

## **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-8027M50C-G7

Remark: N/A

Representative (Tested) Model: LED-8027M50C-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-8027M50C-G7	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	220-347Vac, 50/60Hz	
Nominal Power	95W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	Samsung	
LED Model	SPMWH1228FD5WAR0SG	
Sample Number	JBE191109-H-F1	
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.25,2019
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	2019-12-25	Test Ambient:	25 ± 1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-8027M50C-G7	Total Operating Time (min)	90

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE191109-	277.20	60.01	0.3514	95.02	0.9755	9.42
H-F1	347.07	60.01	0.2918	95.27	0.9407	13.18

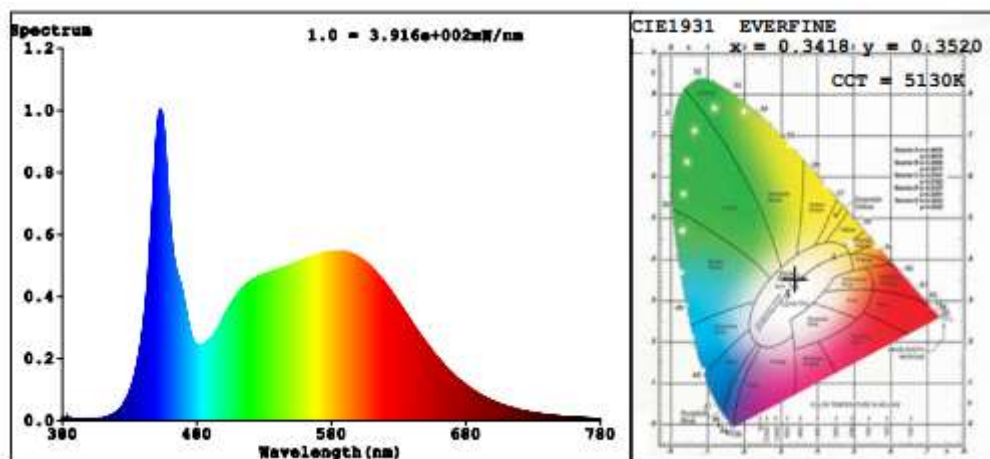
**Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0131):**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	83	R9	12
Frequency (Hz)	59.98	R2	90	R10	76
CCT (K)	5130	R3	94	R11	83
Duv	0.0015	R4	83	R12	62
Chromaticity (x, y)	x=0.3418 y=0.3520	R5	84	R13	85
Chromaticity (u', v')	u'=0.2091 v'=0.4843	R6	86	R14	97
Color Rendering Index (CRI)	84.4	R7	87	R15	78
R9	12	R8	68	--	--

**Photometric Measurement – Goniophotometer Method(Test Distance: 26.0m):**

Parameter	Result	
Test Voltage (V)	277.20	347.07
Frequency (Hz)	60.01	60.01
Total Luminous (lm)	14154	14160
Luminous Efficacy (lm/W)	148.96	148.63
Beam Angle (°)	334.2	--
Center Beam Candle Power (cd)	181	--

## Spectral Power Distribution & Chromaticity Diagram



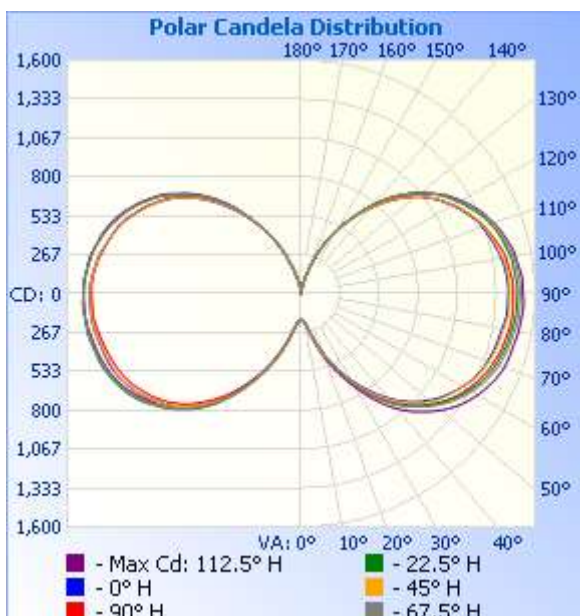
## Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	387.5	2.7%
0-40	925.6	6.5%
0-60	2,909.2	20.6%
60-90	4,483.9	31.7%
70-100	4,707.1	33.3%
90-120	4,370.4	30.9%
0-90	7,393.1	52.2%
90-180	6,762.5	47.8%
0-180	14,155.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	19.4	0.1%	90-100	1,590.5	11.2%
10-20	96.5	0.7%	100-110	1,485.5	10.5%
20-30	271.6	1.9%	110-120	1,294.5	9.1%
30-40	538.1	3.8%	120-130	1,032.1	7.3%
40-50	848.2	6.0%	130-140	723.0	5.1%
50-60	1,135.4	8.0%	140-150	415.3	2.9%
60-70	1,367.2	9.7%	150-160	178.3	1.3%
70-80	1,518.5	10.7%	160-170	41.2	0.3%
80-90	1,598.2	11.3%	170-180	2.2	0%



## Photometric Data



**Illuminance at a Distance**

	Center Beam fc	Beam Width
3.3ft	<b>16.6 fc</b>	<b>94.4 ft</b>
6.7ft	<b>4.03 fc</b>	<b>191.6 ft</b>
10.0ft	<b>1.81 fc</b>	<b>286.0 ft</b>
13.3ft	<b>1.02 fc</b>	<b>380.4 ft</b>
16.7ft	<b>0.65 fc</b>	<b>477.6 ft</b>
20.0ft	<b>0.45 fc</b>	<b>572.0 ft</b>

■ Beam Spread: 172.0°

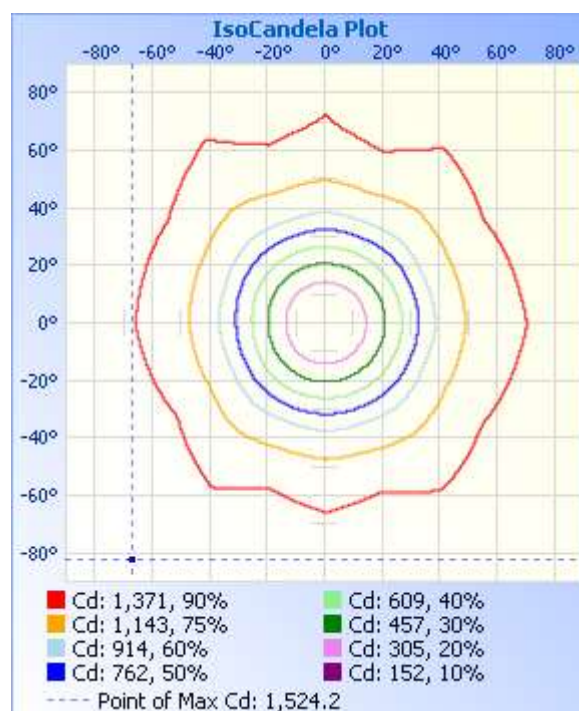
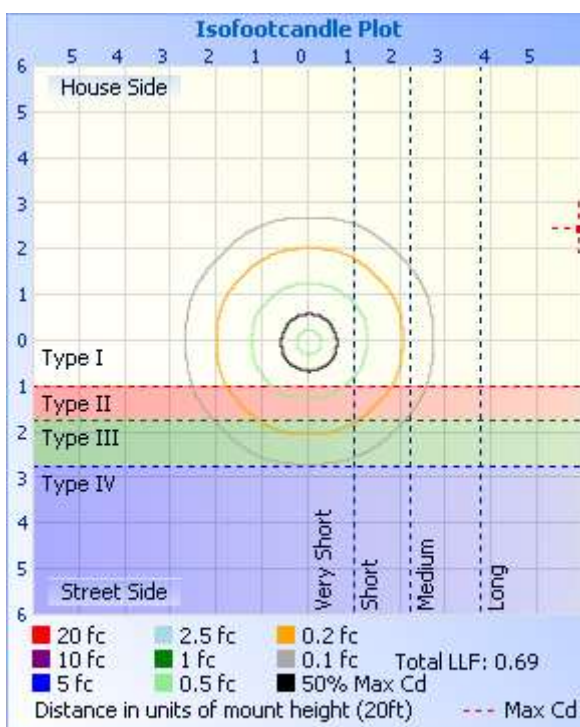


Table--1 UNIT: cd

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	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181	181			
5	189	190	189	189	189	188	189	186	187	189	188	190	188	190	188	190			
10	230	233	229	232	227	229	228	232	232	237	232	234	233	236	235	233			
15	320	320	318	317	312	315	314	321	330	332	331	329	331	331	332	325			
20	440	437	438	434	432	432	434	441	459	463	462	458	456	456	457	448			
25	569	567	568	566	557	563	567	573	593	599	596	587	589	586	589	578			
30	699	700	698	694	686	694	697	707	728	742	737	732	726	729	724	720			
35	833	846	832	840	813	837	826	850	861	894	872	881	859	876	855	866			
40	955	985	957	980	938	969	947	985	987	1031	997	1018	987	1012	980	1002			
45	1071	1096	1069	1092	1050	1082	1060	1093	1099	1146	1109	1134	1104	1123	1096	1116			
50	1164	1193	1159	1187	1140	1174	1149	1191	1189	1246	1200	1230	1193	1219	1189	1212			
55	1237	1278	1235	1274	1213	1257	1219	1274	1257	1329	1268	1313	1262	1305	1261	1295			
60	1295	1348	1294	1347	1275	1327	1278	1343	1318	1391	1326	1377	1321	1370	1317	1358			
65	1340	1396	1343	1401	1326	1382	1328	1397	1366	1444	1370	1423	1368	1417	1362	1404			
70	1373	1430	1375	1437	1358	1421	1364	1438	1402	1482	1406	1459	1400	1451	1388	1440			
75	1397	1456	1396	1459	1382	1448	1387	1465	1429	1494	1428	1478	1414	1470	1411	1461			
80	1418	1474	1417	1478	1398	1465	1403	1483	1449	1515	1448	1497	1435	1487	1434	1479			
85	1435	1487	1437	1492	1417	1479	1423	1496	1458	1521	1453	1506	1447	1495	1443	1488			
90	1437	1494	1436	1495	1418	1483	1425	1500	1457	1519	1451	1502	1447	1493	1445	1487			
95	1431	1481	1432	1485	1414	1474	1419	1489	1448	1513	1441	1496	1436	1488	1434	1482			
100	1406	1468	1411	1473	1394	1460	1399	1474	1427	1489	1421	1474	1414	1465	1410	1457			
105	1374	1435	1376	1439	1363	1427	1369	1441	1384	1454	1383	1436	1372	1430	1368	1424			
110	1337	1394	1337	1399	1325	1387	1332	1400	1339	1409	1339	1391	1335	1385	1330	1379			
115	1280	1334	1285	1340	1273	1327	1278	1338	1283	1351	1279	1333	1275	1327	1273	1322			
120	1212	1260	1216	1268	1204	1252	1209	1261	1212	1273	1208	1256	1205	1253	1203	1248			
125	1134	1178	1141	1183	1130	1175	1133	1177	1134	1186	1129	1169	1125	1170	1124	1164			
130	1040	1069	1047	1079	1040	1070	1040	1072	1035	1078	1029	1062	1026	1062	1029	1056			
135	921	953	929	963	924	956	919	951	917	955	910	939	909	942	911	940			
140	788	817	797	828	791	821	786	812	785	814	779	799	777	804	778	802			
145	653	664	659	676	657	667	653	659	651	658	648	648	645	652	650	651			
150	511	514	519	529	519	520	511	517	512	517	511	506	507	508	511	505			
155	368	381	379	394	378	389	375	383	374	378	371	370	368	371	375	371			
160	237	242	246	252	249	247	244	243	238	243	237	236	233	236	238	238			
165	127	130	135	135	137	134	133	129	127	127	125	123	123	123	126	125			
170	48.6	50.7	52.2	52.7	52.9	52.7	51.3	50.3	47.7	48.1	47.7	46.5	46.8	45.8	47.7	47.8			
175	10.2	10.8	11.4	11.5	11.9	11.9	11.7	11.7	10.7	11.0	9.72	9.44	9.67	9.60	9.80	10.6			
180	2.32	2.60	2.64	2.64	2.37	2.47	2.91	2.85	3.17	3.07	3.28	3.28	3.27	3.27	3.17	3.27			

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