

LM-79-08 Test Report

Architectural Flood and Spot Luminaires

Model name(s): **ITEM NO: LF3-15W**

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,KN=Knuckle; "ZZ" stand for housing color by use 2 digits to indicate all of color.

Representative (Tested) Model: '**LF3-15W**

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

Test & Report By:

Johnson Sun

Engineer: Johnson Sun

Date: Jun.09,2015

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

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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.09,2015
Test Report No.	GZE150320-D
Laboratory Contact Name	Tommy Liang

Model Number	ITEM NO: LF3-15W	
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	--	15.26	W
Input Current	--	0.1301	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9774	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	1467.8	lm
Initial Lumen Efficacy	--	96.19	lm/w
Correlated color temperature / CCT	3042	--	K
Color rendering index / CRI	82.9	--	
R9 Value	8	--	
Duv	0.0008	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	595.1	cd
Beam angle (if applicable)		104.2	°
Zonal lumens in the 0 °-60 °zone		87.5	%
Zonal lumens in the 60 °-90 °zone		12.4	%
Zonal lumens in the 90 °-120 °zone		0	%
Zonal lumens in the 120 °-180 °zone		0	%

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Test Report No.	GZE150320-D
Laboratory Contact Name	Tommy Liang

Model Number	LF3-15W	)
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	14.93	--	W
Input Current	0.1267	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9821	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	1511	--	lm
Initial Lumen Efficacy	101.21	--	lm/w
Correlated color temperature / CCT	5585	--	K
Color rendering index / CRI	84.1	--	
R9 Value	15	--	
Duv	0.0045	--	
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.05,2014
Date of Test	: Jun.07,2014
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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1. Product Information:

Model Number	LF3-15W
Luminaire Type	Architectural Flood and Spot Luminaires
Rated Voltage / Frequency	120~ 277Vac, 50/60Hz
Nominal Power	15W
Rated Initial Lamp Lumen	--
Declared CCT	3000K, 4000K, 5000K,5700K
LED Manufacturer	Philips Lumileds
LED Model	LUXEON 3030 2D
Sample Receipt Date	Jun.05,2015
Sample Number	GZE150320-D1(3000K),D2(5700K)

Photo



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

Test date	2015-06-07	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	0.1301	15.26	0.9774	17.58
-D1	277.0	60	0.0616	15.49	0.9079	16.52

Sphere-Spectroradiometer Method:

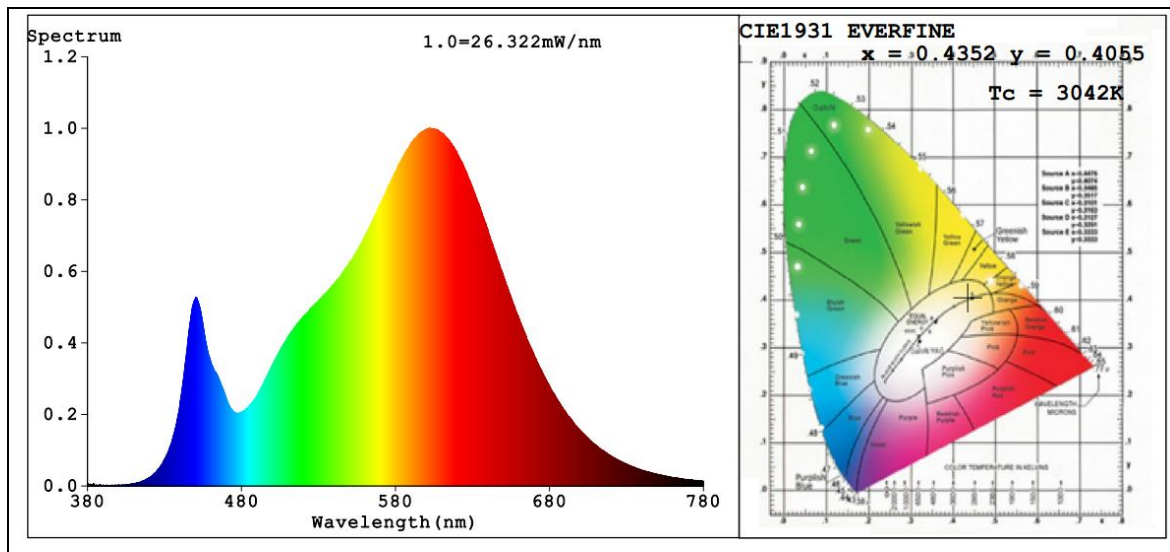
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.9
R9	8
CCT (K)	3042
Chromaticity (x, y)	x=0.4352 y=0.4055
Chromaticity (u', v')	u'=0.2488 v'=0.5217
Duv	0.0008

Special Color Rendering Indices			
R1	81	R9	8
R2	91	R10	79
R3	97	R11	80
R4	81	R12	71
R5	81	R13	83
R6	89	R14	99
R7	83	R15	74
R8	60	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1467.8
Luminous Efficacy (lm/W)	96.19
Beam Angle °	104.2
Center Beam Candle Power (cd)	595.1
S/MH(C0/180)	1.36
S/MH(C90/270)	1.21

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	469.9	32%	32%
0-40	771.1	52.5%	52.5%
0-60	1,284.9	87.5%	87.5%
60-90	182.7	12.4%	12.4%
70-100	56.0	3.8%	3.8%
90-120	0.0	0%	0%
0-90	1,467.6	100%	100%
90-180	0.1	0%	0%
0-180	1,467.6	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	54.5	3.7%	90-100	0.0	0%
10-20	162.0	11.0%	100-110	0	0%
20-30	253.4	17.3%	110-120	0.0	0%
30-40	301.2	20.5%	120-130	0.0	0%
40-50	288.1	19.6%	130-140	0.0	0%
50-60	225.7	15.4%	140-150	0.0	0%
60-70	126.7	8.6%	150-160	0.0	0%
70-80	47.3	3.2%	160-170	0.0	0%
80-90	8.7	0.6%	170-180	0.0	0%

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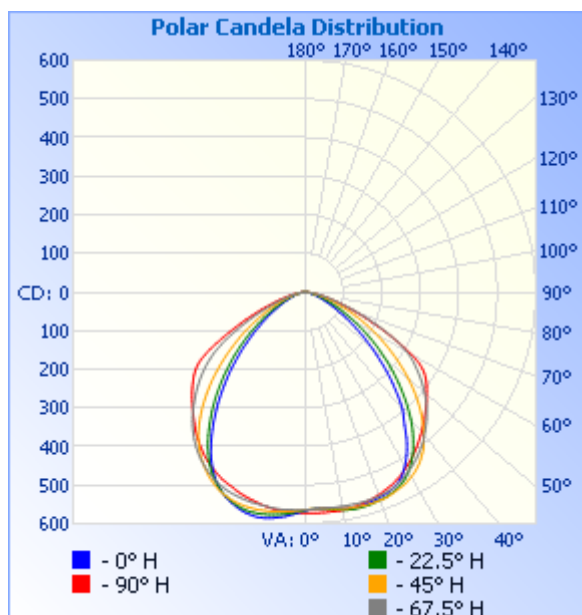
NVLAP CODE: 201011-0

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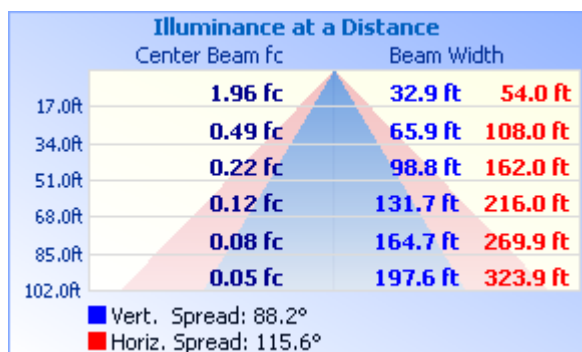
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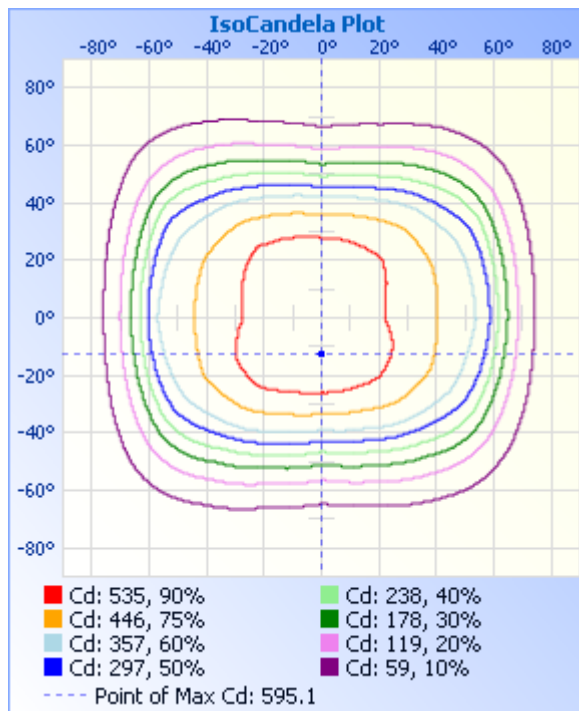
Photometric Data



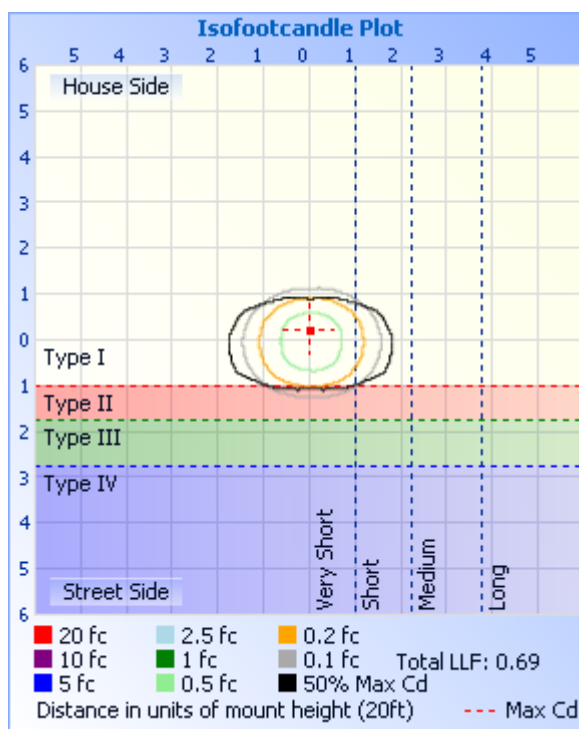
Illuminance Plots



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	566	565	563	564	572	570	568	567	566	565	563	564	572	570	568	567	566
1	564	564	562	563	572	571	570	569	569	567	564	564	571	569	567	566	564
2	562	562	562	563	573	572	573	572	573	569	566	564	571	568	565	564	562
3	561	563	562	563	573	574	575	575	576	572	567	564	571	567	564	563	561
4	561	563	562	563	573	575	577	578	580	574	569	565	570	565	563	563	561
5	561	564	563	563	573	576	579	581	583	577	570	565	569	564	562	564	561
6	562	565	564	563	573	577	582	584	585	578	571	566	568	563	561	564	562
7	564	567	565	562	573	577	584	587	588	580	572	565	568	561	561	565	564
8	566	569	566	563	573	578	586	589	590	582	574	565	567	561	562	566	566
9	568	570	568	563	573	580	587	590	592	583	574	564	566	560	562	568	568
10	569	572	569	563	573	580	589	592	594	584	575	563	564	557	562	569	569
11	571	574	570	563	573	580	590	592	595	585	575	563	562	555	562	570	571
12	572	575	572	564	572	580	591	592	595	586	576	562	560	554	562	572	572
13	573	576	572	564	571	581	592	592	594	585	576	561	558	552	562	573	573
14	574	576	572	564	570	581	592	592	593	586	576	561	556	551	561	573	574
15	573	577	573	564	568	581	592	590	591	585	575	560	553	550	561	573	573
16	572	576	574	564	567	581	592	588	589	583	575	559	551	549	560	573	572
17	571	576	574	564	565	581	591	586	585	581	574	558	549	547	560	572	571
18	569	575	574	563	563	580	590	583	582	578	573	557	546	546	559	571	569
19	568	573	574	563	561	579	589	581	578	575	571	555	543	545	558	570	568
20	566	573	573	563	559	578	588	577	574	571	569	554	540	542	556	568	566
21	565	572	573	562	556	577	585	574	569	567	566	552	537	541	555	566	565
22	563	570	572	560	554	575	583	569	563	562	564	550	534	539	554	564	563
23	561	568	570	559	551	573	581	564	557	557	560	547	531	537	552	562	561
24	558	566	568	557	549	571	577	558	549	551	556	544	529	535	550	559	558
25	554	563	566	555	545	568	573	552	541	544	551	541	525	532	548	556	554
26	550	559	564	552	542	565	570	545	532	536	546	538	521	529	546	552	550
27	545	556	562	550	538	562	565	537	522	528	540	533	517	525	543	547	545
28	539	551	560	544	534	558	561	529	511	519	534	529	513	523	540	539	539
29	528	544	556	540	530	554	555	519	498	509	528	525	508	519	536	531	528

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30	520	537	552	536	525	550	549	509	486	498	520	520	504	514	531	524	520
31	510	530	549	533	521	545	543	498	472	486	513	514	499	510	527	516	510
32	499	521	544	528	516	540	536	486	458	474	506	509	494	506	522	508	499
33	487	512	538	524	511	534	527	474	443	461	497	503	488	501	516	499	487
34	474	502	533	519	505	528	519	461	427	447	488	497	483	496	510	489	474
35	461	491	526	513	500	522	509	448	412	433	478	490	477	491	503	479	461
36	445	479	518	508	495	516	499	434	396	419	469	483	471	486	496	468	445
37	431	467	511	502	489	510	488	419	380	405	458	476	465	479	487	456	431
38	418	455	502	497	483	503	477	405	365	390	446	468	458	472	479	444	418
39	407	441	491	490	477	496	465	390	349	375	434	460	452	466	470	430	407
40	395	428	480	483	472	488	453	375	333	361	421	452	444	457	460	416	395
41	378	414	469	476	466	480	440	361	317	346	408	444	438	451	450	401	378
42	362	399	458	470	460	472	426	346	301	331	394	435	431	443	439	387	362
43	345	384	447	463	454	464	412	331	286	317	380	425	424	436	427	372	345
44	329	369	435	455	448	455	398	317	271	302	366	416	418	429	415	357	329
45	313	354	422	448	442	446	384	302	256	287	351	406	412	421	402	343	313
46	296	339	409	440	436	436	369	287	241	273	337	396	405	413	389	328	296
47	279	323	396	432	431	426	354	273	226	259	322	386	399	405	376	313	279
48	263	309	382	424	425	416	339	258	213	245	307	376	393	396	362	298	263
49	247	294	368	415	419	406	324	244	199	232	292	366	387	387	347	283	247
50	232	279	353	406	413	395	309	230	186	218	278	356	380	379	333	268	232
51	217	265	339	397	407	385	294	216	173	205	263	345	373	370	319	253	217
52	203	250	324	388	402	374	279	203	161	192	249	334	367	360	305	239	203
53	189	236	309	378	396	363	264	190	150	179	235	323	360	351	290	225	189
54	176	222	295	368	390	352	249	177	139	167	221	311	352	341	275	211	176
55	163	209	281	359	383	340	234	165	128	155	207	299	344	330	260	197	163
56	150	195	266	349	374	327	220	153	118	144	194	285	334	320	246	184	150
57	138	182	252	339	364	314	207	142	109	134	181	271	321	308	232	171	138
58	127	169	238	328	352	300	193	131	100	123	168	254	305	296	219	159	127
59	117	157	224	316	336	285	180	121	92	114	156	237	285	281	205	147	117
60	107	145	211	304	316	268	167	112	85	105	144	219	264	266	192	136	107
61	98	134	197	289	295	251	155	103	78	97	133	201	243	247	179	125	98

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62	90	124	184	273	272	232	143	94	71	89	122	184	222	227	166	115	90
63	82	113	171	255	250	214	131	86	65	82	112	167	202	208	154	106	82
64	75	104	159	236	229	196	121	79	60	75	102	152	185	190	142	97	75
65	69	95	147	217	210	179	110	72	55	68	93	137	168	173	130	88	69
66	63	87	135	198	191	162	101	66	50	62	85	123	151	156	119	81	63
67	58	79	124	181	174	147	92	60	46	57	76	111	136	141	108	74	58
68	53	73	114	164	157	133	83	55	42	52	69	99	122	127	98	67	53
69	49	66	103	148	141	119	75	50	39	47	62	88	109	114	89	61	49
70	45	60	94	133	127	107	68	46	35	43	56	78	97	102	80	56	45
71	41	55	85	119	113	95	61	41	32	39	50	68	86	90	72	50	41
72	37	50	76	106	101	85	55	37	29	35	45	60	76	80	64	46	37
73	34	46	69	95	89	75	49	33	26	31	40	53	66	70	58	42	34
74	31	41	62	84	79	66	44	30	23	28	35	46	58	62	51	37	31
75	28	37	55	74	70	58	39	26	21	24	31	40	51	54	45	34	28
76	25	33	49	66	61	50	34	23	18	21	27	34	44	47	40	30	25
77	23	30	44	57	54	44	30	20	16	18	23	29	39	41	35	27	23
78	20	27	39	50	46	38	26	18	14	16	20	25	33	35	30	23	20
79	18	24	34	43	40	32	22	15	12	13	16	21	28	30	26	21	18
80	16	21	29	37	35	27	19	13	10	11	13	17	24	25	23	18	16
81	14	18	25	32	29	23	16	10	8	9	11	13	20	21	19	15	14
82	12	15	22	27	25	19	13	8	6	7	8	10	16	17	16	13	12
83	10	13	18	23	20	15	10	6	4	5	6	7	12	13	13	11	10
84	8	11	15	19	16	12	8	4	3	3	4	5	9	10	10	9	8
85	6	9	12	15	12	9	5	3	1	2	2	3	6	7	7	7	6
86	5	7	10	12	9	7	3	1	0	0	0	1	4	5	5	5	5
87	3	5	7	8	6	4	2	0	0	0	0	0	1	2	3	3	3
88	2	3	5	6	3	2	0	0	0	0	0	0	0	1	1	2	2
89	1	2	3	3	1	0	0	0	0	0	0	0	0	0	0	1	1
90	0	1	1	1	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	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
123	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

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158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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BUG Rating: B1-U1-G0

IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	233.5	15.9
FM - Front-Medium(30-60)	422.61	28.8
FH - Front-High(60-80)	94.332	6.4
FVH - Front-Very High(80-90)	5.3353	0.4
Total Forward Light	755.82	51.5

BL - Back-Low(0-30)	236.4	16.1
BM - Back-Medium(30-60)	392.56	26.7
BH - Back-High(60-80)	79.65	5.4
BVH - Back-Very High(80-90)	3.3484	0.2
Total Back Light	711.97	48.5

UL - Uplight-Low(90-100)	0.012121	0.0
UH - Uplight-High(100-180)	0.0377	0.0
Total Up Light	0.049821	0.0

BUG(Back,Up,Glare) Rating	B1-U1-G0
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Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	755.78	0.033076	755.82
Street Side	711.95	0.016745	711.97

Test Voltage:277V

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150320 -D1	277.0	60	0.0616	15.49	0.9079	16.52

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1446.6
Luminous Efficacy (lm/W)	93.36
Beam Angle °	104.3
Center Beam Candle Power (cd)	585.5
S/MH(C0/180)	1.36
S/MH(C90/270)	1.21

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

IES LM-79 2008

Test date	2015-06-07	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90

Electrical Measurement:

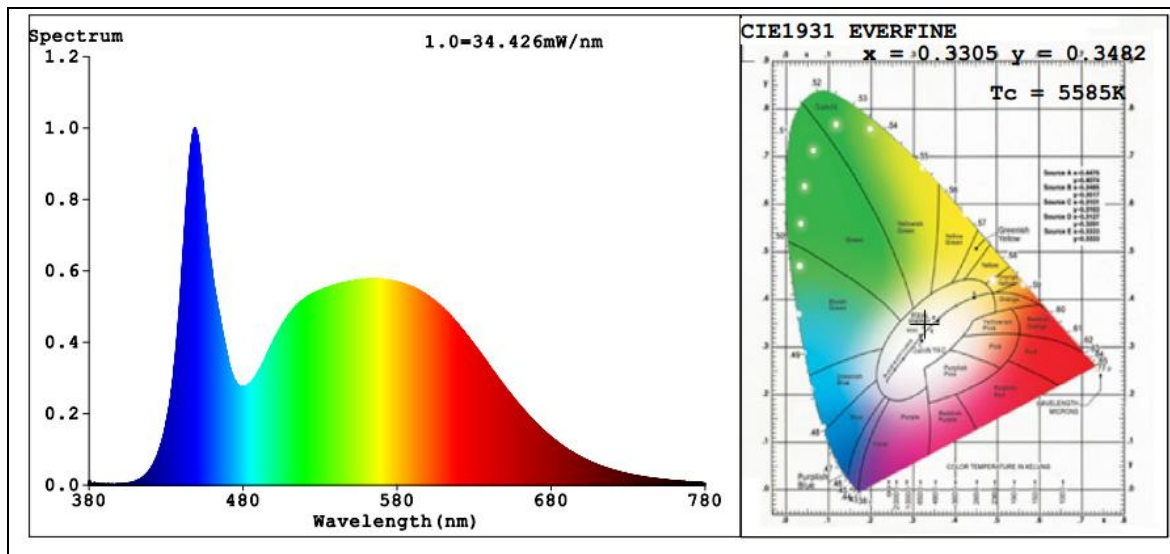
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150320	120.0	60	0.1267	14.93	0.9821	17.86
-D2	277.0	60	0.0607	15.24	0.9068	16.75

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.1
R9	15
CCT (K)	5585
Chromaticity (x, y)	x=0.3305 y=0.3482
Chromaticity (u', v')	u'=0.2028 v'=0.4808
Duv	0.0045
Total Luminous (lm)	1511
Luminous Efficacy (lm/W)	101.21

Special Color Rendering Indices			
R1	82	R9	15
R2	88	R10	71
R3	92	R11	84
R4	85	R12	63
R5	83	R13	83
R6	83	R14	95
R7	89	R15	77
R8	71	--	--

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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