

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN**(Brand Name:N/A)**

188 S. Northwest Highway Cary, IL60013

LED Luminaires

Model name(s): LED-8046M30C-A

Representative (Tested) Model: LED-8046M30C-A

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Apr.17,2017

Review By:

Tommy Liang

Manager: Tommy Liang

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co. Ltd Testing Center**NVLAP CODE: 201011-0**

Report Format Number STD/QR4909-A/2



Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8046M30C-A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	220-347Vac, 50/60 Hz	
Nominal Power	65W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	SAMSUNG	
LED Model	SPMWHT541MXXXXXXXXX	
Sample Number	GZE161214-BH1	
Luminaire Aperture (for downlights)	--	in. mm mm s
Luminaire Length	--	
Luminaires Width	--	
Number of Units (modular products)	N/A	
Photo		
<div></div> <div></div>		

1.2 Test Specifications:

Date of Receipt	Jan 16,2017
Date of Test	Jan 17,2017
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.3 Test Methods**1) Photometric and Light Distribution Measurement – Goniophotometer Method:**

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 277 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 277 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 277 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2017-01-17	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8046M30C-A		

Electrical Measurement :

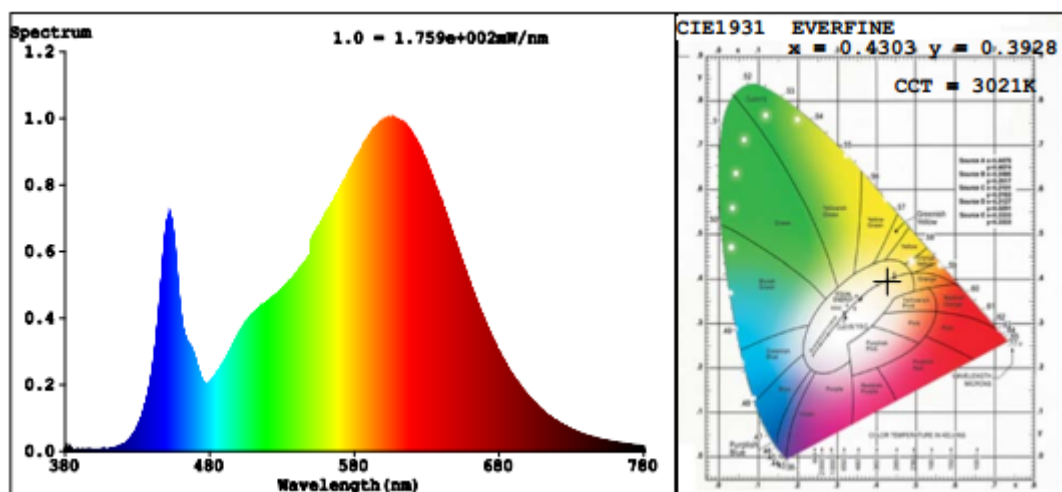
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	277.0	60	0.2451	65.22	0.9607
BH1	347.0	60	0.1975	65.30	0.9526

Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	83	R9	17
Frequency (Hz)	60	R2	93	R10	84
CCT (K)	3021	R3	95	R11	81
Duv	-0.0036	R4	81	R12	75
Chromaticity (x, y)	x=0.4303 y=0.3928	R5	84	R13	86
Chromaticity (u', v')	u'=0.2512 v'=0.5159	R6	91	R14	98
Color Rendering Index (CRI)	84.1	R7	83	R15	77
R9	17	R8	62	--	--

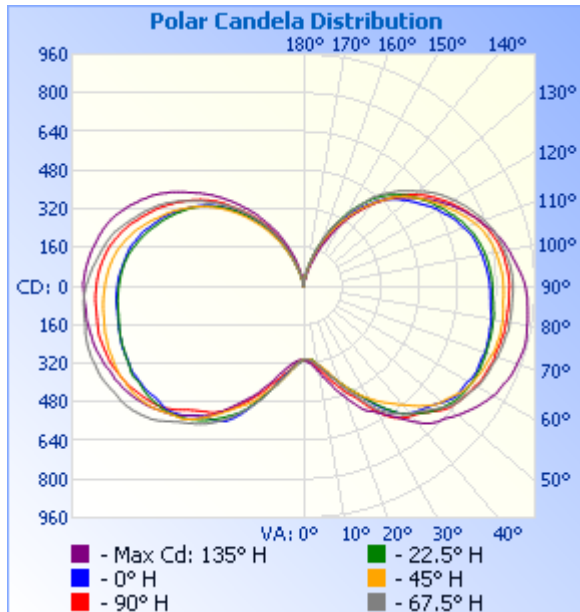
Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	277.0	347.0
Frequency (Hz)	60	60
Total Luminous (lm)	8471.2	8325.8
Luminous Efficacy (lm/W)	129.89	127.50
Beam Angle (°)	281.0	--
Center Beam Candle Power (cd)	304	--

Spectral Power Distribution & Chromaticity Diagram

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	387.9	4.6%
0-40	794.3	9.4%
0-60	2,095.1	24.7%
60-90	2,657.8	31.4%
70-100	2,723.8	32.2%
90-120	2,435.0	28.7%
0-90	4,752.9	56.1%
90-180	3,718.9	43.9%
0-180	8,471.8	100%

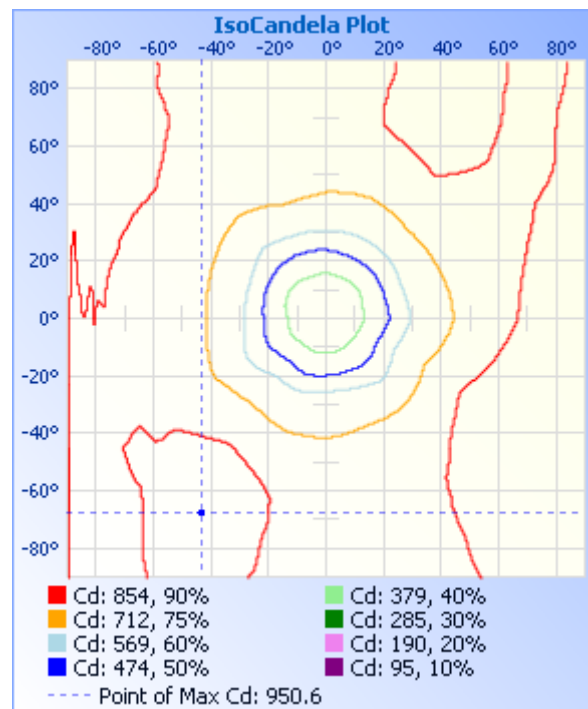
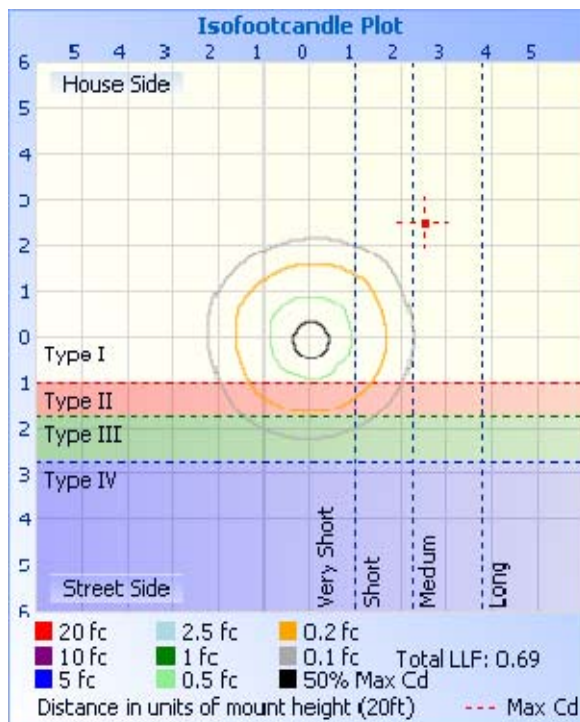
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	31.2	0.4%	90-100	902.1	10.6%
10-20	114.0	1.3%	100-110	830.0	9.8%
20-30	242.7	2.9%	110-120	702.9	8.3%
30-40	406.4	4.8%	120-130	550.0	6.5%
40-50	574.8	6.8%	130-140	386.0	4.6%
50-60	726.0	8.6%	140-150	226.1	2.7%
60-70	836.0	9.9%	150-160	98.0	1.2%
70-80	900.5	10.6%	160-170	22.7	0.3%
80-90	921.3	10.9%	170-180	1.2	0%

Photometric Data


Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	1.05 fc	170.9 ft
34.0ft	0.26 fc	341.9 ft
51.0ft	0.12 fc	512.8 ft
68.0ft	0.07 fc	683.7 ft
85.0ft	0.04 fc	854.6 ft
102.0ft	0.03 fc	1,025.6 ft

■ Beam Spread: 157.5°



Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304
1	303	302	302	304	306	306	308	309	307	307	305	306	306	306	304	304	303
2	303	301	302	305	306	308	311	312	311	311	309	310	308	307	306	304	303
3	302	302	302	305	308	313	314	315	317	316	314	314	312	310	307	305	302
4	303	302	302	306	310	315	317	318	322	321	320	318	315	313	309	305	303
5	307	303	304	309	313	318	321	324	326	326	328	323	321	317	311	308	307
6	309	305	307	312	316	323	327	330	333	334	334	328	324	320	314	312	309
7	313	309	312	317	323	328	335	336	341	341	341	335	329	325	320	315	313
8	317	315	318	323	330	334	341	343	346	348	349	344	339	333	324	321	317
9	323	321	324	327	337	343	352	352	355	356	360	354	347	339	329	326	323
10	329	329	328	333	345	347	356	358	362	366	369	365	355	348	336	333	329
11	335	336	334	339	352	359	370	372	370	375	377	374	364	356	343	340	335
12	343	343	339	345	363	365	384	379	380	383	388	387	370	367	349	350	343
13	351	352	345	354	370	375	391	384	394	396	397	397	379	379	358	358	351
14	360	360	353	363	381	385	404	396	402	405	409	408	387	388	368	368	360
15	368	371	362	371	395	394	417	408	411	419	420	421	398	399	375	377	368
16	377	381	370	381	405	402	429	423	428	433	429	430	406	409	387	388	377
17	388	391	383	393	416	415	445	432	439	444	440	444	416	423	399	399	388
18	400	399	396	403	425	428	458	445	455	459	449	458	427	432	415	410	400
19	410	409	407	418	439	438	472	455	470	472	462	476	441	444	424	422	410
20	421	419	421	430	449	453	482	471	482	485	473	494	453	455	437	434	421
21	432	432	430	444	463	461	497	487	498	499	487	508	467	470	449	446	432
22	445	441	442	456	475	470	512	500	515	515	501	523	481	482	464	458	445
23	457	454	454	472	487	477	524	517	535	530	514	535	491	497	480	475	457
24	470	467	470	482	497	488	539	532	552	545	526	550	505	510	491	490	470
25	483	477	480	497	509	499	555	548	570	562	535	564	517	525	506	503	483
26	495	490	491	511	525	509	569	560	589	574	546	580	530	541	516	515	495
27	505	503	502	529	542	522	578	574	603	589	555	592	541	553	530	526	505
28	520	519	514	543	562	533	587	585	620	599	567	608	557	570	542	538	520

Laboratory: Standard-Tech Co. Ltd Testing Center
 NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

29	537	532	527	562	577	547	593	593	632	612	576	623	570	581	557	548	537
30	552	549	536	580	595	559	603	602	646	621	589	634	584	596	571	560	552
31	570	563	548	594	610	573	614	610	654	632	601	648	594	609	587	571	570
32	585	582	557	610	628	584	624	620	661	644	613	659	606	625	601	583	585
33	602	596	569	621	641	599	637	627	666	654	629	671	619	636	619	593	602
34	615	613	578	633	656	615	647	637	669	667	639	683	628	648	632	606	615
35	632	628	589	642	666	626	661	645	672	676	655	695	639	656	649	614	632
36	645	644	598	654	674	640	674	655	674	687	667	704	648	668	664	625	645
37	659	659	609	662	682	650	691	665	679	695	682	715	654	676	673	632	659
38	670	671	619	673	690	661	705	677	684	704	694	725	660	685	685	641	670
39	679	682	632	681	696	671	722	690	692	712	709	732	667	692	692	650	679
40	686	690	641	691	699	683	736	700	699	722	720	742	674	699	702	659	686
41	694	699	654	696	705	692	752	713	710	731	731	749	682	707	710	674	694
42	700	707	665	702	711	702	766	724	720	737	741	759	692	713	723	684	700
43	704	718	678	708	719	709	776	736	731	744	748	767	700	720	733	698	704
44	710	726	691	717	726	717	785	747	740	750	753	780	713	727	746	707	710
45	714	737	701	727	737	722	792	760	746	756	757	791	724	735	754	717	714
46	720	743	713	735	746	728	798	769	754	760	764	804	737	741	764	724	720
47	725	752	723	746	757	737	803	780	759	767	770	818	747	751	771	732	725
48	733	759	734	755	767	746	813	789	764	771	779	828	758	759	778	738	733
49	740	766	740	767	778	756	824	795	766	775	787	839	768	769	786	746	740
50	750	770	748	776	785	765	831	802	766	778	793	845	775	774	793	754	750
51	757	776	751	787	790	776	842	808	766	780	802	854	782	778	802	764	757
52	766	782	757	793	794	785	848	814	767	782	807	861	789	780	810	773	766
53	772	786	763	800	799	792	857	818	769	784	813	868	795	782	818	783	772
54	779	791	771	803	803	801	865	820	772	788	818	875	799	785	823	791	779
55	783	794	778	808	807	809	873	823	777	789	822	881	806	788	829	802	783
56	783	796	787	812	810	817	881	827	780	790	827	886	811	793	836	811	783
57	783	799	793	817	813	823	887	832	783	791	830	890	815	796	841	817	783
58	784	801	797	821	818	828	895	835	784	790	833	894	820	802	846	823	784
59	785	802	800	827	820	834	901	838	786	790	836	896	825	805	852	825	785
60	788	804	805	830	825	838	909	843	787	791	837	898	832	809	856	828	788

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

61	793	805	808	836	829	842	915	846	788	796	839	902	837	811	861	830	793
62	796	806	810	838	833	846	917	849	791	799	840	906	840	813	864	835	796
63	799	806	814	840	836	849	920	852	794	800	844	911	843	815	868	838	799
64	800	807	817	843	836	850	924	855	794	798	847	914	847	821	872	842	800
65	799	808	821	845	837	850	930	855	793	796	848	918	850	825	873	845	799
66	798	807	822	847	839	851	934	855	793	793	848	921	853	828	876	849	798
67	797	805	823	847	841	852	938	855	791	792	849	922	857	829	879	852	797
68	796	806	825	850	844	854	939	855	791	793	849	924	861	831	886	854	796
69	799	806	828	854	846	855	941	855	792	792	848	924	863	832	889	856	799
70	801	805	831	856	845	858	942	855	793	790	847	925	864	834	890	857	801
71	801	804	835	857	844	858	944	856	793	790	849	928	865	837	893	858	801
72	800	805	837	859	845	858	946	855	793	791	850	930	866	837	896	859	800
73	798	803	837	861	848	857	948	854	791	790	849	929	868	835	900	860	798
74	797	804	837	862	849	856	951	854	789	788	848	930	870	835	901	860	797
75	796	805	838	863	849	856	950	854	788	788	846	929	871	836	904	859	796
76	795	802	840	863	851	856	950	852	787	785	846	928	873	836	904	859	795
77	793	802	838	866	854	854	949	850	786	785	846	928	873	836	905	859	793
78	792	801	837	870	853	853	946	849	785	781	843	926	871	836	907	857	792
79	792	799	838	869	854	850	943	848	784	781	842	922	870	837	907	856	792
80	790	800	839	866	853	848	941	847	782	779	841	920	869	837	909	856	790
81	789	799	837	868	854	846	941	847	781	777	839	919	868	836	911	856	789
82	784	797	835	869	852	844	938	847	780	776	838	918	867	836	911	856	784
83	781	792	834	868	853	843	936	847	780	776	838	918	866	835	909	854	781
84	779	791	833	868	854	842	934	845	780	775	837	917	866	835	909	853	779
85	778	790	831	867	854	842	932	845	780	774	835	916	866	835	910	852	778
86	777	786	830	867	853	840	931	844	779	773	834	915	866	837	911	851	777
87	776	786	830	868	853	840	929	843	779	771	831	913	865	838	912	850	776
88	775	786	831	869	853	839	926	841	777	770	829	910	864	837	912	850	775
89	774	785	830	869	854	837	923	838	774	768	827	907	862	837	913	850	774
90	772	784	829	869	854	835	920	835	773	767	825	903	861	836	915	850	772
91	772	783	828	868	854	832	916	831	771	765	823	898	859	836	915	850	772
92	770	782	828	867	852	829	910	829	769	762	821	893	857	835	912	849	770

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

93	767	781	827	866	851	826	905	826	767	761	817	889	854	833	910	848	767
94	766	779	825	864	850	823	898	824	764	758	815	883	851	829	908	845	766
95	764	776	822	863	848	820	892	820	761	756	812	879	849	828	906	843	764
96	761	775	819	860	845	817	886	818	757	753	809	873	845	828	903	840	761
97	758	773	818	857	842	814	879	814	755	750	804	866	842	826	899	838	758
98	756	771	815	853	842	811	874	810	751	747	801	862	837	823	897	836	756
99	754	768	812	849	839	807	869	806	748	743	796	856	834	821	894	833	754
100	751	765	809	847	836	803	864	800	745	739	791	852	829	821	889	831	751
101	748	762	807	843	831	798	857	795	742	734	787	845	824	815	884	829	748
102	744	758	803	839	828	794	851	790	739	728	780	841	819	810	881	825	744
103	741	754	800	834	825	788	844	784	735	722	774	835	812	805	877	822	741
104	738	751	794	831	818	783	838	776	729	716	766	829	806	800	873	817	738
105	735	747	788	827	813	777	829	770	722	712	759	822	798	794	868	813	735
106	732	742	785	822	807	767	821	761	718	704	751	815	792	788	864	807	732
107	727	739	780	817	803	761	810	754	712	699	744	805	784	782	858	801	727
108	722	733	773	810	795	753	800	747	707	692	736	795	777	774	852	793	722
109	715	726	765	804	786	746	789	739	701	687	728	786	768	767	846	786	715
110	708	721	757	797	780	738	783	729	692	680	717	776	760	756	838	779	708
111	702	716	750	790	772	731	774	719	684	672	709	767	749	745	830	769	702
112	695	711	740	781	765	720	765	709	677	664	698	755	738	740	820	762	695
113	690	702	733	773	755	712	754	700	669	658	689	748	731	729	811	753	690
114	683	695	723	767	750	700	743	692	663	651	680	738	721	717	802	743	683
115	676	691	714	758	740	691	735	682	656	644	668	729	712	705	794	732	676
116	668	681	706	752	731	681	724	673	650	637	660	718	703	696	781	724	668
117	658	674	695	742	722	672	715	665	642	628	650	709	695	686	771	714	658
118	651	668	685	733	712	662	704	654	633	621	642	699	685	674	763	703	651
119	644	662	677	725	705	651	695	645	625	613	631	690	676	667	750	695	644
120	638	653	669	715	695	644	682	634	615	606	623	677	664	652	741	685	638
121	630	644	659	708	685	633	672	624	606	596	611	667	655	641	730	674	630
122	622	639	650	698	675	626	661	616	596	590	601	654	644	633	717	666	622
123	612	633	641	689	664	616	651	606	589	582	589	640	635	618	705	656	612
124	602	626	630	680	656	609	638	597	578	574	580	629	623	609	690	647	602

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

125	594	617	623	669	645	598	628	585	570	565	569	613	612	601	678	638	594
126	585	609	613	660	636	589	617	575	559	557	558	600	602	592	662	629	585
127	578	602	605	647	625	577	604	563	551	546	549	586	590	576	648	617	578
128	569	593	595	636	613	569	595	553	541	536	537	574	580	565	634	605	569
129	562	587	583	624	602	558	581	541	531	527	526	559	568	555	617	595	562
130	554	578	575	610	589	549	570	529	520	514	511	548	557	543	604	582	554
131	545	571	564	600	577	539	558	513	509	505	500	533	544	532	588	572	545
132	537	561	554	588	564	527	548	501	498	492	485	521	532	520	576	557	537
133	529	552	542	578	552	517	535	486	485	481	473	507	518	506	560	545	529
134	519	545	531	566	536	505	525	471	474	469	459	493	507	496	545	535	519
135	511	534	517	556	519	496	511	459	459	458	447	481	492	480	533	522	511
136	501	526	502	544	507	484	502	443	447	444	432	466	478	466	516	510	501
137	492	516	490	530	490	473	486	429	431	431	417	455	460	451	502	495	492
138	480	505	475	518	476	458	471	415	419	417	405	439	442	438	484	483	480
139	469	495	463	506	458	447	460	402	405	402	389	427	429	425	471	468	469
140	454	481	447	495	442	432	443	386	389	391	375	411	413	410	455	453	454
141	437	469	431	480	427	422	430	373	377	377	358	398	401	396	439	440	437
142	426	453	420	466	410	408	415	357	361	366	345	381	386	379	424	423	426
143	412	439	404	448	397	393	401	345	349	352	329	368	374	366	407	411	412
144	400	424	390	429	379	381	381	329	335	341	317	352	358	351	394	396	400
145	385	410	373	413	366	366	366	315	322	325	302	336	344	337	377	384	385
146	373	398	360	393	349	353	347	303	306	311	290	324	329	321	365	369	373
147	358	380	344	377	332	337	333	286	293	293	274	308	317	305	350	354	358
148	342	364	327	358	318	323	313	271	276	279	258	295	303	294	331	340	342
149	330	349	315	343	301	307	292	253	264	261	245	278	288	278	317	324	330
150	314	331	301	327	287	294	277	241	245	244	230	264	275	266	299	312	314
151	302	313	289	312	272	277	256	226	228	229	218	247	259	251	286	298	302
152	286	299	273	302	259	262	239	212	214	209	203	235	245	237	271	286	286
153	274	281	261	287	242	245	218	200	198	195	191	220	228	226	259	272	274
154	258	266	246	270	225	226	203	184	187	178	175	206	214	211	245	254	258
155	241	248	231	253	214	211	188	175	172	166	160	189	199	199	228	240	241
156	226	230	218	235	197	196	177	161	159	151	148	174	187	184	215	224	226

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

157	208	214	202	220	184	185	160	148	144	135	133	160	172	168	198	208	208
158	191	196	190	201	169	169	144	133	130	122	121	143	158	158	182	189	191
159	177	184	172	184	153	156	130	116	116	108	108	129	144	140	168	173	177
160	161	170	154	166	141	141	115	105	101	96	98	113	128	129	152	162	161
161	150	155	144	149	125	125	102	92	93	82	83	99	116	116	141	146	150
162	135	143	131	139	110	113	90	82	80	71	70	89	102	102	127	131	135
163	121	128	118	123	99	101	80	71	69	58	58	74	93	94	115	119	121
164	109	112	106	108	87	91	66	61	57	43	44	65	82	79	99	104	109
165	94	101	91	95	77	79	57	50	51	35	37	53	68	68	85	92	94
166	82	90	79	81	63	67	46	44	38	23	30	44	58	59	76	83	82
167	72	80	69	72	53	57	37	35	31	17	23	36	49	50	66	69	72
168	62	66	59	61	47	46	30	28	24	15	17	27	41	41	52	61	62
169	52	55	49	47	36	39	24	23	18	13	11	21	31	35	44	50	52
170	42	48	40	41	30	29	19	17	14	9	7	13	24	27	36	42	42
171	34	38	32	32	23	23	13	13	9	6	5	11	18	23	27	35	34
172	27	30	27	23	18	16	8	9	6	5	4	9	13	18	22	27	27
173	21	25	20	19	13	9	5	5	5	3	3	6	9	13	16	19	21
174	15	18	15	13	9	5	3	4	3	2	2	4	7	10	12	13	15
175	11	12	11	8	6	3	3	3	2	2	2	3	5	6	9	10	11
176	8	8	7	5	3	2	2	2	2	2	2	2	3	4	6	6	8
177	6	6	5	3	2	2	2	2	2	2	2	2	3	3	3	4	6
178	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3
179	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
180	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-327	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-12	2017-07-11
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
GO-R5000	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-12	2017-07-11
PF210	Power Meter for Goniophotometer	2016-07-07	2017-07-06
Expand Uncertainty: Photometric Measurement (Sphere):2.04%, k=2 Chromaticity Measurement(Sphere):28.8K, k=2 Photometric Measurement(Goniophotometer):2.36%, k=2			

******* END OF REPORT *******