

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-8027M30C-G7

Remark: N/A

Representative (Tested) Model: LED-8027M30C-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-8027M30C-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	3000K	
LED Manufacturer	Samsung	
LED Model	SPMWH1228FD5WAV0SG	
Sample Number	JBE191109-H-D1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo

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-8027M30C-G7	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE191109-H-D1	276.97	60.01	0.3524	95.22	0.9754	9.80
	347.03	60.01	0.2915	95.24	0.9414	13.70

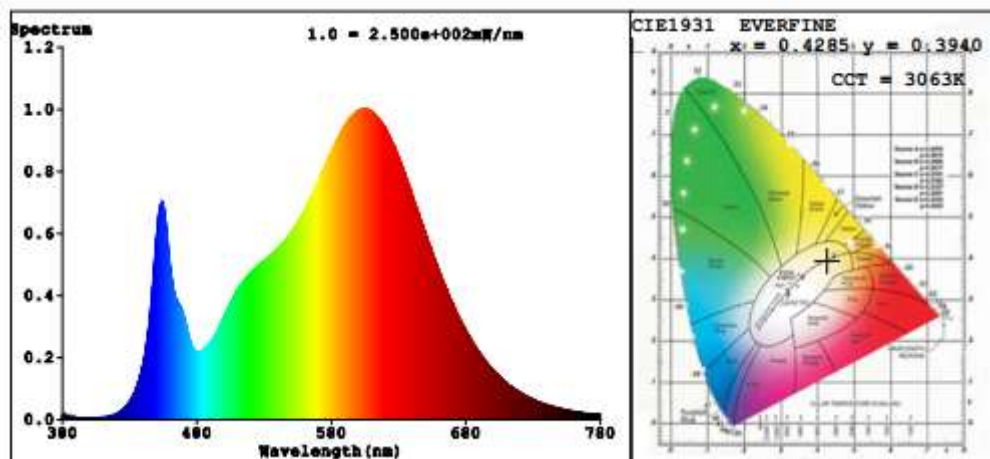
Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0127):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	84	R9	17
Frequency (Hz)	59.98	R2	94	R10	86
CCT (K)	3063	R3	95	R11	82
Duv	-0.0029	R4	82	R12	74
Chromaticity (x, y)	x=0.4285 y=0.3940	R5	85	R13	87
Chromaticity (u', v')	u'=0.2495 v'=0.5161	R6	92	R14	98
Color Rendering Index (CRI)	84.6	R7	83	R15	78
R9	17	R8	62	--	--

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

Parameter	Result	
Test Voltage (V)	276.97	347.03
Frequency (Hz)	60.01	60.01
Total Luminous (lm)	12809	12806
Luminous Efficacy (lm/W)	134.52	134.46
Beam Angle (°)	334.4	--
Center Beam Candle Power (cd)	167	--

Spectral Power Distribution & Chromaticity Diagram

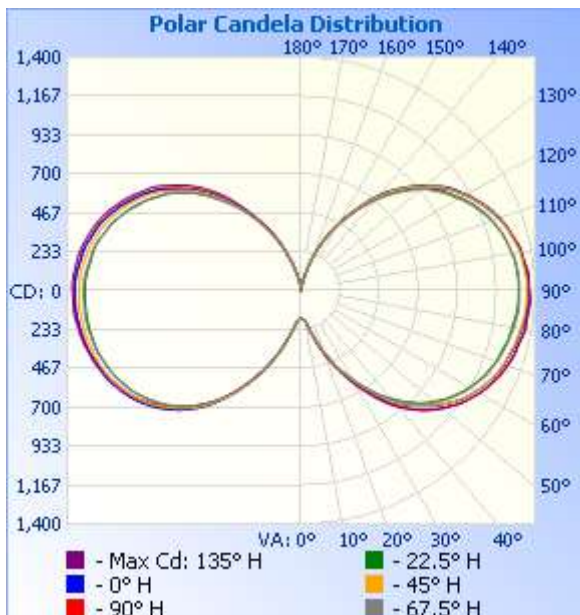


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	347.0	2.7%
0-40	829.2	6.5%
0-60	2,613.1	20.4%
60-90	4,059.0	31.7%
70-100	4,271.4	33.3%
90-120	3,966.7	31%
0-90	6,672.1	52.1%
90-180	6,137.4	47.9%
0-180	12,809.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	17.7	0.1%	90-100	1,444.1	11.3%
10-20	86.6	0.7%	100-110	1,349.7	10.5%
20-30	242.7	1.9%	110-120	1,172.8	9.2%
30-40	482.2	3.8%	120-130	934.4	7.3%
40-50	762.1	5.9%	130-140	654.8	5.1%
50-60	1,021.8	8.0%	140-150	378.0	3%
60-70	1,231.7	9.6%	150-160	163.3	1.3%
70-80	1,376.7	10.7%	160-170	38.2	0.3%
80-90	1,450.6	11.3%	170-180	2.1	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
3.3ft	15.3 fc	189.0 ft
6.7ft	3.72 fc	383.7 ft
10.0ft	1.67 fc	572.7 ft
13.3ft	0.94 fc	761.7 ft
16.7ft	0.60 fc	956.5 ft
20.0ft	0.42 fc	1,145.5 ft

■ Beam Spread: 176.0°

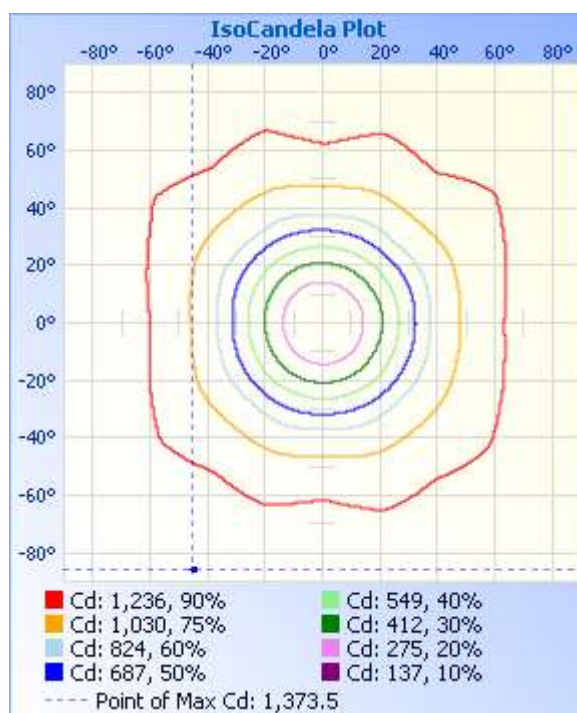
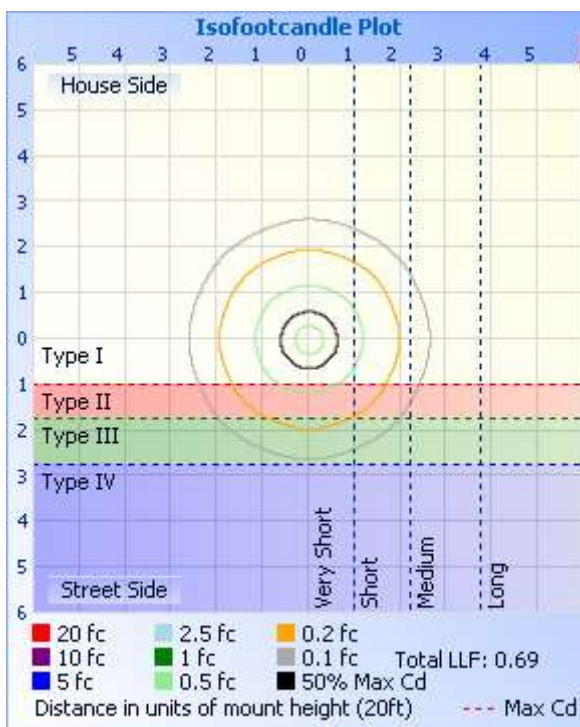


Table--1 UNIT: °C

Y (DEG) \ C (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	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167			
5	173	175	173	175	174	176	172	175	174	172	174	172	174	173	175	173			
10	216	211	213	209	207	208	208	209	210	209	212	209	209	211	211	214			
15	295	289	292	286	283	277	282	285	289	293	294	295	292	296	296	296			
20	400	397	401	393	387	381	386	392	403	407	406	403	404	408	410	410			
25	518	515	518	508	500	498	500	510	519	527	523	528	519	526	524	526			
30	638	635	641	627	621	611	618	621	644	647	652	649	650	651	651	646			
35	771	752	774	749	752	735	743	740	775	770	787	769	784	771	780	770			
40	886	864	898	861	878	846	874	853	903	882	912	883	908	882	899	881			
45	984	970	997	965	979	949	974	961	1007	987	1014	991	1011	985	998	982			
50	1070	1048	1086	1049	1069	1036	1062	1045	1095	1072	1099	1075	1098	1066	1081	1060			
55	1152	1112	1159	1114	1147	1105	1145	1111	1171	1135	1172	1139	1171	1129	1156	1127			
60	1210	1163	1218	1171	1208	1161	1206	1167	1233	1192	1229	1192	1227	1182	1211	1185			
65	1255	1205	1262	1213	1258	1208	1254	1216	1280	1233	1276	1238	1274	1223	1255	1223			
70	1291	1240	1297	1253	1295	1243	1290	1247	1317	1272	1311	1272	1305	1254	1284	1254			
75	1323	1278	1332	1286	1320	1264	1314	1272	1338	1295	1336	1295	1326	1275	1302	1280			
80	1340	1295	1350	1299	1339	1283	1334	1292	1357	1307	1362	1311	1347	1289	1321	1297			
85	1353	1309	1367	1318	1355	1299	1349	1308	1361	1312	1369	1319	1357	1294	1330	1303			
90	1356	1312	1369	1318	1358	1301	1352	1307	1364	1310	1367	1317	1355	1294	1329	1303			
95	1345	1306	1362	1316	1351	1299	1344	1302	1358	1304	1362	1309	1349	1286	1323	1294			
100	1330	1289	1347	1299	1337	1283	1331	1285	1335	1286	1338	1289	1326	1268	1300	1274			
105	1297	1258	1315	1270	1305	1257	1300	1257	1305	1257	1302	1256	1293	1239	1270	1242			
110	1260	1216	1275	1230	1269	1221	1262	1216	1262	1220	1260	1219	1250	1198	1228	1198			
115	1205	1166	1219	1178	1215	1171	1207	1162	1209	1167	1207	1164	1195	1143	1175	1145			
120	1132	1099	1154	1114	1149	1109	1140	1098	1142	1097	1141	1099	1129	1077	1111	1080			
125	1057	1030	1082	1041	1080	1040	1070	1028	1067	1025	1066	1026	1052	1004	1034	1008			
130	960	942	985	956	978	960	972	945	966	937	963	939	946	916	939	919			
135	853	834	880	854	876	853	867	838	858	831	857	829	839	810	834	813			
140	730	712	757	730	759	729	749	719	738	712	739	711	720	691	710	693			
145	594	593	614	606	620	612	613	595	598	595	601	592	584	575	574	577			
150	463	465	477	482	486	485	480	469	466	468	475	468	461	453	451	453			
155	342	339	356	353	365	356	361	345	346	343	345	344	335	329	328	328			
160	216	221	228	233	236	235	232	227	221	220	224	218	215	211	210	209			
165	114	119	123	129	129	131	127	123	118	117	118	115	112	112	109	111			
170	43.0	45.0	48.7	51.4	52.1	51.7	50.0	47.4	45.3	45.7	44.9	44.4	41.3	41.5	40.9	41.3			
175	8.73	10.1	10.8	11.5	11.6	11.5	11.3	10.7	9.88	10.4	9.66	7.77	6.54	7.89	7.76	8.22			
180	2.23	2.44	2.14	2.18	1.92	2.08	2.02	2.42	2.57	2.73	2.67	2.88	2.83	2.63	2.72	2.89			

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 *******