



Report No.: GZE150406-I

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

PREMIUM QUALITY LIGHTING

(Brand Name: SUPERIOR LIFE®)

2285 Ward Avenue, Simi Valley, CA 93065

Outdoor Pole/Arm-Mounted Area and Roadway

Luminaires

Model name(s): 83517

Representative (Tested) Model: 83515(3000K)
83517(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-I
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	PREMIUM QUALITY LIGHTING	
Brand Name	SUPERIOR LIFE®	
Model Number	83515 (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	--	144.4	W
Input Current	--	1.210	A
Input Voltage (ac)	--	120.1	V
Power Factor	--	0.9936	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	13986	lm
Initial Lumen Efficacy	--	96.86	lm/w
Correlated color temperature / CCT	3114	--	K
Color rendering index / CRI	74.4	--	
R9 Value	0	--	
Duv	0.0007	--	

Luminous Intensity Distribution

Center beam candlepower (if applicable)	-----	12274	cd
Beam angle (if applicable)		75.8	°
Zonal lumens in the 0°-60° zone		91.7	%
Zonal lumens in the 60°-90° zone		8.2	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0.1	%

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Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	PREMIUM QUALITY LIGHTING	
Brand Name	SUPERIOR LIFE®	
Model Number	83517 (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	143.7	--	W
Input Current	1.204	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9946	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	14825	--	lm
Initial Lumen Efficacy	103.17	--	lm/w
Correlated color temperature / CCT	5191	--	K
Color rendering index / CRI	75.3	--	
R9 Value	0	--	
Duv	-0.0003	--	

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° vertical intervals and 22.5° 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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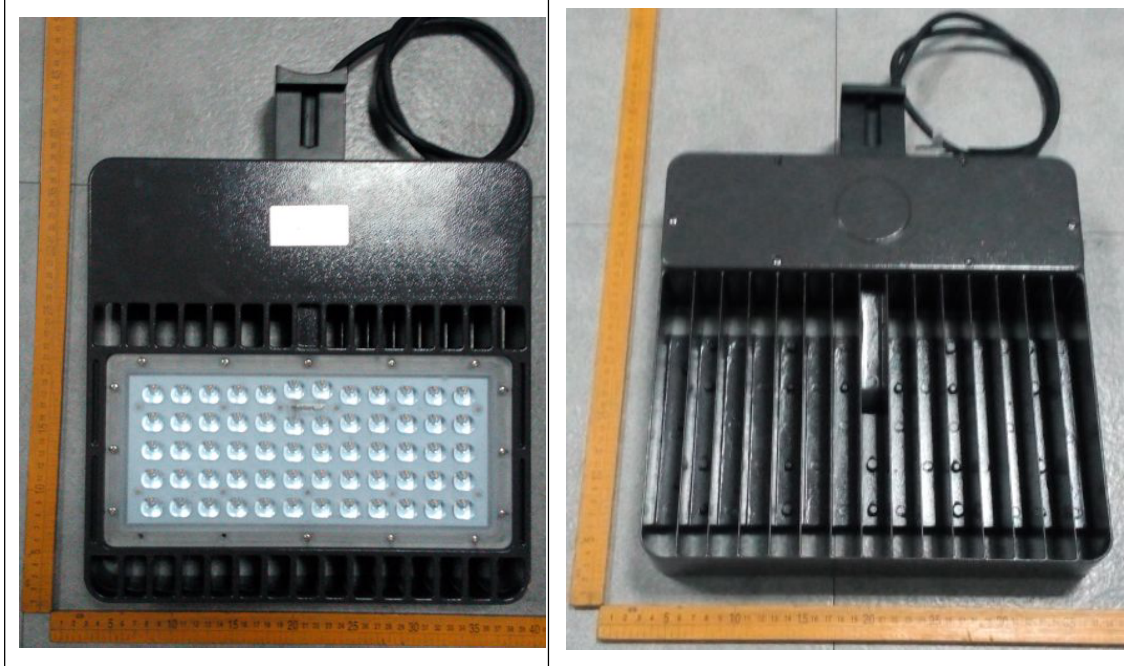
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1. Product Information:

Brand Name	Superior Life®
Model Number	83517
Luminaire Type	Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Rated Voltage / Frequency	110 ~ 240/277Vac, 50/60Hz
Nominal Power	150W
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-I1(3000K),I2(5000K)

Photo


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2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
--	-----------------------

Test date	2015-04-21	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	83515 (3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150406	120.1	60	1.210	144.4	0.9936	7.21
-I1	277.1	60	0.5538	142.1	0.9259	13.19

Sphere-Spectroradiometer Method:

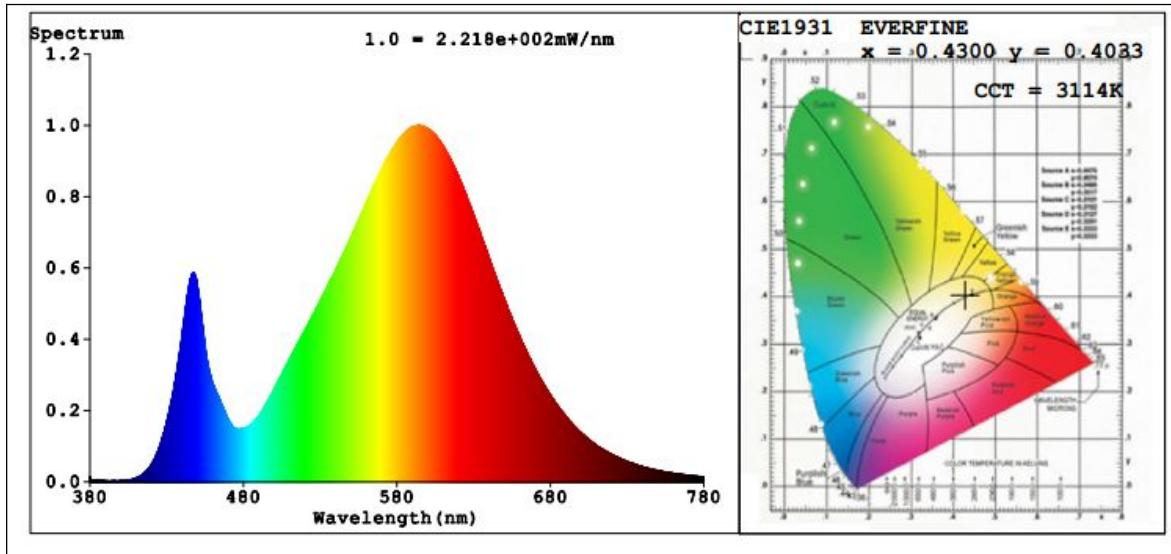
Parameter	Result
Test Voltage (V)	120.1
Frequency (Hz)	60
Color Rendering Index (CRI)	74.4
R9	0
CCT (K)	3114
Chromaticity (x, y)	x=0.4300 y=0.4033
Chromaticity (u', v')	u'=0.2464 v'=0.5201
Duv	0.0007

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)	120.1
Frequency (Hz)	60
Total Luminous (lm)	13986
Luminous Efficacy (lm/W)	96.86
Beam Angle°	75.8
Center Beam Candle Power (cd)	12274
S/MH(C0/180)	1.77
S/MH(C90/270)	0.64

Spectral Power Distribution & Chromaticity Diagram



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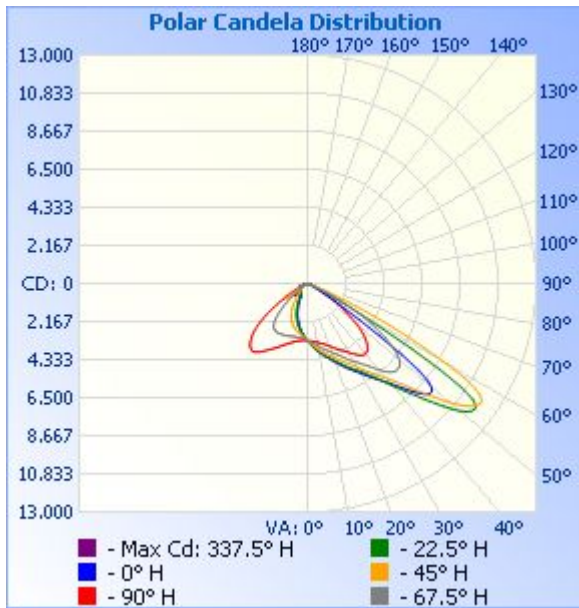
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Zonal Lumen Tabulation

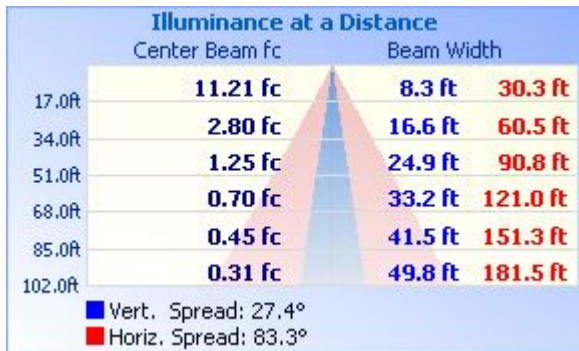
Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	2,935.4	21%	21%
0-40	5,462.4	39.1%	39.1%
0-60	12,822.9	91.7%	91.7%
60-90	1,142.4	8.2%	8.2%
70-100	207.5	1.5%	1.5%
90-120	3.2	0%	0%
0-90	13,965.2	99.9%	99.9%
90-180	19.7	0.1%	0.1%
0-180	13,984.9	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	312.9	2.2%	90-100	0.0	0%
10-20	960.6	6.9%	100-110	0.7	0%
20-30	1,662.0	11.9%	110-120	2.6	0%
30-40	2,527.0	18.1%	120-130	4.2	0%
40-50	3,654.1	26.1%	130-140	4.3	0%
50-60	3,706.3	26.5%	140-150	3.3	0%
60-70	934.9	6.7%	150-160	2.4	0%
70-80	177.1	1.3%	160-170	1.6	0%
80-90	30.4	0.2%	170-180	0.6	0%

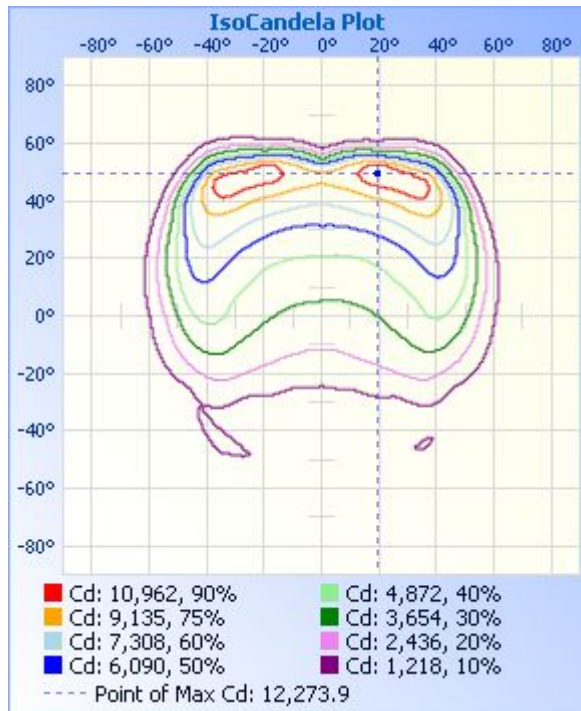
Photometric Data



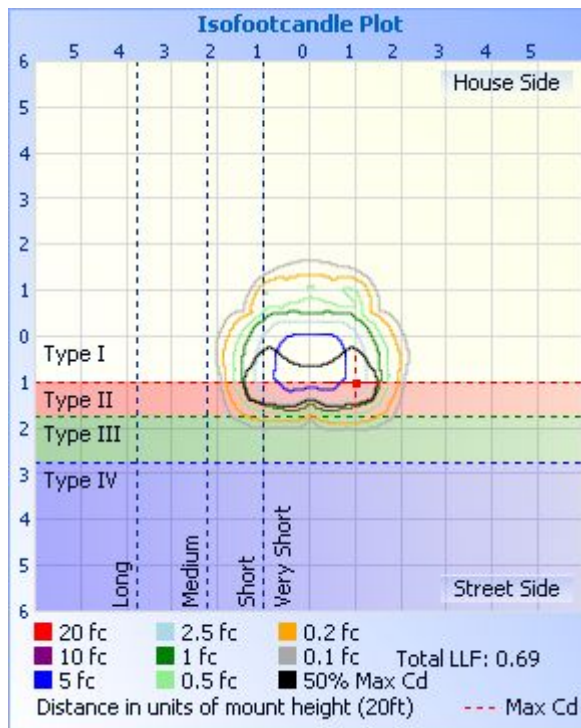
Illuminance Plots



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	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240	3240
1	3312	3308	3294	3266	3246	3217	3194	3180	3170	3173	3187	3218	3233	3262	3285	3305	3312
2	3383	3375	3347	3294	3259	3195	3148	3123	3104	3115	3145	3193	3228	3283	3330	3370	3383
3	3454	3444	3404	3323	3267	3176	3105	3064	3040	3064	3106	3169	3228	3310	3374	3435	3454
4	3533	3522	3462	3361	3278	3161	3061	3003	2972	3005	3067	3148	3231	3338	3420	3501	3533
5	3612	3593	3524	3398	3291	3150	3018	2939	2904	2943	3022	3129	3235	3369	3474	3569	3612
6	3680	3662	3586	3443	3304	3141	2977	2873	2833	2878	2980	3116	3245	3399	3536	3638	3680
7	3754	3730	3648	3486	3323	3132	2937	2809	2761	2814	2940	3111	3257	3437	3594	3707	3754
8	3830	3798	3710	3530	3340	3128	2895	2746	2691	2751	2900	3105	3274	3477	3649	3776	3830
9	3903	3872	3771	3576	3368	3132	2857	2683	2617	2691	2866	3103	3294	3524	3705	3843	3903
10	3975	3943	3834	3629	3397	3134	2821	2614	2536	2628	2836	3099	3315	3571	3763	3909	3975
11	4051	4014	3899	3680	3431	3133	2786	2537	2451	2557	2807	3096	3339	3616	3826	3975	4051
12	4125	4081	3960	3737	3458	3136	2751	2459	2370	2482	2778	3093	3364	3666	3887	4040	4125
13	4196	4150	4018	3790	3491	3132	2714	2383	2290	2404	2746	3095	3395	3715	3954	4110	4196
14	4269	4226	4082	3843	3521	3134	2676	2306	2206	2328	2711	3101	3426	3768	4023	4176	4269
15	4343	4301	4147	3895	3561	3136	2636	2231	2118	2252	2674	3106	3460	3827	4089	4243	4343
16	4425	4379	4214	3947	3602	3142	2595	2154	2032	2176	2635	3113	3498	3886	4155	4311	4425
17	4514	4456	4280	3997	3647	3148	2550	2079	1942	2097	2597	3122	3535	3947	4225	4378	4514
18	4601	4533	4345	4054	3698	3154	2502	2002	1849	2019	2560	3133	3581	4009	4299	4453	4601
19	4690	4615	4415	4115	3747	3162	2457	1921	1755	1943	2522	3152	3630	4071	4373	4539	4690
20	4774	4701	4487	4183	3793	3168	2412	1838	1657	1864	2477	3165	3679	4138	4451	4625	4774
21	4872	4789	4555	4253	3864	3182	2368	1752	1556	1779	2426	3179	3730	4207	4529	4706	4872
22	4968	4878	4638	4325	3925	3188	2322	1660	1451	1692	2374	3191	3787	4285	4610	4792	4968
23	5077	4977	4714	4399	3990	3200	2273	1561	1338	1597	2322	3206	3850	4369	4686	4887	5077
24	5184	5083	4800	4475	4057	3214	2220	1456	1227	1498	2266	3211	3915	4459	4766	4985	5184
25	5290	5187	4891	4567	4123	3223	2156	1347	1120	1395	2205	3217	3982	4555	4855	5096	5290
26	5391	5296	4989	4664	4189	3235	2087	1241	1023	1291	2143	3226	4051	4651	4957	5219	5391
27	5500	5399	5088	4766	4252	3246	2012	1138	936	1190	2071	3230	4115	4739	5060	5340	5500
28	5602	5504	5196	4871	4320	3258	1931	1042	861	1088	1995	3237	4183	4825	5169	5452	5602
29	5714	5601	5311	4982	4398	3264	1847	955	808	994	1914	3250	4255	4918	5290	5573	5714

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30	5838	5704	5435	5084	4481	3274	1758	879	777	910	1827	3258	4330	5006	5414	5694	5838
31	5971	5818	5567	5172	4565	3283	1664	822	760	839	1739	3267	4412	5098	5551	5838	5971
32	6112	5948	5718	5278	4666	3294	1568	780	750	783	1644	3273	4485	5201	5691	5994	6112
33	6263	6101	5864	5385	4759	3298	1469	749	740	739	1550	3267	4569	5314	5820	6158	6263
34	6411	6271	6012	5500	4851	3298	1370	728	727	707	1450	3268	4658	5430	5949	6344	6411
35	6553	6457	6161	5622	4941	3273	1269	708	719	683	1347	3242	4737	5558	6082	6547	6553
36	6708	6645	6313	5763	5030	3249	1173	694	714	664	1243	3217	4808	5697	6224	6779	6708
37	6876	6850	6475	5910	5100	3224	1080	680	708	650	1142	3192	4868	5847	6373	7049	6876
38	7061	7088	6652	6077	5151	3169	997	667	702	637	1048	3139	4922	6017	6563	7323	7061
39	7252	7343	6838	6260	5169	3104	922	656	698	628	957	3061	4955	6197	6761	7585	7252
40	7463	7613	7049	6423	5161	3024	855	652	695	621	872	2978	4952	6358	6996	7831	7463
41	7690	7892	7275	6597	5134	2924	796	641	690	618	799	2883	4925	6493	7260	8085	7690
42	7955	8197	7523	6750	5075	2807	744	624	683	611	739	2753	4870	6616	7543	8372	7955
43	8223	8511	7806	6877	4992	2677	698	609	673	604	692	2595	4799	6716	7856	8693	8223
44	8498	8857	8119	6983	4887	2531	662	599	674	596	651	2411	4705	6787	8214	9059	8498
45	8768	9217	8449	7044	4760	2361	632	592	690	593	616	2219	4593	6824	8604	9465	8768
46	9012	9614	8821	7071	4608	2175	606	589	738	592	590	2030	4461	6851	9020	9907	9012
47	9222	10017	9200	7074	4437	1979	587	585	873	590	573	1839	4313	6837	9454	10340	9222
48	9347	10446	9624	7038	4235	1783	576	582	1024	583	561	1656	4147	6781	9881	10784	9347
49	9356	10862	10071	6966	4000	1584	584	585	902	582	554	1466	3954	6690	10308	11254	9356
50	9208	11259	10508	6821	3741	1383	698	616	752	601	554	1271	3734	6549	10704	11639	9208
51	8841	11554	10918	6649	3451	1184	1255	660	695	646	603	1087	3488	6393	11064	11961	8841
52	8031	11788	11282	6416	3161	999	1977	655	651	677	847	911	3222	6177	11375	12188	8031
53	6718	11895	11581	6117	2872	835	2040	602	603	624	1299	757	2927	5871	11593	12274	6718
54	5051	11842	11814	5781	2598	690	1727	553	563	573	1473	622	2632	5506	11713	12152	5051
55	3627	11464	11952	5434	2343	576	1458	524	531	541	1360	520	2359	5118	11705	11700	3627
56	2544	10534	11948	5033	2101	489	1278	503	503	513	1150	442	2096	4712	11523	10716	2544
57	1836	8963	11740	4639	1866	424	1146	483	483	486	853	386	1853	4297	11097	8987	1836
58	1431	6927	11252	4224	1644	375	1015	455	462	459	627	349	1637	3882	10400	6804	1431
59	1027	5014	10405	3796	1431	340	832	431	436	434	494	323	1422	3438	9374	4838	1027
60	623	3555	9119	3307	1240	315	675	415	426	412	426	301	1207	2944	8068	3328	623
61	454	2561	7769	2809	1065	295	522	402	414	398	383	285	1012	2454	6800	2376	454

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62	374	1825	6500	2375	918	281	427	391	403	389	349	274	860	1999	5619	1681	374
63	317	1450	5283	1975	784	271	377	377	396	375	320	267	733	1578	4462	1281	317
64	277	1076	4078	1577	679	264	348	359	388	356	301	259	626	1157	3377	884	277
65	251	702	3042	1180	586	257	323	337	378	336	285	251	538	737	2447	701	251
66	233	578	2231	783	507	249	300	317	368	314	273	241	465	452	1745	576	233
67	225	488	1607	483	435	240	284	301	361	295	261	231	404	305	1327	483	225
68	222	406	1237	332	378	231	271	287	356	279	250	221	350	253	915	405	222
69	217	337	870	263	326	222	258	273	356	264	236	211	301	225	651	339	217
70	208	287	629	232	284	212	245	261	361	250	219	200	258	207	455	285	208
71	197	241	437	211	247	201	229	248	377	236	200	189	221	190	323	239	197
72	185	205	320	194	219	190	211	236	403	221	178	178	196	174	230	202	185
73	174	177	229	178	196	180	192	223	428	208	158	167	177	160	175	170	174
74	171	154	174	163	178	169	171	212	424	196	140	156	161	147	142	146	171
75	171	133	141	150	163	158	151	200	355	183	126	145	148	135	121	124	171
76	170	115	118	137	149	146	133	183	278	164	113	132	137	124	101	105	170
77	149	98	100	126	136	134	117	166	234	152	102	120	126	108	84	89	149
78	119	82	84	115	124	120	105	154	215	139	91	107	114	91	70	74	119
79	87	68	70	99	113	108	93	138	201	123	78	91	103	78	56	58	87
80	58	52	57	83	102	94	79	122	185	107	68	78	90	66	44	42	58
81	31	37	45	71	90	80	69	107	167	93	59	68	78	56	33	28	31
82	11	22	35	60	78	70	60	93	146	79	49	57	66	46	22	13	11
83	3	9	24	50	67	61	50	79	122	66	41	43	50	34	12	4	3
84	0	2	15	40	51	49	41	65	96	53	31	27	34	22	4	0	0
85	0	0	6	29	34	33	32	50	57	36	20	15	18	11	0	0	0
86	0	0	1	18	18	20	20	21	10	10	9	4	4	3	0	0	0
87	0	0	0	7	5	8	8	6	6	5	2	0	0	0	0	0	0
88	0	0	0	1	0	1	3	4	4	2	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
95	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
97	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
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
101	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
102	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
103	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0
104	0	0	0	0	1	2	0	0	1	2	1	0	0	0	0	0
105	0	0	0	0	1	2	1	0	1	3	1	0	0	0	0	0
106	0	0	0	0	1	3	1	0	2	3	1	0	0	0	0	0
107	0	0	0	0	1	4	1	0	3	4	1	0	0	0	0	0
108	0	0	0	0	1	4	2	0	3	5	2	0	0	0	0	0
109	0	0	0	1	2	5	2	0	4	5	2	0	0	0	0	0
110	0	0	0	1	2	6	3	0	4	6	2	0	0	0	0	0
111	0	0	0	1	2	6	3	0	5	7	3	0	0	0	0	0
112	0	0	0	1	3	7	4	1	6	7	3	0	0	0	0	0
113	0	0	0	1	3	7	5	1	6	8	3	0	0	0	0	0
114	0	0	0	1	3	8	5	2	7	8	3	0	0	0	0	0
115	0	0	0	2	4	8	6	2	7	8	4	1	0	0	0	0
116	0	0	0	2	5	9	7	2	8	8	4	1	0	0	0	0
117	0	0	0	2	5	9	7	3	8	9	4	1	0	0	0	0
118	0	0	0	2	5	9	7	4	9	9	5	1	0	0	0	0
119	0	0	0	3	6	9	7	5	9	9	5	1	0	0	0	0
120	0	0	0	3	6	9	8	6	10	10	5	2	0	0	0	0
121	0	0	0	3	6	10	8	7	10	10	6	2	0	0	0	0
122	0	0	0	3	7	10	8	7	11	11	6	2	0	0	0	0
123	0	0	0	4	8	10	8	8	11	11	6	2	0	0	0	0
124	0	0	0	4	8	10	9	9	11	11	7	3	1	0	0	0
125	0	0	0	4	8	11	9	10	11	11	7	3	1	0	0	0

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126	0	0	0	1	5	8	11	9	11	12	11	7	3	1	0	0	0
127	0	0	0	1	5	9	11	9	11	12	11	7	3	1	0	0	0
128	0	0	0	1	5	9	11	10	12	12	11	8	4	1	0	0	0
129	0	0	0	1	6	9	11	10	12	13	11	8	4	1	0	0	0
130	0	0	0	1	6	9	11	10	12	13	11	8	4	2	0	0	0
131	0	0	0	1	6	9	11	11	13	13	11	8	5	2	0	0	0
132	0	0	0	1	6	9	11	11	13	13	11	8	5	2	0	0	0
133	0	0	0	1	6	9	11	12	13	13	11	8	5	2	0	0	0
134	0	0	0	2	7	8	11	12	13	13	10	8	5	2	0	0	0
135	0	0	0	2	7	9	11	12	12	13	10	8	5	2	0	0	0
136	0	0	0	2	7	8	10	12	12	12	10	8	6	2	0	0	0
137	0	0	0	2	7	8	10	11	12	12	10	8	6	2	1	0	0
138	0	0	0	2	7	8	10	11	12	12	9	8	6	3	1	0	0
139	0	0	0	2	7	8	9	11	12	11	9	8	6	3	1	0	0
140	0	0	0	2	7	8	9	11	12	11	9	8	6	3	1	0	0
141	0	0	1	2	7	8	9	11	11	11	9	8	6	3	1	0	0
142	0	0	1	2	7	8	9	10	11	10	9	8	6	3	1	0	0
143	0	0	1	2	7	8	8	10	11	10	9	7	6	3	1	0	0
144	0	0	1	2	7	8	8	10	10	10	8	7	6	3	2	0	0
145	0	0	1	2	7	7	8	10	10	10	8	7	6	3	2	0	0
146	0	0	1	2	7	7	8	9	10	10	8	7	6	3	2	1	0
147	0	0	1	2	7	7	8	9	10	10	8	7	6	4	2	1	0
148	0	1	1	2	6	7	8	9	10	10	8	7	6	4	2	1	0
149	0	0	1	3	6	7	8	9	10	9	8	7	6	4	2	1	0
150	0	1	2	3	6	7	8	8	10	9	8	7	6	4	3	1	0
151	1	1	2	3	6	7	8	8	9	9	8	7	6	4	3	1	1
152	1	1	2	3	6	7	8	8	9	9	8	7	6	4	3	1	1
153	1	1	2	3	6	7	8	8	9	9	8	7	5	4	3	1	1
154	1	1	2	3	6	7	8	8	9	9	8	7	5	4	3	2	1
155	1	1	2	3	6	7	7	8	9	9	8	7	5	5	3	2	1
156	2	2	2	3	6	7	7	8	8	9	8	7	5	5	4	3	2
157	2	2	2	3	6	7	7	8	8	9	8	7	5	5	4	3	2

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158	3	3	3	3	5	7	7	8	8	8	8	7	5	5	4	3	3
159	3	3	3	4	5	6	7	8	8	8	8	7	5	5	4	3	3
160	4	3	3	4	5	6	7	8	8	8	8	7	5	5	4	4	4
161	4	3	3	4	5	6	7	8	8	8	7	7	6	5	4	4	4
162	4	4	3	4	6	6	7	8	8	8	7	6	6	5	5	4	4
163	4	4	3	4	6	6	7	7	7	8	7	7	6	5	5	4	4
164	5	4	4	4	6	6	7	7	7	8	7	6	6	5	5	5	5
165	5	4	4	4	6	6	7	7	7	8	7	6	6	6	5	5	5
166	5	4	4	4	6	6	7	7	7	7	7	6	6	6	5	5	5
167	5	5	4	5	6	6	7	7	7	7	7	6	6	6	6	5	5
168	5	5	5	5	7	7	7	7	7	7	7	6	6	6	6	6	5
169	6	5	5	5	7	7	7	7	7	7	7	6	6	6	6	6	6
170	6	5	5	5	7	7	7	7	7	7	7	6	6	6	6	6	6
171	6	6	5	5	7	7	7	7	7	7	7	6	6	6	7	6	6
172	6	6	5	5	7	7	7	7	7	7	7	6	6	6	7	6	6
173	6	6	6	5	7	7	7	7	7	7	7	6	6	6	7	7	6
174	6	6	6	5	7	7	7	7	7	7	7	6	6	6	7	7	6
175	7	7	6	5	7	7	7	7	6	7	7	6	6	6	6	7	7
176	6	6	6	5	7	7	7	7	6	6	6	6	6	6	6	6	6
177	6	6	6	5	7	7	7	7	6	6	6	6	6	6	6	6	6
178	6	6	6	5	7	6	7	7	6	6	6	6	6	6	6	6	6
179	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6
180	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

Test Voltage:277V

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150406 -I1	277.1	60	0.5538	142.1	0.9259	13.19

Goniophotometer Method:

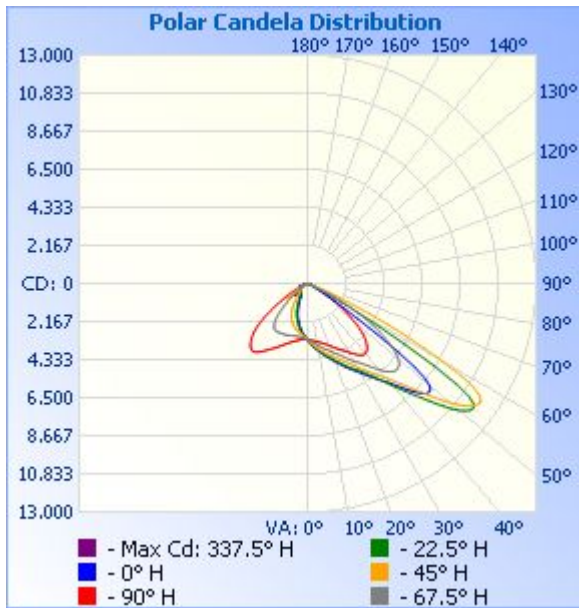
Parameter	Result
Test Voltage (V)	277.1
Frequency (Hz)	60
Total Luminous (lm)	13852
Luminous Efficacy (lm/W)	97.50
Beam Angle°	75.7
Center Beam Candle Power (cd)	12138
S/MH(C0/180)	1.77
S/MH(C90/270)	0.63

Zonal Lumen Tabulation

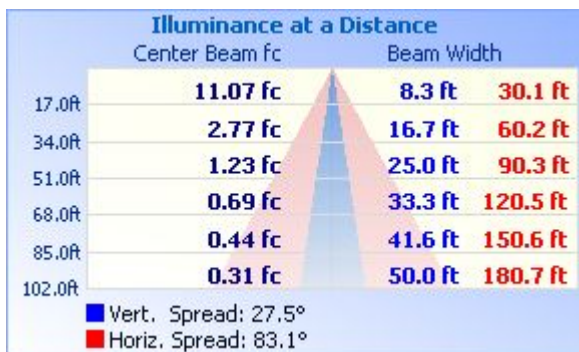
Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	2,906.1	21%	21%
0-40	5,421.3	39.1%	39.1%
0-60	12,711.4	91.8%	91.8%
60-90	1,121.3	8.1%	8.1%
70-100	207.4	1.5%	1.5%
90-120	3.1	0%	0%
0-90	13,832.7	99.9%	99.9%
90-180	19.3	0.1%	0.1%
0-180	13,852.0	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	309.0	2.2%	90-100	0.0	0%
10-20	950.0	6.9%	100-110	0.6	0%
20-30	1,647.1	11.9%	110-120	2.5	0%
30-40	2,515.2	18.2%	120-130	4.1	0%
40-50	3,640.8	26.3%	130-140	4.2	0%
50-60	3,649.2	26.3%	140-150	3.2	0%
60-70	913.9	6.6%	150-160	2.4	0%
70-80	176.7	1.3%	160-170	1.6	0%
80-90	30.7	0.2%	170-180	0.6	0%

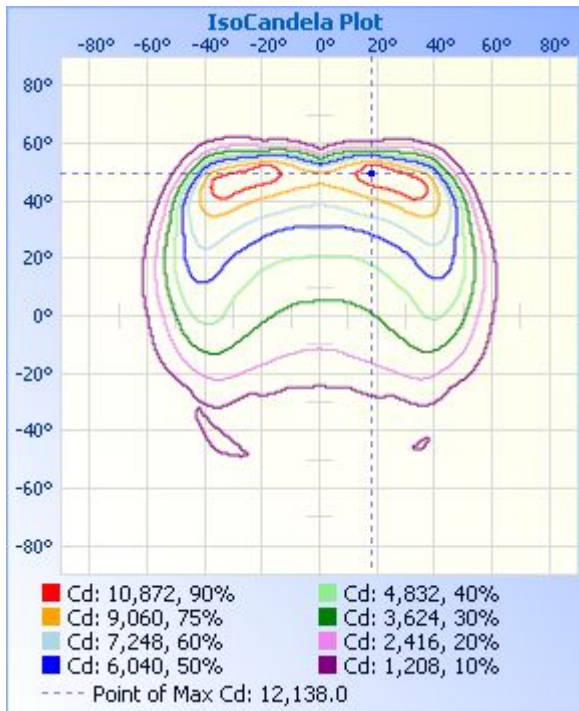
Photometric Data



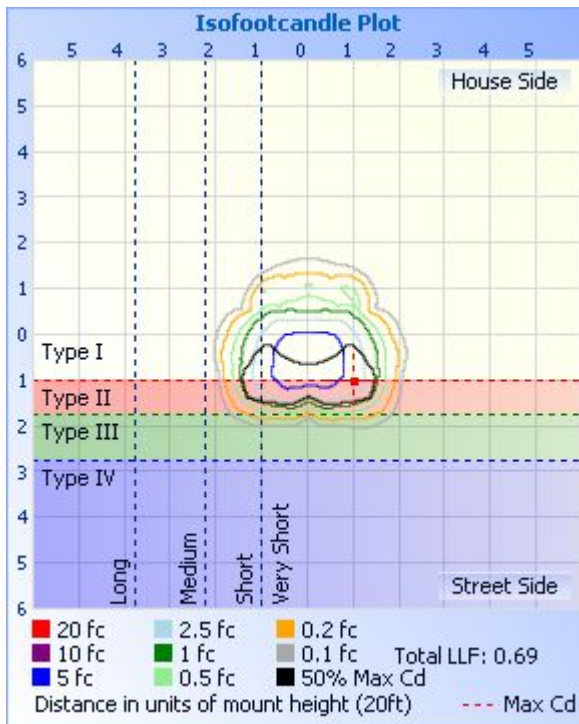
Illuminance Plots



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	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198	3198
1	3270	3267	3253	3223	3205	3175	3152	3136	3129	3137	3152	3175	3190	3220	3242	3263	3270
2	3343	3336	3309	3249	3217	3152	3107	3077	3063	3079	3108	3149	3188	3242	3289	3328	3343
3	3415	3405	3364	3281	3226	3134	3062	3020	3002	3026	3067	3127	3187	3271	3336	3393	3415
4	3492	3484	3423	3316	3238	3119	3018	2958	2933	2966	3026	3104	3188	3300	3383	3458	3492
5	3568	3555	3486	3355	3247	3108	2976	2894	2862	2906	2983	3087	3192	3329	3438	3525	3568
6	3642	3626	3546	3396	3264	3098	2934	2829	2794	2843	2939	3075	3203	3357	3496	3598	3642
7	3715	3694	3609	3441	3283	3088	2892	2763	2722	2776	2898	3067	3216	3393	3557	3667	3715
8	3790	3764	3669	3485	3305	3084	2852	2701	2648	2713	2863	3063	3232	3435	3613	3738	3790
9	3863	3837	3732	3531	3333	3087	2812	2638	2573	2653	2830	3058	3254	3483	3669	3805	3863
10	3937	3911	3795	3584	3357	3089	2776	2568	2497	2591	2799	3058	3279	3528	3729	3869	3937
11	4012	3981	3862	3638	3390	3090	2742	2491	2409	2520	2771	3056	3303	3578	3789	3936	4012
12	4086	4047	3924	3692	3420	3092	2706	2414	2329	2444	2740	3053	3330	3630	3856	4001	4086
13	4161	4115	3982	3748	3453	3089	2672	2338	2250	2367	2710	3053	3360	3678	3923	4073	4161
14	4238	4191	4046	3804	3486	3091	2634	2262	2167	2292	2674	3060	3390	3734	3992	4141	4238
15	4308	4269	4113	3853	3527	3093	2594	2188	2082	2215	2637	3067	3426	3791	4060	4206	4308
16	4394	4343	4184	3906	3568	3099	2552	2110	1993	2141	2598	3076	3466	3851	4124	4275	4394
17	4479	4421	4251	3958	3615	3106	2507	2037	1902	2063	2561	3086	3508	3913	4194	4341	4479
18	4566	4498	4315	4014	3662	3112	2459	1961	1809	1985	2524	3094	3555	3976	4270	4416	4566
19	4652	4581	4382	4077	3713	3119	2412	1877	1716	1908	2484	3109	3603	4040	4345	4500	4652
20	4742	4668	4456	4141	3766	3128	2366	1794	1619	1826	2439	3123	3656	4110	4424	4588	4742
21	4838	4758	4527	4212	3830	3139	2321	1706	1515	1741	2390	3137	3709	4180	4502	4672	4838
22	4935	4846	4604	4292	3893	3147	2276	1613	1409	1654	2336	3150	3765	4257	4584	4756	4935
23	5046	4945	4686	4363	3957	3159	2224	1512	1297	1560	2284	3167	3829	4346	4662	4850	5046
24	5158	5053	4769	4440	4026	3170	2167	1410	1189	1458	2228	3175	3895	4437	4742	4948	5158
25	5260	5158	4859	4531	4095	3182	2106	1304	1086	1358	2167	3178	3963	4533	4835	5066	5260
26	5365	5268	4961	4629	4161	3193	2038	1199	991	1256	2102	3187	4033	4630	4938	5188	5365
27	5472	5373	5059	4729	4228	3204	1960	1098	909	1156	2029	3194	4100	4718	5044	5307	5472
28	5577	5477	5168	4838	4299	3215	1877	1008	838	1057	1954	3201	4169	4809	5153	5424	5577
29	5690	5577	5285	4948	4380	3222	1792	923	793	967	1875	3211	4243	4902	5276	5538	5690

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30	5815	5680	5413	5049	4462	3234	1705	855	768	888	1785	3218	4323	4990	5398	5666	5815
31	5944	5790	5547	5143	4554	3244	1611	804	754	823	1697	3230	4403	5079	5538	5805	5944
32	6087	5928	5696	5245	4653	3249	1517	766	747	771	1604	3233	4477	5186	5679	5962	6087
33	6236	6083	5840	5353	4749	3254	1417	741	737	730	1508	3235	4562	5303	5810	6135	6236
34	6383	6253	5993	5471	4839	3251	1319	723	725	701	1412	3221	4652	5420	5937	6324	6383
35	6530	6443	6142	5600	4934	3237	1223	705	717	679	1308	3207	4736	5555	6075	6533	6530
36	6687	6632	6295	5737	5021	3218	1128	691	713	661	1207	3193	4805	5699	6219	6772	6687
37	6855	6845	6465	5891	5090	3175	1041	677	707	647	1110	3152	4861	5856	6378	7046	6855
38	7040	7082	6638	6060	5140	3117	962	665	701	637	1019	3095	4912	6027	6561	7315	7040
39	7227	7340	6828	6238	5152	3046	891	655	699	627	930	3023	4943	6206	6760	7577	7227
40	7437	7609	7035	6412	5144	2964	830	650	695	621	849	2933	4939	6369	6996	7822	7437
41	7669	7899	7264	6581	5113	2862	774	639	689	618	779	2834	4914	6504	7265	8080	7669
42	7931	8198	7520	6731	5046	2742	724	623	682	611	723	2705	4849	6624	7557	8370	7931
43	8209	8517	7804	6859	4962	2612	681	609	673	603	679	2549	4773	6717	7881	8686	8209
44	8481	8852	8125	6951	4852	2464	650	598	673	596	641	2367	4675	6784	8236	9064	8481
45	8734	9204	8461	7016	4721	2295	623	592	690	593	610	2174	4556	6814	8637	9469	8734
46	8968	9602	8834	7039	4570	2107	598	589	738	592	585	1985	4424	6835	9061	9892	8968
47	9171	10011	9224	7035	4392	1909	581	585	869	589	569	1797	4268	6814	9503	10330	9171
48	9261	10426	9653	6993	4192	1715	572	582	1019	584	557	1609	4099	6763	9933	10777	9261
49	9255	10847	10094	6903	3947	1517	580	585	901	583	551	1421	3900	6659	10358	11221	9255
50	9076	11213	10524	6761	3686	1321	701	617	751	601	551	1233	3674	6518	10742	11591	9076
51	8651	11502	10933	6584	3398	1126	1269	662	694	648	596	1052	3426	6347	11091	11897	8651
52	7754	11716	11284	6338	3111	947	1986	657	652	680	837	882	3155	6115	11391	12099	7754
53	6401	11790	11574	6042	2824	791	2017	604	605	627	1273	730	2855	5792	11586	12138	6401
54	4785	11688	11801	5694	2556	656	1698	554	564	574	1450	604	2572	5427	11688	11972	4785
55	3468	11247	11920	5349	2305	551	1437	526	532	543	1335	507	2308	5042	11669	11447	3468
56	2444	10200	11884	4952	2069	470	1260	505	504	515	1132	432	2051	4627	11448	10324	2444
57	1792	8588	11649	4565	1838	412	1132	485	484	488	845	381	1816	4229	10989	8530	1792
58	1342	6533	11121	4155	1618	368	1003	457	463	461	624	346	1604	3817	10240	6420	1342
59	897	4791	10229	3726	1409	336	823	434	437	436	492	321	1392	3372	9186	4580	897
60	599	3406	8941	3236	1224	314	669	417	427	415	426	299	1180	2874	7880	3206	599
61	445	2485	7593	2749	1054	295	518	404	415	401	382	284	997	2398	6643	2301	445

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62	365	1771	6330	2326	908	281	427	393	405	391	350	274	848	1961	5446	1607	365
63	310	1321	5139	1936	779	272	378	380	398	378	321	267	725	1540	4305	1228	310
64	273	876	3951	1541	675	265	350	361	390	359	302	259	621	1119	3252	856	273
65	247	684	2938	1145	582	259	326	339	380	338	287	251	534	698	2344	676	247
66	230	564	2142	750	503	251	303	319	371	316	275	241	462	428	1679	558	230
67	223	476	1711	464	431	243	287	303	364	297	263	231	400	298	1281	468	223
68	220	395	1280	322	374	233	275	288	359	281	251	221	346	250	884	391	220
69	215	331	850	260	322	224	262	275	359	265	238	211	296	223	621	329	215
70	206	281	607	230	281	214	248	263	366	252	221	201	253	205	432	278	206
71	195	237	421	210	245	203	232	250	383	238	201	189	219	189	302	234	195
72	183	201	305	193	218	192	214	237	411	223	180	179	195	174	218	197	183
73	173	174	219	177	196	182	194	225	436	210	159	168	177	160	169	167	173
74	170	151	169	163	179	171	173	214	433	198	141	157	161	147	139	143	170
75	171	131	138	149	164	160	153	201	364	185	127	145	148	135	118	122	171
76	169	113	116	136	150	148	134	186	284	166	114	133	137	124	99	103	169
77	147	96	98	125	137	135	119	167	239	153	103	120	126	108	83	87	147
78	117	81	82	114	125	121	106	156	218	141	92	107	115	91	69	73	117
79	85	67	69	98	114	109	94	140	205	124	79	91	103	78	56	57	85
80	57	51	56	83	103	95	80	124	189	109	68	78	90	66	43	41	57
81	31	36	45	70	91	81	70	109	171	94	59	68	78	56	32	27	31
82	11	22	34	59	79	71	61	94	149	80	49	58	66	46	21	12	11
83	3	8	24	50	67	62	51	80	125	67	41	44	51	34	12	4	3
84	0	2	14	40	51	50	42	66	99	54	32	28	34	22	4	0	0
85	0	0	6	29	35	34	32	51	61	38	20	15	18	11	0	0	0
86	0	0	1	18	18	20	21	22	11	10	9	5	4	3	0	0	0
87	0	0	0	7	5	9	8	6	6	5	2	0	0	0	0	0	0
88	0	0	0	1	0	1	3	5	4	3	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
95	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
97	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
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
102	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0
103	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0
104	0	0	0	0	0	2	0	0	1	2	1	0	0	0	0	0
105	0	0	0	0	1	2	1	0	1	3	1	0	0	0	0	0
106	0	0	0	0	1	3	1	0	2	3	1	0	0	0	0	0
107	0	0	0	0	1	4	1	0	3	4	1	0	0	0	0	0
108	0	0	0	0	1	4	2	0	3	4	1	0	0	0	0	0
109	0	0	0	0	2	5	2	0	4	5	2	0	0	0	0	0
110	0	0	0	1	2	5	2	0	4	6	2	0	0	0	0	0
111	0	0	0	1	2	6	3	0	5	7	2	0	0	0	0	0
112	0	0	0	1	3	7	4	1	6	7	3	0	0	0	0	0
113	0	0	0	1	3	7	5	1	6	7	3	0	0	0	0	0
114	0	0	0	1	3	8	5	1	7	8	3	0	0	0	0	0
115	0	0	0	1	4	8	6	2	7	8	4	1	0	0	0	0
116	0	0	0	2	4	8	7	2	8	8	4	1	0	0	0	0
117	0	0	0	2	5	9	7	3	8	8	4	1	0	0	0	0
118	0	0	0	2	5	9	7	4	9	9	5	1	0	0	0	0
119	0	0	0	3	6	9	7	5	9	9	5	1	0	0	0	0
120	0	0	0	3	6	9	8	6	10	10	5	2	0	0	0	0
121	0	0	0	3	6	10	8	6	10	10	5	2	0	0	0	0
122	0	0	0	3	7	10	8	7	11	10	6	2	0	0	0	0
123	0	0	0	4	7	10	8	8	11	11	6	2	0	0	0	0
124	0	0	0	4	8	10	8	9	11	11	6	3	1	0	0	0
125	0	0	0	4	8	10	9	10	11	11	7	3	1	0	0	0

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126	0	0	0	0	4	8	11	9	11	11	11	7	3	1	0	0	0
127	0	0	0	1	5	9	11	9	11	12	11	7	3	1	0	0	0
128	0	0	0	1	5	9	11	9	12	12	11	7	4	1	0	0	0
129	0	0	0	1	5	9	11	10	12	12	11	8	4	1	0	0	0
130	0	0	0	1	6	9	11	10	12	13	11	8	4	1	0	0	0
131	0	0	0	1	6	8	11	11	12	13	11	8	4	2	0	0	0
132	0	0	0	1	6	8	11	11	12	13	11	8	5	2	0	0	0
133	0	0	0	1	6	8	11	11	12	13	11	8	5	2	0	0	0
134	0	0	0	1	6	8	11	11	12	13	10	8	5	2	0	0	0
135	0	0	0	2	7	9	10	11	12	13	10	8	5	2	0	0	0
136	0	0	0	2	7	8	10	11	12	12	10	8	5	2	0	0	0
137	0	0	0	2	7	8	10	11	12	12	10	8	5	2	0	0	0
138	0	0	0	2	7	8	9	11	12	12	9	8	5	3	0	0	0
139	0	0	0	2	7	8	9	11	12	11	9	7	5	3	1	0	0
140	0	0	0	2	7	8	9	11	11	11	9	7	6	3	1	0	0
141	0	0	0	2	7	8	9	11	11	11	9	7	6	3	1	0	0
142	0	0	1	2	7	8	8	10	11	10	9	7	6	3	1	0	0
143	0	0	1	2	7	8	8	10	10	10	9	7	6	3	1	0	0
144	0	0	1	2	7	7	8	10	10	10	8	7	6	3	2	0	0
145	0	0	1	2	7	7	8	9	10	10	8	7	6	3	2	0	0
146	0	0	1	2	6	7	8	9	10	10	8	7	6	3	2	1	0
147	0	0	1	2	6	7	8	9	10	10	8	7	6	3	2	0	0
148	0	0	1	2	6	7	8	9	10	10	8	7	6	3	2	1	0
149	0	0	1	2	6	7	8	8	10	9	8	7	6	3	2	1	0
150	0	1	1	2	6	7	8	8	10	9	8	7	6	4	3	1	0
151	1	1	2	3	6	7	8	8	9	9	8	7	6	4	3	1	1
152	1	1	2	3	6	7	7	8	9	9	8	7	6	4	3	1	1
153	1	1	2	3	6	7	7	8	9	9	8	7	5	4	3	2	1
154	1	1	2	3	6	7	7	8	9	9	8	7	5	4	3	2	1
155	1	1	2	3	6	7	7	8	9	9	8	7	5	4	3	2	1
156	2	2	2	3	6	8	7	8	8	9	7	7	5	4	4	2	2
157	2	2	2	3	6	8	7	8	8	8	7	7	5	5	4	3	2

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158	3	2	3	3	5	6	7	8	8	8	7	7	5	5	4	3	3
159	3	3	3	3	5	6	7	8	8	8	8	7	5	5	4	3	3
160	3	3	5	3	5	6	7	7	8	8	7	7	5	5	4	4	3
161	4	3	4	4	5	6	7	8	8	8	7	6	6	5	4	4	4
162	4	3	3	3	6	6	7	7	8	8	7	6	6	5	4	4	4
163	4	4	3	3	6	6	7	7	8	8	7	6	6	5	5	4	4
164	4	4	3	4	6	6	7	7	7	8	7	6	6	5	5	5	4
165	5	4	3	4	6	6	7	7	7	8	7	6	6	5	5	5	5
166	5	4	4	4	6	6	7	7	7	8	7	6	6	5	5	5	5
167	5	5	4	4	6	6	7	7	7	7	7	6	6	6	6	5	5
168	5	5	4	5	6	7	7	7	7	7	7	6	6	6	6	6	5
169	5	5	4	5	7	6	6	7	7	7	7	6	6	6	6	6	5
170	6	5	5	5	7	6	6	7	7	7	7	6	6	6	6	6	6
171	6	6	5	5	7	6	6	7	7	7	7	6	6	6	6	6	6
172	6	6	5	5	7	6	6	7	6	7	7	6	6	6	7	6	6
173	6	6	6	5	7	6	6	7	6	7	6	6	6	6	7	7	6
174	6	6	6	5	7	6	6	7	6	7	6	6	6	6	6	7	6
175	7	6	6	5	7	7	6	7	6	6	6	6	6	6	6	7	7
176	6	6	6	5	7	6	6	6	6	6	6	6	6	6	6	6	6
177	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6
178	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6
179	5	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

2.2 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2015-04-21	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	83517 (5000K)		

Electrical Measurement:

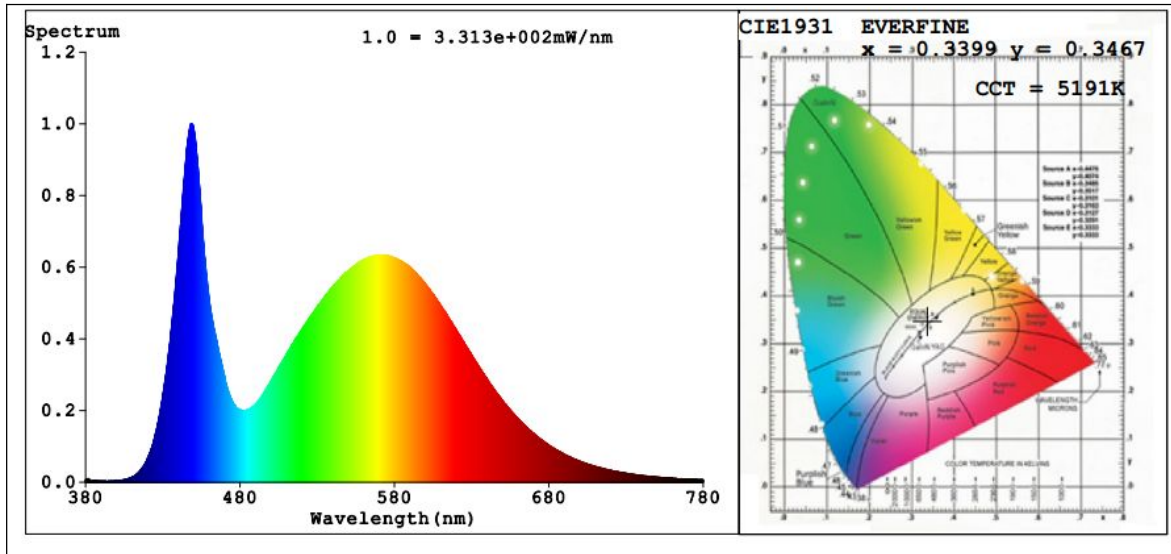
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150406	120.0	60	1.204	143.7	0.9946	7.53
-I2	277.0	60	0.5589	140.9	0.9101	13.46

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	75.3
R9	0
CCT (K)	5191
Chromaticity (x, y)	x=0.3399 y=0.3467
Chromaticity (u', v')	u'=0.2098 v'=0.4815
Duv	-0.0003
Total Luminous (lm)	14825
Luminous Efficacy (lm/W)	103.17

Special Color Rendering Indices			
R1	72	R9	0
R2	81	R10	54
R3	86	R11	71
R4	75	R12	53
R5	74	R13	74
R6	73	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 *******