

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-7322-40K-G3

Representative (Tested) Model: LED-7322-40K-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-7322-40K-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	4000K	
LED Manufacturer	EVERLIGHT ELECTRONICS CO., LTD	
LED Model	67-21S/KK7C-H407034Z15/DT(GC)	
Sample Number	JBE200709-K1	
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-7322-40K-G3	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE200709-K1	120.0	60	0.0572	6.807	0.9920	12.70
	277.0	60	0.0281	7.133	0.9150	24.71

Chromaticity Measurement - Sphere-Spectroradiometer

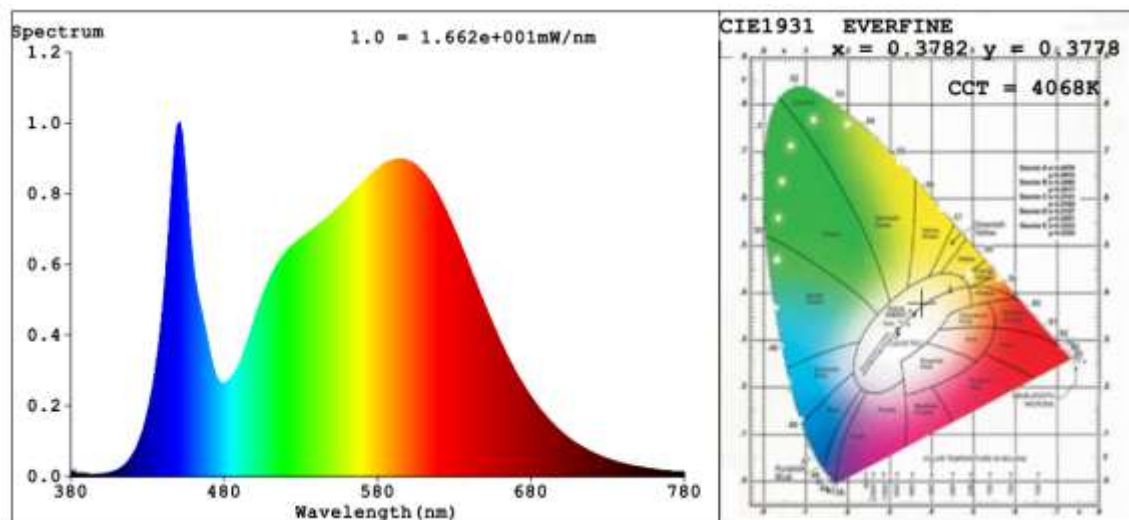
Method(Self-absorption:1.0149)(4 π geometry):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	82	R9	15
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	4068	R3	94	R11	83
Duv	0.0011	R4	84	R12	63
Chromaticity (x, y)	x=0.3782 y=0.3778	R5	82	R13	84
Chromaticity (u', v')	u'=0.2233 v'=0.5017	R6	85	R14	97
Color Rendering Index (CRI)	84.0	R7	88	R15	77
R9	15	R8	68	--	--

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

Parameter	Result	
Test Voltage (V)	120	277
Frequency (Hz)	60	60
Total Luminous (lm)	882.98	918.31
Luminous Efficacy (lm/W)	129.72	128.74
Beam Angle (°)	108.0	--
Center Beam Candle Power (cd)	306	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	236.5	26.8%
0-40	384.3	43.5%
0-60	667.5	75.6%
60-90	198.9	22.5%
70-100	105.7	12%
90-120	14.1	1.6%
0-90	866.4	98.1%
90-180	16.6	1.9%
0-180	882.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	29.0	3.3%	90-100	8.4	0.9%
10-20	82.9	9.4%	100-110	3.4	0.4%
20-30	124.6	14.1%	110-120	2.3	0.3%
30-40	147.9	16.7%	120-130	1.4	0.2%
40-50	150.2	17.0%	130-140	0.7	0.1%
50-60	132.9	15.1%	140-150	0.3	0%
60-70	101.5	11.5%	150-160	0.1	0%
70-80	64.8	7.3%	160-170	0.0	0%
80-90	32.6	3.7%	170-180	0.0	0%

Photometric Data

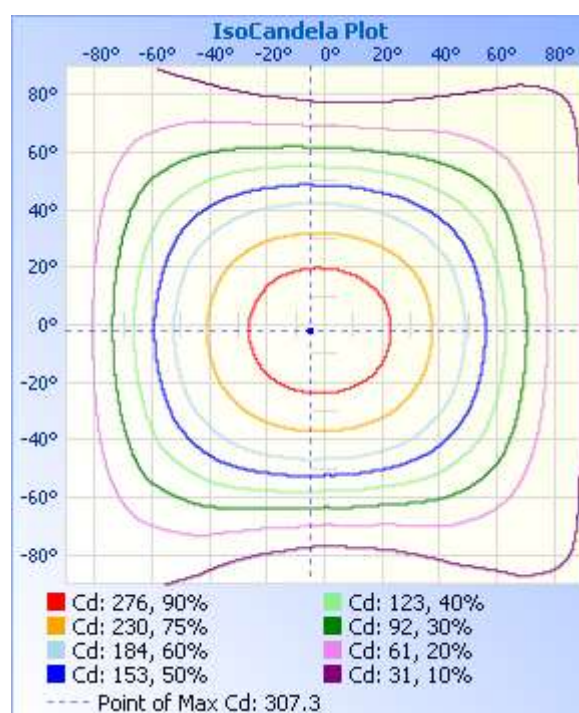
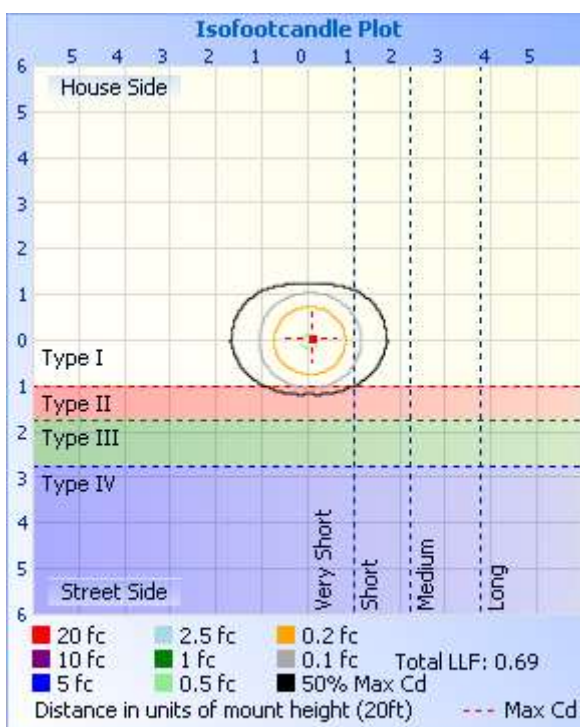
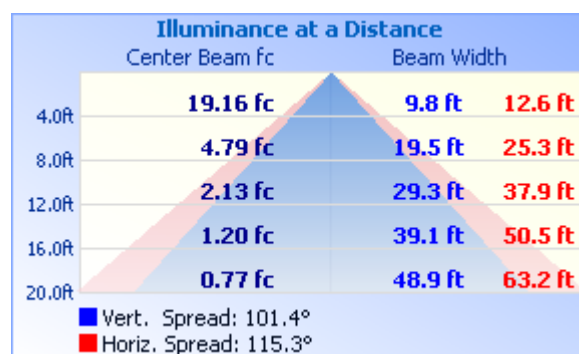
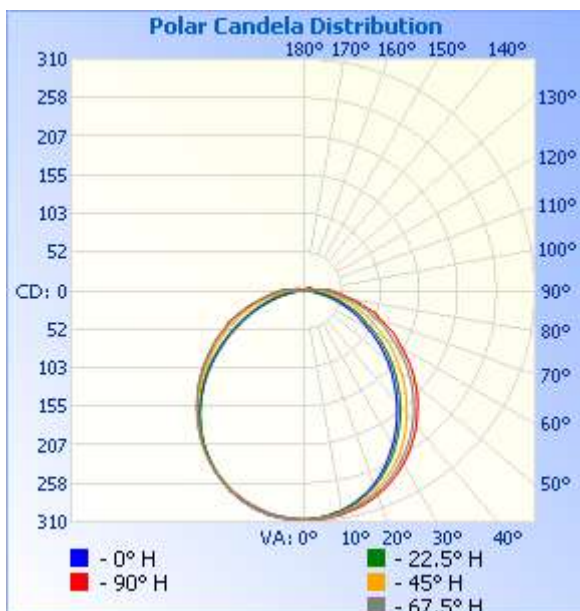


Table--1

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	304	304	304	304	304	304	306	306	307	307	306	306	306	305	306	305	
10	300	299	298	298	299	299	302	303	304	304	303	303	302	301	301	301	
15	293	292	289	289	289	291	294	296	299	299	297	296	295	294	294	293	
20	283	281	278	276	276	279	284	288	291	291	289	287	285	284	284	284	
25	270	268	263	259	259	263	271	277	281	281	278	274	272	271	271	272	
30	255	252	246	239	239	244	256	263	268	267	264	259	256	255	257	257	
35	238	234	226	219	218	224	236	247	253	252	248	241	236	236	239	239	
40	219	215	204	196	195	202	216	229	235	234	229	220	215	215	219	220	
45	199	194	181	173	171	179	193	209	217	215	207	197	190	192	197	200	
50	178	172	159	150	148	156	171	188	196	195	186	173	164	167	174	179	
55	156	150	136	127	124	133	149	166	175	173	162	146	135	139	150	157	
60	135	128	114	102	99.2	109	126	143	152	150	138	119	108	112	127	135	
65	113	106	92.2	81.1	79.0	87.2	104	123	132	128	114	92.9	81.6	86.6	103	113	
70	92.3	87.4	73.4	61.1	58.3	67.8	85.1	99.3	108	105	91.7	69.1	57.0	63.6	81.9	94.1	
75	70.8	67.2	55.5	43.4	40.1	49.2	66.4	81.0	87.5	85.8	71.0	48.3	35.1	43.0	62.4	71.7	
80	51.2	47.7	38.8	27.7	23.3	33.3	49.0	60.6	66.1	64.0	52.2	31.1	17.1	26.4	43.4	51.3	
85	39.2	36.1	27.3	15.4	10.2	19.9	34.7	45.0	49.5	47.8	37.1	17.9	3.76	14.9	30.6	38.7	
90	29.1	26.4	18.7	7.88	2.03	10.8	24.5	33.6	37.3	35.5	26.0	9.63	0.00	8.07	21.1	28.4	
95	10.7	5.30	0.09	1.92	0.01	1.88	6.17	14.6	10.4	0.07	0.00	4.09	0.00	2.74	0.00	0.09	
100	0.05	1.19	8.22	2.87	2.87	3.67	11.3	0.23	0.09	0.07	8.50	2.50	0.00	2.10	6.40	0.07	
105	8.59	1.75	3.58	2.04	2.92	2.26	4.76	1.91	11.7	5.08	0.72	0.46	0.00	0.42	0.51	4.74	
110	6.28	1.36	1.71	1.55	2.97	1.60	2.06	2.09	8.65	7.92	0.05	0.02	0.00	0.02	0.04	6.46	
115	4.58	1.83	0.89	1.62	2.97	1.30	0.95	2.52	6.25	7.13	1.24	0.03	0.02	0.02	1.07	5.57	
120	3.44	1.66	0.73	1.93	2.43	1.08	0.80	2.20	4.57	5.26	1.85	0.22	0.01	0.13	1.53	4.18	
125	2.66	1.43	0.72	1.65	0.04	1.09	0.91	1.88	3.47	3.84	2.01	0.37	0.01	0.13	1.53	3.08	
130	2.05	1.19	0.45	1.06	0.03	1.22	0.72	1.63	2.73	2.96	1.94	0.39	0.01	0.02	1.29	2.26	
135	1.54	0.95	0.35	0.02	0.02	0.02	0.69	1.43	2.20	2.36	1.58	0.01	0.00	0.01	0.55	1.63	
140	1.11	0.70	0.23	0.04	0.02	0.02	0.61	1.23	1.80	1.88	1.23	0.06	0.01	0.01	0.34	1.10	
145	0.71	0.44	0.04	0.06	0.02	0.06	0.49	1.00	1.43	1.45	0.94	0.06	0.01	0.00	0.01	0.63	
150	0.35	0.14	0.02	0.09	0.02	0.08	0.28	0.77	1.07	1.07	0.69	0.01	0.01	0.00	0.00	0.13	
155	0.01	0.01	0.01	0.04	0.01	0.03	0.01	0.51	0.72	0.72	0.01	0.01	0.00	0.00	0.00	0.01	
160	0.01	0.01	0.01	0.04	0.01	0.02	0.01	0.01	0.01	0.01	0.18	0.01	0.00	0.00	0.00	0.00	
165	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	
170	0.01	0.01	0.00	0.08	0.00	0.06	0.01	0.01	0.00	0.00	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 *******