561	3637	3698	3753	3795	3822	3833	3812	3781	3741	3717	3686	3664	3619	3581	3524	3497
25	3377	3469	3556	3640	3716	3785	3851	3909	3920	3891	3832	3770	3728	3679	3666	3627	3597	3539	3508
30	3351	3454	3540	3631	3733	3816	3908	3987	4005	3964	3871	3787	3724	3683	3659	3633	3612	3555	3513
35	3315	3428	3528	3623	3725	3824	3924	4018	4033	3978	3877	3776	3704	3661	3655	3644	3637	3569	3501
40	3272	3414	3524	3614	3706	3794	3890	3974	4008	3966	3848	3732	3660	3629	3638	3659	3652	3570	3478
45	3233	3401	3519	3599	3673	3737	3810	3860	3850	3789	3702	3639	3604	3585	3620	3661	3667	3554	3428
50	3179	3375	3522	3609	3643	3659	3592	3479	3359	3280	3252	3300	3400	3528	3612	3686	3673	3536	3372
55	3108	3348	3533	3630	3604	3423	3120	2725	2402	2272	2366	2635	2976	3324	3589	3719	3682	3502	3280
60	3006	3330	3555	3667	3469	2992	2260	1571	1213	1113	1190	1536	2208	2891	3452	3766	3702	3455	3166
65	2852	3254	3561	3621	3150	2118	997	654	537	508	521	624	1010	2103	3165	3781	3788	3426	2992
70	2553	3035	3392	3220	2318	687	323	261	242	236	230	237	276	620	2285	3269	3602	3199	2697
75	2001	2474	2680	2131	708	175	120	99.0	92.6	88.7	86.4	86.8	101	137	602	1582	2127	2130	1925
80	1099	978	1046	566	84.7	39.6	22.6	18.0	16.1	13.4	14.0	14.0	16.2	25.6	54.9	313	397	388	742
85	132	50.1	40.5	17.1	5.32	2.42	1.28	0.80	0.56	0.56	0.33	0.56	0.72	1.44	3.08	6.03	9.71	13.2	50.1
90	3.02	3.18	3.02	2.47	1.67	1.04	0.56	0.24	0.08	0.00	0.08	0.08	0.16	0.41	1.04	1.83	2.55	2.94	2.54
95	2.54	2.54	2.07	1.67	1.12	0.71	0.32	0.08	0.08	0.00	0.08	0.00	0.08	0.24	0.64	1.19	1.83	2.46	2.87
100	2.54	2.39	2.06	1.51	0.96	0.56	0.24	0.08	0.16	0.00	0.08	0.00	0.16	0.24	0.64	1.11	1.75	2.30	3.66
105	2.70	2.39	2.06	1.51	0.96	0.56	0.24	0.16	0.16	0.16	0.08	0.08	0.16	0.24	0.64	1.27	1.75	2.38	4.45
110	3.10	2.47	2.06	1.51	1.19	0.63	0.39	0.32	0.24	0.31	0.24	0.31	0.32	0.63	1.11	1.43	1.99	2.62	5.00
115	3.10	2.62	2.14	1.67	1.35	1.34	1.03	0.63	0.79	0.78	0.71	0.64	0.95	1.19	1.35	1.75	2.47	3.02	5.00
120	3.26	2.78	2.38	1.75	1.59	1.51	1.27	1.19	1.27	1.27	1.27	1.19	1.19	1.50	1.59	1.90	2.47	3.02	5.00
125	3.81	3.42	2.93	2.70	2.39	2.46	2.07	2.14	2.06	2.14	2.13	1.98	1.97	2.06	2.22	2.46	2.94	3.65	4.37
130	4.37	3.90	3.73	3.26	3.03	2.86	2.93	2.85	2.62	2.70	2.54	2.54	2.54	2.46	2.70	2.94	3.58	4.05	4.37
135	4.84	4.29	3.89	3.90	3.82	3.33	3.73	3.81	3.34	3.34	3.33	3.25	3.17	2.78	3.10	3.81	3.82	4.36	4.37
140	5.47	5.24	4.92	5.16	4.46	4.20	4.60	4.52	4.21	4.28	4.12	4.05	4.20	3.80	3.74	4.21	4.94	5.17	4.45
145	6.35	6.04	5.63	5.48	5.17	5.32	5.40	5.32	5.25	5.08	4.91	5.08	4.92	4.68	4.37	4.53	5.02	5.64	4.61
150	6.35	6.52	6.19	5.88	5.73	6.04	5.80	5.72	5.49	5.40	5.15	5.24	5.16	5.16	5.09	5.08	5.18	5.64	5.00
155	6.51	6.44	6.27	6.36	6.37	6.36	6.43	6.20	5.88	5.72	5.56	5.47	5.55	5.47	5.64	5.24	5.65	5.81	5.64
160	6.51	6.44	6.35	6.36	6.37	6.36	6.43	6.28	6.36	6.28	6.03	5.87	5.94	5.79	5.80	5.72	5.73	6.04	6.12
165	7.15	7.00	6.59	6.68	6.69	6.91	7.07	6.83	6.28	6.67	6.51	6.27	6.43	6.42	6.28	6.43	6.37	6.52	6.19
170	7.38	7.56	7.30	7.48	7.56	7.47	7.54	7.46	6.91	7.07	6.98	6.74	6.90	6.66	6.76	6.60	6.77	6.99	6.67
175	7.86	7.79	7.62	7.63	7.80	7.79	7.63	7.79	7.39	7.39	7.46	7.14	7.38	7.06	7.31	7.15	7.25	7.23	7.54
180	7.86	7.79	7.62	7.63	7.80	7.79	7.63	7.71	7.31	7.39	7.46	7.22	7.46	7.06	7.39	7.23	7.41	7.23	7.54



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



Report No.:LCS171221042BS

6. Photo of sample:



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

TRF No. LM-79-2008

Page 10 of 10

Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: B Area, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming Street, Guangming New District, Shenzhen, Guangdong Prov .518000 China

Tel: +(86) 0755-29871520 | Fax: +(86) 0755-2987 1521 | E-mail: webmaster@lcs-cert.com | [http:// www.lcs-cert.com](http://www.lcs-cert.com)