



Report No.: GZE160245-E-PL

NVLAP LAB CODE 201011-0

## LM-79-08 Test Report

For

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

**(Brand Name: Superior Life®)**

2285 Ward Avenue / Simi Valley, CA 93065

### Replacement Lamps for Parking Garage 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: Apr.08,2016

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

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<b>Performance Assessment:</b>
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Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
2700K	2700K	1807.8	25.87	69.88
3000K	3000K	1838.5 <sup>*1</sup>	25.96 <sup>*2</sup>	70.82 <sup>*3</sup>
3500K	3500K	1869.2 <sup>*1</sup>	25.96 <sup>*2</sup>	72.00 <sup>*3</sup>
4000K	4000K	1899.9 <sup>*1</sup>	25.96 <sup>*2</sup>	73.19 <sup>*3</sup>
4500K	4500K	1930.6 <sup>*1</sup>	25.96 <sup>*2</sup>	74.37 <sup>*3</sup>
<b>91126</b>	5000K	1961.3 <sup>*1</sup>	25.96 <sup>*2</sup>	75.55 <sup>*3</sup>
5700K	5700K	1992	26.05	76.47

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

$$1838.5 = (1992 - 1807.8) / 6 + 1807.8$$

$$1869.2 = (1992 - 1838.5) / 6 + 1838.5$$

$$1899.9 = (1992 - 1869.2) / 6 + 1869.2$$

$$1930.6 = (1992 - 1899.9) / 6 + 1899.9$$

$$1961.3 = (1992 - 1930.6) / 6 + 1930.6$$

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

$$25.96 = (26.05 + 25.87) / 2$$

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

$$70.82 = 1838.5 / 25.96$$

$$72.00 = 1869.2 / 25.96$$

$$73.19 = 1899.9 / 25.96$$

$$74.37 = 1930.6 / 25.96$$

$$75.55 = 1961.3 / 25.96$$

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	Apr.08,2016
Test Report No.	GZE160245-E-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 Parking Garage 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	--	25.87	W
Input Current	--	0.2206	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9774	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	1807.8	lm
Initial Lumen Efficacy	--	69.88	lm/w
Correlated color temperature / CCT	2720	--	K
Color rendering index / CRI	82.5	--	
R9 Value	11	--	
Duv	0.0033	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		226	cd
Beam angle (if applicable)		178.6	°
Zonal lumens in the 0°-60° zone	-----	46.3	%
Zonal lumens in the 60°-90° zone		39.6	%
Zonal lumens in the 90°-120° zone		12.2	%
Zonal lumens in the 120°-180° zone		2	%

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**Laboratory Information:**

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Apr.08,2016
Test Report No.	GZE160245-E-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 Parking Garage 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	26.05	--	W
Input Current	0.2219	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9785	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	1992	--	lm
Initial Lumen Efficacy	76.47	--	lm/w
Correlated color temperature / CCT	5940	--	K
Color rendering index / CRI	82.6	--	
R9 Value	3	--	
Duv	0.0019	--	
<b>Luminous Intensity Distribution</b>			
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		--	%

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Test Specifications:	
Date of Receipt	: Jan.05,2016
Date of Test	: Apr.05,2016
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.

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**1. Product Information:**

Brand Name	Superior Life®
Model Number	91126
Luminaire Type	Replacement Lamps for Parking Garage 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	GZE160245-E1(2700K),E2 5700K

**Photo**



<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>	2016-04-05	<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 %
GZE160245	120.0	60	0.2206	25.87	0.9774	13.49
-E1	277.0	60	0.1031	25.82	0.9039	18.86

**Sphere-Spectroradiometer Method in LITHONIA VRC70ML 120/277M6:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	11
Frequency (Hz)	60	R2	91	R10	80
Color Rendering Index (CRI)	82.5	R3	96	R11	78
R9	11	R4	79	R12	71
CCT (K)	2720	R5	80	R13	83
Chromaticity (x, y)	x=0.4639 y=0.4205	R6	90	R14	99
Chromaticity (u', v')	u'=0.2607 v'=0.5317	R7	83	R15	73
Duv	0.0033	R8	59	--	--

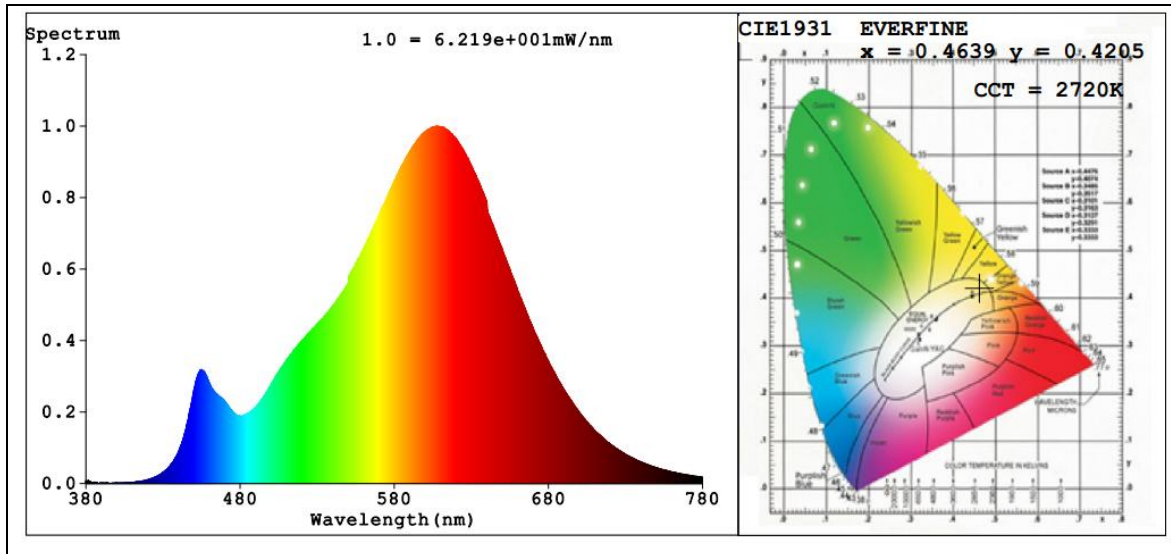
**Goniophotometer Method in LITHONIA VRC70ML 120/277M6:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1807.8
Luminous Efficacy (lm/W)	69.88
Beam Angle °	178.6
Center Beam Candle Power (cd)	226

**Goniophotometer Method in LITHONIA VRC70ML 120/277M6:**

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1802.0
Luminous Efficacy (lm/W)	69.79

**Spectral Power Distribution & Chromaticity Diagram**



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**Zonal Lumen Tabulation**

<b>Zonal Lumen Summary</b>		
Zone	Lumens	% Luminaire
0-30	201.6	11.2%
0-40	367.3	20.3%
0-60	836.2	46.3%
60-90	715.6	39.6%
70-100	574.6	31.8%
90-120	221.0	12.2%
0-90	1,551.8	85.8%
90-180	256.1	14.2%
0-180	1,807.9	100%

<b>Lumens Per Zone</b>					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	21.4	1.2%	90-100	121.6	6.7%
10-20	66.6	3.7%	100-110	63.5	3.5%
20-30	113.6	6.3%	110-120	35.9	2%
30-40	165.6	9.2%	120-130	21.6	1.2%
40-50	217.7	12.0%	130-140	9.0	0.5%
50-60	251.2	13.9%	140-150	3.0	0.2%
60-70	262.6	14.5%	150-160	1.0	0.1%
70-80	242.5	13.4%	160-170	0.3	0%
80-90	210.5	11.6%	170-180	0.2	0%

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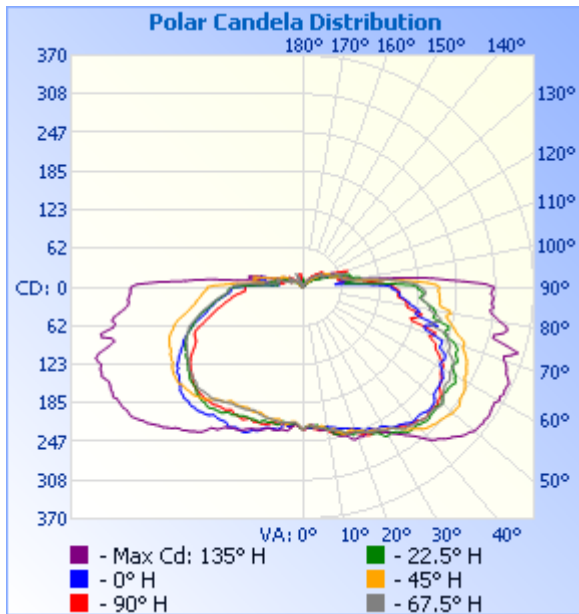
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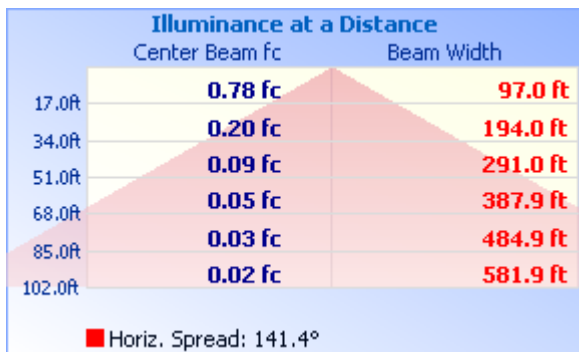
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### Photometric Data



### Illuminance Plots



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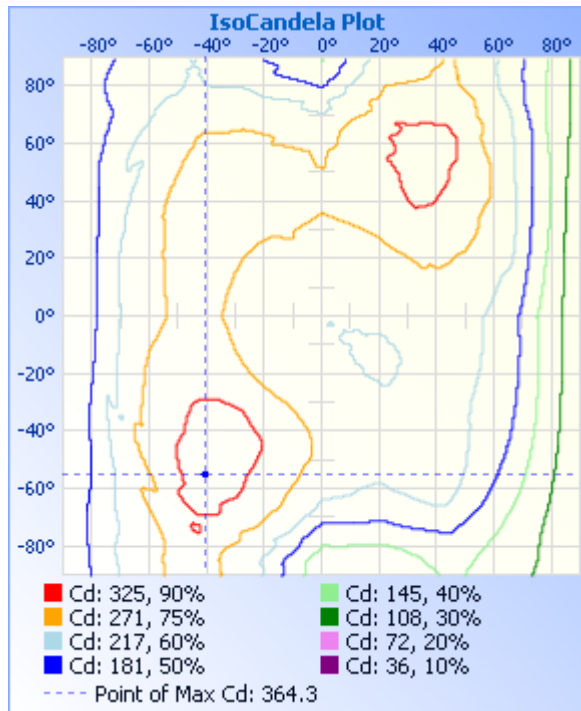
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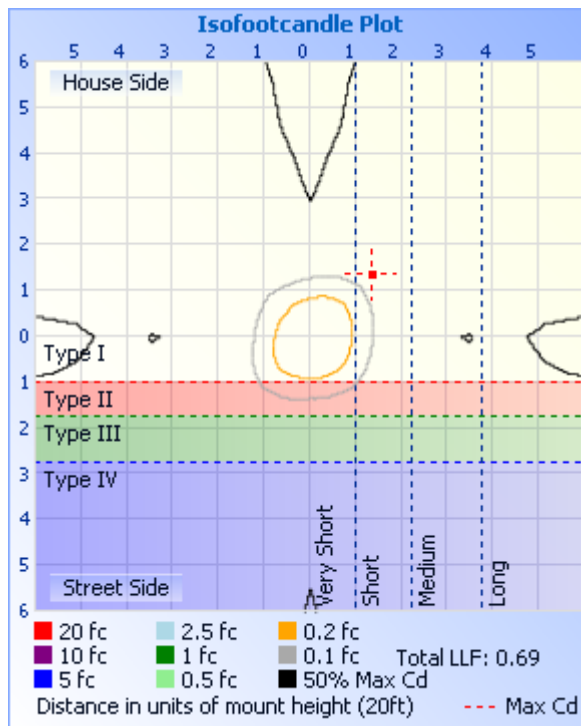
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### ISOCANDELA DIAGRAM



### 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	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226
1	224	224	225	226	227	226	226	225	225	224	224	224	224	224	224	224	224
2	224	222	221	222	225	225	224	221	220	219	219	219	221	221	221	223	224
3	225	223	220	220	224	225	221	218	219	217	215	216	220	219	219	223	225
4	225	224	223	222	226	225	220	219	221	218	215	217	222	220	221	225	225
5	223	222	225	224	227	225	224	225	224	219	216	217	225	223	227	226	223
6	225	222	225	225	228	225	228	228	224	220	220	217	223	222	230	225	225
7	227	225	224	226	231	226	230	226	220	218	222	218	221	221	230	226	227
8	228	228	223	228	231	229	230	226	222	217	219	218	220	222	229	229	228
9	226	227	226	230	230	231	231	231	228	219	216	218	220	221	230	230	226
10	226	229	232	231	233	234	232	236	231	223	214	218	221	223	232	231	226
11	228	233	233	232	237	237	233	237	231	223	215	217	221	225	232	232	228
12	229	239	231	234	239	239	237	237	230	222	215	217	221	228	233	234	229
13	230	241	233	234	239	241	242	238	231	221	217	216	222	229	231	234	230
14	232	241	238	235	241	244	244	241	231	223	217	215	225	230	231	236	232
15	234	242	242	237	243	247	246	245	232	222	216	216	227	231	234	239	234
16	234	242	244	240	243	251	246	248	235	222	214	216	227	233	237	240	234
17	236	243	242	245	244	255	249	251	239	224	213	216	228	235	237	241	236
18	237	247	240	246	245	255	255	253	241	227	211	214	228	236	239	245	237
19	238	250	240	246	245	253	257	254	241	226	211	214	228	237	240	247	238
20	241	248	243	245	246	253	257	255	244	225	212	213	229	237	240	245	241
21	241	248	245	248	249	255	256	256	249	226	214	212	227	237	242	245	241
22	244	251	246	249	252	256	258	257	250	226	214	211	226	238	245	244	244
23	249	252	249	251	255	258	257	255	250	226	213	213	228	239	248	242	249
24	249	253	253	252	259	260	254	253	249	226	211	214	231	241	250	243	249
25	249	257	253	254	260	259	254	253	248	227	212	215	232	245	251	247	249
26	251	260	253	257	258	259	255	252	249	229	213	216	231	247	251	251	251
27	255	261	256	258	259	259	258	254	252	229	213	216	230	247	251	253	255
28	256	265	258	259	262	261	261	257	253	231	215	216	230	248	254	254	256
29	255	272	260	260	263	264	264	260	249	233	215	218	229	249	255	258	255

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30	256	274	263	264	264	266	268	264	248	232	215	217	226	251	260	260	256
31	260	272	265	266	264	267	270	268	249	233	214	217	228	251	265	262	260
32	264	273	265	266	266	271	275	269	249	236	214	218	231	252	266	265	264
33	267	275	268	267	269	274	280	273	250	239	217	220	232	257	268	269	267
34	268	279	272	272	269	280	284	277	249	239	221	221	231	257	276	273	268
35	269	282	276	277	271	285	289	280	249	240	223	223	232	259	282	278	269
36	271	286	281	279	273	286	293	282	253	240	223	224	233	262	286	284	271
37	273	287	284	279	277	288	298	287	255	242	224	226	235	266	288	284	273
38	276	287	286	280	279	294	305	290	256	244	227	228	236	271	292	287	276
39	277	286	291	283	279	298	312	293	256	244	230	229	235	274	294	288	277
40	278	287	295	284	280	300	319	297	259	242	234	229	236	273	299	287	278
41	277	288	299	283	282	301	323	300	259	242	237	229	237	270	299	288	277
42	277	290	301	284	285	305	325	302	258	242	240	229	236	273	302	292	277
43	277	292	302	287	287	307	331	302	260	240	241	229	236	278	308	294	277
44	278	291	304	287	287	310	336	304	260	239	242	230	236	281	311	297	278
45	281	289	305	286	284	312	338	310	258	240	244	231	235	278	316	300	281
46	282	289	305	286	284	314	343	314	259	236	245	232	236	279	318	304	282
47	281	289	308	285	284	314	348	315	259	234	245	231	235	279	322	306	281
48	281	287	309	289	284	314	351	317	258	234	246	229	234	279	326	307	281
49	280	288	311	291	286	314	353	315	257	233	247	228	232	279	330	308	280
50	275	291	313	291	283	317	358	312	256	233	247	228	230	277	332	307	275
51	271	289	313	288	281	317	359	314	252	232	248	227	227	279	336	306	271
52	270	283	313	285	281	318	359	313	249	229	251	225	225	281	340	304	270
53	269	283	314	283	276	319	361	308	248	227	250	225	223	282	343	304	269
54	269	284	311	280	271	317	360	311	244	226	250	224	221	282	343	306	269
55	268	284	308	277	268	314	362	311	242	223	249	222	219	281	343	310	268
56	267	284	308	275	268	313	362	308	243	222	249	219	217	280	345	314	267
57	268	286	308	278	264	315	359	309	237	220	247	218	214	281	346	318	268
58	264	288	306	278	261	311	359	306	237	217	246	215	211	280	346	321	264
59	261	284	303	275	258	307	358	304	232	217	243	214	206	280	346	319	261
60	256	282	300	273	258	308	363	304	229	216	239	212	203	277	350	318	256
61	251	276	296	272	258	307	361	302	226	210	240	211	198	275	348	315	251

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62	252	271	297	273	252	308	364	302	221	213	238	210	195	272	348	312	252
63	255	271	294	270	246	308	362	300	218	211	238	208	191	272	345	318	255
64	254	275	291	268	241	308	363	299	213	209	234	206	190	269	344	323	254
65	251	273	290	262	235	301	364	298	211	207	233	205	190	270	348	322	251
66	241	268	287	255	232	296	360	298	209	203	233	204	189	273	351	316	241
67	239	267	283	254	231	297	354	296	203	201	231	202	188	273	349	314	239
68	240	268	280	255	223	290	352	291	199	198	230	199	184	272	349	313	240
69	239	263	275	251	217	280	349	285	194	194	229	195	178	267	345	321	239
70	223	258	273	247	222	286	343	280	189	189	226	194	170	262	348	321	223
71	208	244	274	246	225	302	340	279	186	185	223	192	164	259	350	295	208
72	205	238	268	244	208	300	351	276	179	182	218	186	158	255	343	282	205
73	207	239	260	224	182	256	360	271	172	179	215	181	153	245	325	280	207
74	225	243	254	212	180	242	339	270	166	174	212	176	148	244	313	303	225
75	209	242	250	217	188	253	315	267	161	169	207	172	143	238	316	315	209
76	189	224	245	225	191	267	315	259	157	164	201	167	139	231	331	286	189
77	185	214	240	227	196	271	328	244	155	158	194	163	133	233	331	270	185
78	191	216	236	221	183	263	334	238	150	153	188	157	129	225	310	275	191
79	188	218	235	212	171	248	332	246	145	148	184	152	125	225	305	283	188
80	180	214	241	206	169	243	321	247	143	144	179	148	120	221	309	280	180
81	174	211	237	206	169	241	314	240	140	141	175	143	116	221	305	273	174
82	171	203	223	204	167	238	305	236	134	136	172	139	114	215	296	266	171
83	165	199	220	199	164	238	302	229	129	131	170	134	109	211	287	261	165
84	160	192	221	191	155	232	307	221	125	127	166	129	104	202	281	259	160
85	156	188	220	192	153	231	303	222	119	123	163	124	97	194	279	254	156
86	156	191	219	195	153	233	305	219	117	121	161	120	93	193	280	253	156
87	154	194	220	196	155	235	305	224	115	120	158	118	92	193	278	254	154
88	149	191	217	197	153	233	301	228	114	118	155	117	92	190	276	249	149
89	143	185	217	193	150	230	304	228	114	116	153	116	92	193	275	246	143
90	144	184	219	189	146	229	306	224	111	111	153	113	92	195	275	244	144
91	135	177	214	184	142	220	293	185	92	96	142	111	91	192	265	224	135
92	113	147	200	177	137	207	259	160	84	85	123	104	90	181	232	180	113
93	92	118	180	162	126	185	228	118	72	68	111	90	79	147	188	148	92

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94	69	87	158	149	114	168	207	91	46	51	89	82	64	127	170	99	69
95	52	68	133	139	106	157	177	66	52	41	79	76	68	121	142	85	52
96	56	72	110	123	98	143	136	54	38	39	65	67	63	110	104	78	56
97	60	77	94	110	91	120	107	76	61	50	61	52	54	75	90	93	60
98	75	90	82	95	81	102	80	98	68	53	77	46	40	58	72	122	75
99	82	94	79	81	75	85	63	108	80	51	79	43	36	56	70	124	82
100	80	91	73	70	62	80	65	113	69	44	78	40	35	49	87	122	80
101	70	78	71	66	57	77	74	103	69	41	78	38	37	41	88	106	70
102	64	79	68	64	60	73	76	96	60	44	79	37	30	38	85	101	64
103	64	78	63	62	61	77	74	96	61	46	67	40	30	45	78	92	64
104	64	78	62	63	64	77	60	84	69	44	59	42	35	53	68	89	64
105	65	76	61	63	64	77	61	68	54	41	54	43	41	49	59	84	65
106	64	71	61	61	66	81	60	61	47	41	49	40	43	52	54	74	64
107	58	64	57	64	65	79	60	58	45	40	48	38	45	53	43	66	58
108	54	57	54	70	69	82	57	56	44	39	45	32	45	60	38	58	54
109	48	53	51	66	71	80	55	53	44	37	41	28	41	51	34	51	48
110	46	49	47	62	76	74	54	49	42	36	38	24	37	40	34	46	46
111	44	45	46	57	70	68	54	43	36	35	37	22	31	34	34	43	44
112	42	41	46	53	66	61	54	40	36	34	37	20	26	26	34	42	42
113	40	38	47	50	60	49	53	40	34	32	38	18	21	21	34	40	40
114	38	35	48	45	54	42	54	38	33	32	38	18	18	18	34	38	38
115	36	33	49	40	48	37	53	37	32	30	38	18	18	17	34	37	36
116	35	30	47	36	42	34	50	35	31	29	37	18	18	17	34	35	35
117	33	29	47	36	39	33	47	33	30	28	35	19	19	18	34	34	33
118	32	28	46	35	36	33	45	35	28	27	34	21	21	19	34	32	32
119	31	27	45	37	36	33	44	30	27	25	31	22	23	20	32	31	31
120	30	26	42	36	36	33	40	28	25	23	29	22	24	21	30	29	30
121	28	25	39	35	37	34	37	26	24	21	27	23	25	21	28	28	28
122	27	23	36	36	38	35	34	24	23	19	25	23	26	22	27	26	27
123	26	22	34	37	38	35	31	22	21	17	23	24	27	22	25	24	26
124	24	20	31	36	38	35	29	20	19	15	21	24	27	23	23	22	24
125	23	19	29	37	39	35	27	19	18	13	19	23	27	23	20	20	23

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126	22	18	27	35	39	35	25	17	16	12	18	22	27	22	19	18	22
127	20	16	25	32	39	34	24	16	15	10	16	21	26	20	17	17	20
128	18	15	23	30	38	33	22	15	14	8	14	19	25	19	14	14	18
129	16	13	21	29	36	32	21	14	11	6	12	18	23	18	13	13	16
130	10	12	19	27	34	31	19	12	6	6	11	17	21	17	11	12	10
131	4	11	17	26	33	30	18	11	2	6	9	16	20	16	9	11	4
132	4	10	15	25	31	28	17	10	4	5	7	15	18	15	8	10	4
133	8	9	13	24	30	27	16	9	7	4	6	14	17	14	7	8	8
134	9	7	12	23	28	26	15	7	6	4	6	12	16	13	6	7	9
135	8	6	11	22	27	24	14	6	6	3	5	12	15	12	6	6	8
136	7	5	11	20	26	23	14	5	5	3	5	11	14	12	6	5	7
137	6	4	10	19	24	22	13	3	4	2	4	10	13	11	5	4	6
138	5	3	10	18	23	21	12	2	3	1	4	9	12	10	5	2	5
139	4	2	9	17	22	19	11	0	2	0	4	8	11	10	5	1	4
140	3	1	9	16	20	18	10	0	1	0	3	8	10	9	4	0	3
141	2	0	8	15	19	17	10	0	0	0	3	7	10	8	4	0	2
142	1	0	7	14	18	16	9	0	0	0	2	7	9	8	4	0	1
143	0	0	6	14	17	15	8	0	0	0	2	6	8	7	3	0	0
144	0	0	6	13	16	14	8	0	0	0	1	5	7	7	3	0	0
145	0	0	5	12	15	13	7	0	0	0	1	5	7	6	3	0	0
146	0	0	4	11	14	12	7	0	0	0	0	5	7	6	2	0	0
147	0	0	4	10	13	11	6	0	0	0	0	4	6	5	2	0	0
148	0	0	3	9	12	10	5	0	0	0	0	3	6	4	2	0	0
149	0	0	2	8	10	9	5	0	0	0	0	3	5	4	1	0	0
150	0	0	2	7	9	8	4	0	0	0	0	2	4	4	1	0	0
151	0	0	1	6	8	7	4	0	0	0	5	2	4	3	0	0	0
152	0	0	0	5	7	6	3	0	0	0	5	3	3	3	0	0	0
153	0	0	0	5	6	6	2	0	0	0	0	14	3	2	0	0	0
154	0	0	0	4	5	5	1	0	0	0	1	24	2	2	0	0	0
155	0	0	0	3	4	4	1	0	0	0	0	21	7	1	0	0	0
156	0	0	0	2	3	3	0	0	0	0	4	3	5	1	0	0	0
157	0	0	0	1	2	2	0	0	0	0	4	12	1	4	0	0	0

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158	0	0	0	0	1	1	0	0	0	0	7	17	1	5	0	2	0
159	0	0	0	0	0	0	0	0	0	0	7	17	0	4	0	5	0
160	0	0	0	0	0	0	0	0	0	0	5	7	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	4	8	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	7	7	0	0	4	0	0
163	0	0	0	0	0	0	0	0	0	0	3	2	0	0	5	0	0
164	0	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	0
165	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	0
166	0	0	0	0	0	1	2	0	0	0	5	0	8	0	0	0	0
167	0	0	0	0	3	0	5	0	10	0	0	0	12	0	0	0	0
168	0	6	0	0	0	0	5	6	9	0	0	1	7	0	0	0	0
169	0	5	0	0	0	0	3	6	3	0	0	1	22	0	0	0	0
170	0	0	0	0	2	4	7	2	0	0	0	0	21	0	0	2	0
171	0	9	0	0	0	0	8	7	0	0	0	0	20	0	0	11	0
172	0	14	0	0	0	0	8	7	0	0	0	0	13	0	0	19	0
173	0	12	0	0	0	0	1	0	0	0	0	1	4	0	0	7	0
174	0	0	0	0	0	0	0	0	0	0	0	0	3	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

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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>	2016-04-05	<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 %
GZE160245	120.0	60	0.2219	26.05	0.9785	13.45
-E2	277.0	60	0.1039	26.01	0.9041	18.81

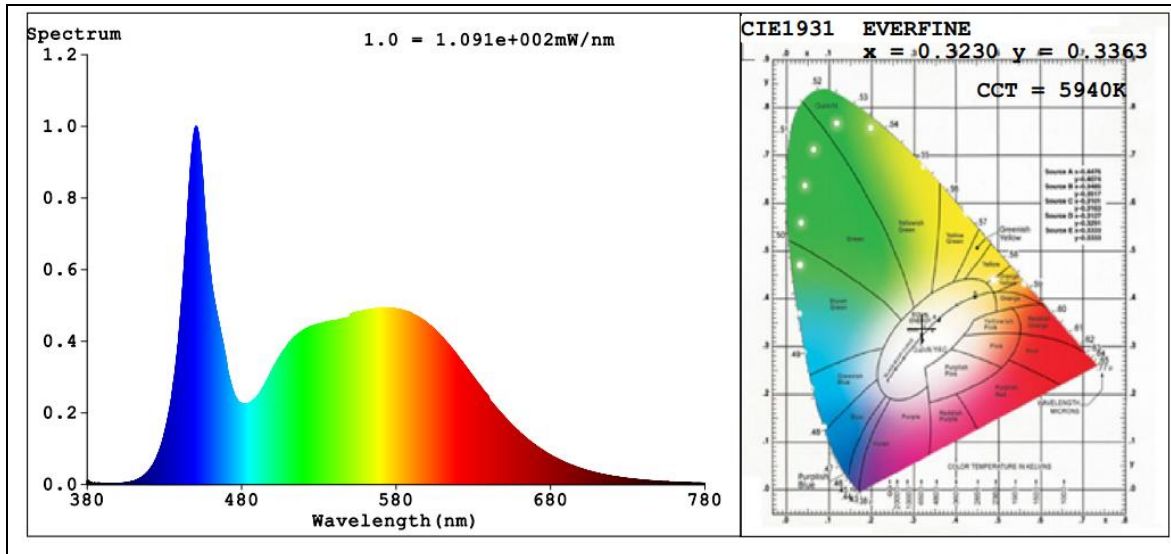
**Sphere-Spectroradiometer Method in LITHONIA VRC70ML 120/277M6:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	3
Frequency (Hz)	60	R2	87	R10	70
Color Rendering Index (CRI)	82.6	R3	91	R11	82
R9	3	R4	83	R12	59
CCT (K)	5940	R5	82	R13	83
Chromaticity (x, y)	x=0.3230 y=0.3363	R6	82	R14	95
Chromaticity (u', v')	u'=0.2022 v'=0.4737	R7	87	R15	76
Duv	0.0019	R8	68	--	--
Total Luminous (lm)	1992				
Luminous Efficacy (lm/W)	76.47				

**Sphere-Spectroradiometer Method in LITHONIA VRC70ML 120/277M6:**

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1987
Luminous Efficacy (lm/W)	76.39

**Spectral Power Distribution & Chromaticity Diagram**



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