

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-8027M50-G7

Remark: N/A

Representative (Tested) Model: LED-8027M50-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-8027M50-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	5000K	
LED Manufacturer	Samsung	
LED Model	SPMWH1228FD5WAR0SG	
Sample Number	JBE191109-H-C1	
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"> 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	2019-12-28	Test Ambient:	25 ± 1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-8027M50-G7	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE191109-H-C1	120.06	60.01	0.8161	97.54	0.9955	5.10
	277.05	60.01	0.3622	97.80	0.9447	9.58

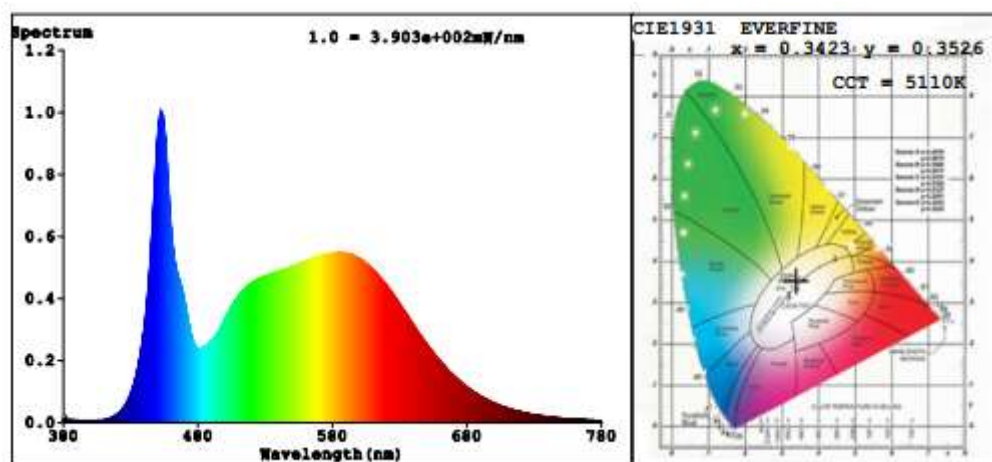
Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0131):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	12
Frequency (Hz)	59.99	R2	90	R10	76
CCT (K)	5110	R3	94	R11	83
Duv	0.0016	R4	83	R12	62
Chromaticity (x, y)	x=0.3423 y=0.3526	R5	84	R13	85
Chromaticity (u', v')	u'=0.2092 v'=0.4847	R6	86	R14	97
Color Rendering Index (CRI)	84.3	R7	87	R15	78
R9	12	R8	68	--	--

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

Parameter	Result	
Test Voltage (V)	120.06	277.05
Frequency (Hz)	60.01	60.01
Total Luminous (lm)	14349	14345
Luminous Efficacy (lm/W)	147.11	151.32
Beam Angle (°)	334.3	--
Center Beam Candle Power (cd)	187	--

Spectral Power Distribution & Chromaticity Diagram

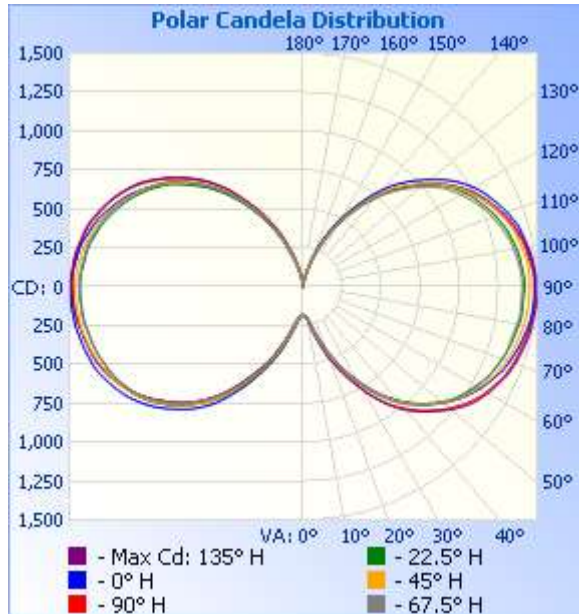


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	394.3	2.7%
0-40	941.1	6.6%
0-60	2,944.7	20.5%
60-90	4,538.2	31.6%
70-100	4,770.4	33.2%
90-120	4,432.5	30.9%
0-90	7,482.9	52.1%
90-180	6,867.6	47.9%
0-180	14,350.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	20.0	0.1%	90-100	1,613.2	11.2%
10-20	98.4	0.7%	100-110	1,507.4	10.5%
20-30	275.9	1.9%	110-120	1,311.9	9.1%
30-40	546.8	3.8%	120-130	1,048.0	7.3%
40-50	855.7	6.0%	130-140	734.3	5.1%
50-60	1,147.9	8.0%	140-150	425.9	3%
60-70	1,381.0	9.6%	150-160	182.3	1.3%
70-80	1,537.4	10.7%	160-170	42.3	0.3%
80-90	1,619.8	11.3%	170-180	2.3	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
3.3ft	16.8 fc	125.9 ft
6.7ft	4.07 fc	255.7 ft
10.0ft	1.83 fc	381.6 ft
13.3ft	1.03 fc	507.6 ft
16.7ft	0.66 fc	637.3 ft
20.0ft	0.46 fc	763.2 ft

■ Beam Spread: 174.0°

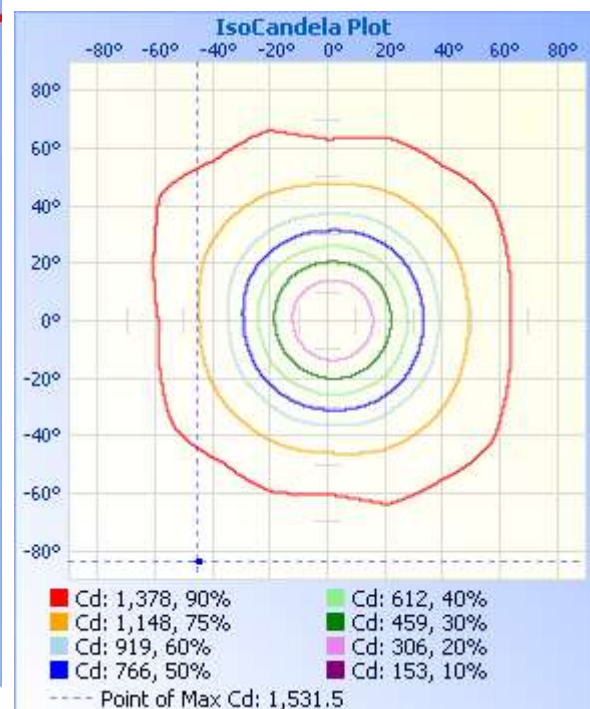
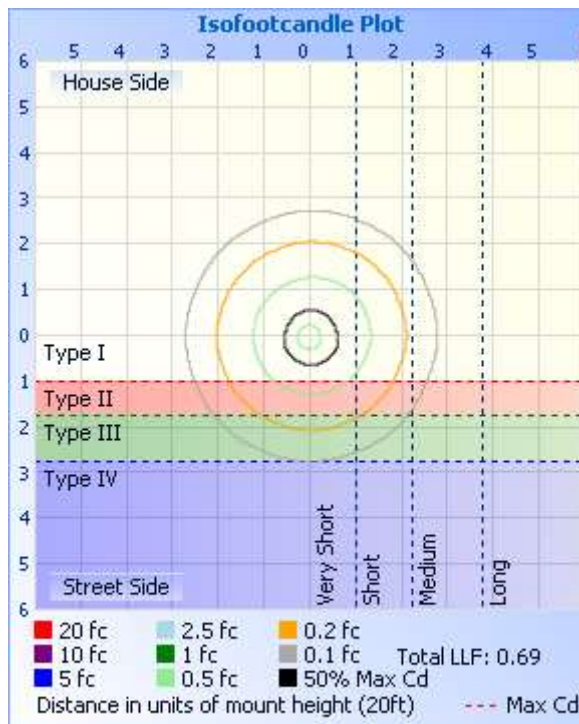


Table--1 UNIT: cd

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	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187			
5	192	191	191	193	193	194	195	198	201	203	202	201	198	195	190	191			
10	218	218	219	225	230	239	242	252	261	263	262	256	247	237	230	222			
15	297	297	295	305	317	326	335	348	362	370	368	357	342	331	316	304			
20	411	413	407	421	437	451	458	474	492	504	501	492	470	456	439	427			
25	542	546	544	558	572	582	589	601	627	642	635	629	602	590	567	562			
30	675	683	676	692	714	719	727	738	777	788	781	765	747	728	703	695			
35	824	819	823	832	853	858	863	877	925	922	930	905	899	863	853	833			
40	963	949	958	955	979	979	986	999	1046	1044	1057	1032	1031	990	988	963			
45	1076	1065	1078	1068	1094	1084	1093	1100	1149	1150	1159	1146	1138	1101	1095	1078			
50	1170	1167	1174	1170	1185	1177	1184	1189	1245	1245	1256	1241	1235	1199	1189	1181			
55	1263	1251	1262	1257	1270	1252	1265	1259	1324	1310	1340	1318	1316	1281	1278	1265			
60	1337	1312	1336	1317	1337	1307	1328	1314	1386	1363	1398	1369	1381	1338	1344	1326			
65	1394	1370	1396	1370	1394	1355	1382	1357	1434	1406	1444	1414	1432	1376	1391	1371			
70	1439	1406	1440	1407	1439	1388	1418	1388	1467	1439	1479	1442	1472	1404	1430	1405			
75	1463	1429	1466	1434	1472	1414	1447	1406	1489	1457	1502	1463	1494	1430	1459	1430			
80	1486	1446	1490	1453	1499	1435	1468	1424	1508	1477	1520	1483	1513	1449	1482	1452			
85	1507	1465	1508	1467	1513	1444	1480	1435	1519	1483	1532	1487	1524	1458	1491	1462			
90	1512	1472	1516	1474	1518	1451	1485	1437	1515	1481	1525	1492	1521	1462	1491	1467			
95	1508	1467	1516	1467	1516	1440	1479	1426	1503	1466	1514	1479	1507	1451	1481	1458			
100	1493	1452	1499	1451	1497	1422	1457	1403	1479	1438	1490	1451	1486	1433	1462	1441			
105	1467	1423	1474	1421	1470	1390	1430	1371	1436	1398	1450	1416	1444	1397	1424	1409			
110	1421	1384	1429	1379	1423	1346	1380	1325	1388	1348	1401	1363	1394	1352	1379	1366			
115	1369	1330	1374	1324	1365	1291	1322	1270	1322	1289	1337	1305	1331	1295	1320	1312			
120	1300	1271	1307	1266	1298	1230	1250	1203	1251	1218	1262	1232	1254	1227	1248	1247			
125	1211	1197	1219	1190	1208	1152	1156	1127	1155	1137	1167	1149	1165	1147	1165	1171			
130	1107	1105	1114	1094	1095	1050	1049	1018	1042	1027	1047	1040	1057	1046	1060	1077			
135	994	988	1001	974	975	932	937	900	922	900	927	924	941	928	952	961			
140	870	866	874	844	845	804	804	773	782	761	791	796	810	801	829	831			
145	722	726	722	701	690	663	649	638	633	621	640	647	664	663	684	690			
150	575	578	571	556	540	517	504	491	493	484	493	503	515	516	534	547			
155	433	439	431	415	399	379	367	352	348	346	348	360	372	375	393	402			
160	293	296	286	274	259	246	232	221	217	213	217	220	231	238	251	269			
165	168	169	163	153	142	131	120	110	109	107	107	110	117	126	137	150			
170	72.5	73.3	70.3	64.6	57.7	51.3	44.3	39.5	37.3	37.7	36.0	38.3	41.6	46.0	51.2	56.6			
175	19.4	19.8	19.1	16.6	14.5	11.7	9.55	7.96	6.81	7.06	6.55	6.74	7.72	9.08	8.94	14.7			
180	1.38	1.92	0.84	1.83	2.08	2.51	2.76	2.78	3.00	3.23	3.32	3.17	3.11	3.10	3.18	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 *******