

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN, LLC

(Brand Name: LIGHT EFFICIENT DESIGN)

188 S.Northwest Highway, Cary, IL60013, USA

LED Lamp

Model name(s): LED-7311-35K-G3

Representative (Tested) Model: LED-7311-35K-G3

Model Different: N/A

Test & Report By:

Ferrum Li

Engineer: Ferrum Li

Date: Sept.01,2020

Review By:


Garman Mo

Manager: Garman Mo

Note: 1.The results contained in this report pertain only to the tested samples.

2.This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN, LLC	
Brand Name	LIGHT EFFICIENT DESIGN	
Model Number	LED-7311-35K-G3	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamp	
Base Type	G23-2	
Rated Voltage / Frequency	120-277Vac, 50/60Hz	
Nominal Power	7W	
Rated Initial Lamp Lumen	--	
Declared CCT	3500K	
LED Manufacturer	EVERLIGHT ELECTRONICS CO., LTD	
LED Model	67-21S/KK7C-H356534Z15/DT(GC)	
Sample Number	JBE200709-BB1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		

1.2 Test Specifications:

Date of Receipt	Aug.11,2020
Date of Test	Aug.12,2020
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer 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 or rated 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) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity 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 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements

Test date	2020-08-12	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-7311-35K-G3	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE200709-	120.0	60	0.0622	7.385	0.9900	12.81
BB1	277.0	60	0.0297	7.560	0.9190	24.50

Chromaticity Measurement - Sphere-Spectroradiometer

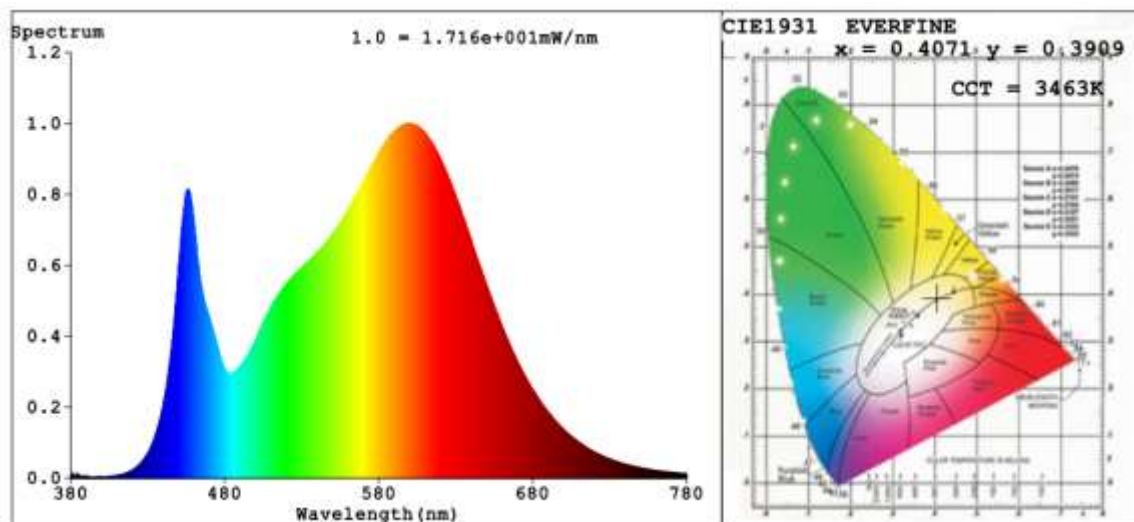
Method(Self-absorption:1.0140)(4 π geometry):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	83	R9	12
Frequency (Hz)	60	R2	93	R10	83
CCT (K)	3463	R3	95	R11	80
Duv	-0.0003	R4	81	R12	68
Chromaticity (x, y)	x=0.4071 y=0.3909	R5	83	R13	86
Chromaticity (u', v')	u'=0.2368 v'=0.5116	R6	91	R14	98
Color Rendering Index (CRI)	83.9	R7	83	R15	76
R9	12	R8	62	--	--

Photometric Measurement – Goniophotometer Method(Test Distance: 1.900m):

Parameter	Result	
Test Voltage (V)	120	277
Frequency (Hz)	60	60
Total Luminous (lm)	877.27	886.02
Luminous Efficacy (lm/W)	118.79	117.20
Beam Angle (°)	107.9	--
Center Beam Candle Power (cd)	306	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	235.9	26.9%
0-40	383.4	43.7%
0-60	665.6	75.9%
60-90	195.9	22.3%
70-100	103.0	11.7%
90-120	13.3	1.5%
0-90	861.5	98.2%
90-180	15.6	1.8%
0-180	877.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	28.9	3.3%	90-100	7.8	0.9%
10-20	82.7	9.4%	100-110	3.2	0.4%
20-30	124.3	14.2%	110-120	2.2	0.3%
30-40	147.5	16.8%	120-130	1.4	0.2%
40-50	149.8	17.1%	130-140	0.7	0.1%
50-60	132.4	15.1%	140-150	0.3	0%
60-70	100.7	11.5%	150-160	0.1	0%
70-80	63.8	7.3%	160-170	0.0	0%
80-90	31.4	3.6%	170-180	0.0	0%

Photometric Data

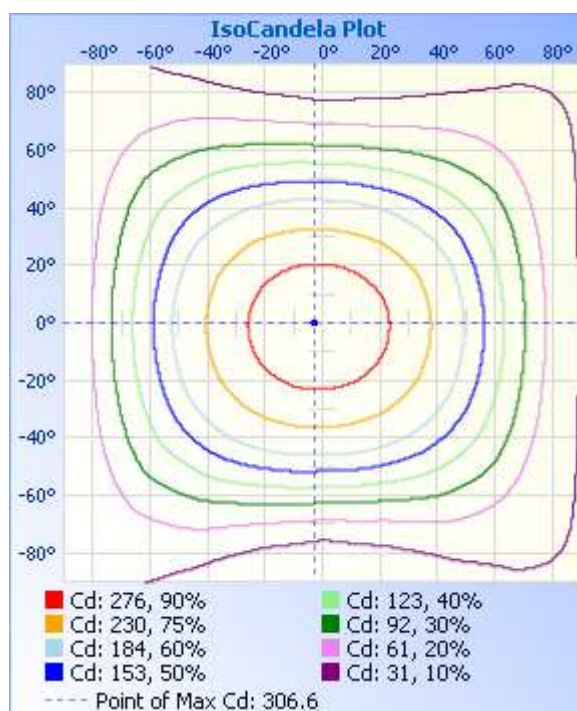
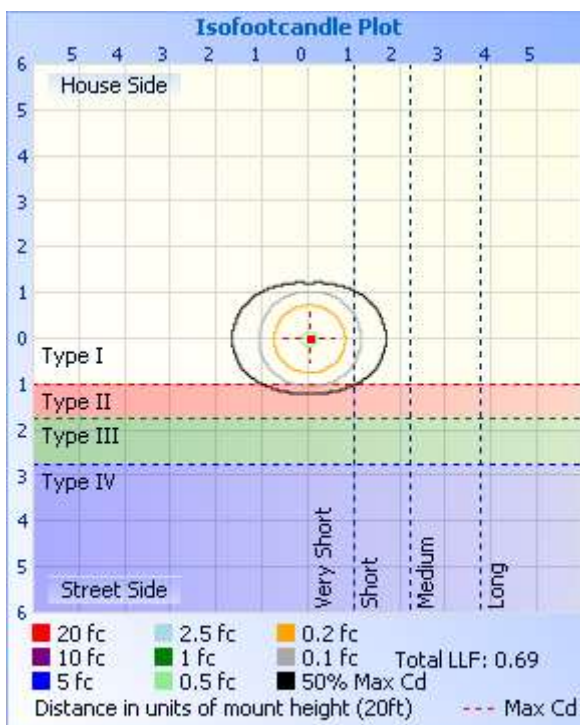
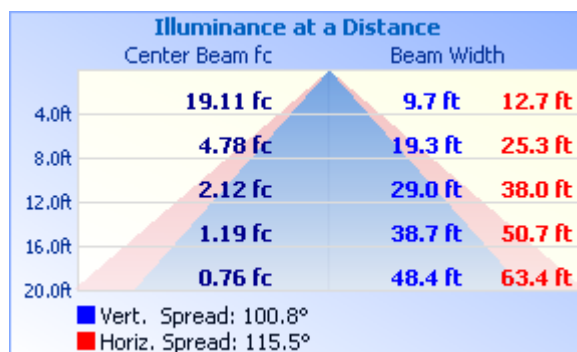
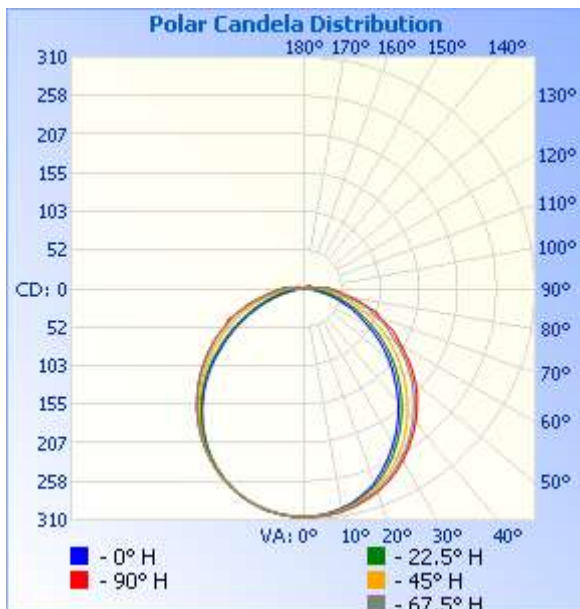


Table--1 UNIT: cd

C (DEG) □ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
0	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	
5	303	304	303	304	303	304	305	305	306	306	305	305	304	304	304	304	
10	299	299	298	298	299	300	300	302	303	303	302	301	300	299	299	299	
15	292	292	290	289	290	292	293	296	297	298	296	294	292	292	292	292	
20	283	282	279	278	277	280	284	288	290	289	287	285	282	282	282	283	
25	270	268	266	261	260	265	272	276	279	279	275	272	268	269	270	271	
30	255	253	247	242	241	246	256	263	266	265	261	256	252	252	254	256	
35	238	236	228	221	220	226	238	247	250	249	243	237	232	233	236	238	
40	220	216	206	199	198	205	217	229	234	231	224	216	210	212	216	220	
45	200	196	184	176	173	182	195	209	215	212	203	193	186	189	195	200	
50	179	174	162	153	150	159	173	189	196	192	181	168	159	163	172	179	
55	157	151	139	129	126	135	151	167	174	170	158	141	130	136	148	157	
60	136	129	116	105	101	112	129	143	151	146	134	114	103	109	125	135	
65	113	108	94.0	82.6	79.5	88.7	106	124	131	126	109	87.8	76.7	83.8	101	112	
70	93.1	89.6	75.2	62.2	58.2	69.2	86.8	99.9	107	102	88.0	64.5	52.4	60.9	80.1	93.8	
75	71.2	67.5	57.4	44.5	39.6	50.3	67.8	81.6	85.8	82.1	67.4	43.9	31.3	41.1	60.5	70.5	
80	50.5	47.9	39.5	28.3	23.5	34.6	50.0	60.3	64.1	60.6	48.7	27.7	14.0	25.2	41.7	49.8	
85	38.2	35.6	27.0	15.7	10.2	20.5	34.8	44.1	47.2	44.7	33.9	15.0	1.59	14.1	29.2	37.2	
90	28.4	26.0	18.6	7.61	0.96	11.0	24.5	32.7	35.4	33.1	23.6	7.99	0.00	7.72	20.5	27.4	
95	8.47	3.03	0.08	1.81	0.01	1.97	5.85	12.2	7.89	0.00	0.00	3.71	0.00	3.31	0.00	0.01	
100	0.05	2.13	8.13	2.48	2.64	3.50	11.4	0.39	0.09	0.08	6.72	1.95	0.00	2.02	5.29	0.07	
105	8.26	1.55	3.53	1.87	2.70	2.23	4.70	1.63	11.1	4.98	0.51	0.35	0.00	0.36	0.38	5.04	
110	5.97	1.20	1.63	1.48	2.70	1.53	1.98	1.85	8.11	7.37	0.06	0.02	0.00	0.02	0.05	6.38	
115	4.37	1.73	0.83	1.39	2.96	1.22	0.86	2.43	5.83	6.54	1.20	0.03	0.02	0.02	1.18	5.42	
120	3.29	1.58	0.67	1.71	2.52	1.01	0.69	2.10	4.27	4.77	1.74	0.22	0.01	0.16	1.59	4.03	
125	2.56	1.38	0.63	1.73	0.03	1.04	0.76	1.79	3.24	3.53	1.90	0.35	0.01	0.16	1.58	3.00	
130	2.01	1.17	0.45	1.05	0.03	1.03	0.68	1.55	2.55	2.74	1.79	0.35	0.01	0.03	1.34	2.25	
135	1.53	0.95	0.37	0.02	0.02	0.02	0.65	1.35	2.07	2.19	1.45	0.01	0.00	0.01	0.57	1.64	
140	1.13	0.72	0.25	0.03	0.02	0.02	0.57	1.16	1.69	1.73	1.12	0.05	0.01	0.00	0.39	1.15	
145	0.75	0.48	0.08	0.07	0.02	0.08	0.46	0.94	1.33	1.33	0.85	0.04	0.01	0.00	0.07	0.68	
150	0.41	0.22	0.02	0.06	0.02	0.05	0.28	0.71	0.99	0.98	0.61	0.00	0.00	0.00	0.00	0.23	
155	0.02	0.02	0.01	0.02	0.01	0.02	0.01	0.47	0.66	0.65	0.01	0.01	0.00	0.00	0.00	0.01	
160	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.15	0.01	0.00	0.00	0.00	0.00	
165	0.01	0.02	0.00	0.01	0.00	0.01	0.01	0.01	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	
170	0.01	0.02	0.00	0.05	0.00	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-423	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-327	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-332	Standard Lamp	2020-07-08	2021-07-07
ST-R-333	Power Meter for Integrating Sphere	2020-06-26	2021-06-25
ST-R-405	Temperature Probe for Integrating Sphere	2020-01-23	2021-01-22
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2020-07-08	2021-07-07
ST-R-358	Power Meter for Goniophotometer	2020-06-26	2021-06-25
ST-R-354	hygrothermograph for Goniophotometer	2020-06-27	2021-06-26
Expand Uncertainty: Photometric Measurement (Sphere):3.06%, k=2 Chromaticity Measurement(Sphere):43.46K, k=2 Photometric Measurement(Goniophotometer):3.38%, k=2			

******* END OF REPORT *******