

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-7322-35K-G3

Representative (Tested) Model: LED-7322-35K-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-7322-35K-G3	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamp	
Base Type	G24D-3	
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-J1	
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.20,2020
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	2020-08-20	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-7322-35K-G3	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE200709-J	120.0	60	0.0600	7.131	0.9910	12.60
1	277.0	60	0.0290	7.453	0.9280	24.21

Chromaticity Measurement - Sphere-Spectroradiometer

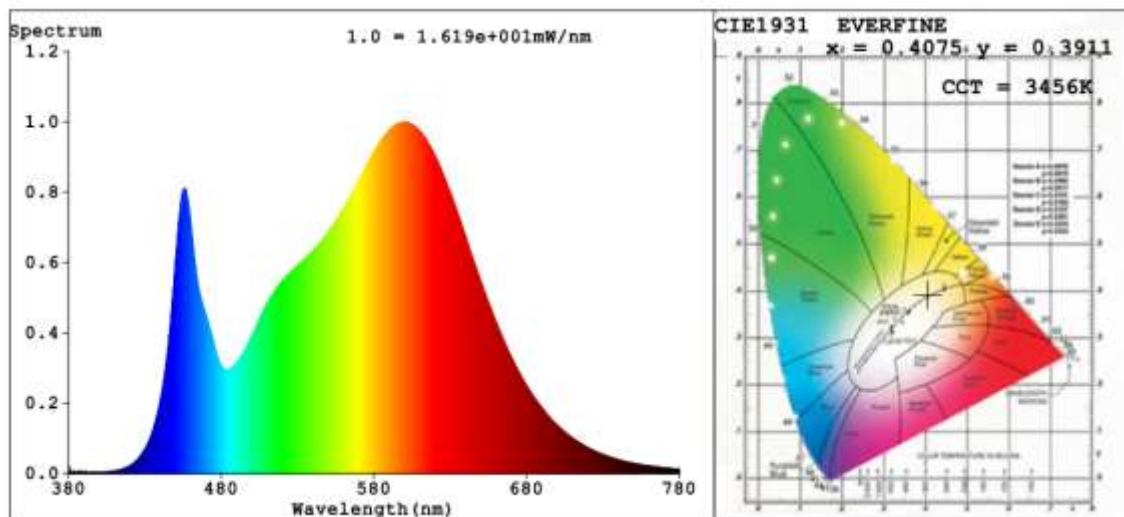
Method(Self-absorption:1.0142)(4 π geometry):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	83	R9	12
Frequency (Hz)	60	R2	93	R10	83
CCT (K)	3456	R3	95	R11	80
Duv	-0.0003	R4	81	R12	68
Chromaticity (x, y)	x=0.4075 y=0.3911	R5	83	R13	86
Chromaticity (u', v')	u'=0.2370 v'=0.5118	R6	91	R14	98
Color Rendering Index (CRI)	84.0	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)	854.35	882.78
Luminous Efficacy (lm/W)	119.81	118.45
Beam Angle (°)	108.1	--
Center Beam Candle Power (cd)	296	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	228.0	26.7%
0-40	370.1	43.3%
0-60	642.7	75.2%
60-90	195.2	22.9%
70-100	105.0	12.3%
90-120	14.0	1.6%
0-90	837.9	98.1%
90-180	16.3	1.9%
0-180	854.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	28.0	3.3%	90-100	8.4	1%
10-20	80.0	9.4%	100-110	3.4	0.4%
20-30	120.0	14.0%	110-120	2.3	0.3%
30-40	142.1	16.6%	120-130	1.4	0.2%
40-50	144.4	16.9%	130-140	0.6	0.1%
50-60	128.2	15.0%	140-150	0.3	0%
60-70	98.7	11.5%	150-160	0.0	0%
70-80	63.6	7.4%	160-170	0.0	0%
80-90	33.0	3.9%	170-180	0.0	0%

Photometric Data

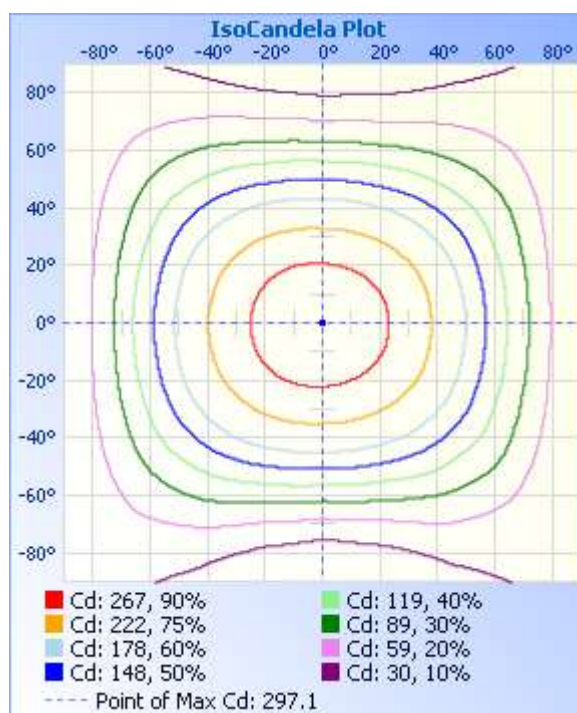
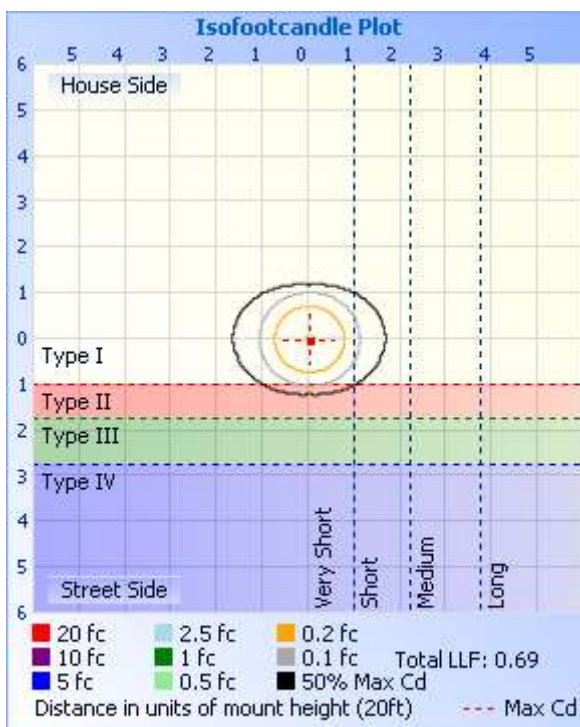
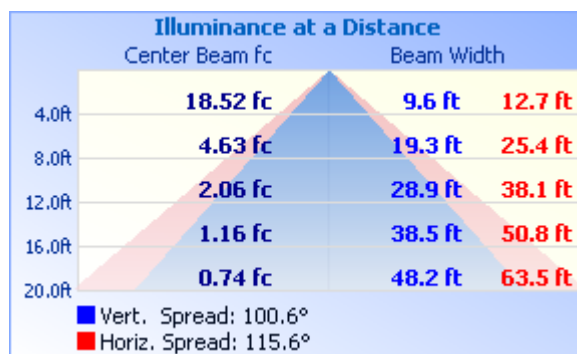
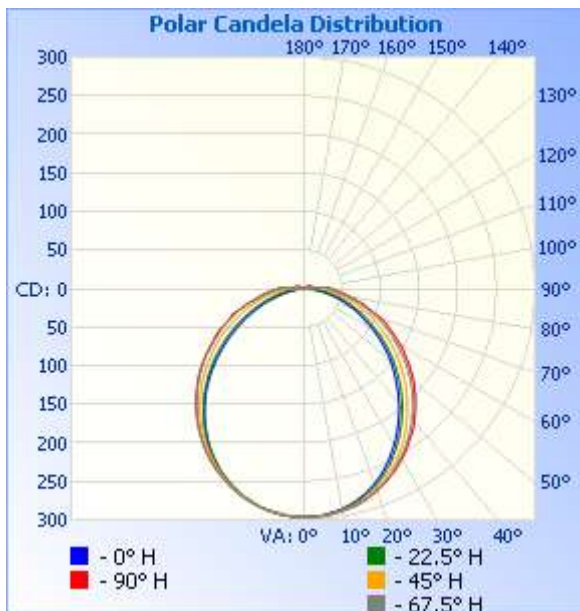


Table--1

UNIT: °C

C (DEG) D (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	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	
5	294	294	295	294	295	295	296	296	295	296	295	295	295	295	295	295	
10	290	290	290	290	290	291	292	292	293	292	292	291	290	290	290	289	
15	283	283	282	281	281	283	286	287	287	287	285	284	282	281	282	283	
20	273	273	271	269	269	272	275	277	279	279	276	273	271	270	272	273	
25	262	261	258	254	253	257	263	267	268	267	264	260	257	257	259	262	
30	248	246	242	236	235	240	248	253	255	254	250	244	240	241	244	247	
35	232	230	223	216	214	220	230	237	240	238	232	225	220	222	227	231	
40	214	211	203	195	193	200	210	219	224	221	213	205	199	201	208	213	
45	195	192	181	172	170	178	189	201	206	202	193	182	175	178	187	194	
50	176	172	160	151	149	155	168	181	187	182	172	158	149	154	165	175	
55	155	151	138	129	126	133	147	160	166	161	149	132	122	129	143	154	
60	134	129	117	106	103	110	125	138	145	140	127	107	96.7	104	121	132	
65	114	110	95.6	84.3	82.3	88.9	104	118	124	119	104	83.1	72.1	80.1	97.7	113	
70	97.4	88.9	77.5	65.3	62.2	70.1	84.4	98.5	103	99.3	83.7	61.3	49.1	58.4	79.3	92.3	
75	74.1	71.2	60.0	48.1	44.0	51.8	66.9	76.9	81.8	77.2	64.1	41.8	29.1	39.2	60.5	72.2	
80	56.5	53.5	43.0	32.0	27.4	35.6	49.8	59.0	61.9	58.7	46.8	25.7	11.5	23.9	42.6	54.3	
85	42.9	40.2	30.8	18.4	13.0	22.1	35.5	44.3	47.3	44.4	33.3	14.5	0.55	13.5	30.6	40.9	
90	32.3	29.7	21.3	9.25	2.57	12.1	25.3	33.5	36.1	33.5	23.5	7.78	0.00	7.31	21.3	30.4	
95	10.5	4.33	0.00	2.54	0.03	2.09	6.14	13.9	10.1	0.26	0.00	3.26	0.00	2.49	0.00	0.22	
100	0.05	2.24	9.47	3.13	2.07	3.81	11.6	0.41	0.08	0.06	7.72	1.93	0.00	1.71	6.79	0.07	
105	9.52	1.68	3.93	2.15	2.82	2.35	4.77	1.86	11.0	3.72	1.25	0.26	0.00	0.50	0.98	4.03	
110	6.97	1.50	1.73	1.55	2.67	1.53	2.06	1.78	7.96	6.44	0.05	0.06	0.00	0.07	0.05	6.21	
115	5.11	2.05	0.82	1.56	3.10	1.26	0.94	2.37	5.79	6.10	0.89	0.02	0.01	0.02	0.91	5.66	
120	3.82	1.85	0.69	1.90	2.76	1.07	0.77	2.07	4.23	4.52	1.44	0.12	0.01	0.14	1.44	4.28	
125	2.91	1.58	0.68	1.64	0.03	1.00	0.80	1.73	3.15	3.37	1.53	0.16	0.01	0.17	1.53	3.22	
130	2.24	1.33	0.53	0.94	0.03	1.02	0.60	1.46	2.44	2.58	1.41	0.06	0.01	0.14	1.33	2.46	
135	1.75	1.11	0.47	0.02	0.02	0.02	0.52	1.20	1.88	1.94	1.07	0.01	0.00	0.01	1.02	1.86	
140	1.34	0.89	0.36	0.04	0.02	0.02	0.40	0.95	1.43	1.43	0.71	0.01	0.01	0.01	0.69	1.37	
145	0.97	0.65	0.23	0.06	0.02	0.05	0.24	0.69	1.03	0.99	0.42	0.01	0.01	0.00	0.32	0.91	
150	0.61	0.41	0.02	0.08	0.02	0.08	0.04	0.42	0.64	0.60	0.11	0.00	0.00	0.00	0.01	0.49	
155	0.27	0.12	0.01	0.04	0.01	0.04	0.01	0.08	0.24	0.19	0.01	0.01	0.00	0.00	0.00	0.01	
160	0.01	0.01	0.01	0.03	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	
165	0.01	0.02	0.01	0.03	0.01	0.03	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
170	0.01	0.02	0.01	0.06	0.00	0.07	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
175	0.01	0.01	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 *******