

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-7322-27K-G3

Representative (Tested) Model: LED-7322-27K-G3

Model Different: N/A

Test & Report By:

Ferrum Li

Engineer: Ferrum Li

Date: Sept.01,2020

Review By:

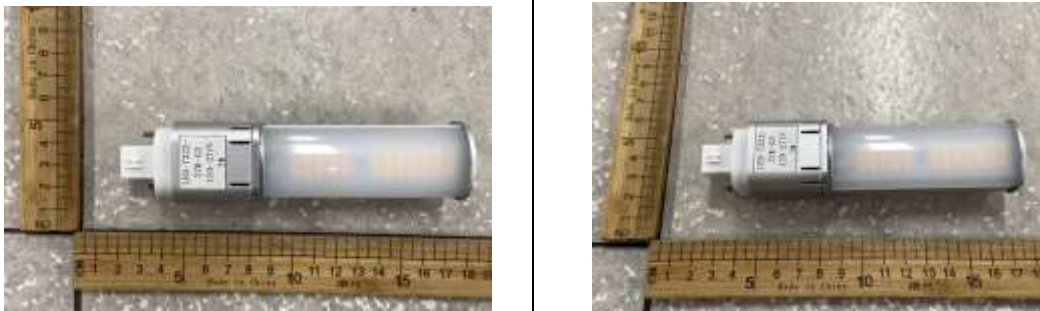
Garman Mo

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-7322-27K-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	2700K	
LED Manufacturer	EVERLIGHT ELECTRONICS CO., LTD	
LED Model	67-21S/KK7C-H276034Z15/DT(GC)	
Sample Number	JBE200709-I1	
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-7322-27K-G3	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE200709-I	120.0	60	0.0617	7.333	0.9900	12.90
1	277.0	60	0.0294	7.491	0.9200	24.01

Chromaticity Measurement - Sphere-Spectroradiometer

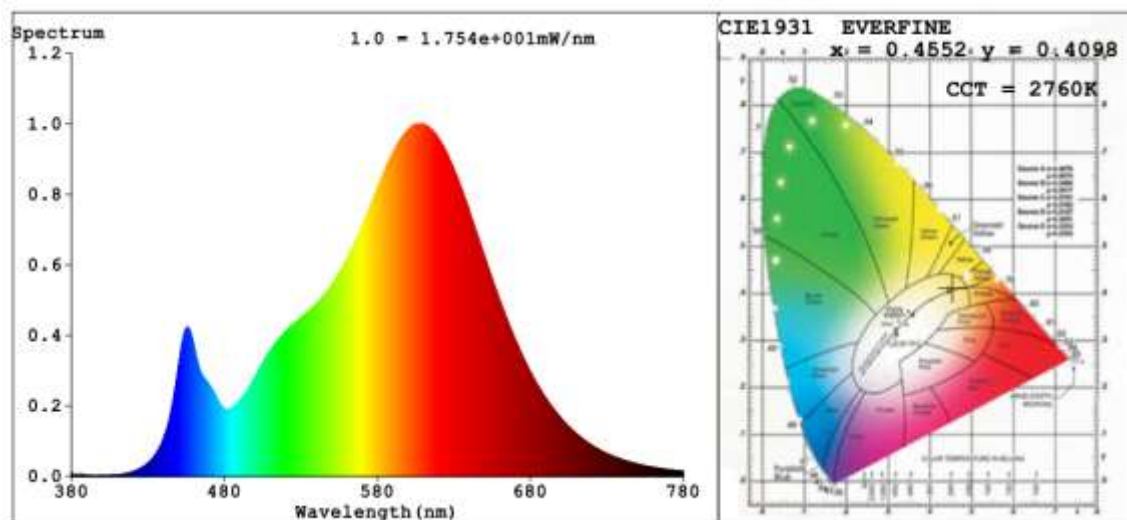
Method(Self-absorption:1.0137)(4 π geometry):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	83	R9	14
Frequency (Hz)	60	R2	94	R10	86
CCT (K)	2760	R3	94	R11	82
Duv	0.0001	R4	81	R12	76
Chromaticity (x, y)	x=0.4552 y=0.4098	R5	84	R13	86
Chromaticity (u', v')	u'=0.2598 v'=0.5263	R6	93	R14	98
Color Rendering Index (CRI)	83.9	R7	82	R15	75
R9	14	R8	60	--	--

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

Parameter	Result	
Test Voltage (V)	120	277
Frequency (Hz)	60	60
Total Luminous (lm)	811.30	819.11
Luminous Efficacy (lm/W)	110.64	109.35
Beam Angle (°)	107.4	--
Center Beam Candle Power (cd)	283	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	217.3	26.8%
0-40	352.2	43.4%
0-60	610.2	75.2%
60-90	185.1	22.8%
70-100	99.9	12.3%
90-120	13.6	1.7%
0-90	795.3	98%
90-180	15.9	2%
0-180	811.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	26.7	3.3%	90-100	8.1	1%
10-20	76.3	9.4%	100-110	3.3	0.4%
20-30	114.2	14.1%	110-120	2.2	0.3%
30-40	135.0	16.6%	120-130	1.3	0.2%
40-50	136.8	16.9%	130-140	0.6	0.1%
50-60	121.2	14.9%	140-150	0.3	0%
60-70	93.2	11.5%	150-160	0.0	0%
70-80	60.3	7.4%	160-170	0.0	0%
80-90	31.5	3.9%	170-180	0.0	0%

Photometric Data

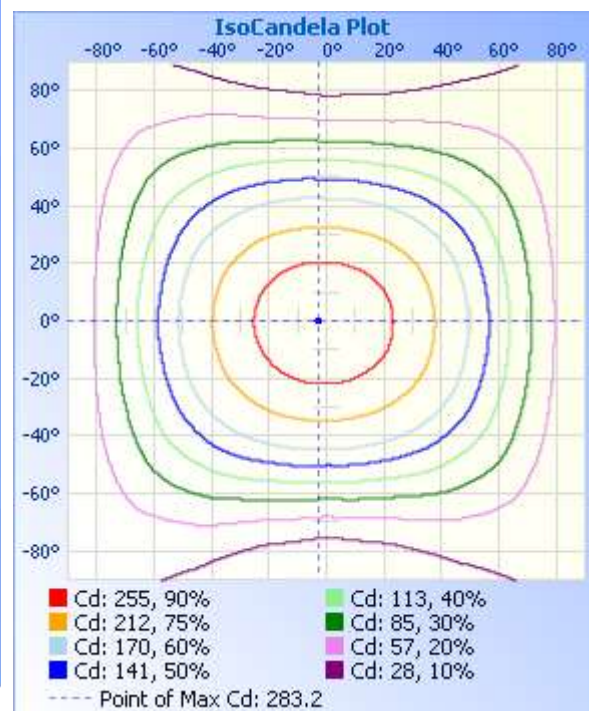
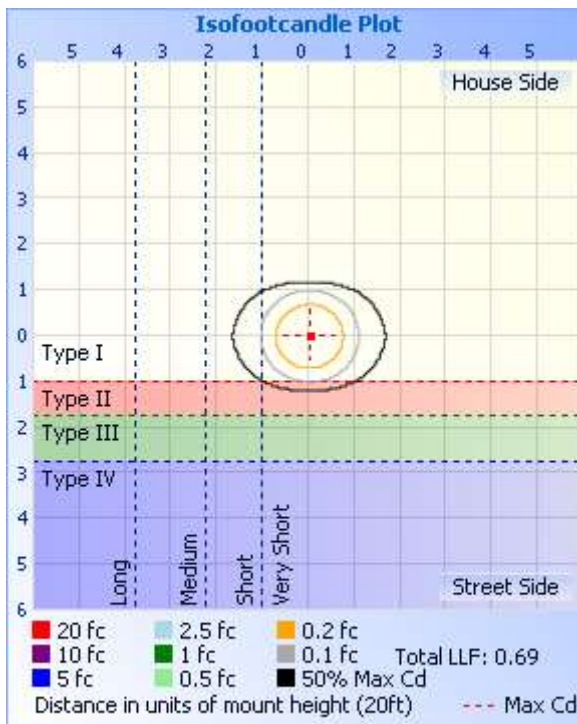
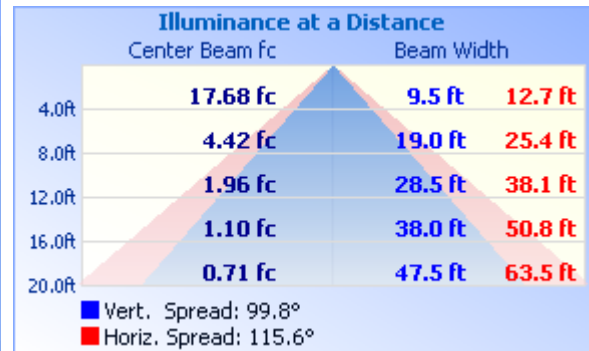
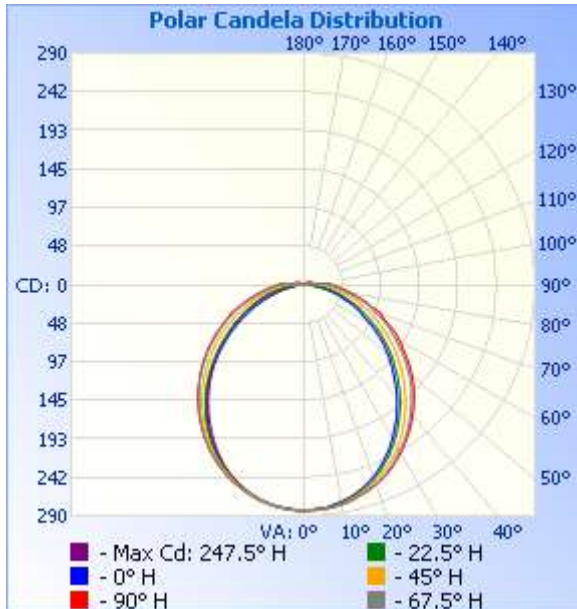


Table--1 UNIT: cd

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	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283		
5	281	281	281	281	281	282	283	283	283	282	282	282	281	281	281	281		
10	277	277	277	276	276	278	279	280	279	279	279	278	276	276	276	277		
15	270	269	270	268	268	270	272	273	274	273	272	270	269	269	269	270		
20	261	260	259	256	256	259	262	266	266	265	263	260	257	258	259	261		
25	250	248	246	242	241	244	251	255	257	255	251	247	244	244	247	250		
30	236	234	230	224	223	227	236	241	244	241	237	231	227	229	232	236		
35	221	218	212	205	203	209	218	226	229	226	221	213	209	211	215	220		
40	204	200	192	185	182	189	199	210	213	210	202	193	188	190	197	202		
45	186	182	172	163	160	168	179	192	196	192	183	172	165	168	177	185		
50	166	162	151	143	140	146	159	172	178	173	162	149	140	145	156	165		
55	147	142	131	121	118	125	139	152	157	153	142	124	116	121	135	145		
60	127	122	110	99.8	95.6	104	119	132	139	133	119	101	91.3	97.9	114	125		
65	107	103	90.6	79.9	77.0	83.7	98.2	113	118	114	97.9	78.1	68.3	75.5	92.6	106		
70	89.4	85.4	73.5	61.2	57.2	65.4	80.7	94.3	102	95.1	79.3	57.7	46.8	55.5	74.0	87.8		
75	70.4	66.0	56.6	45.1	39.9	48.6	64.2	75.4	80.0	74.9	61.3	39.1	27.7	37.5	56.3	67.3		
80	53.5	50.7	41.4	29.4	23.9	33.3	47.0	57.6	61.1	57.1	44.0	24.1	11.8	23.1	40.9	51.4		
85	40.8	38.0	29.1	16.9	10.5	20.3	34.3	43.9	46.9	43.5	31.9	13.5	0.71	13.1	29.1	38.9		
90	30.8	28.3	20.3	7.36	1.22	11.0	24.3	32.8	35.6	32.6	22.5	7.23	0.00	7.11	20.5	29.0		
95	10.5	4.81	0.00	1.85	0.01	1.53	6.13	14.1	9.93	0.13	0.00	3.28	0.00	2.73	0.00	0.21		
100	0.04	1.80	8.91	2.64	1.92	3.48	11.4	0.40	0.08	0.06	7.61	1.89	0.00	1.69	6.39	0.06		
105	8.99	1.59	3.78	1.96	3.27	2.29	4.88	1.86	11.0	3.63	1.23	0.45	0.00	0.35	1.01	3.83		
110	6.52	1.36	1.71	1.51	3.06	1.57	2.10	1.67	7.99	6.45	0.05	0.05	0.00	0.07	0.04	5.81		
115	4.75	1.88	0.87	1.31	3.34	1.28	0.92	2.28	5.78	6.09	0.86	0.02	0.01	0.02	0.85	5.27		
120	3.51	1.67	0.70	1.56	2.94	1.09	0.68	2.02	4.24	4.55	1.43	0.12	0.00	0.12	1.34	3.97		
125	2.67	1.43	0.67	1.83	0.02	1.16	0.73	1.70	3.18	3.39	1.54	0.19	0.01	0.16	1.41	3.00		
130	2.07	1.21	0.46	1.25	0.02	1.21	0.58	1.43	2.44	2.58	1.45	0.14	0.01	0.06	1.27	2.28		
135	1.59	0.99	0.40	0.02	0.02	0.02	0.54	1.21	1.90	1.97	1.14	0.00	0.00	0.01	0.93	1.69		
140	1.20	0.78	0.29	0.03	0.02	0.01	0.44	0.99	1.48	1.49	0.84	0.00	0.01	0.00	0.56	1.21		
145	0.83	0.54	0.15	0.05	0.02	0.05	0.31	0.75	1.10	1.08	0.56	0.00	0.00	0.00	0.12	0.76		
150	0.48	0.30	0.02	0.07	0.02	0.06	0.13	0.51	0.74	0.71	0.32	0.00	0.00	0.00	0.00	0.34		
155	0.11	0.02	0.01	0.02	0.01	0.02	0.01	0.24	0.39	0.37	0.00	0.00	0.00	0.00	0.00	0.01		
160	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
165	0.01	0.01	0.00	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
170	0.00	0.01	0.00	0.04	0.00	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
175	0.00	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 *******