

**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-8029E30-A

LED-8029-NW-E27-A

Remark: The two models are the same product with two model names

Representative (Tested) Model: LED-8029E30-A

Model Different: N/A

Test &amp; Report By:

*Garman Mo*

Engineer: Garman Mo

Date: Apr.13,2017

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-8029E30-A;LED-8029-NW-E27-A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	24W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-AG1	
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	Jan 16,2017
Date of Test	Jan 17,2017
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	2017-01-17	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8029E30-A		

**Electrical Measurement :**

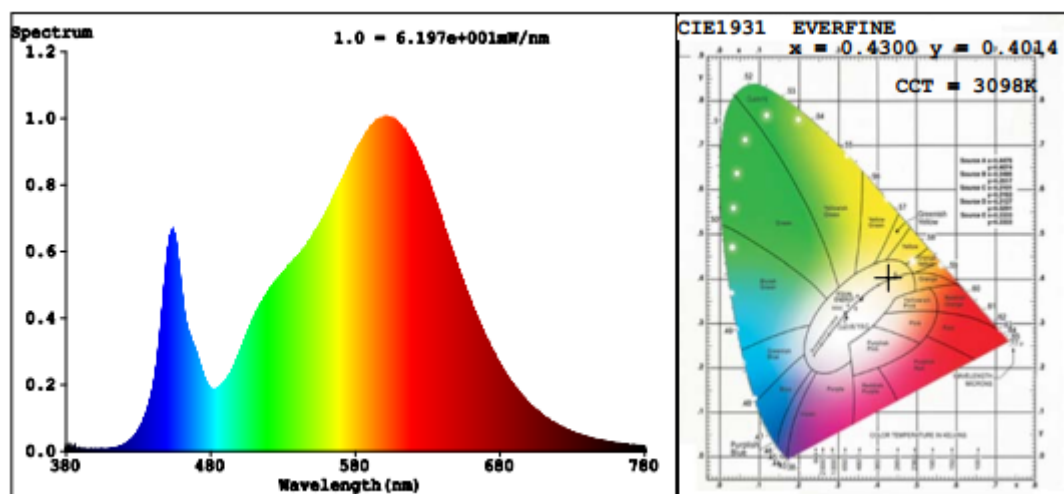
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	120.0	60	0.1838	21.90	0.9927
AG1	277.0	60	0.0877	22.46	0.9243

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

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	3
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	3098	R3	96	R11	77
Duv	-0.0001	R4	78	R12	64
Chromaticity (x, y)	x=0.4300 y=0.4014	R5	79	R13	82
Chromaticity (u', v')	u'=0.2473 v'=0.5193	R6	87	R14	98
Color Rendering Index (CRI)	81.3	R7	83	R15	72
R9	3	R8	58	--	--

**Photometric Measurement – Goniophotometer Method :**

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	3023.6	3076.9
Luminous Efficacy (lm/W)	138.06	136.99
Beam Angle (°)	271.6	--
Center Beam Candle Power (cd)	219	--

**Spectral Power Distribution & Chromaticity Diagram**

**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	209.7	6.9%
0-40	392.7	13%
0-60	909.9	30.1%
60-90	899.1	29.7%
70-100	885.9	29.3%
90-120	790.5	26.1%
0-90	1,809.0	59.8%
90-180	1,214.7	40.2%
0-180	3,023.8	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	21.3	0.7%	90-100	287.5	9.5%
10-20	67.4	2.2%	100-110	268.8	8.9%
20-30	120.9	4.0%	110-120	234.2	7.7%
30-40	183.0	6.1%	120-130	185.3	6.1%
40-50	239.1	7.9%	130-140	126.0	4.2%
50-60	278.2	9.2%	140-150	73.8	2.4%
60-70	300.7	9.9%	150-160	32.0	1.1%
70-80	302.9	10.0%	160-170	6.9	0.2%
80-90	295.5	9.8%	170-180	0.2	0%

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

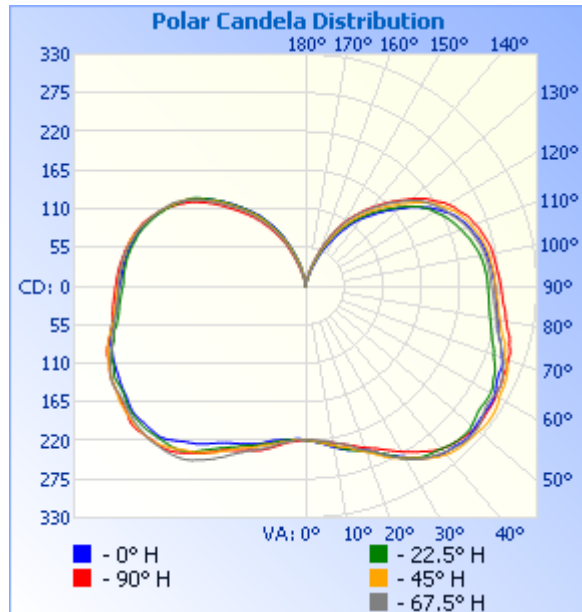
Report Format Number STD/QR4909-A/2

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

Tel: 8620-3229 0320

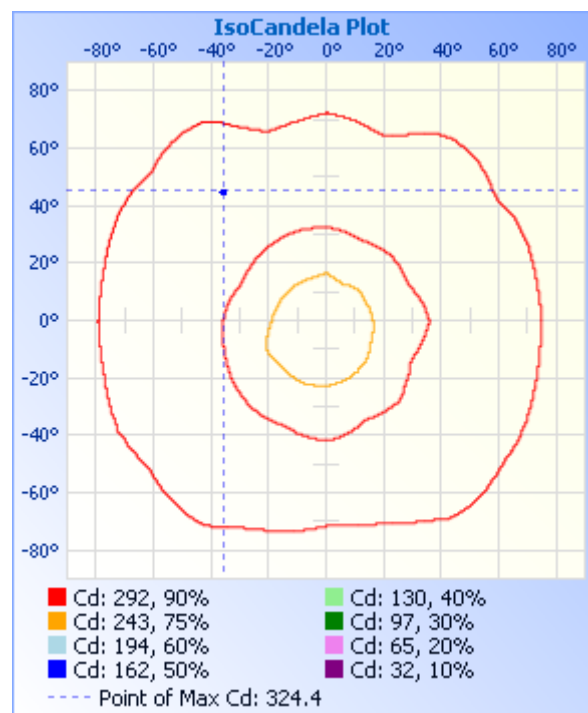
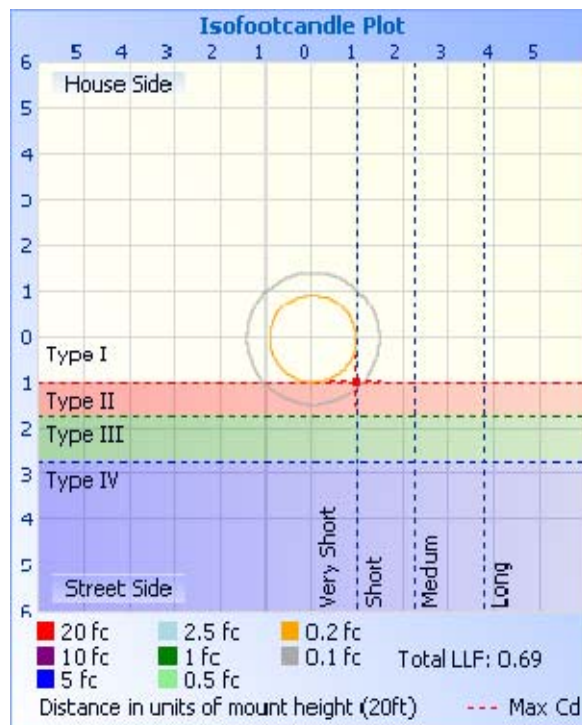
Fax: 8620-32290422

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

**Photometric Data**


**Illuminance at a Distance**

	Center Beam fc	Beam Width
17.0ft	<b>0.76 fc</b>	
34.0ft	<b>0.19 fc</b>	
51.0ft	<b>0.08 fc</b>	
68.0ft	<b>0.05 fc</b>	
85.0ft	<b>0.03 fc</b>	
102.0ft	<b>0.02 fc</b>	



**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	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
1	220	220	219	219	219	218	219	219	219	219	218	219	219	219	220	220	220
2	220	220	220	219	219	217	217	217	218	218	218	219	220	220	221	221	220
3	221	221	221	220	220	217	217	217	217	218	218	219	221	220	221	222	221
4	223	222	222	220	221	217	217	217	218	218	219	220	221	221	222	223	223
5	224	223	223	220	222	218	217	218	219	220	221	222	222	222	224	225	224
6	225	224	224	221	222	219	218	218	220	220	222	222	223	225	225	227	225
7	227	225	225	222	223	220	218	219	220	221	223	224	225	227	226	228	227
8	229	227	227	223	224	221	219	219	221	221	224	225	227	228	229	230	229
9	231	229	229	225	225	222	220	220	222	223	225	227	229	230	231	233	231
10	233	231	231	226	227	223	221	221	223	225	227	228	231	233	234	234	233
11	234	233	232	228	228	224	223	223	224	226	229	230	233	235	236	236	234
12	236	235	234	229	229	226	224	224	225	228	231	234	235	237	237	239	236
13	238	237	235	231	230	228	226	226	227	230	231	236	237	239	239	241	238
14	240	239	236	233	232	229	227	228	229	231	233	238	239	241	241	243	240
15	241	241	238	234	234	231	230	231	231	233	234	239	242	243	242	244	241
16	242	243	241	237	236	233	231	232	233	235	237	241	243	244	244	246	242
17	243	245	244	241	238	234	232	233	235	237	239	244	244	246	245	248	243
18	244	247	246	244	240	235	234	235	236	238	241	246	246	249	248	250	244
19	246	249	248	246	243	236	236	237	237	239	243	248	247	251	250	252	246
20	248	250	251	248	244	238	238	238	239	241	245	250	249	254	253	256	248
21	251	253	253	251	247	239	240	239	240	243	247	253	251	257	257	258	251
22	254	255	257	253	249	241	242	241	242	245	249	256	252	260	262	261	254
23	257	257	260	256	251	242	245	244	244	248	252	260	254	263	265	264	257
24	261	261	264	260	253	244	248	245	245	251	254	263	256	266	269	268	261
25	264	263	268	265	257	247	250	248	247	253	258	267	258	270	272	272	264
26	267	267	271	268	259	249	253	251	248	256	261	271	260	274	276	276	267
27	271	271	274	273	263	252	255	254	250	259	264	274	262	277	279	280	271
28	274	275	277	276	266	256	258	257	253	261	268	278	266	281	282	284	274

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	278	279	280	281	269	259	261	260	255	265	270	282	270	285	285	287	278
30	281	283	283	284	272	262	263	263	258	268	274	285	273	289	287	290	281
31	285	286	286	288	275	267	267	266	261	272	276	289	277	292	290	293	285
32	289	289	290	291	278	270	270	270	265	276	279	292	281	295	292	296	289
33	292	292	292	294	282	275	273	274	268	280	282	296	284	298	295	298	292
34	296	294	296	296	285	279	277	278	271	284	285	299	287	300	297	300	296
35	299	296	299	298	287	283	280	282	274	288	287	301	290	301	300	301	299
36	302	297	303	301	291	287	284	285	276	291	289	303	294	302	303	303	302
37	304	298	305	302	294	290	286	288	279	293	292	305	297	302	306	304	304
38	306	299	308	305	297	293	289	290	281	295	295	306	300	302	308	306	306
39	308	300	310	306	300	295	291	292	284	297	297	307	303	303	310	307	308
40	309	302	313	308	302	297	294	294	288	298	300	308	305	303	312	308	309
41	310	304	315	310	304	298	297	295	290	299	303	309	307	304	314	309	310
42	311	306	316	312	306	299	299	296	294	299	305	309	308	305	315	310	311
43	312	307	317	313	307	301	301	297	296	300	307	310	309	307	315	311	312
44	313	308	318	315	309	302	302	299	299	301	309	311	309	308	315	312	313
45	315	309	319	316	310	303	304	302	299	302	311	312	310	309	316	312	315
46	316	309	319	317	311	304	306	304	300	303	312	312	311	310	316	312	316
47	317	310	320	318	312	305	306	305	300	304	312	312	312	311	317	313	317
48	316	311	321	318	313	306	307	306	301	305	312	312	314	311	317	313	316
49	315	310	321	318	315	308	308	307	301	306	313	312	315	310	318	313	315
50	314	309	322	318	316	309	308	308	302	306	313	312	316	310	318	312	314
51	313	308	323	317	316	309	309	309	303	306	313	312	317	309	318	311	313
52	313	307	324	316	316	310	309	309	304	306	313	311	316	309	318	311	313
53	313	305	324	314	316	310	310	309	304	307	313	310	315	309	318	309	313
54	313	304	324	313	315	310	310	309	305	306	313	310	313	308	318	308	313
55	313	304	324	311	315	309	310	308	304	306	313	309	312	307	316	307	313
56	312	304	324	310	315	308	310	306	303	306	312	308	311	306	315	306	312
57	313	304	323	309	315	307	309	303	302	304	312	308	310	306	313	306	313
58	313	305	322	309	315	305	308	300	301	303	312	307	310	307	313	306	313
59	312	305	321	310	314	303	308	299	300	302	311	307	309	306	312	306	312
60	311	305	318	311	313	302	309	298	300	301	310	307	309	305	312	305	311

**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	310	304	317	312	312	302	310	298	299	301	308	308	308	304	312	304	310
62	307	303	317	312	312	303	311	299	298	301	308	308	308	302	310	301	307
63	306	300	317	312	312	304	311	301	297	301	307	308	307	301	308	299	306
64	304	299	316	311	311	303	310	302	296	302	307	308	307	298	306	297	304
65	303	297	315	310	310	303	309	302	296	301	306	307	307	297	305	295	303
66	302	296	314	308	309	302	307	301	295	299	305	304	305	295	303	292	302
67	303	293	313	306	310	301	306	301	295	297	304	302	304	293	302	290	303
68	302	291	310	304	309	299	306	300	294	296	302	300	301	291	300	287	302
69	301	288	307	303	308	298	304	299	294	295	301	299	300	289	298	286	301
70	298	286	304	299	307	297	302	298	293	295	299	296	300	288	296	285	298
71	296	284	301	296	307	295	301	296	292	293	298	294	299	285	293	284	296
72	293	282	300	292	307	294	300	295	290	291	297	290	298	283	289	280	293
73	291	279	297	291	305	291	297	294	291	288	295	288	295	281	286	279	291
74	289	277	297	289	302	288	296	292	290	284	292	287	293	278	286	276	289
75	286	275	293	286	301	285	294	287	289	283	291	284	291	276	284	274	286
76	284	273	289	283	300	285	292	284	287	282	288	283	287	273	281	272	284
77	282	272	287	282	297	283	291	282	285	280	286	282	285	271	279	270	282
78	280	270	285	280	294	281	288	279	283	276	283	279	282	270	277	269	280
79	280	269	283	278	292	279	286	277	281	274	281	278	281	270	276	268	280
80	279	268	282	276	291	276	283	276	278	272	278	276	280	269	274	267	279
81	277	266	280	275	289	273	281	274	276	270	277	275	279	269	273	267	277
82	276	265	278	274	288	271	279	273	274	269	275	273	278	267	272	266	276
83	275	264	277	273	287	271	278	271	272	268	275	271	277	266	271	265	275
84	274	263	276	271	285	270	277	270	271	268	273	270	276	265	270	264	274
85	273	263	276	270	283	269	275	268	270	266	271	270	275	264	270	264	273
86	273	262	274	269	282	268	275	267	269	265	271	269	274	263	269	263	273
87	272	262	273	268	281	267	274	266	268	264	270	268	273	263	268	263	272
88	271	261	272	267	280	266	273	264	268	263	269	267	272	262	268	262	271
89	271	260	271	266	279	264	272	264	267	262	269	266	272	262	268	261	271
90	270	260	271	265	278	263	271	263	266	261	268	267	271	262	267	261	270
91	270	260	271	265	278	262	270	262	265	260	268	267	270	262	267	260	270
92	269	259	270	264	277	261	269	261	264	260	267	267	270	261	266	259	269

**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	268	259	270	264	276	260	269	261	263	260	266	266	269	261	266	259	268
94	268	258	269	264	275	259	269	260	262	260	266	266	268	260	265	258	268
95	267	257	268	263	274	259	269	260	262	260	265	265	268	260	264	257	267
96	266	257	268	262	273	258	268	260	262	259	264	265	267	259	264	256	266
97	265	256	267	262	273	258	268	260	261	258	264	264	266	258	263	256	265
98	264	255	266	261	272	257	267	259	260	258	263	264	265	257	262	255	264
99	263	254	266	260	272	257	266	258	259	258	262	263	264	255	262	254	263
100	262	253	265	260	271	257	265	258	259	257	262	262	263	254	260	253	262
101	262	252	264	259	270	256	264	257	258	256	261	261	262	253	260	251	262
102	260	250	263	258	270	255	264	256	257	255	260	260	261	251	258	250	260
103	259	248	262	256	268	254	263	256	256	254	260	259	260	250	257	248	259
104	258	247	261	255	267	253	262	255	255	253	259	257	259	248	256	246	258
105	256	245	260	253	265	252	261	253	254	252	258	255	258	247	254	244	256
106	255	244	259	252	264	250	260	253	253	251	256	254	257	245	253	242	255
107	253	242	257	250	262	248	259	252	251	250	254	253	255	243	251	240	253
108	251	239	255	249	261	247	258	251	250	249	253	252	254	242	250	239	251
109	249	238	253	247	260	246	256	249	248	247	251	251	252	239	247	237	249
110	247	236	252	245	258	245	255	247	247	245	249	249	251	238	245	235	247
111	246	234	250	243	256	243	253	246	245	243	247	247	249	236	243	233	246
112	244	232	249	241	254	241	251	244	243	241	244	245	247	234	240	231	244
113	241	230	246	239	252	239	250	242	241	240	243	243	244	232	238	229	241
114	239	228	244	237	250	238	247	240	239	238	241	241	242	229	235	227	239
115	236	226	242	234	246	236	245	237	237	236	239	239	239	226	232	225	236
116	233	223	240	231	244	235	243	236	235	234	237	237	237	224	230	223	233
117	230	221	237	230	241	232	240	234	233	231	234	235	234	222	226	219	230
118	225	218	233	228	240	231	238	233	231	229	232	232	231	220	222	217	225
119	222	215	230	226	237	229	236	230	229	227	229	230	228	217	219	214	222
120	218	212	226	222	233	226	233	227	226	225	227	228	225	215	216	212	218
121	214	210	223	219	231	224	230	225	224	222	224	225	221	212	213	209	214
122	210	207	220	217	226	221	226	222	221	219	221	223	218	208	209	206	210
123	205	204	216	214	222	219	224	220	218	217	218	220	215	205	204	203	205
124	200	201	212	212	219	217	220	217	214	215	216	215	210	202	200	199	200

**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	197	198	208	209	215	214	218	214	212	212	213	212	207	197	195	194	197
126	192	193	202	206	212	211	214	212	208	209	208	208	203	193	190	190	192
127	187	188	198	203	207	209	211	209	205	206	204	204	199	187	186	185	187
128	181	184	192	198	202	205	207	205	201	204	199	199	194	183	180	181	181
129	175	179	187	194	198	202	201	201	199	200	195	195	189	179	176	176	175
130	171	175	183	190	193	198	197	197	194	195	191	190	185	173	171	170	171
131	166	170	178	185	188	193	192	193	189	190	186	185	180	167	165	166	166
132	162	165	172	179	183	189	188	188	185	185	182	180	175	162	161	161	162
133	158	162	168	176	178	184	183	184	180	181	177	174	170	157	156	156	158
134	152	157	163	171	174	179	178	179	176	176	173	170	165	152	151	152	152
135	148	152	159	167	169	175	173	175	171	171	168	165	159	147	147	147	148
136	143	149	154	162	164	170	168	170	167	166	163	160	154	142	142	144	143
137	138	144	149	156	160	166	164	165	162	162	158	156	150	138	138	139	138
138	134	140	146	153	155	162	159	160	158	156	154	152	144	133	133	133	134
139	130	135	141	148	151	158	155	155	153	151	149	146	140	128	128	129	130
140	126	130	137	144	146	153	150	152	148	148	144	142	135	124	124	124	126
141	122	127	132	140	141	150	147	147	144	143	140	137	132	119	119	119	122
142	117	122	127	135	137	145	142	143	139	138	135	132	127	115	114	114	117
143	113	118	124	131	132	141	138	138	135	133	131	128	123	110	110	110	113
144	107	114	119	126	127	136	134	134	131	130	127	122	118	106	104	106	107
145	101	109	113	121	123	132	130	130	127	125	123	118	113	101	100	101	101
146	97	104	109	117	118	128	125	126	123	121	118	112	108	96	95	96	97
147	91	100	104	112	114	123	120	121	119	116	113	108	103	92	89	92	91
148	87	95	99	108	109	119	116	116	114	112	108	103	99	87	85	86	87
149	81	91	94	103	104	114	111	112	109	107	103	99	94	82	80	82	81
150	75	85	88	98	99	110	107	107	105	101	99	94	89	77	75	77	75
151	70	80	83	94	93	104	102	103	100	97	94	88	84	72	69	72	70
152	65	75	77	88	88	100	98	98	96	92	89	84	79	67	63	67	65
153	61	70	72	82	82	94	93	94	90	88	84	79	74	62	59	60	61
154	56	64	67	77	76	89	88	89	86	83	80	75	70	57	54	54	56
155	52	58	62	71	71	84	83	84	80	79	74	69	65	52	48	50	52
156	48	52	58	66	65	79	79	79	76	73	70	64	58	47	44	45	48

**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	42	48	53	59	59	73	73	74	70	68	65	57	54	42	39	41	42
158	37	43	47	53	54	65	67	69	66	63	60	52	48	38	36	38	37
159	33	38	42	49	47	57	62	63	60	57	54	47	43	34	33	33	33
160	29	34	37	44	43	48	56	58	54	53	48	41	38	30	28	30	29
161	26	31	33	40	37	41	50	52	50	48	45	36	35	26	25	26	26
162	22	28	29	36	32	34	43	48	45	44	40	32	29	21	21	22	22
163	18	24	26	32	27	27	38	44	42	39	37	29	25	19	17	17	18
164	15	19	23	28	23	22	31	40	38	36	32	24	21	16	14	15	15
165	13	16	19	22	20	17	27	35	35	32	28	21	20	13	12	13	13
166	11	14	16	17	17	14	22	31	31	28	24	18	17	11	10	10	11
167	9	11	13	15	13	11	19	27	26	23	20	15	15	8	7	7	9
168	6	8	11	12	10	9	17	22	22	18	17	13	12	6	5	6	6
169	5	6	8	10	8	5	13	17	15	15	14	11	8	5	4	4	5
170	3	5	6	8	6	3	11	12	8	10	12	9	7	3	2	2	3
171	2	3	5	5	3	3	9	8	3	6	6	6	5	2	2	2	2
172	2	2	3	3	2	2	7	3	1	2	4	5	4	1	2	1	2
173	1	2	2	2	1	1	5	2	2	2	4	4	3	1	1	1	1
174	1	1	1	1	1	1	3	1	2	2	3	2	2	1	1	1	1
175	1	1	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1
176	1	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	1
178	1	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	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

**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 \*\*\*\*\***