

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-8027M40C-G7

Remark: N/A

Representative (Tested) Model: LED-8027M40C-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-8027M40C-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	4000K	
LED Manufacturer	Samsung	
LED Model	SPMWH1228FD5WAT0SG	
Sample Number	JBE191109-H-E1	
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

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Tel: 8620-3229 0320

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<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"> 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	2019-12-25	Test Ambient:	25 ± 1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-8027M40C-G7	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE191109-H-E1	277.31	60.01	0.3510	94.76	0.9735	9.70
	347.07	60.01	0.2905	94.59	0.9381	13.60

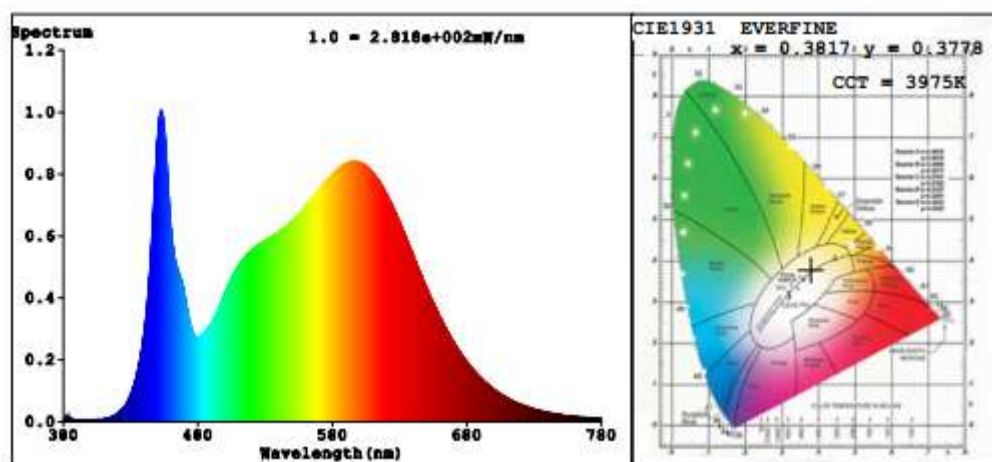
Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0129):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	84	R9	14
Frequency (Hz)	59.98	R2	92	R10	81
CCT (K)	3975	R3	96	R11	83
Duv	0.0001	R4	83	R12	64
Chromaticity (x, y)	x=0.3817 y=0.3778	R5	84	R13	86
Chromaticity (u', v')	u'=0.2255 v'=0.5022	R6	88	R14	99
Color Rendering Index (CRI)	84.8	R7	86	R15	77
R9	14	R8	66	--	--

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

Parameter	Result	
Test Voltage (V)	277.31	347.07
Frequency (Hz)	60.01	60.01
Total Luminous (lm)	14034	14040
Luminous Efficacy (lm/W)	148.11	148.43
Beam Angle (°)	334.6	--
Center Beam Candle Power (cd)	187	--

Spectral Power Distribution & Chromaticity Diagram

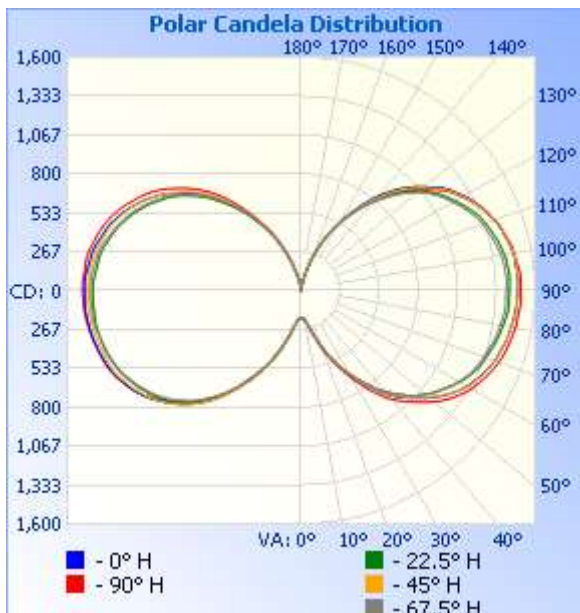


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	374.3	2.7%
0-40	892.3	6.4%
0-60	2,820.9	20.1%
60-90	4,423.1	31.5%
70-100	4,661.7	33.2%
90-120	4,362.8	31.1%
0-90	7,244.0	51.6%
90-180	6,791.1	48.4%
0-180	14,035.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	19.7	0.1%	90-100	1,581.1	11.3%
10-20	93.6	0.7%	100-110	1,484.5	10.6%
20-30	260.9	1.9%	110-120	1,297.2	9.2%
30-40	518.0	3.7%	120-130	1,038.3	7.4%
40-50	820.9	5.8%	130-140	732.0	5.2%
50-60	1,107.7	7.9%	140-150	425.9	3%
60-70	1,342.5	9.6%	150-160	185.8	1.3%
70-80	1,498.5	10.7%	160-170	43.9	0.3%
80-90	1,582.1	11.3%	170-180	2.3	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
3.3ft	17.2 fc	6.6 ft	3.5 ft
6.7ft	4.17 fc	13.4 ft	7.1 ft
10.0ft	1.87 fc	20.0 ft	10.6 ft
13.3ft	1.06 fc	26.6 ft	14.1 ft
16.7ft	0.67 fc	33.4 ft	17.7 ft
20.0ft	0.47 fc	40.0 ft	21.3 ft

■ Vert. Spread: 90.0°
■ Horiz. Spread: 56.0°

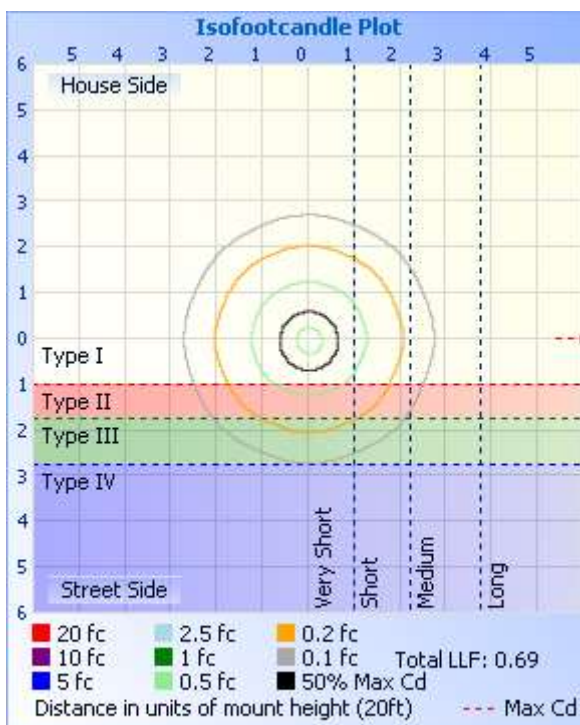


Table--1

UNIT: cd

C (DEG) Y (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	197	198	196	195	194	194	194	193	195	193	194	193	196	194	195	195			
10	236	231	231	230	227	227	225	225	228	231	236	237	240	239	238	235			
15	317	308	305	300	299	297	296	300	310	321	327	329	329	327	326	320			
20	434	421	412	406	408	405	401	408	430	440	452	454	453	451	449	441			
25	564	547	539	530	532	528	525	533	554	568	575	582	576	581	575	570			
30	692	674	666	658	661	655	651	658	693	701	713	710	711	714	711	702			
35	834	803	803	784	797	780	790	786	839	828	854	839	853	842	857	835			
40	972	927	936	909	932	904	928	908	974	950	981	963	986	965	990	955			
45	1084	1043	1053	1023	1039	1014	1031	1014	1079	1063	1091	1075	1100	1081	1103	1065			
50	1181	1137	1152	1115	1142	1106	1135	1107	1183	1157	1183	1164	1194	1175	1197	1158			
55	1268	1213	1238	1192	1235	1182	1232	1179	1275	1224	1265	1237	1278	1245	1272	1233			
60	1340	1279	1311	1256	1311	1252	1314	1245	1344	1287	1330	1298	1343	1304	1333	1293			
65	1396	1335	1365	1312	1365	1310	1371	1298	1396	1336	1382	1342	1394	1351	1381	1344			
70	1432	1371	1406	1348	1409	1345	1411	1331	1438	1370	1415	1372	1430	1385	1412	1378			
75	1455	1400	1437	1383	1437	1377	1439	1361	1466	1392	1435	1395	1452	1407	1429	1404			
80	1474	1421	1460	1405	1458	1400	1460	1382	1488	1412	1457	1418	1471	1422	1448	1429			
85	1491	1440	1477	1427	1475	1425	1479	1403	1500	1420	1469	1425	1483	1424	1459	1439			
90	1496	1443	1483	1429	1483	1425	1486	1403	1502	1424	1468	1424	1481	1426	1458	1443			
95	1489	1442	1477	1431	1481	1428	1483	1405	1501	1418	1465	1417	1475	1414	1456	1435			
100	1480	1427	1468	1418	1475	1413	1478	1390	1480	1398	1444	1395	1455	1398	1436	1415			
105	1447	1397	1439	1391	1446	1383	1449	1361	1449	1364	1411	1358	1418	1361	1403	1377			
110	1409	1354	1405	1349	1412	1345	1411	1324	1410	1322	1372	1314	1376	1319	1363	1328			
115	1351	1302	1351	1299	1360	1293	1357	1273	1352	1269	1314	1258	1314	1260	1310	1273			
120	1281	1229	1284	1232	1293	1225	1288	1207	1281	1199	1243	1189	1240	1191	1239	1202			
125	1199	1156	1205	1157	1217	1154	1206	1138	1195	1120	1158	1110	1152	1113	1154	1125			
130	1093	1064	1098	1070	1108	1067	1101	1048	1086	1024	1052	1016	1043	1015	1055	1028			
135	977	948	987	955	993	954	980	932	967	910	940	894	930	900	940	915			
140	842	818	858	825	861	821	842	800	830	782	807	770	797	768	807	784			
145	685	685	706	692	709	689	693	675	681	651	656	646	646	635	656	654			
150	536	543	555	553	558	552	549	540	541	523	513	502	502	497	509	517			
155	400	401	419	413	423	411	414	401	403	392	381	366	369	364	374	379			
160	255	261	273	272	274	271	268	261	258	256	242	238	236	231	234	243			
165	135	144	147	150	151	150	146	145	141	140	131	127	124	121	122	127			
170	50.2	54.7	56.6	58.0	59.1	57.8	56.5	55.8	55.3	55.2	50.0	48.3	45.5	44.8	45.4	46.8			
175	10.1	10.9	11.8	12.4	12.7	12.1	11.3	11.2	11.0	11.4	10.3	8.87	7.86	8.39	8.88	9.46			
180	2.37	2.32	2.20	2.52	2.21	2.41	2.14	2.34	3.11	3.20	3.09	3.14	3.15	3.30	3.23	3.13			

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 *******