



Report No.: GZE151293-F-R-PL

NVLAP LAB CODE 201011-0

## LM-79-08 Test Report

For

**P.Q.L., Inc.**

**(Brand Name: Superior Life®)**

2285 Ward Avenue / Simi Valley, CA 93065

### Replacement Lamps for Outdoor Pole/Arm-mounted Decorative Luminaires (Type B)

Model name(s): 91126

Representative (Tested) Model: 27W 2700K  
27W 5700K

Model Different: All construction and rating are the same, except CCT

Test & Report By:

*Johnson Sun*

Engineer: Johnson Sun

Date: Jan.14,2016

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>

**Performance Assessment:**

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
2700K	2700K	1794.4	26.89	66.73
3000K	3000K	1824.5 <sup>*1</sup>	26.96 <sup>*2</sup>	67.69 <sup>*3</sup>
3500K	3500K	1854.6 <sup>*1</sup>	26.96 <sup>*2</sup>	68.80 <sup>*3</sup>
4000K	4000K	1884.7 <sup>*1</sup>	26.96 <sup>*2</sup>	69.92 <sup>*3</sup>
4500K	4500K	1914.8 <sup>*1</sup>	26.96 <sup>*2</sup>	71.04 <sup>*3</sup>
<b>91126</b>	5000K	1944.9 <sup>*1</sup>	26.96 <sup>*2</sup>	72.15 <sup>*3</sup>
5700K	5700K	1975	27.02	73.09

\*1: This value is calculated and the calculation formula is as below:

$$1824.5 = (1975 - 1794.4) / 6 + 1794.4$$

$$1854.6 = (1975 - 1794.4) / 6 + 1824.5$$

$$1884.7 = (1975 - 1794.4) / 6 + 1854.6$$

$$1914.8 = (1975 - 1794.4) / 6 + 1884.7$$

$$1944.9 = (1975 - 1794.4) / 6 + 1914.8$$

\*2: This value is calculated and the calculation formula is as below:

$$26.96 = (27.02 + 26.89) / 2$$

\*3: This value is calculated and the calculation formula is as below:

$$67.69 = 1824.5 / 26.96$$

$$68.80 = 1854.6 / 26.96$$

$$69.92 = 1884.7 / 26.96$$

$$71.04 = 1914.8 / 26.96$$

$$72.15 = 1944.9 / 26.96$$

U.S. Department of Energy

**Lighting Facts™ Uniform LM-79 Reporting Template**
**Laboratory Information:**

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Jan.14,2016
Test Report No.	GZE151293-F-PL
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	P.Q.L., Inc.	
Brand Name	Superior Life®	
Model Number	2700K	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Replacement Lamps for Outdoor Pole/Arm-mounted Decorative Luminaires (Type B)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

**Integrating Sphere**
**Goniophotometer**
**Electrical Measurements:**

	Output	Output	
Input Wattage	--	26.89	W
Input Current	--	0.2292	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9777	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	1794.4	lm
Initial Lumen Efficacy	--	66.73	lm/w
Correlated color temperature / CCT	2763	--	K
Color rendering index / CRI	83.8	--	
R9 Value	16	--	
Duv	0.0037	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		32	cd
Beam angle (if applicable)		242.9	°
Zonal lumens in the 0°-60° zone	-----	23.9	%
Zonal lumens in the 60°-90° zone		39.1	%
Zonal lumens in the 90°-120° zone		30.4	%
Zonal lumens in the 120°-180° zone		6.5	%

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**Lighting Facts™ Uniform LM-79 Reporting Template**
**Laboratory Information:**

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Date of Test Report	Jan.14,2016
Test Report No.	GZE151293-F-PL
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	P.Q.L., Inc.	
Brand Name	Superior Life®	
Model Number	5700K	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Replacement Lamps for Outdoor Pole/Arm-mounted Decorative Luminaires (Type B)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

**Integrating Sphere**
**Goniophotometer**
**Electrical Measurements:**

	Output	Output	
Input Wattage	27.02	--	W
Input Current	0.2296	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9807	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	1975	--	lm
Initial Lumen Efficacy	73.09	--	lm/w
Correlated color temperature / CCT	5902	--	K
Color rendering index / CRI	82.4	--	
R9 Value	2	--	
Duv	0.0022	--	

**Luminous Intensity Distribution**

Center beam candlepower (if applicable)	-----	--	cd
Beam angle (if applicable)		--	°
Zonal lumens in the 0°-60° zone		--	%
Zonal lumens in the 60°-90° zone		--	%
Zonal lumens in the 90°-120° zone		--	%
Zonal lumens in the 120°-180° zone		--	%

Test Specifications:

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Date of Receipt	: Jan.05,2016
Date of Test	: Jan.10,2016
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

### Test Methods

#### 1. Photometric and Electrical measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ , 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 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at  $1\text{ }^{\circ}$  vertical intervals and  $22.5\text{ }^{\circ}$  horizontal intervals.

#### 2. Photometric and Electrical Measurements – Integrating Sphere Method:

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

**1. Product Information:**

Brand Name	Superior Life®
Model Number	91126
Luminaire Type	Replacement Lamps for Outdoor Pole/Arm-mounted Decorative Luminaires (Type B)
Rated Voltage / Frequency	100~ 277Vac, 50/60Hz
Nominal Power	27W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,3500K,4000K,4500K,5000K,5700K
LED Manufacturer	Guangzhou Hongli Opto-Electronic Co., Ltd.
LED Model	HL-A-2835DW-S1-08-HR3
Sample Receipt Date	Jan.05,2015
Sample Number	GZE151293-F1 2700K,F2 5700K

**Photo**


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<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2016-01-10	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	2700K		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151293	120.0	60	0.2292	26.89	0.9777	13.19
-F1	277.1	60	0.1071	26.79	0.9024	18.47

**Sphere-Spectroradiometer Method in GE PATRIARCH™ LUMINAIRE (POST TOP):**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	16
Frequency (Hz)	60	R2	92	R10	81
Color Rendering Index (CRI)	83.8	R3	97	R11	80
R9	16	R4	81	R12	72
CCT (K)	2763	R5	82	R13	84
Chromaticity (x, y)	x=0.4610 y=0.4209	R6	90	R14	99
Chromaticity (u', v')	u'=0.2587 v'=0.5314	R7	85	R15	75
Duv	0.0037	R8	62	--	--

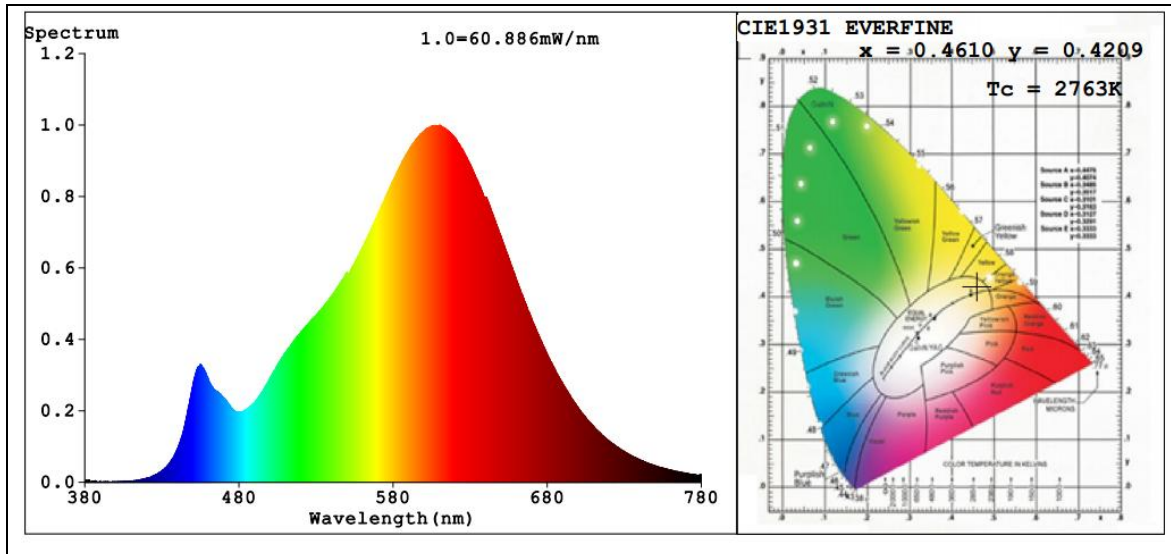
**Goniophotometer Method in GE PATRIARCH™ LUMINAIRE (POST TOP):**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1794.4
Luminous Efficacy (lm/W)	66.73
Beam Angle °	242.9
Center Beam Candle Power (cd)	32

**Goniophotometer Method in GE PATRIARCH™ LUMINAIRE (POST TOP):**

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1759.7
Luminous Efficacy (lm/W)	65.69

**Spectral Power Distribution & Chromaticity Diagram**



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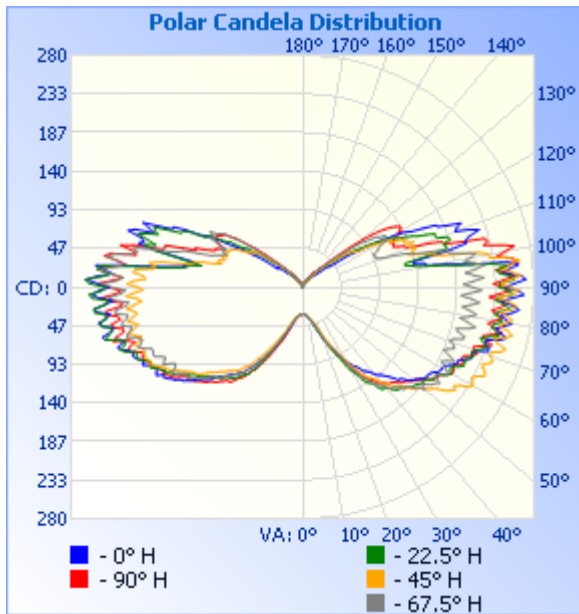


**Zonal Lumen Tabulation**

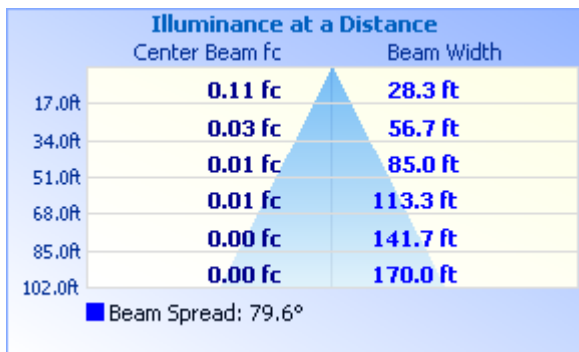
<b>Zonal Lumen Summary</b>		
Zone	Lumens	% Luminaire
0-30	54.1	3%
0-40	135.1	7.5%
0-60	429.3	23.9%
60-90	702.5	39.1%
70-100	738.5	41.2%
90-120	545.5	30.4%
0-90	1,131.8	63.1%
90-180	662.9	36.9%
0-180	1,794.7	100%

<b>Lumens Per Zone</b>					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	3.3	0.2%	90-100	245.3	13.7%
10-20	13.0	0.7%	100-110	175.4	9.8%
20-30	37.9	2.1%	110-120	124.8	7%
30-40	81.0	4.5%	120-130	79.2	4.4%
40-50	124.3	6.9%	130-140	28.0	1.6%
50-60	170.0	9.5%	140-150	7.6	0.4%
60-70	209.3	11.7%	150-160	2.2	0.1%
70-80	240.1	13.4%	160-170	0.4	0%
80-90	253.1	14.1%	170-180	0.0	0%

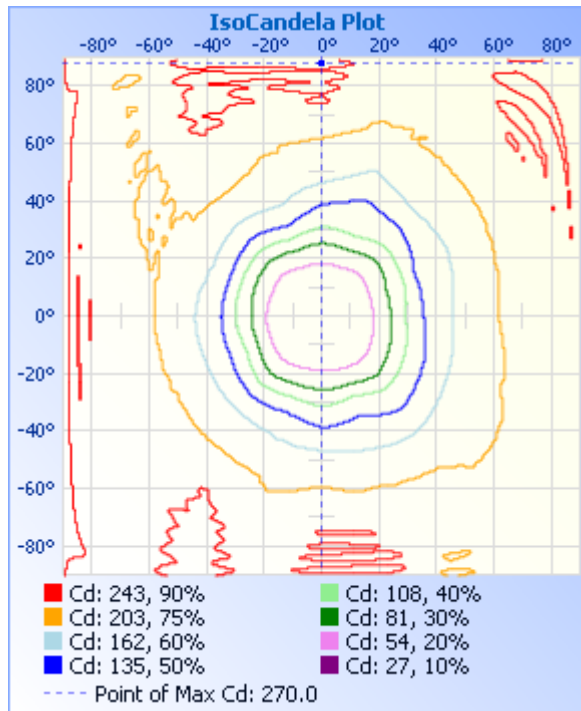
### Photometric Data



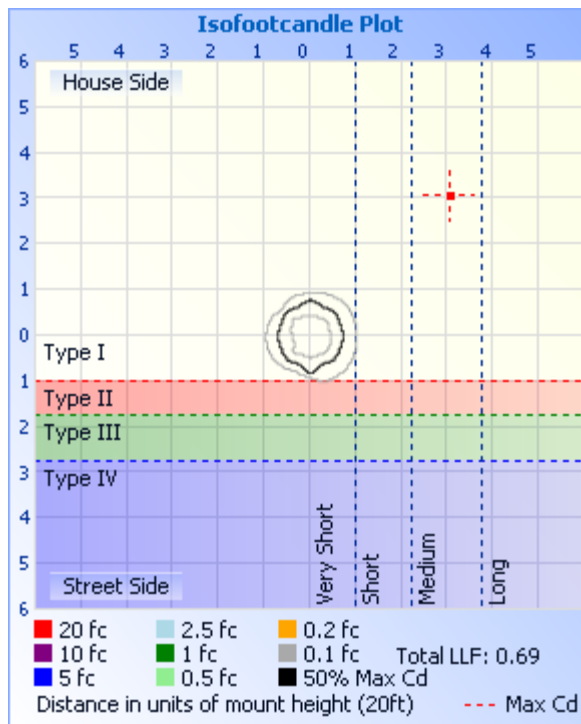
### Illuminance Plots



### ISOCANDELA DIAGRAM



### ISOLUX DIAGRAM



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**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	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
1	33	33	33	32	32	32	32	32	32	33	33	32	33	33	33	33	33
2	33	33	32	32	32	32	32	32	33	33	33	33	33	33	33	33	33
3	33	33	33	32	32	32	32	33	33	33	33	33	33	33	33	33	33
4	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
5	33	33	33	33	33	33	33	33	33	33	33	33	34	33	33	33	33
6	34	34	33	33	33	33	33	33	34	34	34	34	34	34	34	33	34
7	35	34	34	34	34	34	34	34	34	34	34	34	35	34	34	34	35
8	35	35	34	35	35	35	34	35	35	34	35	35	36	35	35	35	35
9	36	36	35	36	36	35	35	36	36	35	35	36	36	36	36	35	36
10	37	37	36	36	37	36	36	37	37	36	36	37	37	37	36	36	37
11	38	38	37	37	38	37	37	38	38	37	37	38	38	38	37	38	38
12	39	39	38	38	39	38	37	39	39	38	38	39	40	39	38	39	39
13	40	40	39	39	40	39	39	41	40	39	39	41	41	41	39	40	40
14	42	42	40	41	41	40	40	42	42	41	40	43	44	44	41	42	42
15	44	44	41	43	42	42	41	44	44	42	41	44	46	46	42	45	44
16	46	46	43	44	44	44	43	46	47	44	44	47	49	49	45	48	46
17	49	49	45	47	46	47	45	48	50	47	46	49	53	51	47	50	49
18	52	52	47	50	49	49	47	52	53	49	48	52	56	54	49	53	52
19	55	56	50	53	52	52	49	55	56	53	50	55	60	59	52	56	55
20	59	60	53	57	55	56	53	58	61	58	53	58	65	65	55	59	59
21	63	63	56	60	59	61	57	62	64	62	58	61	70	70	59	62	63
22	68	67	61	66	63	67	61	66	68	66	62	67	73	75	63	66	68
23	71	72	66	71	70	73	65	71	73	72	64	71	77	79	67	71	71
24	75	77	70	75	76	79	69	76	77	75	68	74	82	81	71	75	75
25	78	82	74	79	82	84	74	81	80	80	72	79	88	84	74	81	78
26	81	87	79	82	86	92	78	86	84	85	75	85	94	87	77	88	81
27	86	94	84	86	90	97	85	94	88	93	79	89	98	91	82	94	86
28	91	100	88	91	95	104	90	100	93	100	84	94	104	96	86	98	91
29	95	108	93	98	102	111	95	105	98	108	89	98	109	99	92	104	95

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30	101	116	100	105	106	115	101	111	103	112	94	103	115	105	96	108	101
31	106	120	106	111	113	120	106	116	109	117	99	107	117	111	101	112	106
32	110	126	112	118	120	126	113	122	113	124	102	112	122	116	107	117	110
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34	115	139	123	133	131	133	123	130	121	128	114	121	132	129	114	122	115
35	119	141	130	137	134	138	129	135	126	131	117	126	134	136	118	124	119
36	125	143	135	141	138	140	133	139	128	135	120	128	138	141	121	125	125
37	127	151	137	147	141	143	139	143	130	137	125	131	143	140	124	127	127
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40	138	158	152	158	151	152	150	151	139	142	132	140	148	150	135	130	138
41	141	163	155	162	154	155	155	153	142	144	134	142	151	151	139	131	141
42	143	166	160	163	157	158	158	157	146	149	136	146	154	151	142	134	143
43	147	170	163	165	157	164	163	160	148	150	140	150	157	152	145	135	147
44	150	168	168	171	160	167	167	163	152	152	141	151	158	156	150	138	150
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48	167	180	184	182	169	180	183	172	167	162	155	166	170	161	165	148	167
49	172	180	186	184	173	183	185	176	171	164	159	169	173	165	168	152	172
50	174	182	189	193	176	187	185	176	176	166	164	170	175	165	171	156	174
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52	180	185	199	191	181	196	192	183	184	173	168	178	175	169	179	159	180
53	184	185	204	196	185	199	197	187	185	174	169	175	179	172	181	159	184
54	185	190	213	198	190	199	199	187	191	177	173	180	184	177	182	163	185
55	185	194	218	202	194	203	200	189	193	182	177	182	190	177	183	167	185
56	186	195	222	193	196	202	204	194	197	188	181	187	192	182	187	171	186
57	189	195	219	193	196	205	211	199	200	190	183	187	194	185	193	173	189
58	193	198	224	201	199	212	215	200	200	195	189	182	199	188	194	179	193
59	195	205	234	205	205	212	218	201	206	194	191	179	196	189	193	182	195
60	195	208	238	201	209	214	220	200	204	198	193	185	199	190	192	181	195
61	196	205	235	195	209	212	224	200	202	201	198	193	201	196	197	184	196

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62	201	204	232	191	207	211	230	202	203	208	202	189	205	202	202	189	201
63	206	212	237	196	206	215	235	209	208	207	208	187	206	204	202	194	206
64	208	217	245	204	213	220	240	205	215	205	205	191	205	207	200	193	208
65	208	216	243	196	215	216	241	202	213	209	207	198	211	209	204	195	208
66	214	215	238	187	211	210	239	204	215	217	208	198	212	214	208	198	214
67	221	220	237	191	212	212	243	211	220	218	208	197	210	215	206	200	221
68	221	223	245	198	220	217	246	211	222	217	207	197	209	217	202	198	221
69	220	220	247	196	226	214	247	207	220	217	207	206	218	223	205	200	220
70	225	223	241	189	220	210	244	208	224	228	212	212	227	230	213	206	225
71	237	229	241	193	220	210	247	218	232	233	214	207	221	229	213	210	237
72	237	234	253	204	230	219	253	220	235	227	208	204	214	221	208	207	237
73	232	229	256	205	239	219	254	213	226	224	204	209	220	226	205	201	232
74	232	224	245	196	230	215	247	211	230	232	211	222	238	241	214	206	232
75	247	232	239	193	226	211	250	222	247	247	220	219	233	245	220	216	247
76	254	244	253	208	236	222	261	229	249	242	211	214	223	235	214	213	254
77	244	241	260	214	248	227	264	222	237	237	204	212	223	236	210	206	244
78	240	234	253	204	238	222	254	215	235	237	208	224	235	244	212	207	240
79	247	235	242	194	229	214	254	220	247	248	216	222	235	249	217	215	247
80	256	244	251	205	235	218	260	227	251	248	209	216	224	238	213	214	256
81	248	242	257	213	245	224	262	221	240	240	202	214	226	239	209	205	248
82	243	235	250	205	239	222	255	214	235	241	207	229	240	253	216	207	243
83	256	240	242	195	231	216	257	220	251	253	215	227	239	254	219	217	256
84	263	252	255	205	239	220	264	228	253	254	205	215	222	239	212	217	263
85	255	246	260	214	247	226	263	224	240	239	196	211	219	233	203	204	255
86	241	235	249	205	240	220	255	211	229	236	200	229	237	254	214	202	241
87	254	236	237	192	226	212	254	218	248	255	214	235	243	258	220	216	254
88	268	255	253	204	238	221	266	232	255	258	205	219	226	245	216	218	268
89	262	251	261	217	251	230	264	229	247	243	194	214	219	234	204	209	262
90	245	238	250	205	243	223	258	216	234	238	199	231	237	252	217	203	245
91	256	239	241	195	231	216	255	221	248	258	212	243	248	260	223	215	256
92	270	256	252	207	243	227	267	236	262	263	206	225	231	247	222	220	270
93	265	253	264	219	256	235	265	231	250	244	190	218	218	231	207	210	265

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94	243	239	255	208	249	225	254	216	231	233	194	232	232	246	216	202	243
95	250	236	243	198	235	217	250	217	240	250	206	246	247	260	226	211	250
96	263	249	253	211	249	230	262	219	251	247	203	232	238	252	228	213	263
97	249	232	264	221	263	240	263	185	216	204	183	220	215	230	210	184	249
98	197	192	253	210	255	226	241	153	176	168	180	225	224	237	205	155	197
99	177	167	229	198	238	215	228	127	155	148	188	239	243	253	210	134	177
100	151	145	228	207	249	226	227	119	144	142	175	231	235	249	201	119	151
101	151	136	219	213	261	230	213	118	149	140	148	210	205	220	178	109	151
102	137	127	192	198	245	207	185	115	129	125	138	205	208	216	165	97	137
103	137	127	170	182	225	193	168	129	137	151	133	210	226	229	159	106	137
104	180	156	163	181	231	196	157	158	181	185	123	192	211	212	148	128	180
105	205	181	156	170	228	184	146	174	205	198	110	165	175	178	136	137	205
106	206	180	144	149	197	160	133	166	200	185	102	156	174	169	125	131	206
107	211	178	134	137	179	151	128	166	204	196	107	151	173	165	123	134	211
108	224	188	141	130	178	144	127	173	222	209	106	132	153	146	122	142	224
109	214	185	145	116	163	132	124	170	215	199	100	117	137	129	117	131	214
110	196	173	138	102	141	116	117	157	191	186	101	113	138	121	113	124	196
111	200	172	139	97	135	109	118	155	199	192	105	108	126	113	114	125	200
112	206	172	145	95	132	109	124	153	208	193	99	104	118	109	113	121	206
113	191	162	137	95	125	105	125	139	188	176	100	100	114	108	107	109	191
114	180	151	133	94	120	102	123	130	172	161	103	105	114	111	108	104	180
115	177	145	137	96	122	104	128	124	172	160	100	109	109	109	114	101	177
116	162	138	127	102	122	104	126	116	158	152	99	103	103	104	111	91	162
117	148	129	120	102	119	106	124	106	138	133	98	114	113	114	114	84	148
118	142	124	122	106	129	115	129	101	133	130	96	125	118	126	123	83	142
119	134	121	114	116	137	123	124	97	122	129	94	121	119	129	123	76	134
120	117	112	104	114	134	125	120	86	106	113	90	126	122	136	123	68	117
121	107	105	99	115	139	129	115	81	94	107	84	130	121	146	125	65	107
122	95	99	90	118	139	134	108	78	85	103	80	121	117	145	118	59	95
123	81	90	77	110	134	132	101	70	72	88	76	119	116	147	111	53	81
124	73	83	78	109	129	136	96	71	66	84	74	116	114	148	107	51	73
125	63	78	74	102	122	134	89	68	57	80	73	104	106	134	99	47	63

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126	49	73	71	94	115	126	82	66	41	69	71	98	100	126	92	45	49
127	42	68	68	90	105	121	75	65	37	66	69	90	92	113	87	44	42
128	41	60	62	78	94	109	68	59	39	58	63	78	82	100	81	41	41
129	39	53	57	72	84	101	62	56	38	51	58	70	75	91	77	39	39
130	36	48	51	63	75	92	57	51	35	46	52	61	67	80	73	37	36
131	30	44	48	58	66	82	53	46	31	44	47	54	60	73	67	36	30
132	26	40	43	52	58	74	48	43	28	42	43	47	53	66	61	34	26
133	24	37	39	46	50	65	44	40	26	40	38	41	47	59	54	32	24
134	22	36	35	40	44	58	39	36	24	37	35	37	42	51	46	29	22
135	20	33	32	36	39	50	34	32	22	34	31	33	38	43	39	27	20
136	18	30	28	32	35	43	29	28	19	31	28	30	34	37	33	24	18
137	18	26	25	29	32	38	25	25	19	27	25	27	30	33	28	22	18
138	19	22	22	26	30	33	22	21	18	23	23	25	28	29	24	20	19
139	17	20	20	24	28	30	20	18	16	19	20	24	26	27	21	17	17
140	15	17	17	23	25	28	17	16	14	16	18	22	23	25	18	15	15
141	13	15	15	21	24	25	15	13	12	14	15	20	22	22	16	13	13
142	11	13	14	20	23	23	13	11	10	12	13	19	21	20	14	12	11
143	10	11	12	18	21	21	12	9	9	10	12	17	19	19	12	10	10
144	9	10	11	17	20	19	11	8	7	8	10	16	18	17	11	9	9
145	8	8	10	16	18	18	10	6	5	6	9	15	17	16	10	7	8
146	6	7	9	15	16	16	10	6	4	6	8	14	16	15	9	6	6
147	5	6	9	14	15	14	9	5	3	5	7	13	14	14	9	5	5
148	3	5	8	13	14	13	9	4	2	5	7	12	13	13	8	4	3
149	3	5	7	12	13	12	8	4	2	4	6	11	12	12	7	4	3
150	2	5	7	11	12	11	8	3	2	4	6	10	12	11	7	4	2
151	2	4	7	10	11	10	7	3	2	3	5	9	11	10	6	3	2
152	2	3	6	9	10	10	7	3	1	2	5	8	10	9	6	3	2
153	2	3	6	9	9	9	6	3	1	2	4	7	9	8	5	3	2
154	1	3	5	8	8	8	5	3	1	2	4	6	8	8	5	2	1
155	1	3	5	7	8	7	5	2	1	1	3	6	8	7	4	2	1
156	1	2	4	7	7	6	5	2	1	1	3	5	7	6	4	2	1
157	1	2	4	6	6	6	4	2	1	1	2	5	6	5	4	2	1

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158	1	2	4	5	5	5	4	2	1	1	2	4	5	5	3	1	1
159	1	2	3	5	5	5	3	2	1	1	2	3	5	4	3	1	1
160	1	2	3	4	4	4	3	2	1	1	1	3	4	4	2	1	1
161	1	1	3	4	4	4	2	1	1	1	1	2	4	3	2	1	1
162	1	1	2	3	3	3	2	1	1	1	1	2	3	3	2	1	1
163	1	1	2	3	3	2	2	1	1	1	1	1	3	2	1	1	1
164	1	1	1	2	2	2	1	1	0	1	1	1	2	2	1	1	1
165	1	1	1	2	2	2	1	0	0	0	0	1	2	1	1	1	1
166	1	1	1	2	1	1	1	0	0	0	1	1	2	1	1	1	1
167	1	0	1	1	1	1	0	0	0	0	0	0	1	1	0	1	1
168	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0	0
169	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
170	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
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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

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<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2016-01-10	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	5700K		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE151293	120.0	60	0.2296	27.02	0.9807	13.15
-F2	277.1	60	0.1076	26.92	0.9031	18.28

**Sphere-Spectroradiometer Method in GE PATRIARCH™ LUMINAIRE  
(POST TOP):**

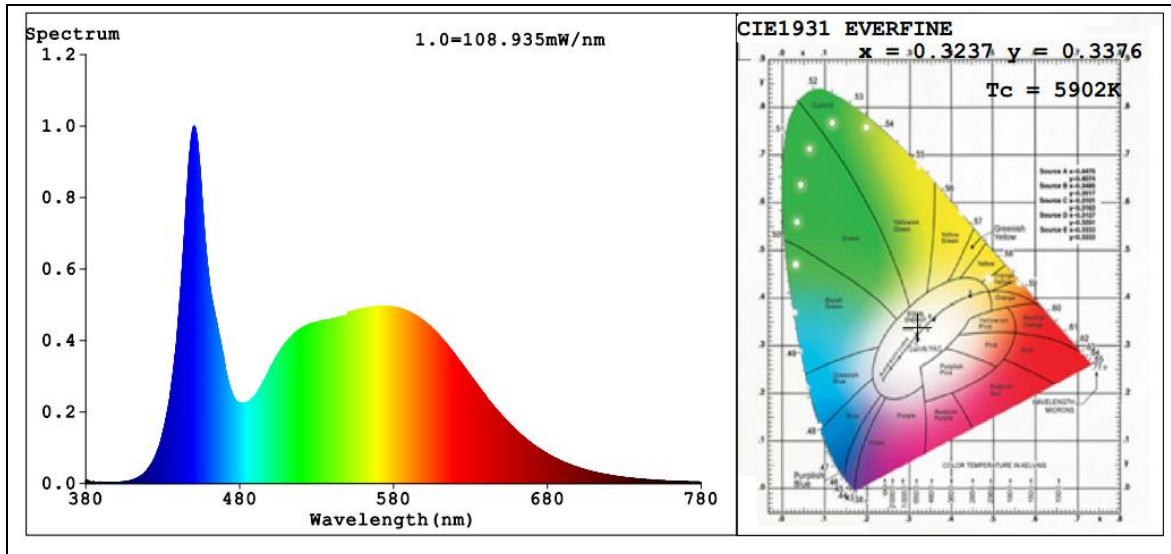
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.4
R9	2
CCT (K)	5902
Chromaticity (x, y)	x=0.3237 y=0.3376
Chromaticity (u', v')	u'=0.2022 v'=0.4745
Duv	0.0022
Total Luminous (lm)	1975
Luminous Efficacy (lm/W)	73.09

Special Color Rendering Indices			
R1	81	R9	2
R2	87	R10	69
R3	91	R11	82
R4	83	R12	59
R5	82	R13	82
R6	82	R14	95
R7	87	R15	75
R8	67	--	--

**Sphere-Spectroradiometer Method in GE PATRIARCH™ LUMINAIRE  
(POST TOP):**

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1941
Luminous Efficacy (lm/W)	72.10

**Spectral Power Distribution & Chromaticity Diagram**



Laboratory: Standard-Tech Co. Ltd Testing Center  
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**3. Test Equipment**

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2015-07-01	2016-06-30
ST-R-331	Spectral analysis system HAAS-2000	2015-07-01	2016-06-30
D204	Standard Lamp	2015-07-01	2016-06-30
PF2010	Power Meter for Integrating Sphere	2015-07-01	2016-06-30
EE-09	Goniophotometer system	2015-07-01	2016-06-30
D908S	Standard Lamp	2015-07-01	2016-06-30
PF210	Power Meter for Goniophotometer	2015-07-01	2016-06-30
ST-R-181A	Temperature Tester	2015-07-01	2016-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

**\*\*\*\*\* END OF DATASHEET PACKAGE \*\*\*\*\***