



NVLAP LAB CODE 201011-0

Report No.: GZE150406-H

## LM-79-08 Test Report

For

**Premium Quality Lighting, Inc.**

**(Brand Name: Superior Life®)**

2285 Ward Avenue  
Simi Valley, CA 93065

### **Outdoor Pole/Arm-Mounted Area and Roadway Luminaires**

Model name(s): 83511

Representative (Tested) Model: 83513 (3000K)  
83511 (5000K)

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

Test & Report By:

*Sean Zhuo*

Engineer: Sean Zhuo

Date: May.12,2015

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: 8th floor, Block B, No. 11 Caipin Road, Guangzhou Science City, Tianhe, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

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	May.12,2015
Test Report No.	GZE150406-H
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	Premium Quality Lighting, Inc.	
Brand Name	Superior Life®	
Model Number	83513 (3000K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	
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**

	Integrating Sphere	Goniophotometer	
Input Wattage	--	75.74	W
Input Current	--	0.6365	A
Input Voltage (ac)	--	120.2	V
Power Factor	--	0.9903	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	7536.7	lm
Initial Lumen Efficacy	--	99.50	lm/w
Correlated color temperature / CCT	3115	--	K
Color rendering index / CRI	74.4	--	
R9 Value	0	--	
Duv	0.0008	--	

**Luminous Intensity Distribution**

Center beam candlepower (if applicable)	-----	6556	cd
Beam angle (if applicable)		75.6	°
Zonal lumens in the 0°-60° zone		92	%
Zonal lumens in the 60°-90° zone		7.9	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0.1	%

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Date of Test Report	May.12,2015
Test Report No.	GZE150406-H
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	Premium Quality Lighting, Inc.	
Brand Name	Superior Life®	
Model Number	83511 (5000K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	
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	75.32	--	W
Input Current	0.6327	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9921	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	8040	--	lm
Initial Lumen Efficacy	106.74	--	lm/w
Correlated color temperature / CCT	5203	--	K
Color rendering index / CRI	75.4	--	
R9 Value	0	--	
Duv	-0.0004	--	

**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			%

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Test Specifications:	
Date of Receipt	: Apr.14,2014
Date of Test	: Apr.21,2014
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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 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 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. 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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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 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	83511
Luminaire Type	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Rated Voltage / Frequency	110 ~ 240/277Vac, 50/60Hz
Nominal Power	80W
Rated Initial Lamp Lumen	--
Declared CCT	3000K,3500K,4000K,4500K,5000K
LED Manufacturer	SAMSUNG ELECTRONICS Co.,Ltd
LED Model	LH351B
Sample Receipt Date	Apr.14,2015
Sample Number	GZE150406-H1(3000K),H2(5000K)

**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>	2015-04-21	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	83513 (3000K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150406	120.2	60	0.6365	75.74	0.9903	8.66
-H1	277.1	60	0.2916	75.41	0.9335	13.54

**Sphere-Spectroradiometer Method:**

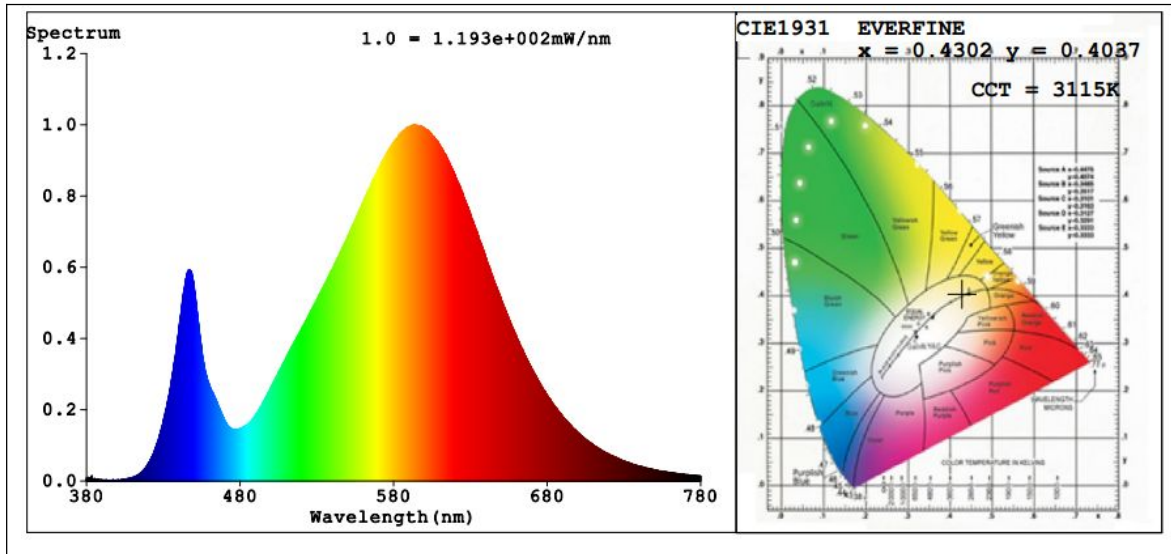
Parameter	Result
Test Voltage (V)	120.2
Frequency (Hz)	60
Color Rendering Index (CRI)	74.4
R9	0
CCT (K)	3115
Chromaticity (x, y)	x=0.4302 y=0.4037
Chromaticity (u', v')	u'=0.2464 v'=0.5202
Duv	0.0008

Special Color Rendering Indices			
R1	71	R9	0
R2	83	R10	61
R3	94	R11	66
R4	71	R12	54
R5	70	R13	73
R6	76	R14	96
R7	80	R15	64
R8	50	--	--

**Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.2
Frequency (Hz)	60
Total Luminous (lm)	7536.7
Luminous Efficacy (lm/W)	99.50
Beam Angle°	75.6
Center Beam Candle Power (cd)	6556
S/MH(C0/180)	1.78
S/MH(C90/270)	0.68

**Spectral Power Distribution & Chromaticity Diagram**



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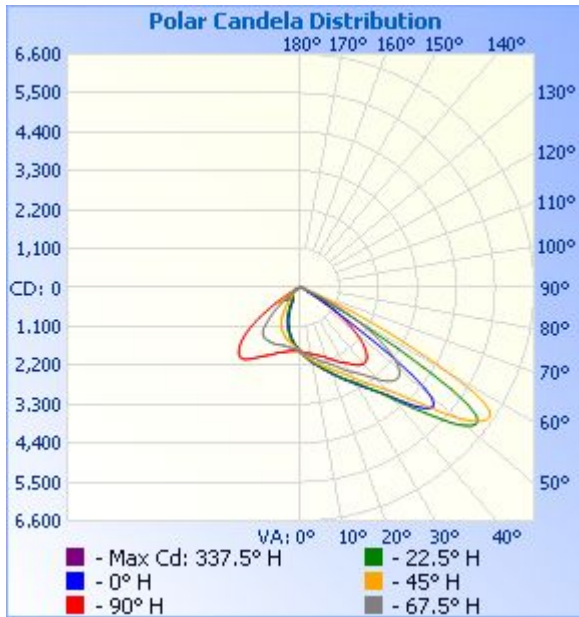
<b>Zonal Lumen Tabulation</b>
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Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	1,623.9	21.5%	21.6%
0-40	2,995.8	39.7%	39.8%
0-60	6,933.1	92%	92%
60-90	593.4	7.9%	7.9%
70-100	118.5	1.6%	1.6%
90-120	1.4	0%	0%
0-90	7,526.5	99.9%	99.9%
90-180	9.1	0.1%	0.1%
0-180	7,535.6	100%	100%

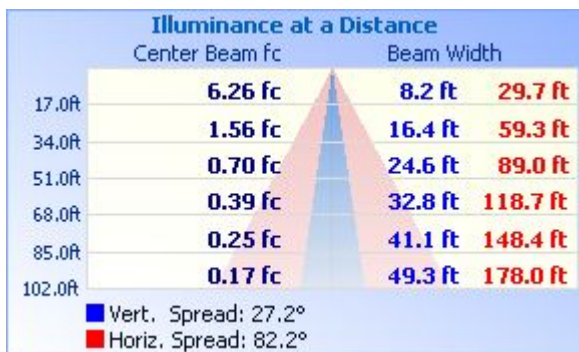
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	174.4	2.3%	90-100	0	0%
10-20	532.7	7.1%	100-110	0.2	0%
20-30	916.8	12.2%	110-120	1.2	0%
30-40	1,371.9	18.2%	120-130	2.0	0%
40-50	1,983.4	26.3%	130-140	2.1	0%
50-60	1,953.9	25.9%	140-150	1.5	0%
60-70	474.9	6.3%	150-160	1.1	0%
70-80	98.2	1.3%	160-170	0.7	0%
80-90	20.3	0.3%	170-180	0.3	0%



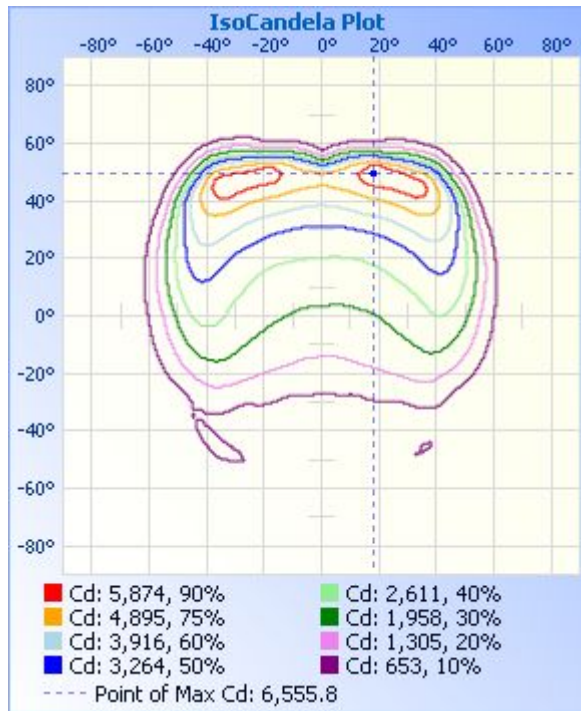
### Photometric Data



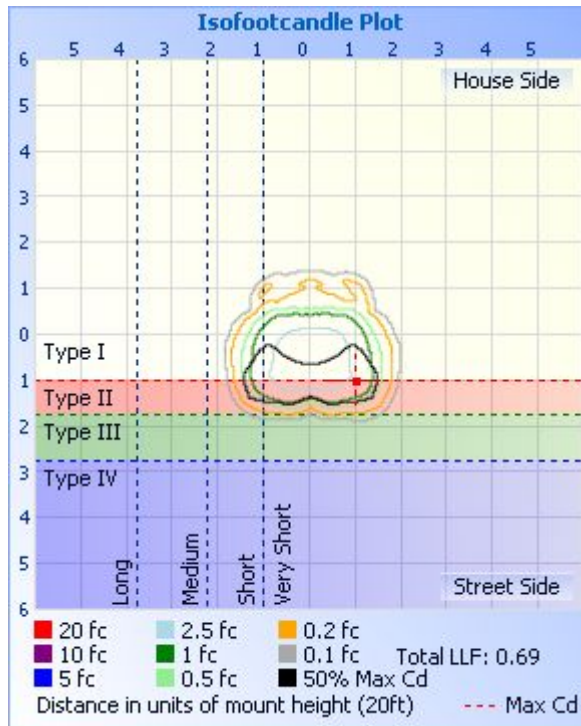
### Illuminance Plots



### 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	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808	1808
1	1845	1845	1838	1824	1815	1800	1783	1775	1771	1772	1781	1793	1802	1817	1832	1843	1845
2	1885	1884	1867	1840	1821	1792	1759	1744	1736	1738	1756	1779	1798	1828	1858	1878	1885
3	1923	1922	1897	1857	1828	1784	1738	1715	1704	1707	1731	1768	1795	1841	1882	1914	1923
4	1959	1959	1928	1874	1836	1776	1717	1686	1671	1676	1707	1755	1795	1856	1907	1948	1959
5	1994	1995	1958	1892	1846	1771	1697	1656	1637	1647	1684	1744	1796	1871	1931	1981	1994
6	2032	2032	1990	1912	1857	1768	1676	1627	1603	1616	1662	1736	1798	1886	1955	2013	2032
7	2069	2069	2021	1933	1869	1768	1656	1594	1566	1585	1640	1732	1802	1902	1982	2047	2069
8	2108	2104	2055	1958	1881	1769	1637	1562	1528	1553	1620	1727	1806	1921	2010	2081	2108
9	2142	2140	2090	1984	1894	1770	1619	1530	1491	1521	1602	1721	1813	1940	2037	2116	2142
10	2176	2174	2121	2010	1908	1773	1602	1496	1452	1488	1586	1716	1821	1962	2062	2148	2176
11	2208	2206	2153	2037	1922	1776	1584	1461	1412	1456	1569	1714	1832	1987	2089	2180	2208
12	2241	2238	2184	2062	1937	1782	1568	1423	1370	1416	1552	1713	1844	2011	2120	2209	2241
13	2280	2274	2216	2090	1953	1788	1552	1384	1326	1375	1536	1710	1857	2036	2151	2237	2280
14	2318	2313	2246	2120	1973	1792	1537	1347	1282	1335	1520	1704	1869	2059	2182	2270	2318
15	2361	2351	2273	2147	1990	1796	1521	1311	1238	1298	1504	1701	1883	2084	2213	2306	2361
16	2408	2391	2298	2173	2007	1798	1504	1273	1194	1259	1486	1701	1898	2111	2244	2344	2408
17	2449	2432	2328	2197	2024	1798	1485	1236	1150	1222	1465	1703	1914	2138	2274	2388	2449
18	2492	2470	2361	2223	2046	1801	1469	1197	1103	1184	1442	1707	1930	2170	2307	2431	2492
19	2537	2515	2398	2249	2072	1805	1452	1158	1057	1144	1419	1713	1947	2203	2346	2475	2537
20	2583	2559	2435	2277	2101	1810	1433	1118	1010	1102	1395	1719	1969	2237	2388	2518	2583
21	2633	2610	2475	2306	2131	1813	1411	1076	961	1058	1372	1726	1994	2274	2432	2562	2633
22	2687	2662	2515	2340	2163	1814	1387	1031	908	1014	1348	1733	2019	2311	2478	2608	2687
23	2743	2716	2553	2381	2194	1817	1361	984	851	968	1321	1742	2046	2348	2527	2658	2743
24	2796	2771	2599	2425	2231	1824	1334	933	793	917	1293	1750	2075	2390	2573	2713	2796
25	2850	2826	2647	2473	2273	1831	1304	881	733	865	1263	1753	2102	2434	2624	2769	2850
26	2904	2879	2693	2525	2312	1838	1274	827	673	810	1231	1753	2128	2477	2674	2824	2904
27	2960	2929	2742	2574	2348	1847	1242	770	614	752	1198	1755	2155	2518	2722	2880	2960
28	3020	2983	2799	2624	2383	1858	1208	712	559	693	1162	1757	2187	2556	2776	2940	3020
29	3083	3038	2858	2679	2419	1865	1171	654	510	637	1123	1757	2222	2596	2834	3001	3083

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30	3150	3096	2930	2726	2453	1872	1131	599	468	582	1078	1756	2256	2641	2896	3067	3150
31	3222	3162	3004	2772	2485	1879	1088	547	438	531	1032	1757	2291	2693	2960	3145	3222
32	3295	3249	3079	2821	2521	1887	1041	501	417	484	986	1759	2329	2746	3027	3224	3295
33	3368	3337	3154	2873	2564	1894	991	464	403	445	937	1756	2368	2800	3093	3325	3368
34	3441	3425	3230	2928	2614	1901	938	433	393	412	885	1754	2412	2857	3160	3426	3441
35	3519	3518	3307	2987	2659	1901	881	409	384	388	829	1751	2458	2916	3225	3528	3519
36	3604	3617	3384	3054	2705	1896	825	390	379	370	772	1744	2498	2975	3320	3654	3604
37	3698	3723	3465	3128	2742	1886	769	376	376	356	714	1733	2536	3044	3415	3783	3698
38	3803	3845	3552	3210	2767	1868	714	366	373	346	656	1719	2568	3126	3510	3912	3803
39	3926	3980	3654	3293	2784	1843	659	356	368	337	600	1697	2589	3218	3627	4048	3926
40	4056	4129	3758	3376	2794	1808	607	349	366	330	546	1668	2602	3300	3747	4194	4056
41	4194	4287	3878	3468	2792	1762	559	344	364	326	497	1628	2603	3382	3874	4350	4194
42	4342	4458	4008	3549	2778	1707	512	340	362	323	454	1564	2587	3464	4019	4531	4342
43	4502	4637	4163	3619	2742	1650	471	333	358	320	418	1481	2562	3522	4190	4719	4502
44	4654	4825	4330	3674	2698	1582	436	324	355	316	388	1386	2523	3557	4386	4930	4654
45	4790	5026	4510	3719	2642	1502	405	318	354	311	362	1289	2467	3579	4595	5153	4790
46	4913	5243	4712	3744	2567	1411	378	312	359	308	339	1190	2397	3583	4817	5394	4913
47	4999	5472	4934	3750	2478	1311	353	308	381	307	322	1090	2327	3572	5044	5626	4999
48	5030	5690	5183	3741	2381	1206	334	305	447	305	311	991	2240	3549	5271	5861	5030
49	4985	5904	5435	3700	2263	1099	322	303	553	303	302	882	2136	3507	5506	6091	4985
50	4836	6069	5683	3643	2130	988	317	302	515	301	298	779	2023	3444	5720	6282	4836
51	4514	6200	5917	3561	1974	868	322	306	407	307	298	672	1896	3361	5902	6443	4514
52	3972	6276	6121	3450	1816	749	381	325	364	325	319	565	1752	3254	6038	6539	3972
53	3220	6275	6283	3308	1659	634	660	337	345	345	451	468	1593	3095	6128	6556	3220
54	2416	6133	6400	3142	1507	531	1018	321	326	322	686	383	1424	2899	6166	6421	2416
55	1641	5777	6469	2957	1356	439	1049	295	302	296	777	314	1258	2677	6140	6046	1641
56	1222	5147	6468	2743	1217	360	929	276	285	281	722	260	1109	2442	6006	5412	1222
57	807	4184	6361	2530	1082	298	784	264	269	265	604	223	969	2213	5711	4472	807
58	578	3218	6089	2309	954	250	666	254	258	251	446	195	840	1971	5263	3369	578
59	421	2258	5634	2088	829	216	554	240	249	236	325	176	721	1724	4675	2375	421
60	317	1756	4908	1804	715	191	445	226	238	222	260	161	601	1456	3925	1606	317
61	257	1265	4130	1554	613	174	346	214	228	210	222	150	503	1187	3185	1214	257

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62	219	775	3411	1306	522	160	274	206	220	201	198	142	422	939	2536	829	219
63	190	562	2734	1057	444	150	225	199	213	196	178	136	357	715	1952	615	190
64	169	444	2083	835	378	143	197	194	208	189	162	132	304	494	1543	484	169
65	156	368	1653	616	325	137	179	186	203	180	151	127	260	314	1136	401	156
66	148	306	1230	413	279	132	164	177	197	170	141	122	223	203	729	333	148
67	143	256	808	260	239	127	150	167	191	160	134	116	195	150	532	275	143
68	141	213	586	181	206	121	141	158	185	150	128	111	170	128	408	230	141
69	138	179	436	141	179	116	133	150	179	142	121	106	147	116	315	188	138
70	134	153	335	122	157	111	127	143	174	136	114	101	127	107	242	156	134
71	130	134	258	111	136	105	120	136	170	129	107	95	110	99	179	133	130
72	128	118	197	102	120	100	112	130	167	122	98	90	99	92	132	114	128
73	132	105	149	94	106	94	104	123	165	115	89	84	89	85	99	100	132
74	144	95	115	86	95	89	95	115	164	107	79	79	81	79	80	89	144
75	152	86	89	80	86	83	86	108	161	100	71	73	74	74	67	80	152
76	143	78	70	73	77	78	76	101	141	93	64	67	68	66	56	72	143
77	130	70	58	68	70	72	68	92	106	81	57	61	62	57	49	65	130
78	115	63	49	61	63	66	60	77	93	70	51	54	56	49	43	58	115
79	99	57	43	53	58	59	54	70	86	64	45	47	50	42	37	50	99
80	81	50	37	45	51	52	47	64	80	56	35	40	44	36	31	43	81
81	62	43	32	38	45	45	38	56	73	49	30	34	38	30	26	36	62
82	45	34	27	32	40	39	32	49	66	43	26	29	33	26	20	28	45
83	31	27	21	28	34	33	27	43	57	36	21	24	27	21	15	21	31
84	18	20	16	23	28	28	23	36	48	30	17	18	21	16	10	14	18
85	5	11	11	19	22	22	18	30	38	24	13	13	15	11	5	4	5
86	0	2	6	14	16	16	14	23	28	18	8	6	7	6	1	0	0
87	0	0	2	9	8	9	9	13	9	5	3	1	1	1	0	0	0
88	0	0	0	4	2	3	3	1	1	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
105	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
106	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
107	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0
108	0	0	0	0	0	2	1	0	1	2	1	0	0	0	0	0	0
109	0	0	0	0	0	2	1	0	2	3	1	0	0	0	0	0	0
110	0	0	0	0	1	2	1	0	2	3	1	0	0	0	0	0	0
111	0	0	0	0	1	3	1	0	2	3	1	0	0	0	0	0	0
112	0	0	0	0	1	3	2	0	3	4	1	0	0	0	0	0	0
113	0	0	0	0	1	3	2	0	3	4	2	0	0	0	0	0	0
114	0	0	0	0	1	4	2	0	3	4	2	0	0	0	0	0	0
115	0	0	0	0	2	4	3	1	4	4	2	0	0	0	0	0	0
116	0	0	0	0	1	2	4	3	1	4	4	2	0	0	0	0	0
117	0	0	0	0	1	2	4	3	1	4	4	2	0	0	0	0	0
118	0	0	0	0	1	2	4	3	2	4	5	2	0	0	0	0	0
119	0	0	0	0	1	3	4	4	2	5	5	2	0	0	0	0	0
120	0	0	0	0	1	3	4	4	3	5	5	3	0	0	0	0	0
121	0	0	0	0	1	3	5	4	3	5	5	3	0	0	0	0	0
122	0	0	0	0	2	3	5	4	4	5	6	3	1	0	0	0	0
123	0	0	0	0	2	4	5	4	4	5	6	3	1	0	0	0	0
124	0	0	0	0	2	4	5	4	5	6	6	3	1	0	0	0	0
125	0	0	0	0	2	4	5	4	5	6	6	3	1	0	0	0	0

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126	0	0	0	0	2	4	5	4	5	6	6	4	1	0	0	0	0
127	0	0	0	0	2	4	5	5	6	6	6	4	1	0	0	0	0
128	0	0	0	0	3	4	5	5	6	6	6	4	2	0	0	0	0
129	0	0	0	0	3	4	5	5	6	7	6	4	2	0	0	0	0
130	0	0	0	0	3	4	5	5	6	7	6	4	2	0	0	0	0
131	0	0	0	0	3	4	5	5	7	7	6	4	2	0	0	0	0
132	0	0	0	0	3	4	5	6	7	7	6	4	2	1	0	0	0
133	0	0	0	0	3	4	5	6	7	7	6	4	2	1	0	0	0
134	0	0	0	0	3	4	5	6	6	7	5	4	2	1	0	0	0
135	0	0	0	1	3	4	5	6	6	6	5	4	2	1	0	0	0
136	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
137	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
138	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
139	0	0	0	1	3	4	4	6	6	6	5	4	3	1	0	0	0
140	0	0	0	1	3	4	4	6	6	6	5	4	3	1	0	0	0
141	0	0	0	1	3	4	4	6	6	6	4	4	3	1	0	0	0
142	0	0	0	1	3	4	4	5	6	5	4	4	3	1	0	0	0
143	0	0	0	1	3	4	4	5	5	5	4	4	3	1	0	0	0
144	0	0	0	1	3	4	4	5	5	5	4	4	3	1	1	0	0
145	0	0	0	1	3	4	4	5	5	5	4	4	3	1	1	0	0
146	0	0	0	1	3	4	4	5	5	5	4	3	3	1	1	0	0
147	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
148	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
149	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
150	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
151	0	0	0	1	3	3	4	4	5	5	4	3	3	2	1	0	0
152	0	0	1	1	3	3	4	4	4	4	4	3	3	2	1	1	0
153	0	0	1	1	3	3	4	4	4	4	4	3	3	2	1	1	0
154	1	0	1	1	3	3	4	4	4	4	4	3	2	2	1	1	1
155	1	0	1	1	3	3	4	4	4	4	4	3	2	2	1	1	1
156	1	1	1	1	3	3	4	4	4	4	4	3	2	2	2	1	1
157	1	1	1	1	3	3	4	4	4	4	4	3	2	2	2	1	1

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158	1	1	1	1	3	3	3	4	4	4	4	3	2	2	2	1	1
159	1	1	1	1	3	3	3	4	4	4	4	3	2	2	2	1	1
160	1	1	1	1	3	3	3	4	4	4	4	3	3	2	2	1	1
161	1	1	1	1	3	3	3	4	4	4	4	3	3	2	2	1	1
162	1	1	1	1	3	3	3	3	4	4	3	3	3	2	2	1	1
163	1	1	1	1	3	3	3	3	4	4	3	3	3	2	2	2	1
164	2	1	1	1	3	3	3	3	3	4	3	3	3	2	2	2	2
165	2	2	1	2	3	3	3	3	3	4	3	3	3	2	2	2	2
166	2	2	1	2	3	3	3	3	3	3	3	3	3	2	2	2	2
167	2	2	1	2	3	3	3	3	3	3	3	3	3	2	2	2	2
168	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
169	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
170	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
171	2	2	2	2	3	3	3	3	3	3	3	3	3	2	3	2	2
172	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2
173	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2
174	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2
175	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
176	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
177	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
178	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3
179	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3
180	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3



## Test Voltage:277V

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150406 -H1	277.1	60	0.2916	75.41	0.9335	13.54

### Goniophotometer Method:

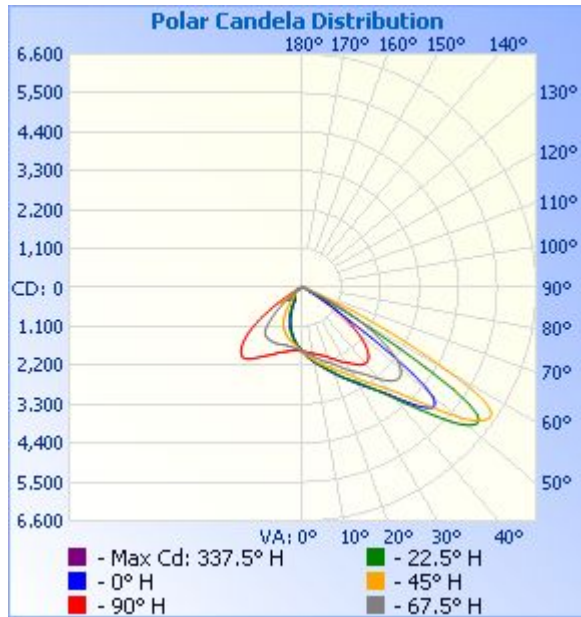
Parameter	Result
Test Voltage (V)	277.1
Frequency (Hz)	60
Total Luminous (lm)	7496.5
Luminous Efficacy (lm/W)	99.40
Beam Angle°	75.6
Center Beam Candle Power (cd)	6520
S/MH(C0/180)	1.78
S/MH(C90/270)	0.68

**Zonal Lumen Tabulation**

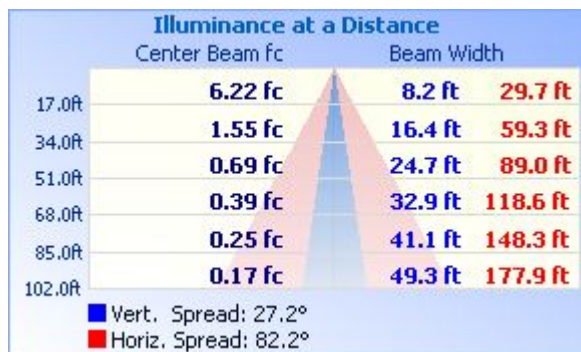
<b>Zonal Lumen Summary</b>			
Zone	Lumens	% Lamp	% Luminaire
0-30	1,615.0	21.5%	21.5%
0-40	2,979.8	39.7%	39.8%
0-60	6,896.6	92%	92%
60-90	590.0	7.9%	7.9%
70-100	117.9	1.6%	1.6%
90-120	1.3	0%	0%
0-90	7,486.5	99.9%	99.9%
90-180	8.9	0.1%	0.1%
0-180	7,495.4	100%	100%

<b>Lumens Per Zone</b>					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	173.4	2.3%	90-100	0	0%
10-20	529.8	7.1%	100-110	0.2	0%
20-30	911.7	12.2%	110-120	1.1	0%
30-40	1,364.9	18.2%	120-130	2.0	0%
40-50	1,973.4	26.3%	130-140	2.0	0%
50-60	1,943.3	25.9%	140-150	1.5	0%
60-70	472.0	6.3%	150-160	1.1	0%
70-80	97.8	1.3%	160-170	0.7	0%
80-90	20.2	0.3%	170-180	0.3	0%

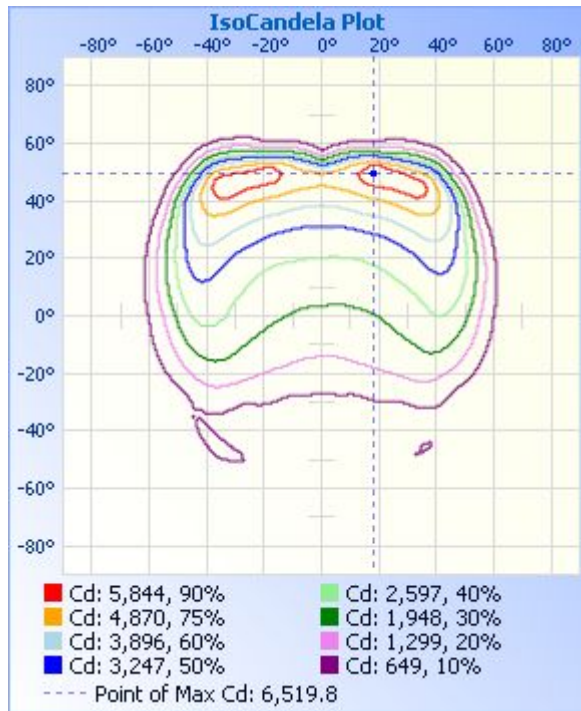
### Photometric Data



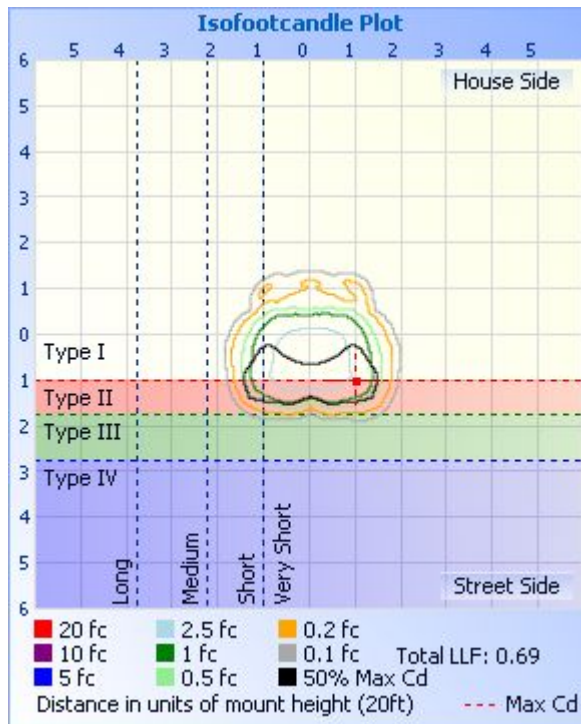
### Illuminance Plots



### 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	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797	1797
1	1836	1835	1827	1813	1805	1789	1772	1765	1761	1763	1771	1783	1792	1806	1822	1832	1836
2	1874	1873	1856	1830	1810	1782	1749	1734	1726	1729	1745	1770	1787	1817	1847	1868	1874
3	1913	1912	1886	1847	1818	1774	1728	1705	1695	1698	1721	1758	1784	1830	1872	1903	1913
4	1949	1949	1917	1864	1826	1767	1707	1676	1662	1668	1698	1745	1784	1845	1896	1937	1949
5	1984	1985	1948	1881	1835	1761	1687	1647	1628	1638	1674	1734	1785	1860	1920	1969	1984
6	2021	2022	1979	1901	1846	1758	1666	1617	1593	1607	1652	1727	1787	1876	1945	2002	2021
7	2058	2058	2010	1922	1858	1758	1647	1586	1557	1577	1630	1723	1791	1891	1970	2036	2058
8	2096	2093	2045	1947	1870	1759	1627	1553	1519	1544	1610	1718	1796	1910	1998	2071	2096
9	2131	2129	2078	1973	1882	1760	1610	1520	1482	1512	1593	1711	1803	1929	2026	2104	2131
10	2165	2163	2110	2000	1897	1762	1592	1487	1444	1479	1577	1707	1811	1950	2051	2137	2165
11	2198	2196	2142	2027	1910	1766	1575	1451	1403	1445	1560	1704	1821	1974	2077	2170	2198
12	2230	2228	2173	2052	1926	1772	1559	1414	1361	1407	1543	1704	1833	1999	2108	2199	2230
13	2268	2263	2204	2079	1942	1777	1543	1376	1318	1367	1527	1701	1846	2024	2138	2227	2268
14	2307	2302	2234	2108	1962	1782	1528	1338	1274	1328	1511	1695	1858	2048	2170	2259	2307
15	2349	2340	2263	2135	1978	1786	1512	1302	1230	1290	1495	1692	1872	2073	2201	2294	2349
16	2395	2379	2288	2162	1996	1788	1495	1265	1186	1252	1477	1691	1887	2099	2232	2332	2395
17	2437	2420	2317	2187	2013	1788	1477	1227	1142	1214	1456	1694	1903	2127	2262	2374	2437
18	2480	2459	2350	2212	2036	1790	1460	1189	1095	1176	1433	1699	1919	2158	2295	2418	2480
19	2525	2502	2387	2239	2062	1794	1444	1150	1050	1137	1410	1705	1936	2190	2332	2462	2525
20	2571	2547	2423	2266	2091	1798	1424	1110	1003	1094	1386	1711	1958	2224	2375	2506	2571
21	2619	2597	2462	2296	2121	1801	1402	1067	953	1050	1364	1717	1982	2261	2419	2549	2619
22	2675	2649	2501	2330	2152	1803	1378	1023	900	1007	1339	1724	2008	2299	2465	2596	2675
23	2730	2703	2540	2370	2184	1807	1352	976	843	960	1312	1732	2035	2336	2512	2644	2730
24	2782	2758	2585	2414	2220	1813	1324	925	786	910	1284	1740	2063	2377	2559	2699	2782
25	2836	2813	2633	2461	2264	1821	1295	873	725	857	1253	1743	2091	2421	2610	2755	2836
26	2889	2865	2678	2512	2302	1828	1265	819	666	802	1222	1744	2117	2465	2660	2809	2889
27	2945	2915	2728	2562	2338	1836	1233	763	608	745	1190	1746	2144	2505	2708	2867	2945
28	3006	2969	2783	2613	2374	1847	1198	704	553	686	1153	1747	2176	2543	2762	2925	3006
29	3068	3024	2843	2666	2410	1855	1161	647	504	631	1114	1747	2211	2582	2820	2986	3068

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30	3135	3081	2913	2714	2443	1861	1121	592	464	576	1069	1747	2245	2627	2881	3051	3135
31	3205	3147	2988	2761	2475	1869	1079	541	435	525	1024	1747	2279	2679	2945	3128	3205
32	3278	3234	3062	2808	2511	1877	1032	496	415	480	978	1749	2317	2731	3012	3216	3278
33	3352	3321	3138	2861	2556	1884	982	460	401	440	928	1746	2356	2786	3078	3314	3352
34	3425	3408	3214	2915	2605	1891	928	430	391	410	877	1743	2400	2843	3145	3412	3425
35	3503	3501	3291	2974	2650	1891	872	406	382	385	820	1740	2445	2902	3216	3511	3503
36	3587	3601	3367	3042	2694	1885	816	388	377	368	764	1733	2486	2960	3307	3637	3587
37	3681	3708	3447	3115	2731	1875	760	374	375	355	706	1723	2524	3029	3399	3764	3681
38	3786	3828	3534	3197	2757	1856	706	364	372	345	649	1709	2555	3107	3491	3893	3786
39	3909	3963	3636	3279	2772	1832	651	355	367	336	593	1686	2578	3193	3611	4027	3909
40	4038	4113	3741	3361	2781	1796	599	348	365	329	540	1657	2590	3277	3728	4177	4038
41	4176	4268	3860	3452	2778	1750	552	343	363	325	492	1617	2592	3360	3854	4329	4176
42	4323	4438	3990	3534	2764	1695	506	339	360	322	449	1553	2575	3444	3999	4509	4323
43	4481	4617	4142	3605	2728	1637	466	331	357	319	414	1469	2548	3506	4171	4697	4481
44	4630	4805	4311	3659	2684	1570	431	323	354	315	384	1375	2510	3541	4371	4907	4630
45	4767	5005	4488	3705	2627	1488	401	316	353	310	359	1279	2454	3562	4576	5130	4767
46	4889	5220	4690	3729	2553	1398	374	311	358	307	336	1179	2385	3568	4799	5365	4889
47	4974	5445	4911	3735	2462	1297	350	307	381	306	320	1080	2315	3557	5021	5597	4974
48	5004	5663	5160	3724	2365	1193	332	304	447	304	309	980	2228	3532	5251	5832	5004
49	4962	5877	5410	3688	2247	1086	320	302	551	302	301	874	2124	3489	5485	6061	4962
50	4809	6041	5656	3627	2113	974	315	301	512	300	296	770	2011	3425	5696	6248	4809
51	4492	6171	5889	3547	1959	856	321	305	405	306	296	664	1884	3343	5880	6408	4492
52	3954	6248	6093	3435	1801	737	385	325	363	325	316	558	1743	3238	6015	6506	3954
53	3201	6245	6253	3292	1644	624	675	336	344	345	453	460	1582	3079	6106	6520	3201
54	2405	6104	6371	3125	1493	522	1019	320	324	320	684	377	1415	2885	6142	6385	2405
55	1638	5757	6440	2942	1346	432	1040	293	301	295	774	310	1249	2657	6113	6010	1638
56	1217	5128	6437	2731	1205	354	918	275	284	280	715	258	1102	2432	5977	5382	1217
57	805	4165	6325	2516	1074	293	775	263	268	264	598	220	962	2198	5681	4447	805
58	576	3204	6053	2296	945	247	661	253	258	250	439	193	835	1963	5236	3329	576
59	418	2253	5599	2079	824	214	548	239	248	235	322	174	715	1717	4644	2346	418
60	316	1757	4870	1795	707	190	441	225	237	221	257	159	597	1449	3892	1582	316
61	256	1263	4096	1547	608	173	342	214	227	210	220	149	499	1181	3161	1197	256

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62	218	770	3388	1300	518	159	272	205	220	201	197	141	420	935	2526	824	218
63	189	561	2720	1053	441	149	223	199	212	195	177	136	355	712	1945	612	189
64	168	441	2063	830	376	142	197	193	207	189	162	131	302	491	1537	481	168
65	155	367	1639	613	323	137	179	186	202	179	150	126	259	312	1132	398	155
66	147	305	1217	411	276	132	164	176	196	170	141	121	223	203	728	331	147
67	143	255	795	258	237	126	150	166	190	159	134	116	193	150	529	274	143
68	140	212	583	181	205	121	140	157	184	150	127	111	169	128	404	229	140
69	138	178	432	140	178	115	133	150	179	142	121	106	146	115	312	187	138
70	133	152	333	122	155	110	126	143	174	135	114	100	126	106	240	155	133
71	129	133	256	110	135	105	120	136	170	128	106	95	110	98	177	132	129
72	127	118	195	102	119	99	112	129	166	122	97	89	99	92	131	113	127
73	132	105	148	93	105	94	104	122	164	114	88	84	89	85	99	99	132
74	143	94	114	86	95	88	95	115	164	107	79	79	80	79	79	88	143
75	151	85	88	79	85	83	85	108	161	100	71	73	74	73	67	80	151
76	142	77	70	73	77	77	76	101	141	92	63	67	68	66	56	72	142
77	130	70	58	67	70	72	68	92	106	80	56	60	62	57	49	64	130
78	115	63	49	61	63	65	60	77	93	69	50	54	56	49	42	57	115
79	99	56	43	53	57	59	54	70	86	63	44	47	50	43	37	50	99
80	81	50	37	45	51	52	47	64	80	56	35	39	44	36	31	42	81
81	62	42	32	38	45	45	38	56	73	49	30	34	38	30	25	35	62
82	45	34	26	32	39	38	32	49	65	42	25	29	33	26	20	28	45
83	31	26	21	28	34	33	27	42	57	36	21	24	27	21	15	21	31
84	18	20	16	23	28	28	22	36	48	30	17	18	21	17	10	14	18
85	5	11	11	19	22	22	18	29	38	24	13	13	15	12	5	4	5
86	0	2	6	14	16	16	14	23	27	18	8	6	7	6	1	0	0
87	0	0	2	9	8	9	9	12	8	5	2	1	1	1	0	0	0
88	0	0	0	4	2	3	2	1	1	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
105	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
106	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
107	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0
108	0	0	0	0	0	2	1	0	1	2	1	0	0	0	0	0	0
109	0	0	1	0	0	2	1	0	2	2	1	0	0	0	0	0	0
110	0	0	1	0	0	1	2	1	0	2	3	1	0	0	0	0	0
111	0	0	0	0	0	1	3	1	0	2	3	1	0	0	0	0	0
112	0	0	0	0	0	1	3	2	0	2	3	1	0	0	0	0	0
113	0	0	0	0	0	1	3	2	0	3	4	1	0	0	0	0	0
114	0	0	0	0	0	1	4	2	0	3	4	2	0	0	0	0	0
115	0	0	0	0	0	2	4	3	1	3	4	2	0	0	0	0	0
116	0	0	0	0	1	2	4	3	1	4	4	2	0	0	0	0	0
117	0	0	0	0	1	2	4	3	1	4	4	2	0	0	0	0	0
118	0	0	0	0	1	2	4	3	2	4	4	2	0	0	0	0	0
119	0	0	0	0	1	2	4	4	2	5	5	2	0	0	0	0	0
120	0	0	0	0	1	3	4	4	2	5	5	3	0	0	0	0	0
121	0	0	0	0	1	3	5	4	3	5	5	3	0	0	0	0	0
122	0	0	0	0	1	3	5	4	3	5	5	3	0	0	0	0	0
123	0	0	0	0	2	3	5	4	4	5	5	3	1	0	0	0	0
124	0	0	0	0	2	4	5	4	4	5	5	3	1	0	0	0	0
125	0	0	0	0	2	4	5	4	5	6	5	3	1	0	0	0	0

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126	0	0	0	0	2	4	5	4	5	6	5	4	1	0	0	0	0
127	0	0	0	0	2	4	5	4	6	6	5	4	1	0	0	0	0
128	0	0	0	0	2	4	5	5	6	6	5	4	1	0	0	0	0
129	0	0	0	0	2	4	5	5	6	6	5	4	2	0	0	0	0
130	0	0	0	0	3	4	5	5	6	7	5	4	2	0	0	0	0
131	0	0	0	0	3	4	5	5	6	7	6	4	2	0	0	0	0
132	0	0	0	0	3	4	5	6	6	7	5	4	2	1	0	0	0
133	0	0	0	0	3	4	5	6	6	7	5	4	2	1	0	0	0
134	0	0	0	0	3	4	5	6	6	7	5	4	2	1	0	0	0
135	0	0	0	0	3	4	5	6	6	7	5	4	2	1	0	0	0
136	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
137	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
138	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
139	0	0	0	0	3	4	5	6	6	6	5	4	2	1	0	0	0
140	0	0	0	0	3	4	4	5	6	6	4	4	3	1	0	0	0
141	0	0	0	1	3	4	4	5	5	5	4	4	3	1	0	0	0
142	0	0	0	1	3	4	4	2	5	5	4	4	3	1	0	0	0
143	0	0	0	1	3	4	4	5	5	5	4	4	3	1	0	0	0
144	0	0	0	1	3	4	4	5	5	5	4	4	3	1	0	0	0
145	0	0	0	1	3	3	4	5	5	5	4	3	3	1	0	0	0
146	0	0	0	1	3	3	4	4	5	5	4	3	3	1	0	0	0
147	0	0	0	1	3	3	4	4	5	5	4	3	3	1	0	0	0
148	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
149	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
150	0	0	0	1	3	3	4	4	5	5	4	3	3	1	1	0	0
151	0	0	0	1	3	3	4	4	4	4	4	3	3	2	1	0	0
152	0	0	0	1	3	3	4	4	4	4	4	3	3	2	1	0	0
153	0	0	1	1	3	3	3	4	4	4	4	3	3	2	1	0	0
154	0	0	1	1	3	3	3	4	4	4	4	3	2	2	1	0	0
155	0	0	1	1	3	3	3	4	4	4	4	3	2	2	1	1	0
156	1	0	1	1	3	3	3	4	4	4	4	3	2	2	1	1	1
157	1	1	1	1	3	3	3	4	4	4	4	3	5	2	1	1	1

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158	1	1	1	1	3	3	3	4	4	4	4	3	3	2	1	1	1
159	1	1	1	1	3	3	3	4	4	4	4	3	3	2	1	1	1
160	1	1	1	1	3	3	3	4	4	4	3	3	3	2	2	1	1
161	1	1	1	1	3	3	3	4	4	4	3	3	3	2	2	1	1
162	1	1	1	1	3	3	3	3	3	4	3	3	3	2	2	1	1
163	1	1	1	1	3	3	3	3	3	4	3	3	3	2	2	1	1
164	1	1	1	1	3	3	3	3	3	3	3	3	3	2	2	1	1
165	2	1	1	1	3	3	3	3	3	3	3	3	3	2	2	2	2
166	2	1	1	1	3	3	3	3	3	3	3	3	3	2	2	2	2
167	2	2	1	2	3	3	3	3	3	3	3	3	3	2	2	2	2
168	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
169	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
170	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
171	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2
172	2	2	2	2	3	3	3	3	3	3	3	3	3	2	3	2	2
173	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2
174	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2
175	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2
176	2	3	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2
177	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	3
178	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2
179	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
180	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

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<b>2.2 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>	2015-04-21	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	83511 (5000K)		

### Electrical Measurement:

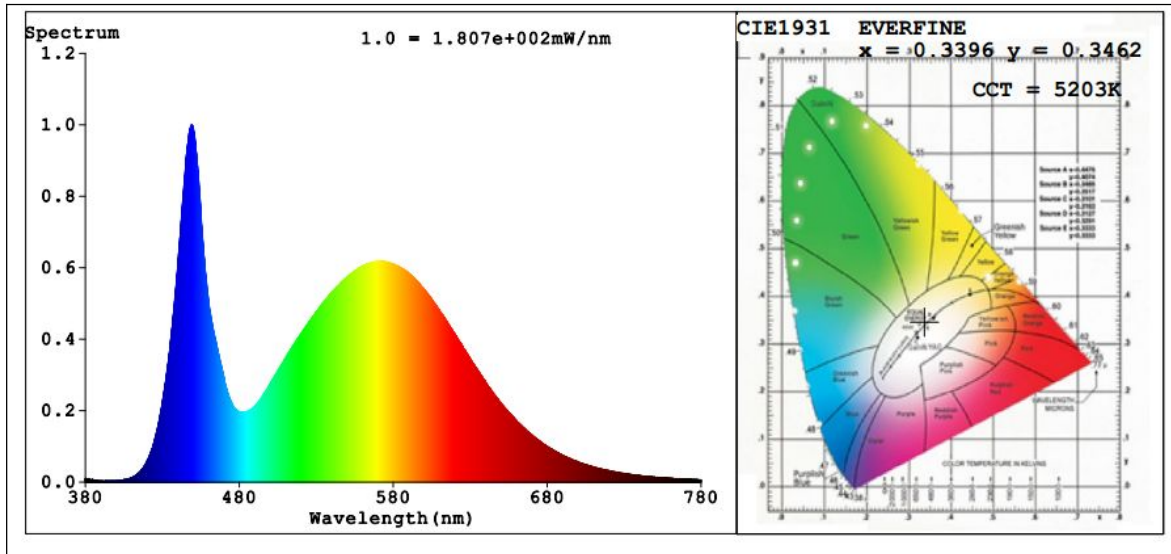
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150406	120.0	60	0.6327	75.32	0.9921	8.81
-H2	277.0	60	0.2975	75.01	0.9102	13.79

### Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	75.4
R9	0
CCT (K)	5203
Chromaticity (x, y)	x=0.3396 y=0.3462
Chromaticity (u', v')	u'=0.2098 v'=0.4812
Duv	-0.0004
Total Luminous (lm)	8040
Luminous Efficacy (lm/W)	106.74

Special Color Rendering Indices			
R1	73	R9	0
R2	81	R10	55
R3	86	R11	71
R4	75	R12	52
R5	74	R13	74
R6	74	R14	92
R7	82	R15	68
R8	58	--	--

**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	2014-07-01	2015-06-30
ST-R-331	Spectral analysis system HAAS-2000	2014-07-01	2015-06-30
D204	Standard Lamp	2014-07-01	2015-06-30
PF2010	Power Meter for Integrating Sphere	2014-07-01	2015-06-30
EE-09	Goniophotometer system	2014-07-01	2015-06-30
D908S	Standard Lamp	2014-07-01	2015-06-30
PF210	Power Meter for Goniophotometer	2014-07-01	2015-06-30
ST-R-181A	Temperature Tester	2014-07-01	2015-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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