

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-7322-50K-G3

Representative (Tested) Model: LED-7322-50K-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-7322-50K-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	5000K	
LED Manufacturer	EVERLIGHT ELECTRONICS CO., LTD	
LED Model	67-21S/KK7C-H507034Z15/DT(GC)	
Sample Number	JBE200709-L1	
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.20,2020
Date of Test	Aug.24,2020
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	2020-08-24	Test Ambient:	25±1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-7322-50K-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	0.0585	6.960	0.9910	12.81
L1	277.0	60	0.0282	7.195	0.9200	24.10

Chromaticity Measurement - Sphere-Spectroradiometer

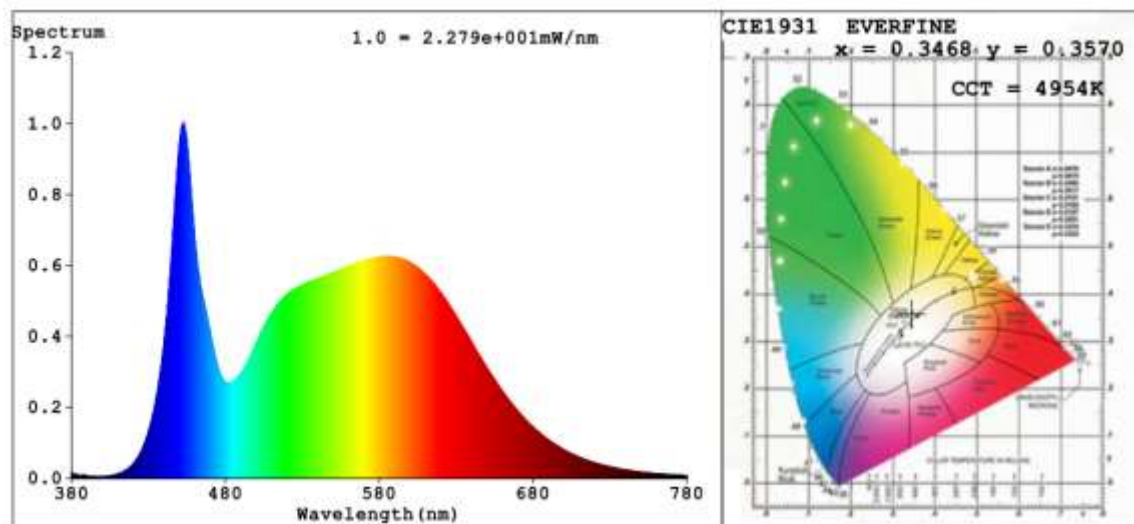
Method(Self-absorption:1.0152)(4 π geometry):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	83	R9	18
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	4954	R3	94	R11	82
Duv	0.0020	R4	83	R12	59
Chromaticity (x, y)	x=0.3468 y=0.3570	R5	83	R13	85
Chromaticity (u', v')	u'=0.2105 v'=0.4875	R6	85	R14	97
Color Rendering Index (CRI)	84.7	R7	89	R15	78
R9	18	R8	70	--	--

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

Parameter	Result	
Test Voltage (V)	120	277
Frequency (Hz)	60	60
Total Luminous (lm)	924.40	944.62
Luminous Efficacy (lm/W)	132.82	131.29
Beam Angle (°)	109.5	--
Center Beam Candle Power (cd)	316	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	244.8	26.5%
0-40	398.7	43.1%
0-60	695.2	75.2%
60-90	211.3	22.9%
70-100	112.7	12.2%
90-120	15.2	1.6%
0-90	906.5	98.1%
90-180	17.7	1.9%
0-180	924.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	29.9	3.2%	90-100	8.9	1%
10-20	85.6	9.3%	100-110	3.8	0.4%
20-30	129.2	14.0%	110-120	2.5	0.3%
30-40	153.9	16.7%	120-130	1.5	0.2%
40-50	157.0	17.0%	130-140	0.7	0.1%
50-60	139.5	15.1%	140-150	0.3	0%
60-70	107.5	11.6%	150-160	0.0	0%
70-80	68.8	7.4%	160-170	0.0	0%
80-90	35.0	3.8%	170-180	0.0	0%

Photometric Data

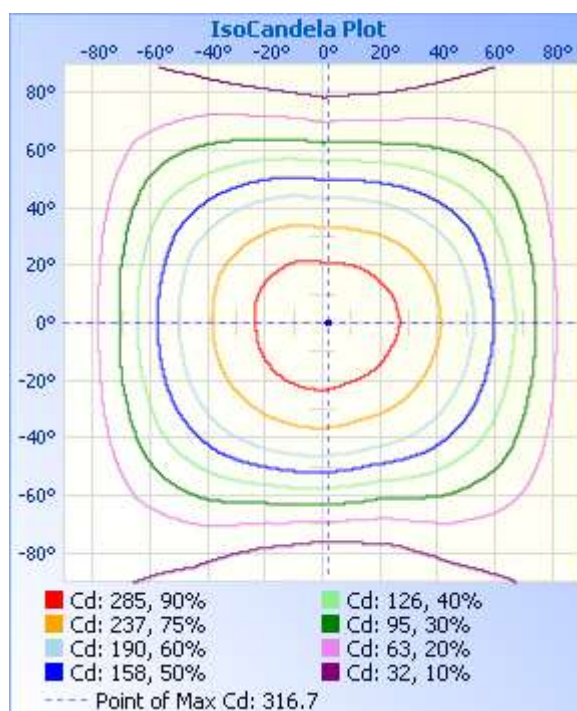
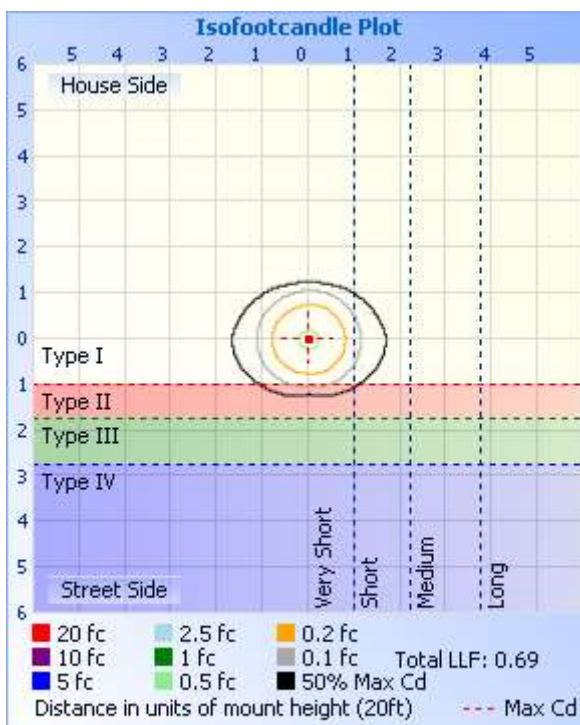
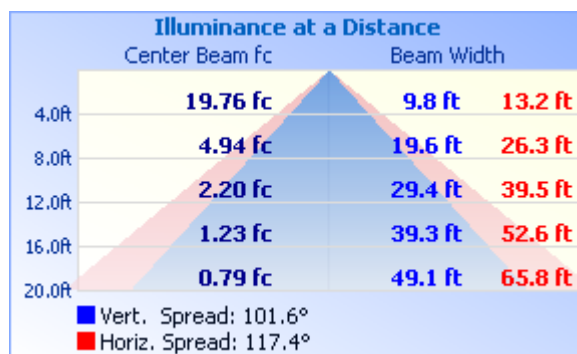
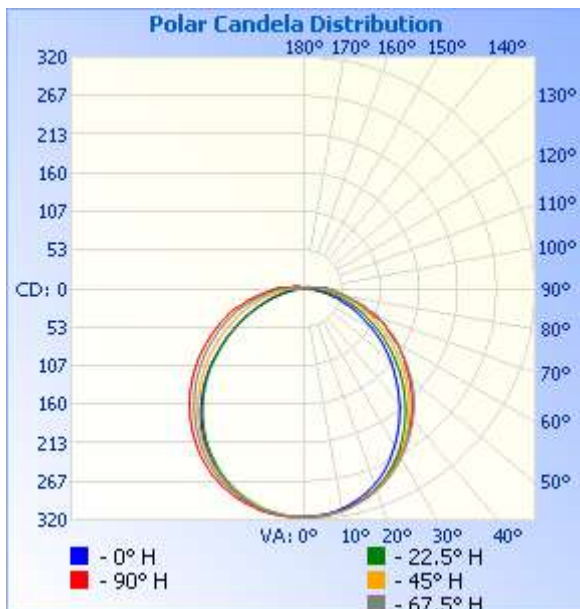


Table--1 UNIT: cd

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	316	316	316	316	316	316	316	316	316	316	316	316	316	316	316	316	
5	316	315	315	315	314	316	315	315	315	314	314	315	315	314	314	315	
10	313	312	311	310	309	312	312	312	310	310	310	310	310	309	310	311	
15	307	306	304	301	300	304	305	306	304	303	303	303	303	301	303	304	
20	299	297	294	290	288	294	295	297	294	293	293	293	293	290	293	295	
25	289	287	281	276	272	280	283	285	281	281	280	279	279	276	279	284	
30	275	272	265	257	252	262	267	270	266	266	264	263	262	258	264	269	
35	259	256	247	236	230	242	249	254	250	249	246	244	242	238	246	251	
40	241	237	226	213	207	220	227	235	233	231	226	221	220	216	226	232	
45	221	217	203	190	182	196	205	216	212	211	204	197	194	192	203	212	
50	201	196	180	166	159	172	183	195	191	189	182	171	167	165	180	191	
55	179	173	156	142	135	148	160	171	170	166	158	143	137	136	156	168	
60	156	150	133	118	109	123	136	150	148	146	132	116	109	108	130	145	
65	134	127	110	93.5	86.2	99.3	113	127	126	122	111	90.5	81.4	82.5	106	123	
70	112	106	88.9	72.8	64.8	78.9	92.8	109	100	97.4	88.5	66.1	55.9	59.1	84.7	102	
75	88.5	85.5	69.3	52.9	45.1	58.0	73.2	83.3	75.7	75.0	65.6	46.1	33.7	39.4	64.0	77.0	
80	66.9	64.7	51.1	35.6	27.5	41.2	52.8	61.5	58.1	56.7	47.2	28.5	14.9	23.6	45.9	59.0	
85	49.4	46.3	35.8	21.0	12.2	25.0	37.8	46.0	43.7	42.6	33.9	16.4	1.74	13.4	32.1	43.1	
90	37.4	34.3	25.0	10.8	2.20	13.8	26.7	34.4	33.2	32.1	24.0	9.11	0.00	1.61	16.2	32.1	
95	11.8	5.59	4.49	2.98	0.02	0.02	17.1	25.4	9.15	0.07	0.00	4.36	0.00	3.89	0.19	0.01	
100	0.04	1.73	11.4	3.41	2.91	3.98	4.09	0.02	0.11	0.07	7.61	2.50	0.00	1.08	4.17	0.12	
105	11.5	1.71	4.91	2.35	4.47	2.75	7.20	4.27	8.50	4.89	1.20	0.55	0.00	0.29	0.42	6.30	
110	8.31	2.12	2.21	1.72	4.00	1.91	3.20	1.15	6.89	6.93	0.05	0.07	0.00	0.02	0.20	7.22	
115	6.06	2.51	1.06	1.44	4.21	1.58	1.60	1.86	5.08	6.20	1.24	0.02	0.02	0.05	1.57	6.16	
120	4.42	2.16	0.90	1.65	3.62	1.34	0.92	1.83	3.80	4.46	1.73	0.17	0.02	0.23	1.88	4.42	
125	3.34	1.82	0.86	1.86	0.21	1.38	0.91	1.61	2.90	3.33	1.75	0.19	0.01	0.22	1.81	3.35	
130	2.58	1.54	0.64	1.41	0.12	1.64	0.67	1.38	2.27	2.53	1.53	0.09	0.01	0.09	1.45	2.55	
135	2.01	1.28	0.57	0.03	0.02	0.02	0.47	1.17	1.78	1.91	1.09	0.01	0.00	0.01	1.05	1.88	
140	1.53	1.03	0.46	0.02	0.03	0.02	0.37	0.95	1.36	1.39	0.71	0.01	0.01	0.01	0.65	1.36	
145	1.13	0.78	0.33	0.08	0.03	0.03	0.23	0.71	0.96	0.93	0.38	0.01	0.00	0.00	0.25	0.87	
150	0.74	0.51	0.13	0.06	0.02	0.13	0.07	0.44	0.56	0.52	0.10	0.00	0.00	0.00	0.01	0.43	
155	0.39	0.24	0.01	0.03	0.02	0.03	0.01	0.15	0.18	0.14	0.01	0.01	0.00	0.00	0.00	0.01	
160	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.01	
165	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
170	0.01	0.01	0.01	0.03	0.01	0.05	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	0.01	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 *******