

## LM-79-08 Test Report

For

# LIGHT EFFICIENT DESIGN, LLC

(Brand Name: LIGHT EFFICIENT DESIGN)

188 S.Northwest Highway, Cary, IL60013, USA

## LED Luminaires

Model name(s): LED-8027M40-G7

Remark: N/A

Representative (Tested) Model: LED-8027M40-G7

Model Different: N/A

Test & Report By:

*Leo Wang*

Engineer: Leo Wang

Date: Jan.08,2020

Review By:

*Garman Mo*

Manager: Garman Mo

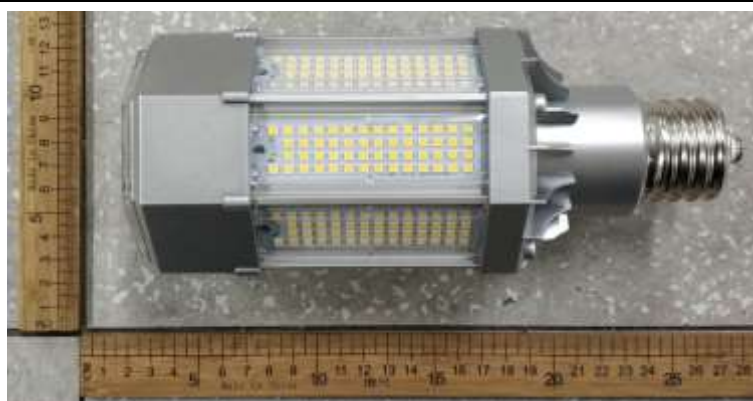
Note: 1.The results contained in this report pertain only to the tested samples.

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-8027M40-G7	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120-277Vac, 50/60Hz	
Nominal Power	95W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K	
LED Manufacturer	Samsung	
LED Model	SPMWH1228FD5WAT0SG	
Sample Number	JBE191109-H-B1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

### Photo



**Laboratory: Standard-Tech Co., Ltd. Testing Center**

Report Format Number STD-QP019-409-B/0

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

## 1.2 Test Specifications:

Date of Receipt	Dec.24,2019
Date of Test	Dec.28,2019
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>

## 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

Test date	2019-12-28	Test Ambient:	25 ± 1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-8027M40-G7	Total Operating Time (min)	90

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE191109-H-B1	120.05	60.01	0.8155	97.30	0.9938	5.45
	277.13	60.01	0.3650	94.55	0.9348	11.08

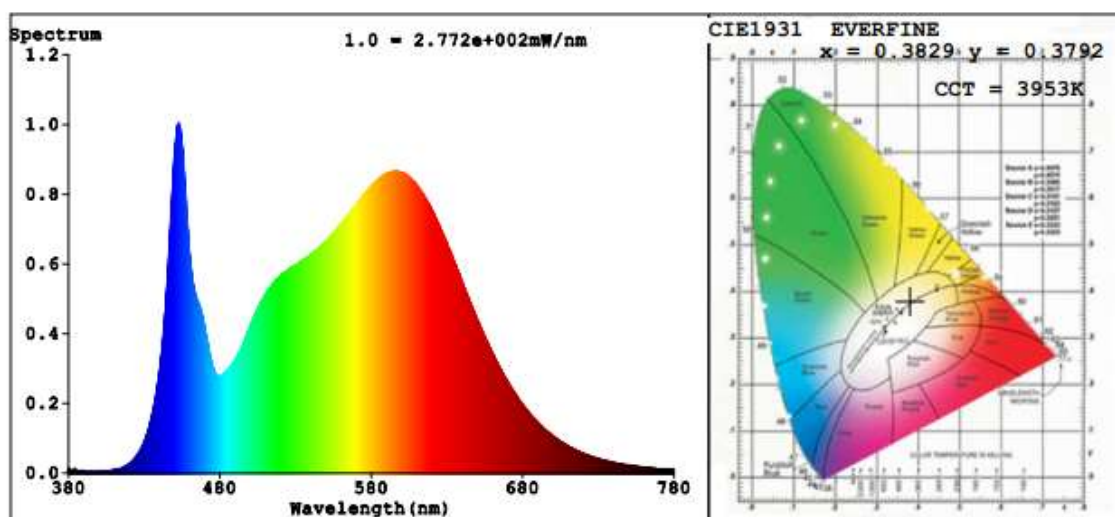
### Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0133):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	12
Frequency (Hz)	59.99	R2	92	R10	80
CCT (K)	3953	R3	96	R11	82
Duv	0.0005	R4	82	R12	64
Chromaticity (x, y)	x=0.3829 y=0.3792	R5	83	R13	86
Chromaticity (u', v')	u'=0.2257 v'=0.5030	R6	88	R14	99
Color Rendering Index (CRI)	84.4	R7	86	R15	77
R9	12	R8	65	--	--

### Photometric Measurement – Goniophotometer Method(Test Distance: 26m):

Parameter	Result	
Test Voltage (V)	120.05	277.13
Frequency (Hz)	60.01	60.01
Total Luminous (lm)	14264	14257
Luminous Efficacy (lm/W)	146.60	150.79
Beam Angle (°)	335.2	--
Center Beam Candle Power (cd)	188	--

## Spectral Power Distribution & Chromaticity Diagram

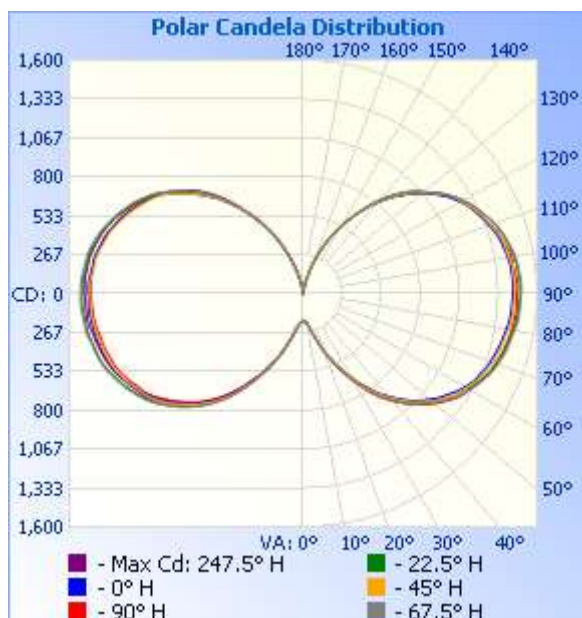


## Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	375.3	2.6%
0-40	898.9	6.3%
0-60	2,845.0	19.9%
60-90	4,483.9	31.4%
70-100	4,735.1	33.2%
90-120	4,444.2	31.2%
0-90	7,328.9	51.4%
90-180	6,936.1	48.6%
0-180	14,265.0	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	20.0	0.1%	90-100	1,608.4	11.3%
10-20	94.0	0.7%	100-110	1,513.0	10.6%
20-30	261.4	1.8%	110-120	1,322.9	9.3%
30-40	523.5	3.7%	120-130	1,063.1	7.5%
40-50	827.4	5.8%	130-140	749.9	5.3%
50-60	1,118.8	7.8%	140-150	438.5	3.1%
60-70	1,357.1	9.5%	150-160	192.1	1.3%
70-80	1,519.9	10.7%	160-170	45.9	0.3%
80-90	1,606.8	11.3%	170-180	2.4	0%

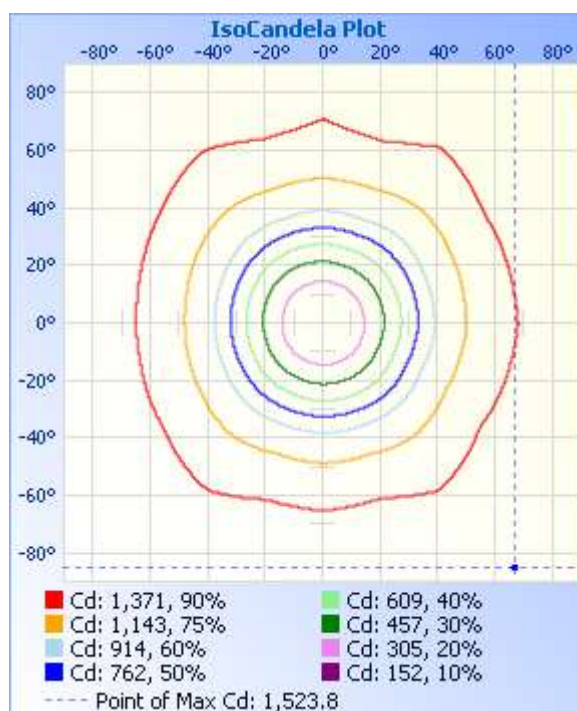
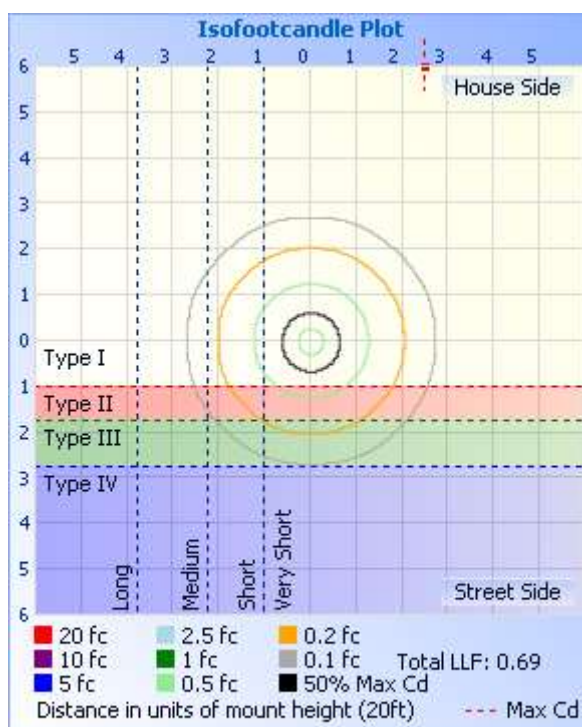
## Photometric Data



**Illuminance at a Distance**

	Center Beam fc	Beam Width
3.3ft	<b>17.3 fc</b>	<b>189.0 ft</b>
6.7ft	<b>4.19 fc</b>	<b>383.7 ft</b>
10.0ft	<b>1.88 fc</b>	<b>572.7 ft</b>
13.3ft	<b>1.06 fc</b>	<b>761.7 ft</b>
16.7ft	<b>0.68 fc</b>	<b>956.5 ft</b>
20.0ft	<b>0.47 fc</b>	<b>1,145.5 ft</b>

■ Beam Spread: 176.0°



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Table--1 UNIT: cd

C (DEG) γ (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	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188			
5	201	198	199	198	197	194	194	193	195	195	198	197	200	199	201				
10	238	237	234	236	229	229	228	231	232	235	235	238	238	238	238	238			
15	317	317	311	311	305	307	303	309	313	317	320	321	320	321	317	320			
20	431	429	422	424	416	415	413	421	431	439	437	442	437	439	435	442			
25	556	550	545	548	538	537	536	548	558	567	569	569	562	565	562	570			
30	685	680	673	677	666	666	672	686	696	708	706	707	701	702	700	707			
35	818	821	804	818	799	813	809	831	839	855	844	853	845	850	844	855			
40	941	951	928	950	922	943	935	959	962	977	966	980	965	979	970	987			
45	1052	1067	1037	1063	1034	1059	1043	1070	1074	1089	1076	1097	1073	1095	1075	1098			
50	1146	1156	1135	1152	1127	1150	1145	1160	1172	1184	1174	1189	1174	1188	1173	1196			
55	1233	1247	1220	1239	1206	1236	1232	1248	1257	1270	1258	1273	1261	1275	1256	1285			
60	1291	1320	1284	1307	1279	1304	1292	1317	1315	1336	1307	1337	1317	1343	1309	1351			
65	1345	1385	1339	1367	1327	1359	1343	1374	1367	1395	1361	1395	1372	1399	1361	1408			
70	1383	1428	1377	1416	1363	1407	1382	1417	1403	1436	1400	1439	1408	1446	1398	1454			
75	1409	1457	1403	1446	1389	1435	1404	1447	1428	1461	1434	1467	1436	1473	1420	1480			
80	1429	1477	1426	1469	1412	1457	1425	1468	1449	1488	1458	1494	1453	1498	1442	1507			
85	1446	1496	1444	1488	1429	1476	1441	1486	1462	1494	1473	1500	1468	1508	1457	1518			
90	1452	1503	1452	1496	1435	1485	1446	1492	1463	1502	1475	1505	1469	1513	1458	1523			
95	1453	1502	1451	1493	1436	1480	1446	1487	1459	1495	1467	1500	1463	1506	1452	1517			
100	1439	1489	1438	1480	1423	1466	1432	1474	1446	1476	1454	1482	1449	1488	1439	1501			
105	1419	1458	1416	1451	1399	1436	1412	1443	1414	1445	1421	1450	1415	1455	1404	1468			
110	1375	1418	1374	1409	1358	1394	1370	1399	1372	1400	1378	1405	1375	1408	1364	1420			
115	1326	1361	1323	1352	1309	1337	1319	1337	1319	1339	1325	1343	1321	1347	1312	1361			
120	1267	1296	1259	1285	1254	1273	1258	1276	1253	1267	1257	1273	1257	1278	1249	1291			
125	1189	1202	1191	1201	1172	1186	1190	1189	1187	1184	1186	1188	1183	1190	1180	1207			
130	1080	1097	1081	1097	1070	1086	1078	1086	1076	1074	1071	1079	1070	1085	1067	1093			
135	962	993	964	993	956	983	964	978	958	965	953	964	951	975	954	981			
140	832	858	837	857	831	855	838	847	833	829	827	829	826	841	831	841			
145	690	704	700	701	689	701	696	695	692	679	684	680	686	687	690	690			
150	552	563	558	559	548	560	552	551	543	536	539	536	541	543	550	547			
155	412	419	415	415	410	417	411	407	400	396	399	394	400	401	408	404			
160	271	273	277	273	270	271	273	264	263	256	256	252	259	255	265	261			
165	149	151	153	150	148	149	149	145	141	140	138	136	136	137	140	144			
170	58.7	60.5	59.6	59.8	57.1	57.0	55.6	55.0	52.6	53.2	52.5	51.8	51.0	50.7	50.3	50.8			
175	12.8	13.2	13.0	12.3	11.8	11.5	11.2	11.0	10.5	11.0	11.1	10.7	9.94	9.86	7.28	9.17			
180	2.59	2.34	2.44	2.09	2.19	2.41	2.13	2.10	2.93	3.19	3.23	3.25	3.14	3.16	3.19	3.15			

**3. Test Equipment**

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-327	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-405	Temperature Probe for Integrating Sphere	2019-01-24	2020-01-23
ST-R-332	Standard Lamp	2019-07-09	2020-07-08
ST-R-333	Power Meter for Integrating Sphere	2019-06-27	2020-06-26
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2019-07-09	2020-07-08
ST-R-358	Power Meter for Goniophotometer	2019-06-27	2020-06-26
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 \*\*\*\*\***