



Report No.: GZE160820-L

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-7322-40-A

Representative (Tested) Model: LED-7322-40-A

Model Different: N/A

Test & Report By:

Review By:

Engineer: Garman Mo

Manager: Tommy Liang

Date: Aug 19,2016

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-7322-40-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	4000K	
LED Manufacturer	Samsung Electronics LED Business	
LED Model	SPMWHT327R*****	
Sample Number	GZE160820-L1(4000K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
<b>Photo</b>		
		

## 1.2 Test Specifications:

Date of Receipt	Aug 13,2016
Date of Test	Aug.14,2016
Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
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 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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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 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.

### 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 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.

**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-7322-40-A		

**Electrical Measurement :**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160820-L1	120.0	60	0.0620	6.72	0.9033	18.32

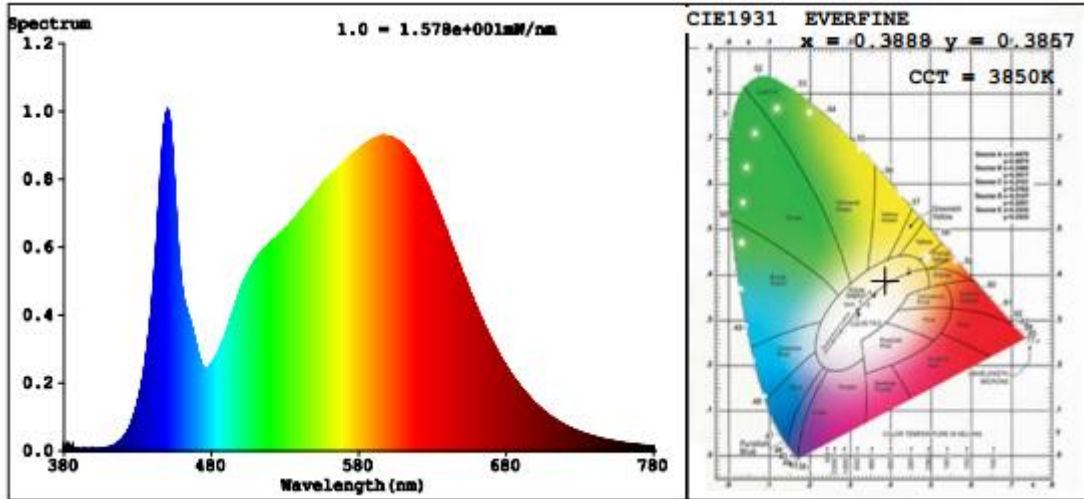
**Chromaticity Measurement - Sphere-Spectroradiometer Method :**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	16
Frequency (Hz)	60	R2	89	R10	75
CCT (K)	3850	R3	95	R11	83
Duv	0.0018	R4	84	R12	64
Chromaticity (x, y)	x=0.3888 y=0.3857	R5	82	R13	84
Chromaticity (u', v')	u'=0.2270 v'=0.5067	R6	85	R14	97
Color Rendering Index (CRI)	84.1	R7	87	R15	76
R9	16	R8	67	--	--

**Photometric Measurement – Goniophotometer Method :**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	887.49
Luminous Efficacy (lm/W)	132.07
Beam Angle (°)	109.8
Center Beam Candle Power (cd)	290

**Spectral Power Distribution & Chromaticity Diagram**

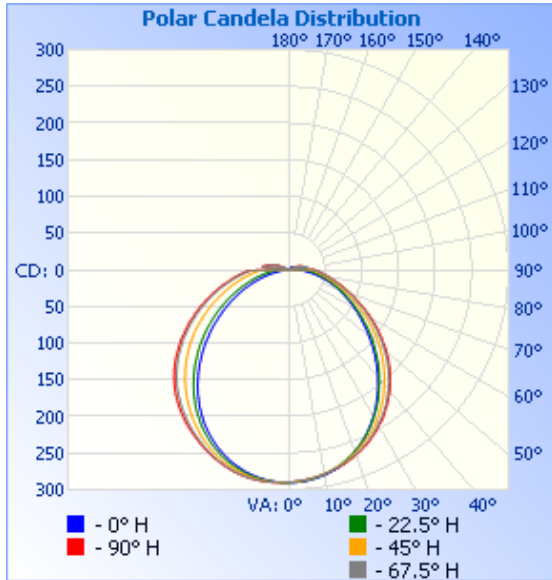


**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	224.2	25.3%
0-40	366.0	41.2%
0-60	643.2	72.5%
60-90	218.9	24.7%
70-100	125.6	14.2%
90-120	23.8	2.7%
0-90	862.2	97.1%
90-180	25.3	2.9%
0-180	887.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	27.4	3.1%	90-100	10.1	1.1%
10-20	78.4	8.8%	100-110	9.8	1.1%
20-30	118.4	13.3%	110-120	3.9	0.4%
30-40	141.8	16.0%	120-130	0.6	0.1%
40-50	145.9	16.4%	130-140	0.3	0%
50-60	131.3	14.8%	140-150	0.2	0%
60-70	103.4	11.7%	150-160	0.2	0%
70-80	71.7	8.1%	160-170	0.1	0%
80-90	43.8	4.9%	170-180	0.0	0%

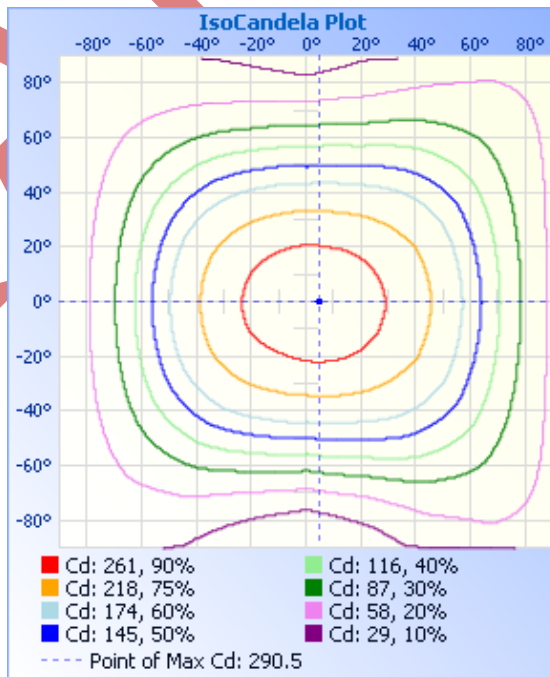
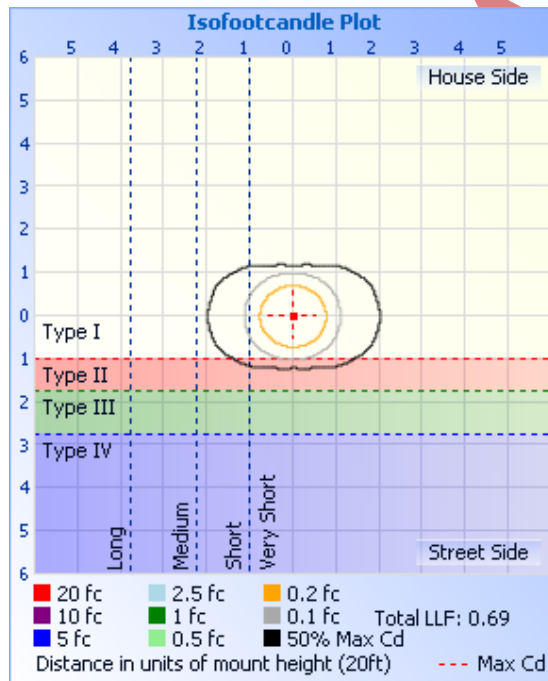
**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
17.0ft	1.00 fc	40.8 ft	59.1 ft
34.0ft	0.25 fc	81.6 ft	118.3 ft
51.0ft	0.11 fc	122.4 ft	177.4 ft
68.0ft	0.06 fc	163.2 ft	236.5 ft
85.0ft	0.04 fc	204.1 ft	295.6 ft
102.0ft	0.03 fc	244.9 ft	354.8 ft

■ Vert. Spread: 100.4°  
■ Horiz. Spread: 120.2°



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	290	290	290	290	290	288	287	287	290	290	290	290	290	288	287	287	290
1	290	290	289	289	289	288	287	287	290	290	290	290	290	289	288	287	290
2	290	289	289	289	289	288	287	287	290	290	290	290	290	289	288	287	290
3	290	289	288	288	288	287	286	286	290	290	290	290	290	289	288	287	290
4	289	289	288	288	288	287	286	286	289	290	290	290	290	289	288	287	289
5	289	288	287	287	287	286	285	285	288	289	290	290	290	289	287	286	289
6	288	287	287	286	286	285	285	285	288	289	289	290	290	289	287	286	288
7	287	286	286	285	286	285	284	284	287	288	289	290	290	289	287	285	287
8	286	285	285	284	285	284	283	283	286	287	289	290	290	288	286	284	286
9	285	284	284	284	284	283	282	282	285	286	288	289	289	288	286	283	285
10	284	283	282	282	283	282	281	281	284	285	287	289	289	287	285	282	284
11	283	282	281	281	282	281	279	279	282	284	286	288	288	287	284	282	283
12	281	280	280	280	281	280	278	278	281	283	285	287	288	286	283	280	281
13	280	278	278	279	280	278	277	276	279	282	284	286	287	285	282	279	280
14	278	277	277	277	278	277	276	275	278	280	283	285	286	284	281	277	278
15	276	275	275	276	277	276	274	273	276	278	282	284	285	283	280	275	276
16	274	272	273	275	276	275	272	271	274	276	280	283	284	282	278	274	274
17	272	271	272	273	274	273	271	269	272	275	279	282	283	280	276	272	272
18	270	268	270	272	272	272	269	267	269	273	277	280	281	279	275	270	270
19	267	266	268	270	271	270	267	265	267	271	275	279	279	277	273	268	267
20	264	264	266	268	269	268	265	263	265	269	273	277	278	276	271	265	264
21	261	261	263	266	267	266	263	260	262	266	272	275	276	274	269	263	261
22	259	259	261	264	265	265	261	257	259	264	269	274	275	272	267	260	259
23	256	255	259	262	263	262	259	255	256	261	267	272	273	270	265	258	256
24	253	252	256	260	261	260	256	252	254	259	265	269	271	268	263	255	253
25	249	250	253	257	259	258	253	249	250	255	262	268	269	266	260	252	249
26	246	246	251	255	256	256	251	247	248	252	260	265	267	264	258	249	246
27	242	243	248	253	254	254	248	243	244	250	257	263	265	262	255	246	242
28	239	240	246	250	252	251	246	240	241	246	255	261	263	260	252	243	239

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	235	236	242	247	249	248	243	237	237	243	252	259	261	258	250	239	235
30	232	232	239	244	246	246	240	233	233	240	249	256	259	256	247	236	232
31	227	229	236	241	244	243	237	230	230	236	246	254	257	253	244	232	227
32	224	225	233	239	241	239	234	227	226	233	243	252	255	251	241	229	224
33	219	222	229	235	238	237	230	222	222	229	240	250	252	248	237	225	219
34	215	218	226	233	235	234	227	219	218	226	237	247	250	246	235	221	215
35	211	214	222	229	231	231	224	215	213	221	233	244	248	243	231	218	211
36	207	209	219	227	228	227	220	211	210	217	230	242	245	240	228	213	207
37	203	205	215	222	225	224	217	207	205	214	227	239	243	237	225	210	203
38	198	201	211	219	221	220	213	203	201	209	224	236	240	235	221	205	198
39	194	197	207	215	218	217	210	200	196	206	220	233	238	232	218	201	194
40	190	193	203	212	214	213	206	195	191	201	217	230	235	229	214	197	190
41	185	189	199	208	211	210	203	190	187	196	214	228	232	226	211	193	185
42	180	184	196	205	207	206	198	186	182	192	210	224	229	223	207	188	180
43	176	180	191	201	203	202	194	182	178	187	206	222	226	220	203	185	176
44	171	176	187	196	200	198	190	177	172	184	203	218	223	217	200	180	171
45	167	171	183	193	195	195	186	173	167	179	198	215	220	214	196	176	167
46	163	167	179	188	192	190	182	168	163	174	195	212	216	210	193	172	163
47	158	162	175	185	187	187	178	164	158	170	191	208	213	206	189	167	158
48	154	158	170	180	184	182	173	159	153	165	188	204	209	203	184	163	154
49	149	154	167	175	179	178	170	154	148	161	183	201	206	199	181	159	149
50	144	150	162	172	174	174	165	150	143	156	179	197	202	195	177	155	144
51	141	146	157	167	170	170	160	145	138	150	176	194	198	192	173	150	141
52	136	141	154	162	166	165	156	140	133	146	171	189	194	188	169	146	136
53	132	137	149	158	161	161	152	135	129	141	167	185	190	184	165	142	132
54	128	133	144	153	157	157	147	130	123	137	163	182	186	180	161	138	128
55	123	128	140	149	152	152	143	126	118	132	158	177	182	175	157	134	123
56	120	124	135	145	148	147	138	121	114	127	155	174	178	172	153	129	120
57	115	120	132	140	143	143	134	117	108	123	150	169	174	167	149	125	115
58	112	115	127	136	139	138	129	112	104	118	146	165	169	164	144	122	112
59	108	112	123	131	134	134	124	107	99	114	142	161	165	159	141	117	108

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	104	108	119	127	129	129	121	103	94	109	137	156	161	155	136	114	104
61	100	104	114	122	125	125	116	98	90	104	133	153	156	151	132	110	100
62	96	100	110	118	120	121	112	94	85	100	129	148	153	146	128	106	96
63	93	97	106	114	116	116	107	89	80	96	124	143	148	143	124	102	93
64	89	92	103	109	112	112	104	84	76	92	121	140	143	138	120	98	89
65	86	89	98	105	107	107	99	81	71	87	116	135	140	133	116	95	86
66	83	85	94	101	103	104	95	76	68	83	112	131	135	130	112	91	83
67	79	82	91	97	99	99	91	73	63	79	108	127	131	125	109	88	79
68	76	79	87	93	95	96	87	68	58	75	104	122	127	121	104	85	76
69	73	75	83	90	91	92	83	65	55	70	100	119	122	117	101	81	73
70	70	72	80	86	88	87	79	61	50	67	96	114	119	113	97	78	70
71	66	69	77	82	84	84	75	57	47	63	92	111	114	110	93	75	66
72	63	66	73	79	80	80	72	54	43	60	88	107	111	106	90	71	63
73	60	63	70	75	77	77	69	50	39	56	84	102	106	102	87	69	60
74	57	60	67	72	73	74	66	47	36	52	81	99	102	98	84	65	57
75	54	57	64	69	71	70	62	44	32	49	77	95	99	94	80	62	54
76	50	55	61	65	67	67	59	41	29	46	74	91	95	91	77	60	50
77	47	52	58	63	64	64	56	38	25	43	71	88	92	87	74	57	47
78	44	50	55	60	62	62	53	35	21	40	67	84	88	84	71	55	44
79	41	47	53	58	59	59	51	33	19	37	65	81	84	81	68	52	41
80	39	45	50	55	57	56	48	30	16	34	61	77	81	77	65	49	39
81	35	42	48	53	54	54	46	28	13	32	59	74	77	74	62	47	35
82	33	40	46	51	52	51	43	25	10	29	56	71	74	71	60	44	33
83	30	38	44	48	50	49	41	23	8	27	53	68	71	68	57	42	30
84	27	35	42	46	47	47	39	21	6	25	50	65	68	65	55	39	27
85	25	33	40	44	46	45	37	19	4	23	48	62	65	62	52	37	25
86	22	31	38	43	43	43	35	17	3	21	46	60	62	60	49	35	22
87	20	29	36	41	41	41	33	16	2	19	43	57	60	57	47	33	20
88	19	28	35	39	40	39	31	14	1	17	41	54	57	55	45	31	19
89	17	26	33	37	38	37	30	13	1	15	38	51	53	52	43	29	17
90	13	22	28	34	35	35	26	11	1	11	27	28	30	27	24	17	13

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	4	11	12	18	19	20	13	7	0	2	3	9	7	7	2	5	4
92	1	1	1	1	2	2	1	1	0	1	1	1	1	1	1	1	1
93	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
94	0	1	1	1	1	1	1	0	0	1	5	1	1	1	4	1	0
95	0	1	6	5	2	2	2	1	0	3	8	14	5	16	8	4	0
96	2	5	8	22	14	18	4	3	0	7	8	33	26	32	8	11	2
97	6	11	8	26	25	26	4	5	0	7	7	34	36	35	8	14	6
98	9	11	7	25	26	25	3	4	1	6	7	33	35	34	8	13	9
99	8	9	7	24	24	23	3	4	0	6	7	31	33	32	7	10	8
100	7	7	4	23	24	23	2	3	0	4	6	30	32	30	5	8	7
101	7	4	3	22	22	21	2	1	0	2	6	28	30	29	5	5	7
102	4	2	6	21	21	20	2	1	0	1	6	27	29	27	6	2	4
103	2	1	5	20	21	19	2	1	0	1	5	25	27	26	6	1	2
104	0	1	5	19	20	18	2	0	0	1	5	24	26	25	5	1	0
105	1	1	4	18	19	17	2	0	0	0	5	22	24	24	5	1	1
106	2	0	4	17	18	17	2	0	0	1	4	21	23	22	4	1	2
107	4	0	3	16	17	16	2	0	0	0	4	20	22	20	4	1	4
108	5	0	3	15	16	15	1	0	0	0	3	19	21	19	3	1	5
109	5	0	2	14	15	14	1	0	0	0	3	17	19	18	3	1	5
110	5	0	2	13	14	13	1	0	0	0	2	16	18	17	2	1	5
111	5	0	1	12	13	12	1	0	0	0	2	15	17	15	2	1	5
112	5	1	1	11	12	11	1	0	0	0	1	13	16	14	1	1	5
113	5	1	1	9	11	9	1	0	0	0	1	11	14	12	1	1	5
114	6	0	1	8	10	8	0	0	0	0	1	10	13	10	1	1	6
115	6	1	0	7	9	7	0	0	0	0	1	8	11	8	1	1	6
116	6	1	0	6	8	6	0	0	0	0	0	7	9	7	1	1	6
117	6	1	0	4	7	5	0	0	0	0	0	6	8	6	1	1	6
118	5	1	0	3	5	3	0	0	0	0	0	5	7	5	1	1	5
119	6	1	0	2	4	2	0	0	0	0	0	4	6	3	0	1	6
120	5	1	0	1	3	1	0	0	0	0	0	2	4	3	0	0	5
121	5	0	0	1	2	1	0	0	0	0	0	2	3	2	0	0	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>

122	5	0	0	0	1	0	0	0	0	0	0	1	2	1	0	0	5
123	5	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	5
124	5	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	5
125	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
126	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
127	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
128	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
146	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
147	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
148	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
149	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
150	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
151	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
152	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

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	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
154	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
155	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
156	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
157	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
158	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
159	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
160	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
161	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
162	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
163	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
164	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
165	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
166	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
167	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
168	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
169	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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 \*\*\*\*\*

DRAFT

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>