

LM-79-08 Test Report

Architectural Flood and Spot Luminaires

Model name(s): 'LF3-150W

Remark: The letter "X" in the model name stand for CCT as bellow :3=3000K, 4=4000K, 5=5000K, 6=5700K; "YY" stand for different mounting option as bellow YK=Yoke, TR=Trunnion, MA=Arm, SF= Slip fitter, PD=Pendant; "ZZ" stand for housing color by use 2 digits to indicate all of color.

Representative (Tested) Model: LF3-150W

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

Test & Report By:

Johnson Sun

Engineer: Johnson Sun

Date: Jun.26,2015

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	Jun.26,2015
Test Report No.	GZE150320-H
Laboratory Contact Name	Tommy Liang

Product Information:

Model Number	LF3-150W	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot 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	--	154.3	W
Input Current	--	1.291	A
Input Voltage (ac)	--	120.1	V
Power Factor	--	0.9950	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	15131	lm
Initial Lumen Efficacy	--	98.10	lm/w
Correlated color temperature / CCT	3055	--	K
Color rendering index / CRI	83.2	--	
R9 Value	9	--	
Duv	0.0010	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	4734	cd
Beam angle (if applicable)		114.5	°
Zonal lumens in the 0 °-60 ° zone		77	%
Zonal lumens in the 60 °-90 ° zone		22.8	%
Zonal lumens in the 90 °-120 ° zone		0	%
Zonal lumens in the 120 °-180 ° zone		0.2	%

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SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot 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	153.9	--	W
Input Current	1.2873	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9963	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	16423	--	lm
Initial Lumen Efficacy	106.71	--	lm/w
Correlated color temperature / CCT	5426	--	K
Color rendering index / CRI	83.5	--	
R9 Value	26	--	
Duv	0.0057	--	
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	: Jun.24,2014
Date of Test	: Jun.25,2014
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.

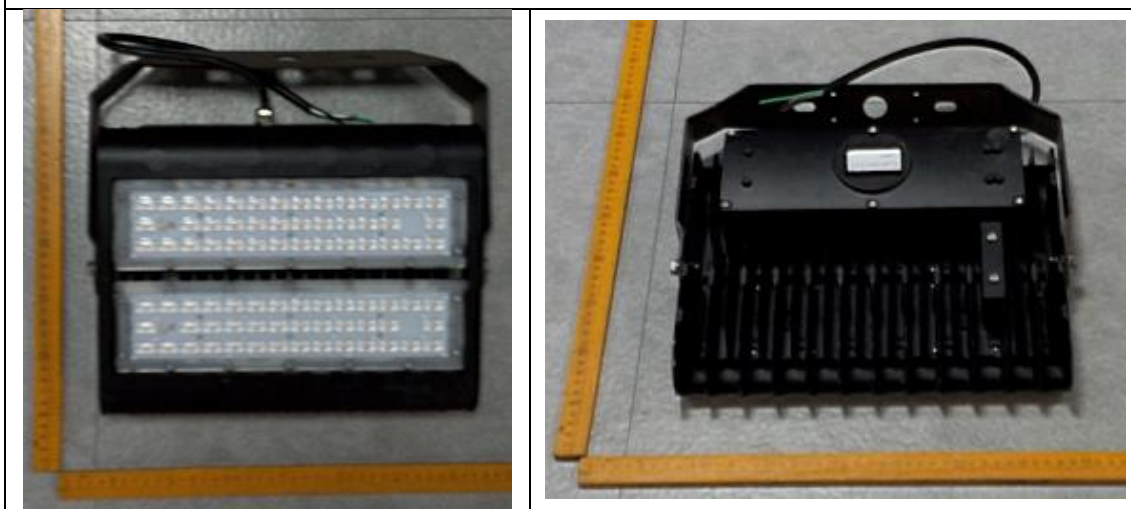
2. Photometric and Electrical Measurements – Integrating Sphere Method:

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.

1. Product Information:

Model Number	LF3-150W
Luminaire Type	Architectural Flood and Spot Luminaires
Rated Voltage / Frequency	120~ 277Vac, 50/60Hz
Nominal Power	150W
Rated Initial Lamp Lumen	--
Declared CCT	3000K, 4000K, 5000K,5700K
LED Manufacturer	Philips Lumileds
LED Model	LUXEON 3030 2D
Sample Receipt Date	Jun.24,2015
Sample Number	GZE150320-H1(3000K),H2(5700K)

Photo



2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2015-06-25	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150320	120.1	60	1.291	154.3	0.9950	5.55
-H1	277.0	60	0.5971	149.2	0.9017	6.27

Sphere-Spectroradiometer Method:

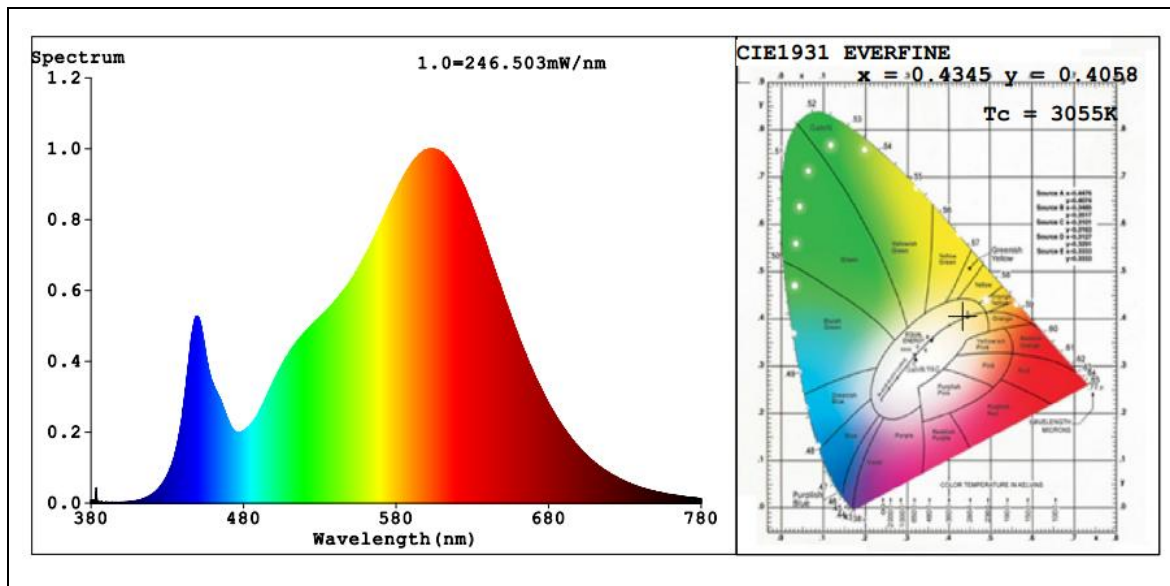
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	83.2
R9	9
CCT (K)	3055
Chromaticity (x, y)	x=0.4345 y=0.4058
Chromaticity (u', v')	u'=0.2483 v'=0.5217
Duv	0.0010

Special Color Rendering Indices			
R1	81	R9	9
R2	91	R10	79
R3	97	R11	81
R4	82	R12	72
R5	82	R13	84
R6	89	R14	99
R7	84	R15	74
R8	60	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	15131
Luminous Efficacy (lm/W)	98.10
Beam Angle °	114.5
Center Beam Candle Power (cd)	4734
S/MH(C0/180)	1.29
S/MH(C90/270)	1.20

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	3,583.2	23.7%
0-40	6,084.7	40.2%
0-60	11,652.1	77%
60-90	3,452.7	22.8%
70-100	1,297.9	8.6%
90-120	5.6	0%
0-90	15,104.8	99.8%
90-180	25.3	0.2%
0-180	15,130.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	441.6	2.9%	90-100	1.0	0%
10-20	1,240.5	8.2%	100-110	1.7	0%
20-30	1,901.1	12.6%	110-120	2.9	0%
30-40	2,501.5	16.5%	120-130	4.1	0%
40-50	2,826.2	18.7%	130-140	4.7	0%
50-60	2,741.2	18.1%	140-150	4.3	0%
60-70	2,155.7	14.2%	150-160	3.6	0%
70-80	1,073.4	7.1%	160-170	2.3	0%
80-90	223.6	1.5%	170-180	0.8	0%

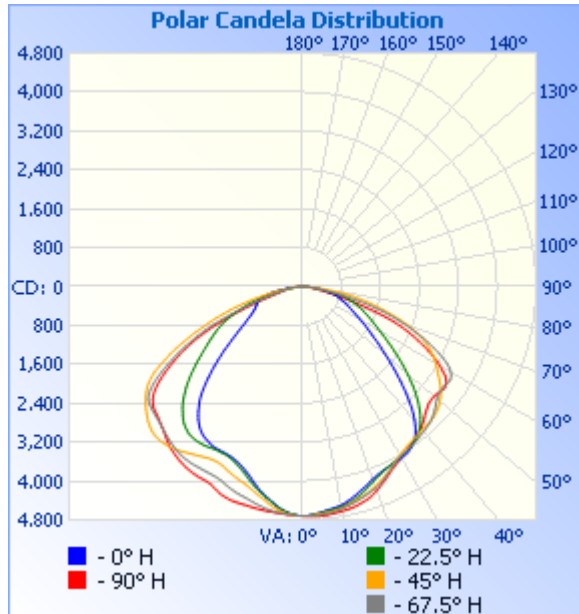
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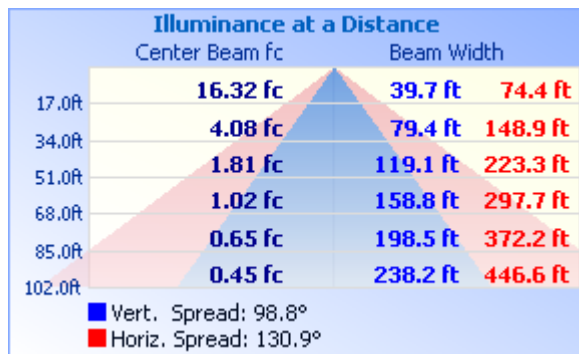
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Photometric Data



Illuminance Plots



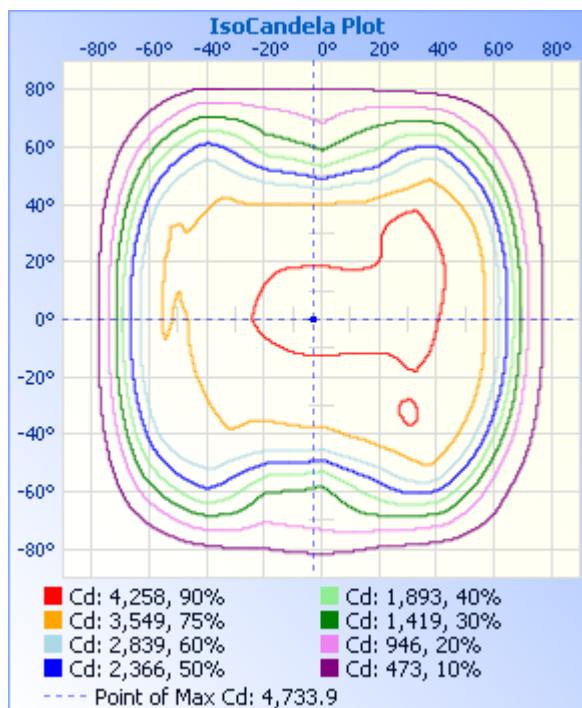
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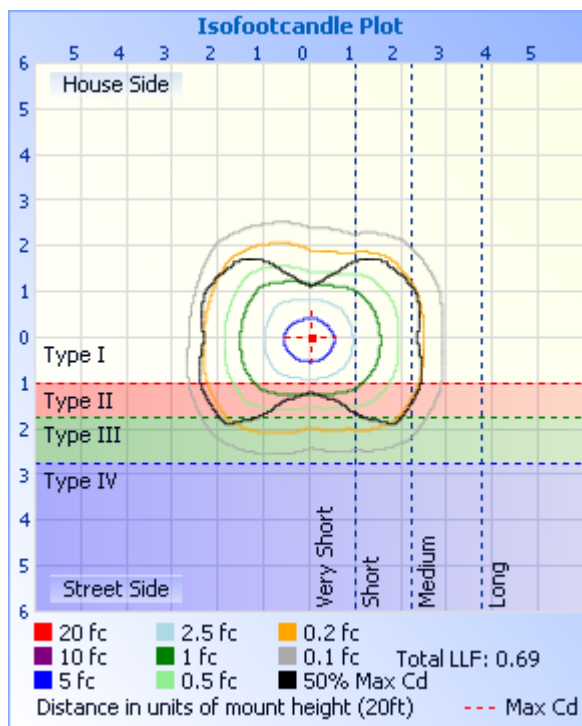
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ISOCANDELA DIAGRAM



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	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717	4717
1	4715	4716	4717	4717	4725	4721	4717	4712	4712	4709	4712	4711	4712	4713	4714	4713	4715
2	4699	4705	4710	4715	4730	4721	4713	4703	4697	4696	4706	4705	4708	4704	4705	4699	4699
3	4684	4689	4701	4714	4733	4717	4704	4686	4674	4679	4696	4697	4702	4692	4691	4680	4684
4	4668	4677	4690	4706	4734	4712	4690	4660	4650	4658	4679	4689	4697	4682	4674	4660	4668
5	4652	4665	4680	4700	4729	4706	4667	4627	4614	4622	4653	4682	4691	4667	4653	4642	4652
6	4632	4652	4672	4696	4724	4695	4643	4583	4573	4581	4627	4676	4685	4653	4633	4623	4632
7	4614	4639	4665	4688	4714	4677	4611	4537	4523	4535	4596	4665	4679	4639	4613	4602	4614
8	4599	4626	4653	4675	4705	4655	4576	4493	4476	4484	4555	4652	4675	4623	4593	4585	4599
9	4584	4610	4639	4658	4697	4627	4534	4450	4424	4436	4511	4635	4673	4602	4572	4564	4584
10	4564	4595	4622	4640	4687	4594	4492	4403	4373	4391	4463	4615	4669	4581	4552	4542	4564
11	4537	4578	4600	4616	4679	4560	4450	4356	4322	4343	4422	4592	4663	4560	4532	4522	4537
12	4507	4557	4578	4598	4668	4523	4407	4304	4269	4297	4381	4572	4659	4538	4511	4500	4507
13	4474	4530	4554	4575	4655	4486	4362	4250	4211	4249	4343	4548	4653	4515	4489	4473	4474
14	4434	4498	4529	4554	4637	4447	4318	4196	4149	4199	4303	4522	4647	4493	4468	4441	4434
15	4397	4462	4509	4531	4615	4409	4271	4138	4085	4145	4268	4502	4644	4473	4449	4405	4397
16	4361	4424	4487	4506	4593	4371	4221	4082	4026	4090	4237	4483	4640	4456	4426	4370	4361
17	4323	4380	4460	4480	4572	4332	4171	4027	3974	4037	4210	4466	4642	4443	4406	4335	4323
18	4287	4336	4431	4454	4543	4296	4118	3977	3929	3988	4187	4447	4638	4436	4387	4297	4287
19	4249	4296	4397	4431	4504	4260	4066	3931	3892	3944	4164	4425	4630	4433	4365	4262	4249
20	4211	4260	4367	4405	4459	4221	4014	3891	3859	3906	4140	4403	4613	4428	4342	4224	4211
21	4188	4223	4332	4374	4415	4180	3967	3855	3832	3873	4115	4376	4599	4419	4321	4197	4188
22	4164	4190	4296	4333	4371	4136	3922	3830	3811	3845	4090	4345	4576	4412	4303	4168	4164
23	4138	4158	4261	4291	4324	4089	3879	3808	3795	3822	4063	4321	4543	4405	4288	4147	4138
24	4125	4132	4225	4248	4278	4043	3842	3790	3783	3807	4038	4306	4511	4395	4275	4137	4125
25	4114	4113	4190	4206	4235	4002	3808	3779	3776	3798	4019	4297	4482	4390	4265	4125	4114
26	4100	4093	4150	4166	4191	3965	3778	3771	3774	3796	4011	4294	4470	4388	4259	4116	4100
27	4094	4074	4108	4128	4155	3930	3747	3765	3772	3796	4010	4291	4462	4391	4255	4111	4094
28	4086	4057	4069	4091	4119	3895	3723	3759	3774	3798	4016	4290	4462	4395	4254	4104	4086

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29	4078	4044	4035	4063	4087	3869	3702	3755	3767	3805	4027	4287	4461	4403	4257	4096	4078
30	4069	4031	4003	4036	4057	3842	3686	3754	3755	3818	4047	4287	4453	4417	4266	4084	4069
31	4056	4018	3976	4015	4025	3824	3674	3743	3737	3831	4070	4291	4444	4431	4282	4079	4056
32	4043	4001	3950	3997	3998	3804	3664	3728	3719	3840	4094	4294	4434	4446	4302	4072	4043
33	4016	3986	3926	3985	3972	3787	3658	3713	3698	3846	4115	4292	4419	4458	4324	4062	4016
34	3989	3971	3907	3971	3949	3770	3656	3692	3673	3849	4138	4287	4405	4469	4345	4049	3989
35	3950	3948	3890	3958	3927	3756	3655	3662	3640	3847	4166	4281	4388	4478	4366	4033	3950
36	3905	3922	3876	3945	3900	3744	3652	3631	3596	3844	4195	4272	4366	4483	4391	4006	3905
37	3848	3889	3863	3931	3878	3730	3651	3597	3542	3833	4221	4260	4345	4481	4413	3977	3848
38	3768	3850	3852	3910	3850	3719	3651	3554	3481	3815	4245	4242	4318	4474	4439	3943	3768
39	3682	3806	3844	3895	3822	3708	3650	3502	3416	3788	4268	4221	4297	4471	4461	3901	3682
40	3579	3758	3839	3881	3790	3693	3649	3442	3333	3759	4287	4200	4264	4460	4473	3853	3579
41	3468	3695	3829	3865	3754	3679	3646	3370	3251	3719	4298	4179	4229	4437	4478	3777	3468
42	3349	3624	3821	3847	3715	3663	3643	3298	3169	3673	4309	4154	4191	4408	4480	3704	3349
43	3207	3538	3815	3833	3672	3646	3638	3226	3066	3615	4315	4132	4156	4380	4466	3615	3207
44	3074	3451	3807	3810	3632	3624	3630	3149	2952	3554	4316	4109	4118	4345	4450	3527	3074
45	2938	3364	3799	3782	3599	3599	3618	3060	2829	3493	4311	4088	4088	4309	4425	3432	2938
46	2799	3261	3783	3748	3566	3574	3601	2963	2702	3425	4298	4068	4053	4271	4391	3330	2799
47	2660	3160	3763	3714	3541	3546	3579	2864	2574	3343	4273	4048	4029	4239	4344	3229	2660
48	2531	3055	3741	3678	3526	3522	3554	2756	2445	3261	4247	4035	4004	4199	4297	3128	2531
49	2401	2944	3713	3637	3517	3496	3522	2645	2311	3179	4214	4023	3986	4158	4240	3021	2401
50	2279	2834	3680	3603	3518	3474	3485	2533	2186	3091	4173	4009	3969	4122	4179	2912	2279
51	2166	2727	3644	3576	3528	3456	3440	2418	2062	2997	4132	3992	3944	4082	4111	2809	2166
52	2055	2616	3604	3560	3540	3445	3388	2304	1943	2903	4088	3978	3908	4049	4041	2702	2055
53	1951	2507	3558	3554	3560	3442	3329	2190	1831	2806	4043	3959	3860	4010	3971	2602	1951
54	1851	2405	3507	3553	3580	3443	3270	2078	1728	2709	3993	3925	3795	3974	3900	2503	1851
55	1756	2299	3447	3557	3583	3450	3210	1970	1631	2614	3941	3865	3711	3932	3826	2409	1756
56	1678	2200	3388	3571	3562	3455	3148	1870	1541	2524	3882	3773	3606	3882	3755	2318	1678
57	1600	2106	3328	3584	3521	3461	3086	1776	1463	2436	3816	3654	3484	3816	3685	2236	1600
58	1523	2014	3270	3589	3457	3459	3022	1687	1392	2353	3734	3525	3345	3727	3612	2155	1523
59	1450	1925	3215	3564	3358	3439	2959	1601	1329	2274	3638	3368	3202	3615	3533	2082	1450

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60	1382	1849	3161	3519	3260	3396	2895	1525	1274	2199	3522	3211	3054	3477	3447	2016	1382
61	1319	1770	3103	3454	3160	3313	2829	1452	1224	2125	3369	3054	2909	3335	3348	1951	1319
62	1259	1704	3045	3361	3034	3230	2763	1384	1180	2055	3217	2887	2751	3173	3241	1892	1259
63	1203	1639	2979	3246	2901	3146	2690	1324	1145	1987	3064	2715	2588	3020	3118	1834	1203
64	1151	1576	2906	3117	2761	3020	2615	1269	1114	1911	2894	2544	2406	2855	2981	1773	1151
65	1103	1518	2824	2974	2619	2887	2528	1217	1087	1829	2724	2369	2212	2682	2840	1715	1103
66	1058	1464	2736	2831	2478	2736	2433	1170	1064	1745	2550	2184	2000	2505	2692	1656	1058
67	1014	1408	2637	2682	2335	2584	2328	1128	1044	1660	2381	1989	1786	2320	2541	1596	1014
68	974	1355	2527	2522	2175	2432	2213	1085	1027	1567	2214	1783	1576	2134	2388	1535	974
69	936	1305	2405	2365	1998	2281	2089	1045	1011	1471	2050	1572	1366	1938	2232	1474	936
70	897	1256	2278	2209	1807	2127	1957	1005	996	1374	1896	1371	1172	1741	2080	1407	897
71	860	1201	2141	2056	1594	1966	1819	964	980	1275	1734	1179	998	1548	1924	1333	860
72	826	1146	2003	1887	1378	1808	1677	924	963	1174	1581	1010	844	1355	1774	1256	826
73	794	1089	1858	1704	1166	1637	1536	883	944	1075	1426	858	719	1175	1629	1178	794
74	761	1031	1721	1521	975	1462	1394	840	916	974	1274	731	619	1008	1484	1100	761
75	729	970	1584	1337	806	1279	1258	792	886	876	1124	624	548	864	1339	1012	729
76	693	907	1446	1143	663	1102	1126	737	818	785	981	545	492	738	1198	921	693
77	630	838	1314	965	546	930	1001	654	725	679	851	484	449	636	1058	816	630
78	554	739	1181	804	449	777	878	566	684	564	728	438	410	552	924	692	554
79	521	625	1051	662	371	644	754	520	653	490	619	398	376	487	796	601	521
80	491	550	922	542	310	525	612	476	585	428	511	360	350	433	664	534	491
81	440	490	787	442	266	426	498	400	498	351	401	326	337	387	529	465	440
82	372	409	612	365	230	344	406	353	430	287	312	297	325	346	426	374	372
83	334	335	493	305	198	277	308	264	339	212	239	277	307	309	339	318	334
84	264	264	395	259	166	217	235	237	311	172	171	256	281	276	255	238	264
85	247	206	284	220	133	161	162	193	221	139	111	226	245	230	186	202	247
86	213	175	187	175	96	111	123	70	53	56	80	181	199	190	131	166	213
87	80	101	134	126	47	57	29	10	11	9	21	90	131	143	95	70	80
88	10	12	67	73	11	11	6	4	3	4	5	7	51	77	21	8	10
89	4	4	5	19	1	2	2	1	1	1	2	2	3	7	3	3	4
90	1	1	1	1	1	2	2	1	1	1	2	1	0	1	1	1	1

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91	0	0	1	1	1	2	2	1	1	1	2	1	0	0	1	0	0
92	0	0	0	0	1	2	2	1	1	1	2	1	0	0	1	0	0
93	0	0	0	0	1	2	2	1	1	1	2	1	0	0	1	0	0
94	0	0	0	0	1	2	2	1	1	1	2	1	0	0	0	0	0
95	0	0	0	0	1	2	2	1	1	1	2	2	0	0	0	0	0
96	0	0	0	0	1	2	2	1	1	1	2	2	0	0	0	0	0
97	0	0	0	0	1	2	2	1	1	1	2	2	0	0	0	0	0
98	0	0	0	0	1	2	2	1	1	1	2	2	0	0	0	0	0
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100	0	0	0	0	1	2	2	1	1	2	3	2	0	0	1	0	0
101	0	0	0	0	1	2	2	2	1	2	3	3	0	1	1	0	0
102	0	0	0	0	2	2	2	2	1	2	3	3	0	1	1	0	0
103	0	0	1	0	2	2	3	2	1	2	3	3	1	1	1	0	0
104	0	0	1	1	2	3	3	2	1	2	3	3	1	1	1	0	0
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106	0	1	1	1	2	3	3	2	1	2	3	3	1	2	2	1	0
107	0	1	1	1	3	3	3	2	1	2	3	4	1	2	2	1	0
108	1	1	2	1	3	3	3	2	2	2	3	4	2	2	2	1	1
109	1	1	2	2	3	3	3	2	2	2	4	4	2	2	2	1	1
110	1	1	2	2	3	4	3	2	2	2	4	4	2	3	2	1	1
111	1	1	2	2	3	4	3	2	2	2	4	4	2	3	2	1	1
112	1	1	2	2	3	4	3	2	2	2	4	5	2	3	2	1	1
113	1	1	2	2	4	4	4	2	2	2	4	4	3	3	2	1	1
114	2	1	2	3	4	4	4	2	2	3	4	4	3	3	3	1	2
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116	2	2	3	3	4	4	4	3	2	3	4	4	3	4	3	2	2
117	2	2	3	3	4	5	4	3	2	3	4	4	3	4	3	2	2
118	3	2	3	3	4	5	4	3	2	3	4	5	3	4	3	2	3
119	3	2	3	3	5	5	4	3	2	3	4	5	4	4	3	2	3
120	2	2	3	4	5	5	4	3	3	3	4	5	4	4	3	2	2
121	2	2	3	4	5	5	4	3	3	3	4	5	4	4	3	2	2

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122	4	3	4	4	5	5	4	3	3	3	4	5	4	4	3	3	4
123	5	3	4	4	6	5	4	3	3	3	4	5	4	4	4	4	5
124	5	3	4	4	6	5	5	4	3	3	4	5	4	4	4	4	5
125	11	3	4	4	6	6	5	4	4	4	4	5	4	4	4	4	11
126	14	3	4	4	6	6	5	4	4	4	4	5	4	4	4	5	14
127	15	4	4	5	6	6	5	4	4	4	4	5	4	4	4	5	15
128	15	4	4	5	6	6	5	4	4	4	5	5	5	4	4	5	15
129	16	4	4	5	6	6	5	4	4	4	5	5	5	4	4	5	16
130	16	4	4	5	6	6	5	5	5	4	5	5	5	4	4	6	16
131	17	5	4	5	7	6	5	5	5	5	5	5	5	4	4	6	17
132	17	4	5	5	7	6	6	5	5	5	5	5	5	4	4	6	17
133	17	5	5	5	7	6	6	5	5	5	5	5	5	4	4	6	17
134	10	5	5	5	7	6	6	6	5	5	5	5	5	4	4	6	10
135	10	5	5	5	7	6	6	6	6	5	6	6	5	4	4	7	10
136	16	5	5	5	7	6	6	6	6	6	6	6	5	4	4	7	16
137	17	6	5	5	7	7	6	6	6	6	6	6	5	4	4	7	17
138	17	5	5	5	7	7	6	6	6	6	6	6	5	4	4	6	17
139	16	5	5	5	7	7	6	7	7	6	6	6	5	4	4	6	16
140	12	6	5	5	7	7	6	7	7	7	6	6	5	4	4	6	12
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142	12	6	5	5	8	7	7	7	7	7	6	6	5	4	5	7	12
143	14	6	5	5	8	7	7	7	7	7	7	6	5	5	5	7	14
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145	14	7	5	5	8	7	7	7	8	7	7	6	5	5	5	7	14
146	13	7	5	5	8	7	7	7	8	8	7	6	5	5	5	7	13
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148	13	7	6	5	8	8	7	8	8	8	7	7	5	5	6	7	13
149	12	7	6	5	8	8	7	8	8	9	8	7	5	5	6	7	12
150	12	7	6	5	8	8	8	8	11	9	8	7	5	5	6	7	12
151	11	7	6	6	8	8	8	8	12	8	8	7	5	5	6	7	11
152	11	7	6	6	8	8	8	8	12	8	8	8	5	5	6	8	11

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153	11	7	6	6	8	8	8	8	8	8	8	8	5	6	6	8	11
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156	10	7	7	6	8	8	8	9	9	8	9	8	5	6	7	8	10
157	10	7	7	6	8	8	9	9	9	10	9	8	5	6	7	8	10
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176	9	8	8	8	9	9	9	9	9	9	9	9	8	8	8	8	9
177	9	9	8	8	9	8	9	9	9	9	9	9	8	8	8	9	9
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179	9	9	8	8	8	8	8	8	9	9	9	8	8	8	8	9	9
180	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

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BUG Rating: B3-U2-G3

IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	1836.4	12.1
FM - Front-Medium(30-60)	4134.1	27.3
FH - Front-High(60-80)	1655.1	10.9
FVH - Front-Very High(80-90)	127.95	0.8
Total Forward Light	7764.9	51.3

BL - Back-Low(0-30)	1747	11.5
BM - Back-Medium(30-60)	3936.3	26.0
BH - Back-High(60-80)	1573.7	10.4
BVH - Back-Very High(80-90)	95.594	0.6
Total Back Light	7366.7	48.7

UL - Uplight-Low(90-100)	1.0807	0.0
UH - Uplight-High(100-180)	24.354	0.2
Total Up Light	25.434	0.2

BUG(Back,Up,Glare) Rating	B3-U2-G3
---------------------------	----------

Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	7753.6	11.307	7764.9
Street Side	7352.6	14.127	7366.7

Test Voltage:277V

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150320 -H1	277.0	60	0.5971	149.2	0.9017	6.27

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	14885
Luminous Efficacy (lm/W)	99.80
Beam Angle °	114.2
Center Beam Candle Power (cd)	4670
S/MH(C0/180)	1.29
S/MH(C90/270)	1.20

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2.2 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2015-06-25	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90

Electrical Measurement:

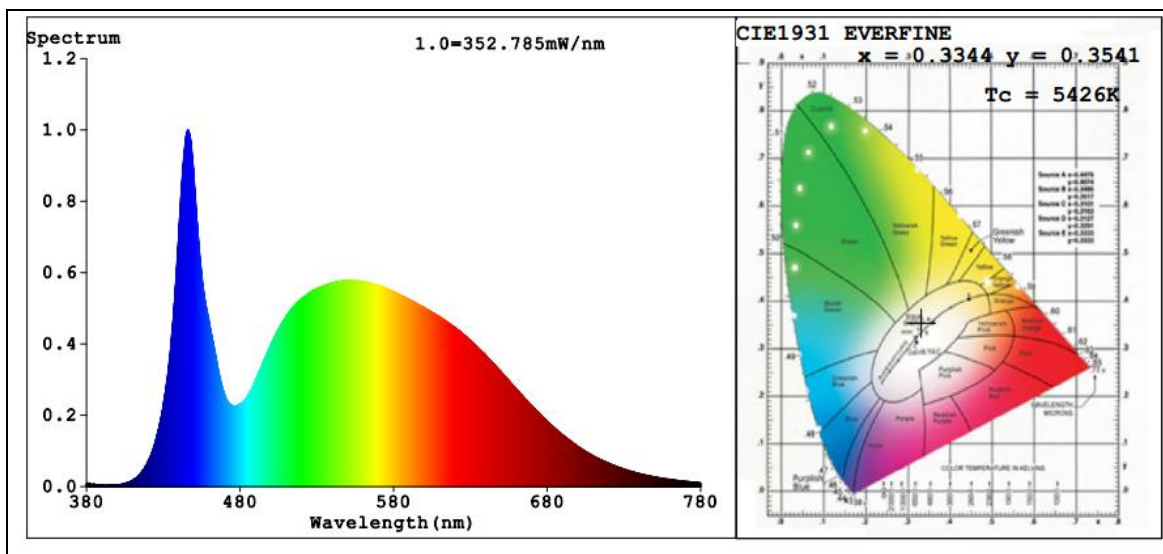
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150320	120.0	60	1.2873	153.9	0.9963	5.43
-H2	277.0	60	0.6045	151.3	0.9035	6.08

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	83.5
R9	26
CCT (K)	5426
Chromaticity (x, y)	x=0.3344 y=0.3541
Chromaticity (u', v')	u'=0.2033 v'=0.4843
Duv	0.0057
Total Luminous (lm)	16423
Luminous Efficacy (lm/W)	106.71

Special Color Rendering Indices			
R1	82	R9	26
R2	85	R10	66
R3	88	R11	85
R4	85	R12	64
R5	83	R13	82
R6	81	R14	93
R7	89	R15	78
R8	76	--	--

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 *******

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