



Report No.: GZE160820-M

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest Highway Cary, IL60013

LED Lamp

Model name(s): LED-7324-27-A

Representative (Tested) Model: LED-7324-27-A

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Aug 19,2016

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

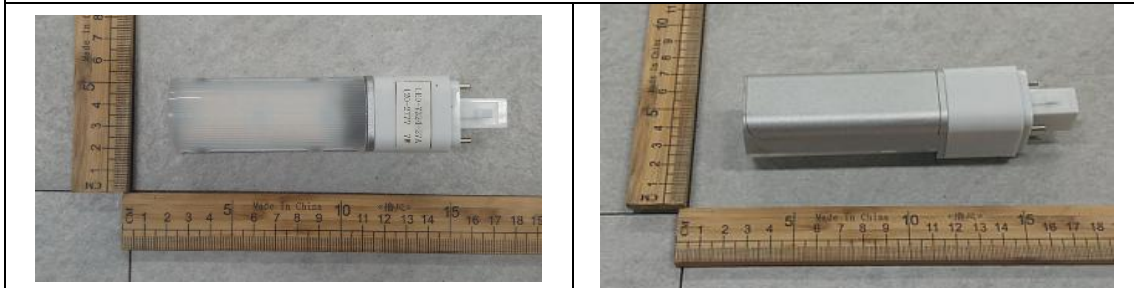
Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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-7324-27-A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamp	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	7W	
Rated Initial Lamp Lumen	--	
Declared CCT	2700K	
LED Manufacturer	Samsung Electronics LED Business	
LED Model	SPMWHT327F*****	
Sample Number	GZE160820-M1(2700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo



1.2 Test Specifications:

Date of Receipt	Aug 13,2016
Date of Test	Aug.14,2016
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

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</p> <p>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 120 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.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</p> <p>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 120 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.</p>
<p>3) Electrical Measurements:</p> <p>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 120 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.</p>

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

Test date	2016-08-14	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-7324-27-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160820-M1	120.0	60	0.0623	6.76	0.9042	18.55

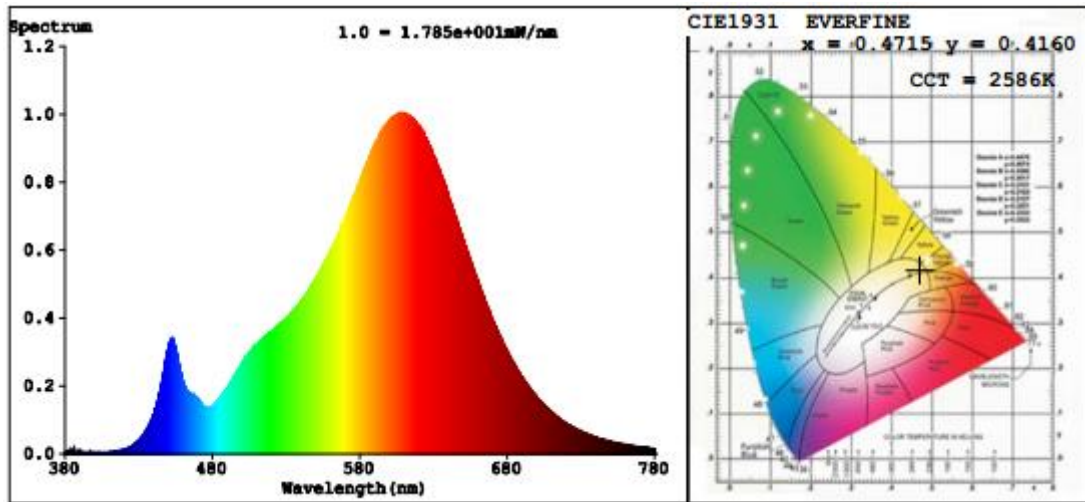
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	7
Frequency (Hz)	60	R2	92	R10	82
CCT (K)	2586	R3	95	R11	79
Duv	0.0011	R4	79	R12	76
Chromaticity (x, y)	x=0.4715 y=0.4160	R5	81	R13	83
Chromaticity (u', v')	u'=0.2675 v'=0.5311	R6	91	R14	98
Color Rendering Index (CRI)	82.0	R7	81	R15	72
R9	7	R8	56	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	931.57
Luminous Efficacy (lm/W)	137.81
Beam Angle (°)	126.0
Center Beam Candle Power (cd)	275

Spectral Power Distribution & Chromaticity Diagram

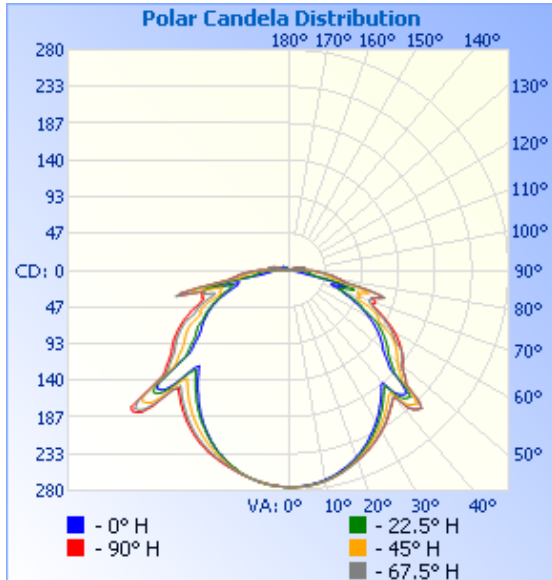


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	212.2	22.8%
0-40	346.2	37.2%
0-60	653.9	70.2%
60-90	255.6	27.4%
70-100	148.2	15.9%
90-120	18.4	2%
0-90	909.5	97.6%
90-180	22.0	2.4%
0-180	931.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	26.0	2.8%	90-100	8.7	0.9%
10-20	74.2	8.0%	100-110	7.4	0.8%
20-30	112.0	12.0%	110-120	2.3	0.3%
30-40	134.1	14.4%	120-130	1.2	0.1%
40-50	163.7	17.6%	130-140	0.8	0.1%
50-60	144.0	15.5%	140-150	0.7	0.1%
60-70	116.0	12.5%	150-160	0.5	0.1%
70-80	95.2	10.2%	160-170	0.3	0%
80-90	44.4	4.8%	170-180	0.1	0%

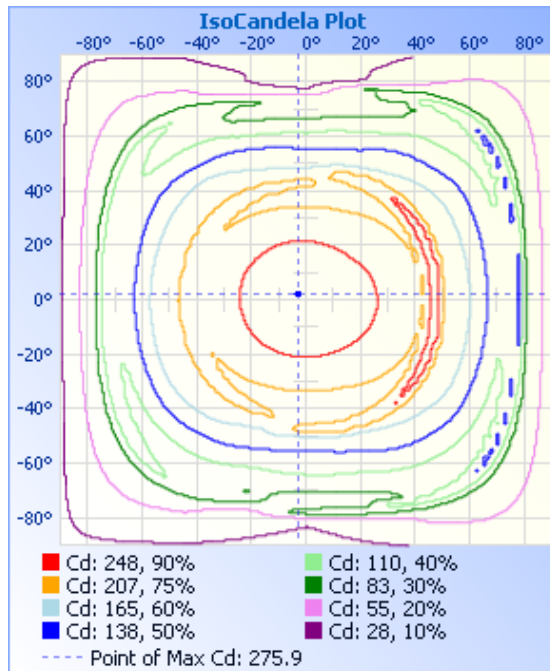
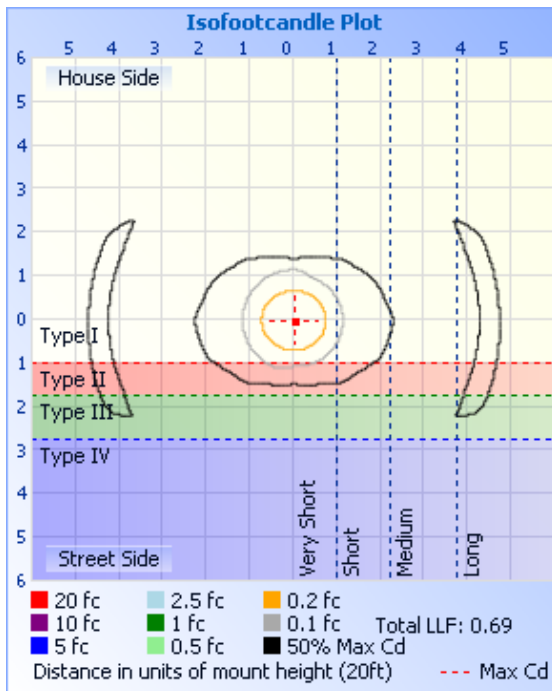
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	0.95 fc	49.3 ft	72.1 ft
34.0ft	0.24 fc	98.6 ft	144.2 ft
51.0ft	0.11 fc	147.9 ft	216.3 ft
68.0ft	0.06 fc	197.3 ft	288.4 ft
85.0ft	0.04 fc	246.6 ft	360.4 ft
102.0ft	0.03 fc	295.9 ft	432.5 ft

■ Vert. Spread: 110.8°
■ Horiz. Spread: 129.5°



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

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guan hong 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	275	276	276	276	275	275	275	275	275	276	276	276	275	275	275	275	275
1	275	276	276	276	275	275	275	275	275	275	275	275	275	274	275	275	275
2	275	276	276	276	275	275	275	275	275	275	275	275	275	274	274	275	275
3	275	275	276	276	275	275	275	275	275	275	275	275	274	274	274	275	275
4	275	275	276	276	275	274	274	275	274	274	274	274	274	273	273	274	275
5	274	275	275	275	275	274	274	274	274	273	273	273	273	272	273	274	274
6	274	274	275	275	274	274	273	274	273	273	273	272	272	272	272	273	274
7	273	274	274	274	274	273	273	273	272	272	272	272	272	271	271	272	273
8	272	273	274	274	273	272	272	272	271	271	271	271	271	270	270	271	272
9	271	272	273	273	272	271	271	271	270	270	270	270	270	269	269	270	271
10	270	271	272	272	271	271	270	270	269	269	269	269	269	268	268	269	270
11	269	270	271	271	270	269	269	268	268	267	267	268	268	267	267	268	269
12	268	269	270	270	269	268	268	267	266	266	267	267	267	266	266	267	268
13	266	268	268	269	268	267	266	266	265	264	265	265	266	265	264	265	266
14	265	266	267	267	266	265	265	264	263	263	263	264	264	263	263	264	265
15	263	264	265	266	265	264	263	262	261	261	262	263	263	262	261	262	263
16	261	263	263	264	263	262	261	260	259	259	260	262	262	261	260	260	261
17	259	261	262	262	262	261	260	258	257	257	259	260	261	260	258	258	259
18	257	259	260	261	261	259	258	256	255	254	257	259	260	258	256	256	257
19	255	257	258	259	259	257	255	254	252	253	255	257	258	257	255	254	255
20	252	254	256	257	257	255	254	251	249	250	253	256	257	256	253	252	252
21	250	252	254	256	255	253	251	248	248	248	251	255	256	254	251	250	250
22	248	250	252	254	254	252	249	246	245	245	249	253	254	253	249	247	248
23	245	247	250	252	252	249	247	243	242	242	247	252	253	251	246	245	245
24	242	245	247	250	250	248	244	240	239	240	244	250	252	250	245	242	242
25	239	242	245	248	248	245	241	237	236	237	243	248	250	248	243	240	239
26	236	239	242	246	246	243	239	234	232	234	240	246	248	246	240	236	236
27	233	236	240	243	244	241	236	231	229	231	238	244	247	244	238	234	233
28	230	233	237	241	241	239	233	228	226	227	235	242	245	243	236	231	230

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	226	229	234	238	239	236	231	224	223	224	232	240	243	240	234	227	226
30	223	227	231	236	237	234	227	220	219	221	230	238	240	238	231	225	223
31	219	224	229	233	234	231	225	217	215	218	227	236	238	236	229	221	219
32	216	220	226	231	232	228	221	214	211	214	225	233	236	233	226	218	216
33	212	216	223	228	229	225	218	210	207	211	222	231	233	231	223	215	212
34	208	213	220	225	226	222	215	206	204	207	219	228	231	228	220	211	208
35	205	209	216	222	223	219	212	202	199	203	215	225	228	225	218	208	205
36	200	205	213	219	220	216	208	198	195	199	212	222	225	223	214	204	200
37	197	201	210	216	217	213	205	194	191	195	209	219	223	220	211	200	197
38	192	197	206	213	214	209	201	190	187	192	206	216	220	217	208	196	192
39	188	194	203	210	211	206	198	186	183	188	203	213	217	214	205	192	188
40	187	192	203	209	210	208	196	188	179	183	199	210	214	211	202	189	187
41	206	212	223	229	231	226	215	205	174	180	195	207	211	208	198	185	206
42	213	219	230	238	238	234	224	213	170	176	192	204	208	205	195	181	213
43	215	222	234	241	241	238	227	215	166	173	188	201	205	202	192	177	215
44	217	223	235	243	244	239	229	217	173	181	195	211	211	211	203	190	217
45	205	214	223	236	233	222	214	198	204	212	227	238	244	243	233	215	205
46	180	186	201	208	208	204	194	181	218	224	242	254	259	255	245	229	180
47	174	182	196	203	204	199	189	175	222	229	247	260	264	262	250	234	174
48	169	176	190	199	199	194	184	171	224	231	249	262	267	264	252	235	169
49	162	171	185	193	193	189	178	165	219	224	245	254	265	257	243	222	162
50	157	166	180	189	189	184	174	160	164	170	189	201	208	203	191	175	157
51	155	163	178	186	187	182	171	158	156	164	182	196	201	198	185	167	155
52	151	160	175	184	185	180	169	156	152	159	177	191	196	193	180	162	151
53	148	157	173	181	182	177	166	152	145	154	171	186	190	188	175	155	148
54	145	153	170	178	179	174	163	150	140	148	166	180	185	182	169	149	145
55	140	150	166	175	175	170	160	146	137	144	162	176	181	178	165	145	140
56	137	145	162	167	172	167	156	138	134	142	159	174	178	176	163	142	137
57	132	142	158	161	168	163	153	133	131	138	156	170	176	173	159	139	132
58	128	137	152	158	164	158	147	130	128	136	153	168	172	170	156	136	128
59	123	133	144	154	160	155	137	128	126	131	150	164	170	164	153	132	123

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>

60	118	128	136	151	155	150	131	123	123	125	147	161	166	159	149	129	118
61	114	120	131	146	151	144	126	120	119	122	142	157	162	156	145	125	114
62	108	113	129	141	145	135	127	115	117	119	134	153	158	152	135	121	108
63	103	105	127	136	139	129	123	111	113	116	126	149	154	148	129	116	103
64	98	103	123	129	134	125	119	104	110	112	123	142	150	143	126	108	98
65	92	98	117	124	129	120	114	100	106	108	124	133	145	139	124	101	92
66	87	92	110	121	124	115	105	98	101	105	120	128	139	134	122	97	87
67	80	87	99	118	118	109	96	95	98	100	116	126	135	128	117	94	80
68	76	80	95	113	115	104	92	91	93	94	111	122	129	123	112	90	76
69	73	74	95	110	117	100	93	89	88	92	102	116	123	120	103	84	73
70	69	68	98	110	118	98	96	87	84	90	94	110	119	116	94	79	69
71	61	71	96	111	115	110	93	84	79	85	90	104	115	111	92	70	61
72	57	74	92	112	112	113	91	81	74	80	92	98	114	106	92	63	57
73	73	87	99	122	121	122	98	88	71	78	91	98	115	106	90	63	73
74	76	87	106	127	126	121	105	95	66	77	89	110	113	108	88	66	76
75	66	76	100	120	117	116	107	89	67	74	87	111	114	110	85	64	66
76	53	66	92	106	106	103	98	76	65	72	88	109	111	109	83	62	53
77	35	50	81	91	88	85	86	59	99	110	127	147	143	147	122	96	35
78	23	36	68	72	75	71	66	47	95	103	126	139	139	143	119	93	23
79	19	33	62	68	71	68	62	44	79	87	106	117	117	120	106	73	19
80	17	30	58	67	67	65	58	43	51	59	82	87	93	90	80	52	17
81	14	28	54	63	62	60	56	43	33	45	63	73	76	73	63	32	14
82	11	27	51	59	60	59	53	41	31	42	59	70	73	70	58	28	11
83	9	27	50	57	56	55	49	39	28	42	57	66	68	67	53	27	9
84	6	27	46	53	51	49	47	36	25	40	54	63	65	63	51	27	6
85	5	24	44	48	47	45	43	34	23	37	51	60	62	60	50	26	5
86	3	21	39	43	42	40	39	31	21	35	48	56	56	57	46	23	3
87	2	19	35	39	37	36	35	28	20	32	43	50	52	52	43	21	2
88	1	17	32	35	35	34	32	26	18	29	40	46	47	47	40	19	1
89	1	14	28	33	31	30	30	22	17	26	36	41	42	43	35	16	1
90	1	11	24	25	22	21	18	16	14	21	31	35	38	38	30	14	1

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>

91	1	5	5	7	8	4	3	3	7	11	13	23	26	29	20	9	1
92	1	1	1	1	1	1	1	1	2	2	2	4	10	8	2	3	1
93	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1
94	1	1	2	1	1	1	3	1	1	1	2	1	1	1	2	1	1
95	1	2	4	5	2	5	6	3	1	2	5	3	1	2	7	1	1
96	1	5	4	19	11	19	6	6	2	4	12	16	7	13	8	4	1
97	1	5	4	22	22	22	6	8	5	7	13	25	20	24	7	6	1
98	1	4	4	21	21	21	5	6	10	7	12	24	24	24	7	5	1
99	1	2	3	20	20	19	5	4	10	5	11	23	23	23	7	3	1
100	1	1	3	19	19	18	4	2	9	3	7	22	22	22	6	2	1
101	1	1	3	17	18	17	4	1	9	2	3	21	21	20	6	2	1
102	1	1	3	16	17	16	4	1	9	1	5	19	20	19	6	1	1
103	1	1	3	15	16	15	3	1	8	1	7	18	19	18	5	1	1
104	1	1	2	14	15	14	3	1	6	1	6	17	18	17	5	1	1
105	1	1	2	13	14	13	2	1	3	2	5	16	17	15	4	1	1
106	1	1	2	11	13	11	2	1	5	2	4	14	15	14	3	1	1
107	1	1	1	10	11	10	2	1	8	2	3	12	14	12	3	1	1
108	1	1	1	8	10	8	1	1	9	2	3	11	13	11	2	1	1
109	1	1	1	7	9	7	1	1	9	2	2	9	11	9	2	1	1
110	1	1	1	6	7	6	1	1	9	2	2	8	10	8	2	1	1
111	1	1	1	5	6	5	1	1	9	2	1	7	9	7	1	1	1
112	1	1	1	4	5	4	1	1	9	2	1	6	7	5	1	1	1
113	1	1	1	3	4	3	1	1	9	2	1	4	6	4	1	1	1
114	1	1	1	2	3	2	1	1	9	2	1	3	5	3	1	1	1
115	1	1	1	1	3	1	1	1	9	2	1	2	4	2	1	1	1
116	1	1	1	1	2	1	1	1	9	2	1	1	3	1	1	1	1
117	1	1	1	1	1	1	1	1	9	2	1	1	2	1	1	1	1
118	1	1	1	1	1	1	1	1	9	2	1	1	1	1	1	1	1
119	1	1	1	1	1	1	1	1	9	2	1	1	1	1	1	1	1
120	1	1	1	1	1	1	1	1	8	2	1	1	1	1	1	1	1
121	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1

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>

122	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1
123	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1
124	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1
125	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1
126	1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1
127	1	1	1	1	1	1	1	1	7	1	1	1	1	1	1	1	1
128	1	1	1	1	1	1	1	1	7	1	1	1	1	1	1	1	1
129	1	1	1	1	1	1	1	1	7	1	1	1	1	1	1	1	1
130	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
131	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
132	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
133	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
134	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1
135	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1
136	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1
137	1	1	1	1	1	1	1	3	1	2	1	1	1	1	1	1	1
138	1	1	1	1	1	1	1	3	2	2	1	1	1	1	1	1	1
139	1	1	1	1	1	1	1	3	1	2	1	1	1	1	1	1	1
140	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
141	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
142	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
143	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
144	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
145	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
146	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
147	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
148	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
149	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
150	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
151	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1
152	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1	1

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>

153	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1
154	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1
155	1	1	1	1	1	1	2	3	1	3	1	1	1	1	1	1
156	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1
157	1	1	1	1	1	1	1	3	1	3	1	1	1	1	1	1
158	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1
159	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1
160	1	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1
161	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1
162	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1
163	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1
164	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1
165	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
166	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
167	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
168	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
169	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
170	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
171	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
172	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
173	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
174	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
176	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
177	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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>

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-331	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-01	2017-06-30
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
EE-09	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-01	2017-06-30
PF210	Power Meter for Goniophotometer	2016-07-01	2017-06-30
ST-R-181A	Temperature Tester	2016-07-01	2017-06-30
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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

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>