

LM-79-08 Test Report

Architectural Flood and Spot Luminaires

Model name(s): **LF3-30W**

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

Representative (Tested) Model: **LF3-30W**

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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Report No.: GZE150320-E

Laboratory: Standard-Tech Co. Ltd Testing Center

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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-E
Laboratory Contact Name	Tommy Liang

Model Number	LF3-30W	
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	--	29.33	W
Input Current	--	0.2498	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9783	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	2899.1	lm
Initial Lumen Efficacy	--	98.84	lm/w
Correlated color temperature / CCT	3041	--	K
Color rendering index / CRI	83.2	--	
R9 Value	9	--	
Duv	0.0010	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	1172	cd
Beam angle (if applicable)		100.4	°
Zonal lumens in the 0 °-60 °zone		83.3	%
Zonal lumens in the 60 °-90 °zone		16.6	%
Zonal lumens in the 90 °-120 °zone		0	%
Zonal lumens in the 120 °-180 °zone		0.1	%

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Laboratory Information:

Name of Test Laboratory	Standard-Tech Co. Ltd
Date of Test Report	Jun.09,2015
Test Report No.	GZE150320-E
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	28.95	--	W
Input Current	0.2444	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9873	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	2985	--	lm
Initial Lumen Efficacy	103.11	--	lm/w
Correlated color temperature / CCT	5646	--	K
Color rendering index / CRI	84.5	--	
R9 Value	18	--	
Duv	0.0041	--	
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.

Model Number	LF3-15W
Luminaire Type	Architectural Flood and Spot Luminaires
Rated Voltage / Frequency	120~ 277Vac, 50/60Hz
Nominal Power	30W
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-E1(3000K),E2(5700K)

Photo



2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2015-06-07	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	0.2498	29.33	0.9783	17.63
-E1	277.0	60	0.1209	30.31	0.9049	16.49

Sphere-Spectroradiometer Method:

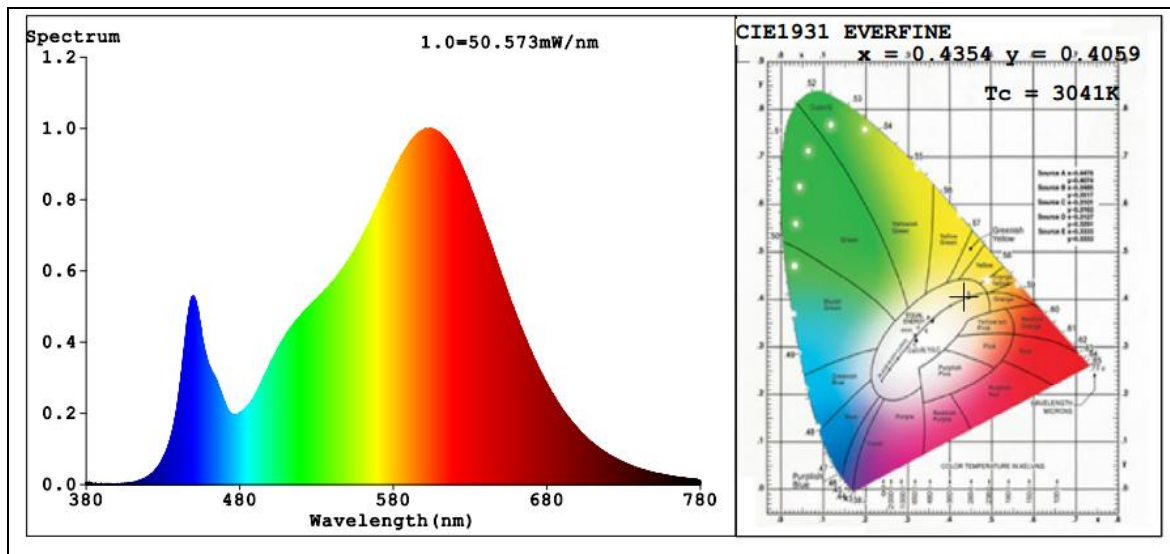
Parameter	Result
Test Voltage (V)	120.1
Frequency (Hz)	60
Color Rendering Index (CRI)	83.2
R9	9
CCT (K)	3041
Chromaticity (x, y)	x=0.4354 y=0.4059
Chromaticity (u', v')	u'=0.2488 v'=0.5219
Duv	0.0010

Special Color Rendering Indices			
R1	81	R9	9
R2	91	R10	79
R3	97	R11	81
R4	81	R12	71
R5	82	R13	84
R6	89	R14	99
R7	84	R15	74
R8	60	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.1
Frequency (Hz)	60
Total Luminous (lm)	2899.1
Luminous Efficacy (lm/W)	98.84
Beam Angle °	100.4
Center Beam Candle Power (cd)	1172
S/MH(C0/180)	1.38
S/MH(C90/270)	1.05

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	871.3	30.1%	30.1%
0-40	1,415.3	48.8%	48.8%
0-60	2,415.6	83.3%	83.3%
60-90	480.6	16.6%	16.6%
70-100	178.1	6.1%	6.1%
90-120	0.8	0%	0%
0-90	2,896.3	99.9%	99.9%
90-180	2.4	0.1%	0.1%
0-180	2,898.7	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	109.0	3.8%	90-100	0.6	0%
10-20	306.0	10.6%	100-110	0.0	0%
20-30	456.2	15.7%	110-120	0.2	0%
30-40	544.0	18.8%	120-130	0.2	0%
40-50	544.6	18.8%	130-140	0.3	0%
50-60	455.8	15.7%	140-150	0.3	0%
60-70	303.2	10.5%	150-160	0.3	0%
70-80	144.2	5.0%	160-170	0.3	0%
80-90	33.3	1.1%	170-180	0.1	0%

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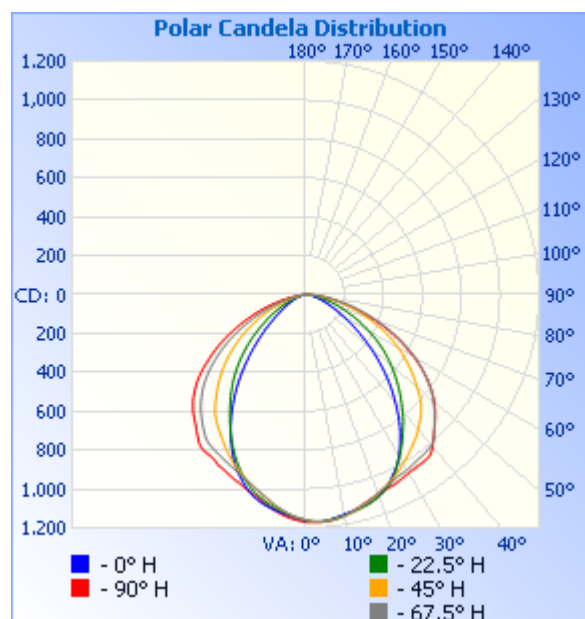
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Tel: 8620-3229 0320

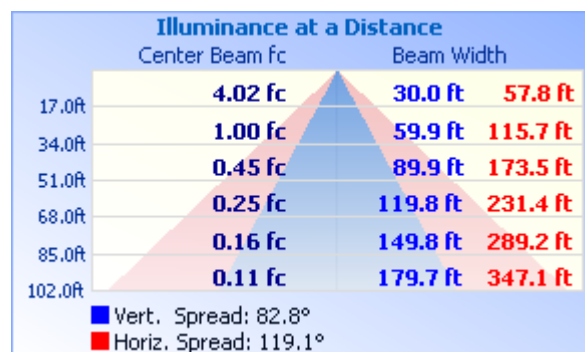
Fax: 8620-32290422

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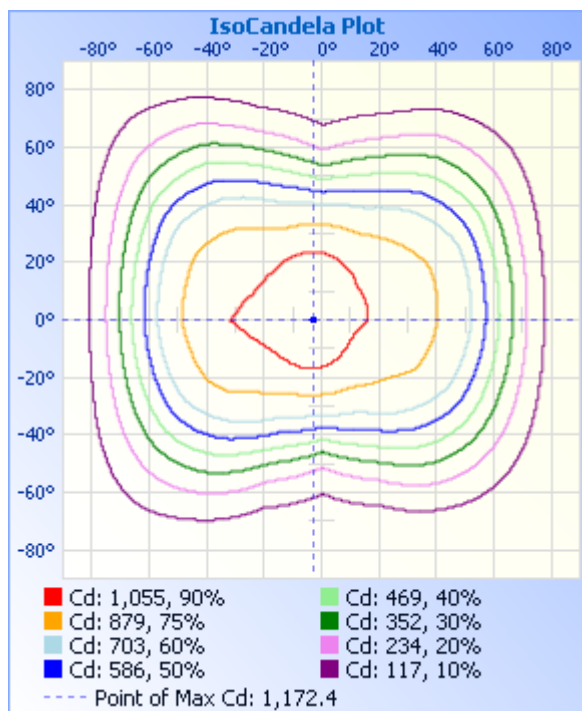
Photometric Data



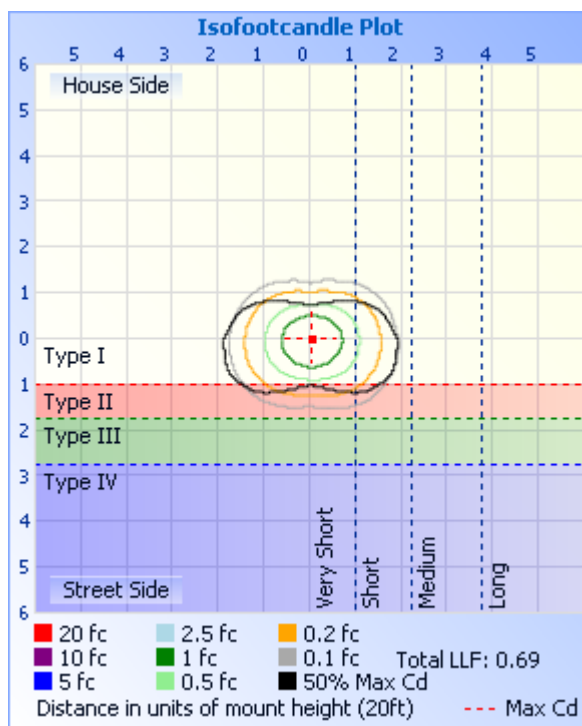
Illuminance Plots



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	1161	1160	1159	1157	1169	1166	1166	1164	1161	1160	1159	1157	1169	1166	1166	1164	1161
1	1166	1165	1163	1161	1170	1167	1164	1162	1157	1155	1153	1152	1165	1165	1166	1166	1166
2	1169	1168	1167	1165	1172	1166	1162	1158	1152	1148	1147	1147	1161	1164	1165	1168	1169
3	1170	1170	1170	1167	1172	1165	1159	1154	1146	1142	1141	1141	1157	1161	1164	1168	1170
4	1170	1170	1171	1168	1172	1163	1156	1149	1141	1136	1133	1134	1151	1158	1162	1166	1170
5	1168	1169	1171	1169	1171	1160	1152	1145	1135	1129	1125	1125	1145	1152	1158	1163	1168
6	1164	1167	1169	1168	1169	1156	1148	1141	1130	1123	1115	1115	1138	1146	1154	1160	1164
7	1160	1163	1167	1167	1166	1152	1142	1137	1124	1115	1107	1106	1130	1139	1147	1154	1160
8	1155	1159	1163	1164	1162	1148	1138	1132	1119	1108	1097	1096	1121	1132	1140	1149	1155
9	1151	1156	1160	1160	1156	1142	1132	1128	1114	1100	1087	1085	1113	1123	1132	1143	1151
10	1147	1152	1155	1155	1151	1135	1127	1122	1107	1092	1077	1073	1103	1114	1123	1136	1147
11	1144	1148	1150	1149	1146	1128	1122	1116	1101	1083	1066	1062	1093	1105	1113	1128	1144
12	1140	1144	1144	1143	1140	1122	1114	1109	1093	1073	1055	1052	1084	1095	1104	1122	1140
13	1136	1141	1138	1136	1133	1114	1106	1102	1085	1064	1045	1042	1075	1085	1093	1115	1136
14	1131	1136	1132	1130	1127	1106	1098	1094	1076	1054	1034	1033	1066	1076	1082	1109	1131
15	1127	1133	1126	1123	1120	1099	1090	1084	1065	1043	1025	1024	1058	1068	1073	1102	1127
16	1123	1129	1119	1115	1113	1091	1082	1073	1052	1030	1015	1014	1050	1058	1064	1094	1123
17	1118	1124	1112	1108	1108	1084	1072	1061	1039	1017	1005	1006	1043	1050	1056	1086	1118
18	1113	1118	1105	1100	1102	1077	1062	1048	1024	1002	995	998	1036	1043	1047	1078	1113
19	1107	1111	1098	1092	1097	1071	1052	1034	1008	987	985	991	1030	1035	1039	1070	1107
20	1097	1104	1090	1086	1092	1065	1041	1019	992	970	974	983	1024	1028	1031	1061	1097
21	1088	1096	1081	1079	1088	1059	1030	1002	974	953	964	976	1019	1021	1023	1052	1088
22	1078	1086	1072	1073	1085	1054	1018	984	956	935	954	970	1013	1014	1013	1039	1078
23	1068	1075	1064	1068	1082	1048	1007	965	936	916	944	964	1006	1007	1005	1027	1068
24	1056	1064	1055	1062	1079	1043	996	945	915	898	932	959	1000	1000	997	1014	1056
25	1043	1052	1047	1058	1077	1038	985	924	893	879	920	953	994	992	989	1001	1043
26	1028	1038	1040	1052	1074	1034	973	904	869	858	908	948	990	986	980	987	1028
27	1013	1019	1032	1047	1070	1029	961	882	845	839	896	943	986	981	972	972	1013
28	998	997	1023	1046	1066	1025	948	861	821	818	884	938	978	976	968	957	998
29	979	982	1011	1044	1062	1019	935	839	796	797	871	933	969	972	961	943	979

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30	959	965	1002	1041	1059	1014	923	818	770	777	858	928	965	967	951	927	959
31	938	947	993	1037	1056	1009	909	797	744	756	845	924	962	962	942	910	938
32	916	928	983	1033	1055	1005	896	776	718	736	833	918	960	958	932	891	916
33	893	910	973	1030	1053	1001	883	754	691	716	821	913	958	954	921	873	893
34	870	890	963	1027	1052	998	869	733	664	696	810	905	954	950	910	853	870
35	846	871	953	1024	1051	995	856	711	637	676	798	896	947	947	899	834	846
36	821	852	943	1023	1050	991	843	689	609	657	786	884	935	943	886	814	821
37	796	834	934	1020	1048	987	830	668	582	638	773	871	920	935	872	794	796
38	769	816	924	1016	1042	981	817	646	554	619	757	857	906	923	858	775	769
39	743	796	913	1014	1031	970	803	625	526	599	740	845	893	909	846	754	743
40	715	774	900	1008	1016	956	789	603	499	580	722	832	879	894	834	733	715
41	689	754	889	1001	999	938	775	581	471	560	703	818	867	880	821	714	689
42	663	734	877	989	983	919	759	560	444	539	684	805	856	866	806	695	663
43	636	715	865	972	967	901	742	537	418	519	666	791	845	853	790	676	636
44	609	695	853	954	953	884	723	516	393	499	649	776	832	840	773	656	609
45	583	676	840	937	939	867	703	493	367	479	631	759	819	827	754	637	583
46	556	656	826	921	925	851	683	471	343	458	612	743	805	813	735	617	556
47	529	637	810	905	910	834	662	449	319	437	593	725	791	799	717	597	529
48	502	618	791	891	896	817	642	427	297	416	574	707	774	784	698	578	502
49	475	598	771	875	881	798	621	405	276	396	555	688	757	767	680	559	475
50	449	579	751	859	864	778	601	383	256	374	535	668	739	750	662	539	449
51	424	560	731	842	847	759	581	362	236	354	515	648	720	733	643	519	424
52	399	541	712	824	828	739	560	341	218	333	495	626	700	714	625	499	399
53	375	521	693	806	809	718	540	321	202	313	475	604	679	694	606	479	375
54	352	501	673	787	788	696	519	301	187	294	455	581	656	672	587	458	352
55	328	481	654	767	765	674	498	282	173	275	434	557	632	649	568	437	328
56	306	461	634	745	743	651	476	264	160	257	414	533	607	625	547	416	306
57	285	440	614	723	719	627	455	246	148	239	393	509	583	601	526	396	285
58	265	419	594	701	695	602	433	229	137	223	372	485	559	577	505	376	265
59	245	398	573	677	670	577	412	213	127	206	352	461	534	552	484	356	245
60	226	377	552	653	645	552	391	198	118	191	331	436	509	527	463	337	226
61	209	357	532	628	619	526	370	183	109	177	310	411	484	502	442	317	209

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62	193	336	510	602	592	500	348	169	101	163	290	386	459	477	422	297	193
63	179	316	488	576	565	474	328	156	94	150	270	361	434	451	401	278	179
64	165	297	465	550	538	449	307	144	87	138	251	337	407	426	380	259	165
65	152	277	443	524	511	423	287	133	81	126	233	312	382	401	359	241	152
66	140	259	420	496	483	397	267	122	75	116	214	289	358	376	337	223	140
67	129	241	398	470	455	372	248	112	69	106	197	266	333	351	317	207	129
68	119	223	375	443	427	347	230	103	64	96	180	245	309	327	296	191	119
69	110	207	352	415	400	323	212	94	59	87	163	224	286	301	276	176	110
70	101	191	329	389	373	299	194	86	54	79	147	203	262	278	256	161	101
71	94	176	308	363	347	275	177	78	50	71	132	183	239	256	237	147	94
72	86	161	287	337	321	253	161	71	45	63	117	164	217	233	217	135	86
73	80	148	267	313	295	231	146	64	41	56	104	145	196	212	199	122	80
74	73	135	247	289	269	210	131	57	37	50	91	128	176	191	182	111	73
75	67	123	227	265	245	189	117	51	32	44	79	111	157	171	164	100	67
76	62	112	208	243	222	170	104	45	29	38	68	96	138	153	147	90	62
77	57	102	189	221	200	152	91	39	25	32	57	82	120	135	131	81	57
78	52	92	172	200	179	134	79	34	21	26	47	68	103	118	117	72	52
79	47	82	155	179	159	117	69	29	18	21	37	55	87	102	102	64	47
80	42	74	138	160	141	101	58	24	14	17	29	44	72	87	89	57	42
81	38	66	123	142	123	86	48	19	11	12	21	33	59	73	76	49	38
82	34	58	109	125	105	73	39	15	8	8	13	23	45	59	65	43	34
83	30	51	95	108	89	60	31	11	5	4	7	14	33	47	53	37	30
84	26	44	82	93	74	48	23	7	2	2	3	7	23	35	43	31	26
85	22	38	70	79	61	37	15	4	0	0	0	2	13	25	34	25	22
86	19	32	59	65	48	26	9	1	0	0	0	0	6	16	25	20	19
87	15	26	48	52	36	17	4	0	0	0	0	0	1	8	17	16	15
88	12	21	38	41	24	9	0	0	0	0	0	0	0	2	10	11	12
89	9	16	29	30	15	3	0	0	0	0	0	0	0	0	4	7	9
90	6	11	20	20	7	0	0	0	0	0	0	0	0	0	1	4	6
91	3	7	13	11	2	0	0	0	0	0	0	0	0	0	0	1	3
92	1	3	6	5	0	0	0	0	0	0	0	0	0	0	0	0	1
93	0	1	1	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
110	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
111	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
112	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
113	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
114	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
115	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
116	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
117	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
118	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
119	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
120	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
121	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
122	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
123	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
127	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
128	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
129	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
130	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
131	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
132	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3
133	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3
134	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3
135	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3
136	3	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	3
137	3	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	3
138	3	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	3
139	3	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	3
140	0	0	0	0	1	1	1	0	1	1	0	1	0	0	0	0	0
141	0	0	0	0	1	1	1	0	1	1	1	1	0	0	0	0	0
142	2	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	2
143	2	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	2
144	2	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	2
145	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1
146	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
147	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
148	0	0	0	0	1	1	1	1	1	1	2	1	0	0	0	0	0
149	0	0	0	0	1	1	1	1	1	1	2	1	0	0	0	0	0
150	0	0	0	0	1	1	1	1	1	1	2	1	0	0	0	0	0
151	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
152	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
153	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
154	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
155	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
156	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0
157	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0

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158	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0
159	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0
160	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0
161	0	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0
162	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	0	0
163	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
164	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
165	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
166	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
167	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
168	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
169	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
170	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
171	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
172	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
173	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
174	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
176	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
177	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

BUG Rating: B1-U1-G1

IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	434.35	15.4
FM - Front-Medium(30-60)	816.15	29.0
FH - Front-High(60-80)	257.9	9.2
FVH - Front-Very High(80-90)	23.567	0.8
Total Forward Light	1533.2	54.5

BL - Back-Low(0-30)	410.39	14.6
BM - Back-Medium(30-60)	684.14	24.3
BH - Back-High(60-80)	176.48	6.3
BVH - Back-Very High(80-90)	8.6015	0.3
Total Back Light	1280.5	45.5

UL - Uplight-Low(90-100)	0.55604	0.0
UH - Uplight-High(100-180)	1.5656	0.1
Total Up Light	2.1216	0.1

BUG(Back,Up,Glare) Rating	B1-U1-G1
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Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	1532	1.2124	1533.2
Street Side	1279.6	0.90927	1280.5

Test Voltage:277V

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE150320 -E1	277.0	60	0.1209	30.31	0.9049	16.49

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2813.7
Luminous Efficacy (lm/W)	92.83
Beam Angle °	100.6
Center Beam Candle Power (cd)	1136
S/MH(C0/180)	1.40
S/MH(C90/270)	1.04

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	0.2444	28.95	0.9873	17.71
-E2	277.0	60	0.1165	29.14	0.9029	16.28

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.5
R9	18
CCT (K)	5646
Chromaticity (x, y)	x=0.3291 y=0.3461
Chromaticity (u', v')	u'=0.2026 v'=0.4796
Duv	0.0041
Total Luminous (lm)	2985
Luminous Efficacy (lm/W)	103.11

Special Color Rendering Indices			
R1	83	R9	18
R2	88	R10	71
R3	91	R11	85
R4	85	R12	64
R5	84	R13	84
R6	84	R14	95
R7	89	R15	78
R8	72	--	--

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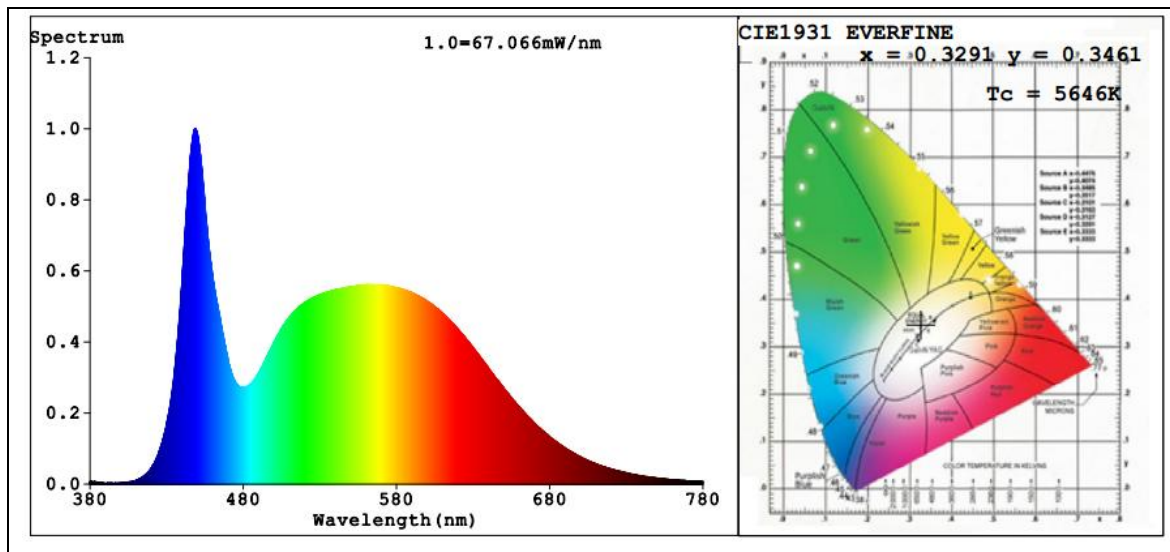
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Spectral Power Distribution & Chromaticity Diagram



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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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