

**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-7334-35K-G2

Representative (Tested) Model: LED-7334-35K-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-7334-35K-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	3500K	
LED Manufacturer	SUMSUNG	
LED Model	SPMWHT327F*****	
Sample Number	GZE1711047-H-I1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
<b>Photo</b>		
		

**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-7334-35K-G2		

**Electrical Measurement:**

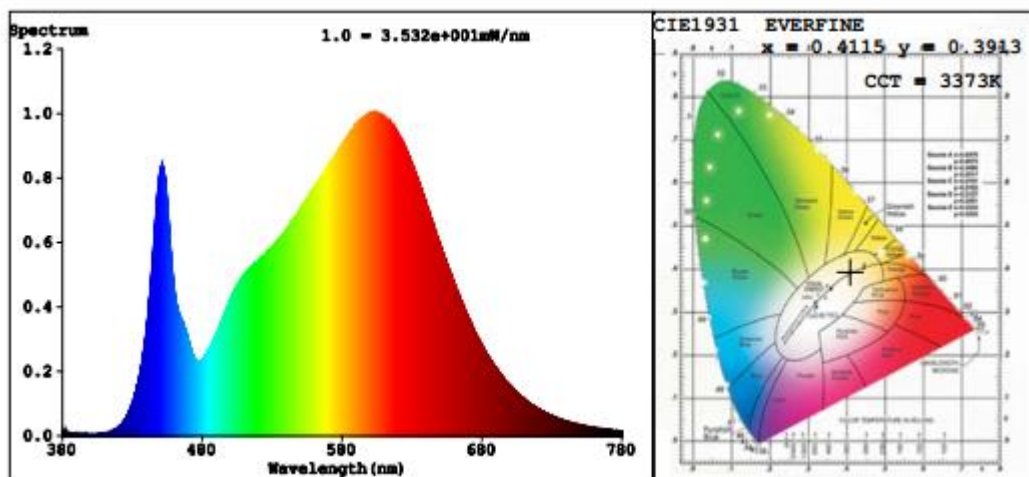
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171104	120.0	60	0.1055	12.44	0.9827	6.70
7-H-I1	277.0	60	0.0578	12.46	0.7781	6.78

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

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	19
Frequency (Hz)	60	R2	92	R10	81
CCT (K)	3373	R3	97	R11	83
Duv	-0.0010	R4	84	R12	71
Chromaticity (x, y)	x=0.4115 y=0.3913	R5	84	R13	86
Chromaticity (u', v')	u'=0.2395 v'=0.5124	R6	89	R14	99
Color Rendering Index (CRI)	85.0	R7	86	R15	78
R9	19	R8	66	--	--

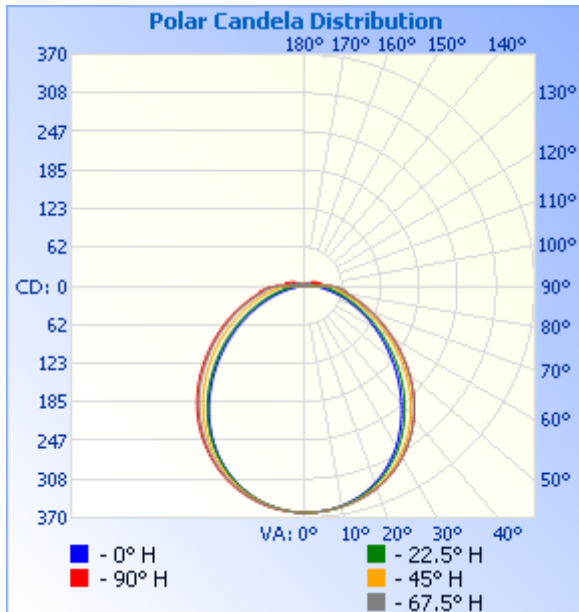
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	1064.9	1057.3
Luminous Efficacy (lm/W)	85.60	84.86
Beam Angle (°)	106.4	--
Center Beam Candle Power (cd)	361	--

**Spectral Power Distribution & Chromaticity Diagram**

**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	279.7	26.3%
0-40	455.1	42.7%
0-60	787.5	74%
60-90	248.7	23.4%
70-100	138.7	13%
90-120	22.0	2.1%
0-90	1,036.2	97.3%
90-180	28.6	2.7%
0-180	1,064.8	100%

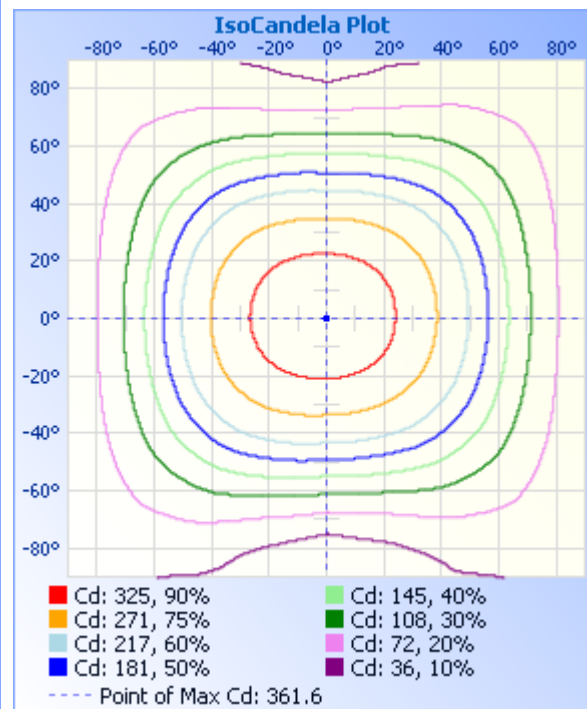
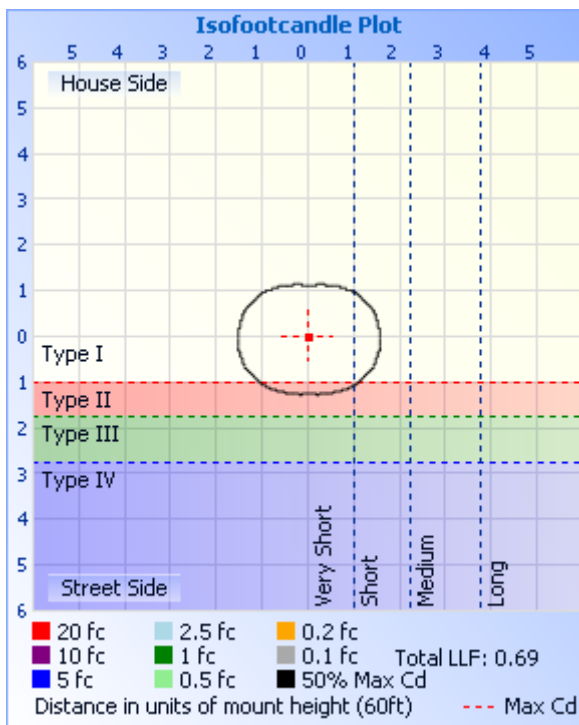
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	34.2	3.2%	90-100	8.9	0.8%
10-20	97.9	9.2%	100-110	7.5	0.7%
20-30	147.6	13.9%	110-120	5.6	0.5%
30-40	175.4	16.5%	120-130	3.5	0.3%
40-50	177.2	16.6%	130-140	1.8	0.2%
50-60	155.3	14.6%	140-150	0.9	0.1%
60-70	118.9	11.2%	150-160	0.3	0%
70-80	80.1	7.5%	160-170	0.1	0%
80-90	49.7	4.7%	170-180	0.0	0%

**Photometric Data**


**Illuminance at a Distance**

	Center Beam fc	Beam Width	
10.0ft	3.61 fc	23.6 ft	30.4 ft
20.0ft	0.90 fc	47.3 ft	60.8 ft
30.0ft	0.40 fc	70.9 ft	91.1 ft
40.0ft	0.23 fc	94.6 ft	121.5 ft
50.0ft	0.14 fc	118.2 ft	151.9 ft
60.0ft	0.10 fc	141.9 ft	182.3 ft

■ Vert. Spread: 99.6°  
■ Horiz. Spread: 113.3°



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Table--1

UNIT: cd

C (DEG) y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	361	361	361	361	361	361	361	361	361	361	361	361	361	361	361	361	
5	359	360	360	360	361	361	361	361	361	360	359	359	359	359	359	359	
10	355	355	355	356	356	357	357	358	357	356	354	353	352	352	353	354	
15	347	348	348	347	348	349	351	352	352	350	346	343	341	342	344	346	
20	336	337	337	335	335	337	341	343	343	340	335	330	327	328	331	334	
25	321	323	322	319	318	321	328	331	331	328	321	313	308	310	315	319	
30	304	306	304	299	296	301	311	316	316	312	304	293	286	289	296	302	
35	285	286	283	276	271	278	290	297	297	293	284	270	261	264	273	281	
40	263	264	260	250	244	252	267	274	275	271	260	244	233	237	249	259	
45	238	240	234	222	215	225	241	249	250	246	234	216	203	208	223	234	
50	212	214	208	194	186	196	212	221	223	218	206	186	172	179	195	208	
55	186	188	181	166	158	167	183	193	194	190	178	157	141	149	168	181	
60	160	162	154	139	132	139	155	164	166	162	149	127	111	120	140	155	
65	135	137	129	114	107	113	128	137	138	134	122	99.3	83.4	92.9	115	130	
70	112	114	106	91.2	83.8	90.0	104	113	114	110	98.1	74.5	57.8	68.8	91.7	107	
75	91.1	93.5	86.5	72.1	63.1	70.4	83.3	91.6	91.7	88.3	77.3	53.5	35.1	48.4	72.0	86.5	
80	73.6	76.1	69.9	55.6	44.1	53.6	66.9	74.0	73.1	70.1	59.8	36.6	16.3	32.1	55.4	68.9	
85	62.1	65.6	58.7	43.3	30.6	41.7	54.9	63.6	62.0	59.2	49.7	24.0	3.21	20.1	43.2	57.8	
90	43.4	46.7	43.0	23.1	20.6	30.6	41.3	45.7	44.6	42.5	24.7	4.87	0.02	11.1	22.6	41.3	
95	0.25	0.18	0.28	22.8	11.4	13.2	0.18	0.16	0.21	0.28	0.08	2.67	0.03	0.20	0.05	0.20	
100	28.6	1.00	3.38	9.91	12.4	10.4	4.22	0.41	28.6	26.9	0.45	0.07	0.05	0.03	0.10	17.7	
105	22.3	10.3	0.28	2.65	4.74	3.02	0.30	7.78	22.4	21.8	7.98	0.42	0.18	0.06	0.11	6.94	
110	17.5	13.2	1.47	0.16	0.17	0.17	1.22	11.8	17.9	17.0	11.3	1.98	0.17	0.08	0.16	6.87	
115	13.8	11.3	3.07	0.48	0.13	0.44	2.58	10.5	13.7	13.0	8.26	2.21	0.20	0.15	0.33	9.36	
120	10.5	8.56	3.73	0.71	0.10	0.65	3.33	8.47	11.2	10.2	6.09	1.81	0.06	0.39	1.95	9.34	
125	7.82	6.55	3.49	0.84	0.10	0.84	3.28	6.50	8.14	7.39	4.58	1.56	0.16	0.55	3.74	6.89	
130	5.96	5.02	2.75	0.88	0.05	0.98	2.77	5.06	6.28	5.64	3.51	1.38	0.14	0.77	2.84	5.18	
135	4.45	3.77	2.17	0.08	0.12	0.09	2.28	3.93	4.79	4.30	2.77	0.10	0.11	0.08	2.18	3.84	
140	3.37	2.86	1.69	0.25	0.10	0.87	1.92	3.06	3.72	3.34	2.29	0.10	0.22	0.63	1.67	2.89	
145	2.53	2.16	1.33	0.54	0.08	0.79	1.64	2.43	2.87	2.66	1.95	1.06	0.20	0.47	1.22	2.13	
150	0.59	1.46	0.07	0.42	0.05	0.70	0.06	1.97	2.28	2.17	1.70	0.75	0.35	0.20	0.06	1.55	
155	0.74	0.58	0.12	0.30	0.03	0.61	1.03	1.54	1.82	1.77	0.06	0.43	0.21	0.11	0.30	0.05	
160	0.03	0.03	0.20	0.19	0.03	0.52	0.43	0.13	0.05	0.05	1.22	0.89	0.41	0.05	0.36	0.43	
165	0.45	0.13	0.04	0.09	0.03	0.21	0.11	0.43	1.05	1.05	0.97	0.75	0.51	0.08	0.15	0.39	
170	0.30	0.16	0.08	0.07	0.03	0.27	0.24	0.24	0.73	0.74	0.72	0.61	0.43	0.04	0.18	0.11	
175	0.02	0.03	0.10	0.09	0.02	0.15	0.13	0.15	0.33	0.33	0.40	0.35	0.21	0.02	0.03	0.06	
180	0.00	0.00	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	

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**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 \*\*\*\*\***