

**LM-79-08 Test Report**

For

**LIGHT EFFICIENT DESIGN, LLC****(Brand Name: N/A)**

188 S.Northwest Highway, Cary, IL60013, USA

**LED Lamps**

Model name(s): LED-7334-40K-G2

Representative (Tested) Model: LED-7334-40K-G2

Model Different: All construction and rating are the same, except CCT

Test &amp; Report By:

*Garman Mo*

Engineer: Garman Mo

Date: Apr.25,2018

Review By:

*Univ Xie*

Manager: Univ Xie

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 NVLAP, NIST, or any agency of the Federal Government.

**Laboratory: Standard-Tech Co., Ltd Testing Center****NVLAP CODE: 201011-0**

Report Format Number STD/QR4909-A/2



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**1.1 Product Information:**

Organization Name	LIGHT EFFICIENT DESIGN, LLC	
Brand Name	N/A	
Model Number	LED-7334-40K-G2	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120 -277Vac, 50/60 Hz	
Nominal Power	11W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K	
LED Manufacturer	SUMSUNG	
LED Model	SPMWHT327F*****	
Sample Number	GZE1711047-H-J1	
Luminaire Aperture (for downlights)	--	in. mm mm s
Luminaire Length	--	
Luminaires Width	--	
Number of Units (modular products)	N/A	
Photo		
<div></div> <div></div>		

**1.2 Test Specifications:**

Date of Receipt	Jan.03,2018
Date of Test	Jan.08,2018
Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
Reference Work Instruction	QD25

**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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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**
*(Refer to Work Instruction QD25)*

Test date	2018-01-08	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-7334-40K-G2		

**Electrical Measurement:**

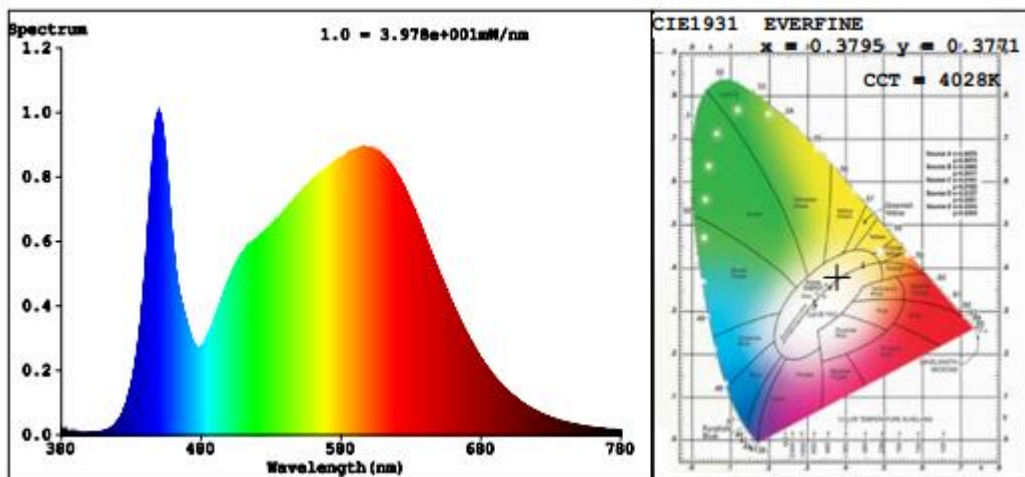
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171104	120.0	60	0.1056	12.45	0.9828	6.60
7-H-J1	277.0	60	0.0579	12.41	0.7741	6.50

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	20
Frequency (Hz)	60	R2	90	R10	77
CCT (K)	4028	R3	95	R11	84
Duv	0.0005	R4	85	R12	66
Chromaticity (x, y)	x=0.3795 y=0.3771	R5	84	R13	85
Chromaticity (u', v')	u'=0.2243 v'=0.5016	R6	86	R14	97
Color Rendering Index (CRI)	85.0	R7	88	R15	78
R9	20	R8	69	--	--

**Photometric Measurement – Goniophotometer Method:**

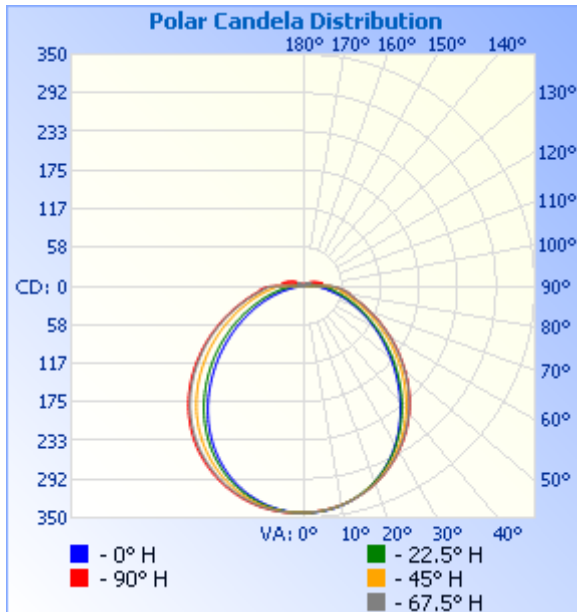
Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	1020.3	1014.6
Luminous Efficacy (lm/W)	81.95	81.76
Beam Angle (°)	107.6	--
Center Beam Candle Power (cd)	342	--

**Spectral Power Distribution & Chromaticity Diagram**

**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	265.0	26%
0-40	431.5	42.3%
0-60	750.3	73.5%
60-90	243.7	23.9%
70-100	135.0	13.2%
90-120	19.4	1.9%
0-90	994.0	97.4%
90-180	26.1	2.6%
0-180	1,020.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	32.4	3.2%	90-100	7.0	0.7%
10-20	92.7	9.1%	100-110	6.8	0.7%
20-30	139.8	13.7%	110-120	5.6	0.5%
30-40	166.5	16.3%	120-130	3.7	0.4%
40-50	169.2	16.6%	130-140	1.8	0.2%
50-60	149.7	14.7%	140-150	0.9	0.1%
60-70	115.7	11.3%	150-160	0.2	0%
70-80	78.7	7.7%	160-170	0.1	0%
80-90	49.3	4.8%	170-180	0.0	0%

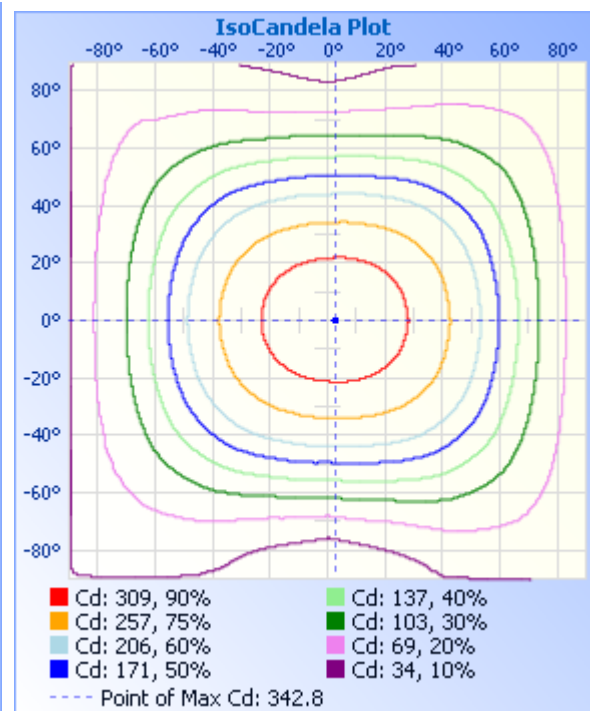
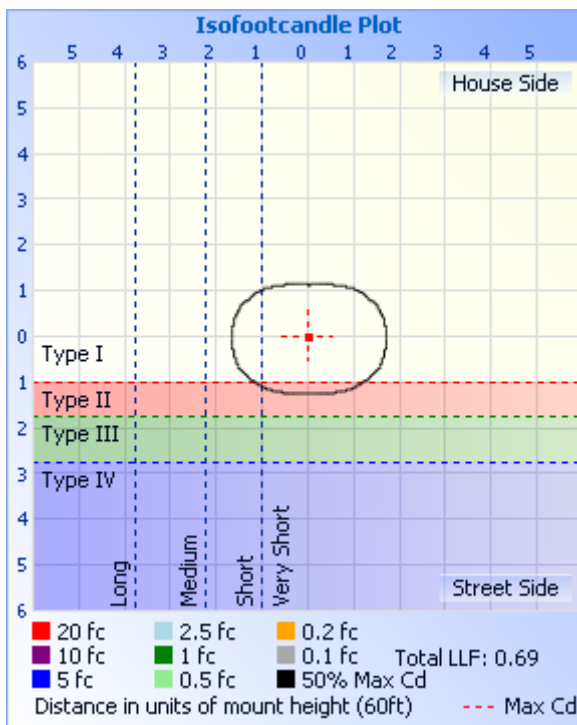
**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
10.0ft	3.42 fc	23.9 ft	31.7 ft
20.0ft	0.86 fc	47.8 ft	63.3 ft
30.0ft	0.38 fc	71.7 ft	95.0 ft
40.0ft	0.21 fc	95.6 ft	126.7 ft
50.0ft	0.14 fc	119.4 ft	158.4 ft
60.0ft	0.10 fc	143.3 ft	190.0 ft

■ Vert. Spread: 100.1°  
■ Horiz. Spread: 115.5°



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Table--1

UNIT: cd

C (DEG) γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	
5	343	343	342	342	341	341	340	340	340	340	340	340	340	341	342	342	
10	340	340	339	338	336	335	335	335	335	335	334	334	334	336	338	339	
15	335	334	333	330	327	327	327	328	328	327	325	324	324	327	330	333	
20	326	326	323	318	315	315	316	317	318	316	313	311	311	315	320	325	
25	316	315	310	303	298	298	302	304	304	303	299	294	294	299	307	313	
30	302	301	294	284	277	279	285	288	288	286	281	275	273	280	290	299	
35	286	284	275	262	254	257	264	269	270	267	261	252	249	258	271	282	
40	267	265	254	238	228	232	242	248	249	246	238	227	223	233	250	263	
45	245	243	230	212	201	206	218	225	226	223	213	200	195	207	227	241	
50	221	218	205	185	174	179	192	201	202	198	187	173	166	179	202	217	
55	195	193	179	159	148	153	167	175	176	172	161	144	137	151	176	192	
60	169	166	152	133	124	128	142	150	151	147	135	117	109	124	149	166	
65	143	140	127	109	101	105	118	126	127	123	111	91.2	82.2	97.5	124	140	
70	118	116	104	87.8	79.4	84.0	96.8	105	105	101	88.6	68.4	57.8	73.8	100	115	
75	95.8	94.8	84.6	69.5	59.6	66.2	78.4	85.8	85.7	81.9	69.8	49.0	36.0	53.4	79.7	93.3	
80	77.2	76.9	68.3	53.6	41.8	51.0	63.5	71.0	71.4	66.7	54.1	33.4	17.6	36.7	62.0	74.4	
85	64.6	63.9	54.5	42.5	29.4	40.2	53.5	60.0	59.4	57.0	44.7	21.9	4.16	24.1	47.2	60.2	
90	42.7	48.2	41.6	20.3	19.3	28.9	39.5	43.5	33.9	28.5	22.0	3.51	0.01	11.4	26.9	33.1	
95	0.25	0.07	0.31	17.3	14.9	9.74	0.17	0.18	0.29	0.20	0.10	0.50	0.03	0.16	0.06	0.25	
100	30.1	1.47	1.35	4.99	6.98	6.05	1.66	0.76	28.1	26.5	0.52	0.09	0.06	0.04	0.09	2.67	
105	24.4	12.0	0.34	0.54	1.21	0.62	0.30	8.82	22.1	21.5	8.94	0.57	0.22	0.08	0.10	0.89	
110	19.0	14.7	2.03	0.21	0.16	0.18	1.49	12.2	17.9	16.8	10.7	2.06	0.23	0.14	0.18	2.08	
115	15.3	12.4	3.79	0.61	0.16	0.51	2.86	11.0	13.9	13.0	7.70	2.02	0.23	0.42	0.19	7.53	
120	11.5	9.53	4.23	0.78	0.12	0.67	3.45	8.44	10.7	9.53	5.73	1.68	0.06	0.83	1.47	8.17	
125	8.84	7.41	3.88	0.83	0.13	0.83	3.29	6.53	8.05	7.21	4.28	1.45	0.17	1.09	4.51	7.96	
130	6.71	5.62	3.02	0.81	0.07	0.93	2.73	5.02	6.16	5.46	3.27	1.27	0.14	0.86	3.35	5.94	
135	4.98	4.16	2.30	0.09	0.11	0.10	2.23	3.82	4.65	4.12	2.60	0.12	0.14	0.09	2.45	4.34	
140	3.67	3.06	1.72	0.46	0.10	0.81	1.86	2.97	3.56	3.20	2.14	0.11	0.16	0.48	1.72	3.16	
145	2.62	2.21	1.29	0.41	0.08	0.71	1.56	2.36	2.76	2.56	1.82	0.97	0.15	0.30	0.80	2.20	
150	0.57	1.48	0.06	0.29	0.06	0.63	0.06	1.88	2.17	2.06	1.58	0.65	0.20	0.11	0.07	1.48	
155	0.59	0.52	0.39	0.18	0.03	0.52	0.91	1.43	1.69	1.66	0.06	0.43	0.21	0.13	0.38	0.06	
160	0.04	0.04	0.24	0.11	0.04	0.43	0.37	0.12	0.05	0.05	1.13	0.81	0.31	0.08	0.23	0.31	
165	0.30	0.04	0.03	0.10	0.03	0.22	0.09	0.41	0.95	0.96	0.88	0.65	0.40	0.07	0.09	0.26	
170	0.18	0.04	0.10	0.09	0.03	0.15	0.21	0.23	0.63	0.65	0.63	0.54	0.24	0.05	0.19	0.10	
175	0.02	0.07	0.11	0.11	0.02	0.09	0.17	0.14	0.18	0.18	0.23	0.15	0.11	0.02	0.09	0.10	
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	

**3. Test Equipment**

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-327	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-12	2018-07-11
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
GO-R5000	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-12	2018-07-11
PF210	Power Meter for Goniophotometer	2017-07-07	2018-07-06
Expand Uncertainty: Photometric Measurement (Sphere):2.04%, k=2 Chromaticity Measurement(Sphere):28.8K, k=2 Photometric Measurement(Goniophotometer):2.36%, k=2			

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