

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-8027M30-G7

Remark: N/A

Representative (Tested) Model: LED-8027M30-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-8027M30-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	3000K	
LED Manufacturer	Samsung	
LED Model	SPMWH1228FD5WAV0SG	
Sample Number	JBE191109-H-A1	
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.26,2019
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	2019-12-26	Test Ambient:	25 ± 1 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-8027M30-G7	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE191109-	120.15	60.01	0.8158	97.60	0.9957	6.31
H-A1	277.11	60.01	0.3622	94.85	0.9450	9.91

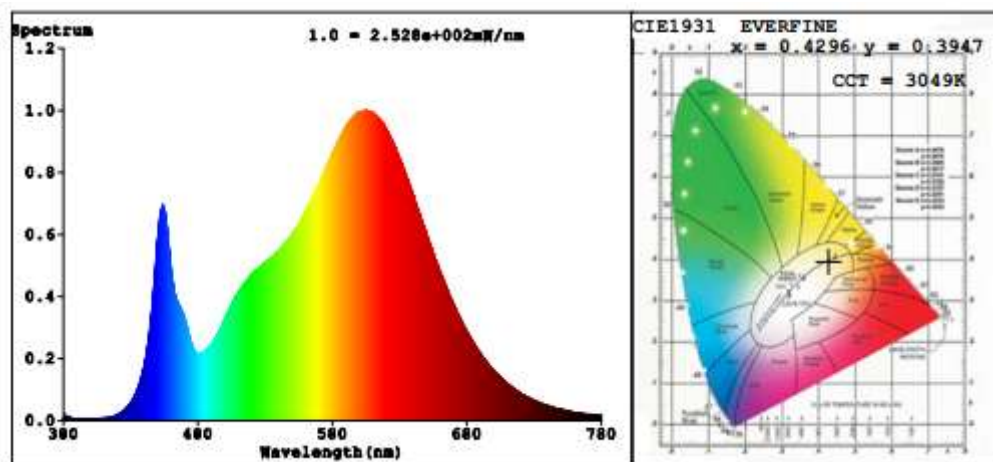
Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0130):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	16
Frequency (Hz)	59.98	R2	94	R10	86
CCT (K)	3049	R3	95	R11	82
Duv	-0.0028	R4	82	R12	74
Chromaticity (x, y)	x=0.4296 y=0.3947	R5	85	R13	87
Chromaticity (u', v')	u'=0.2499 v'=0.5165	R6	92	R14	98
Color Rendering Index (CRI)	84.6	R7	83	R15	77
R9	16	R8	62	--	--

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

Parameter	Result	
Test Voltage (V)	120.15	277.11
Frequency (Hz)	60.01	60.01
Total Luminous (lm)	12959	12952
Luminous Efficacy (lm/W)	132.77	136.55
Beam Angle (°)	333.3	--
Center Beam Candle Power (cd)	180	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	361.1	2.8%
0-40	856.5	6.6%
0-60	2,672.4	20.6%
60-90	4,117.3	31.8%
70-100	4,323.7	33.4%
90-120	4,001.6	30.9%
0-90	6,789.6	52.4%
90-180	6,170.0	47.6%
0-180	12,959.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	19.1	0.1%	90-100	1,460.3	11.3%
10-20	91.2	0.7%	100-110	1,360.9	10.5%
20-30	250.9	1.9%	110-120	1,180.4	9.1%
30-40	495.3	3.8%	120-130	937.2	7.2%
40-50	774.6	6.0%	130-140	653.2	5%
50-60	1,041.3	8.0%	140-150	376.4	2.9%
60-70	1,253.9	9.7%	150-160	161.9	1.2%
70-80	1,394.5	10.8%	160-170	37.7	0.3%
80-90	1,468.9	11.3%	170-180	2.0	0%

Photometric Data

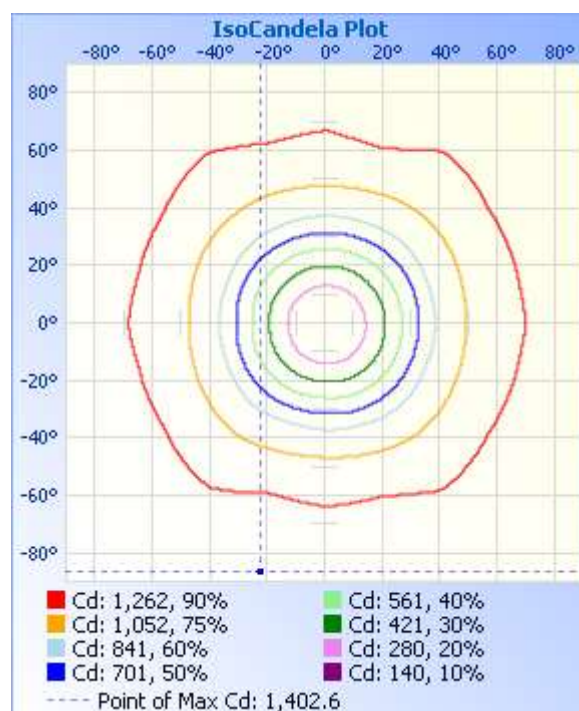
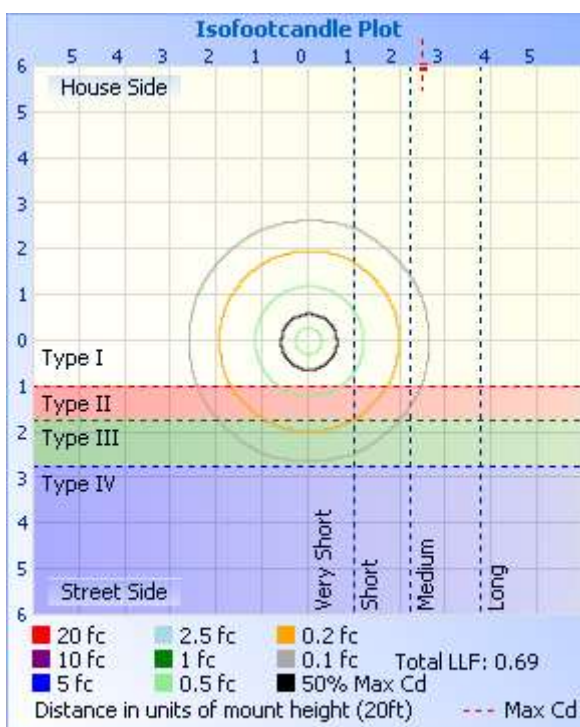
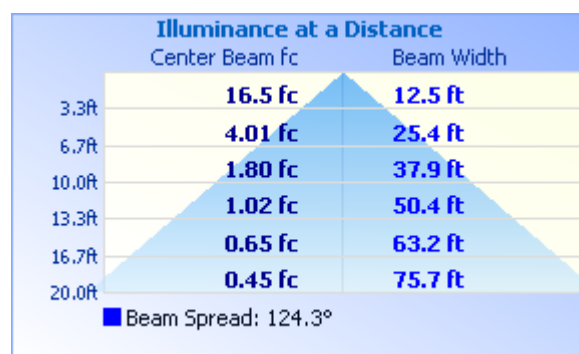
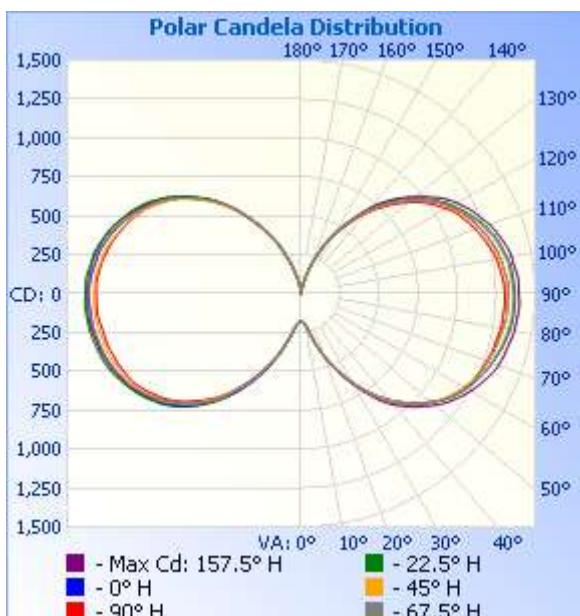


Table--1

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	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180			
5	187	187	187	188	188	189	190	189	187	188	186	187	186	187	186	187			
10	220	223	224	227	229	231	234	231	231	231	227	225	220	220	218	219			
15	297	300	302	304	309	314	314	313	312	314	312	308	302	297	295	292			
20	404	406	410	411	419	421	424	423	429	427	422	427	421	408	406	402			
25	522	523	525	526	536	535	542	535	546	541	546	544	545	526	527	519			
30	640	638	645	649	659	657	663	661	674	666	667	676	673	650	652	640			
35	766	767	769	780	780	789	786	795	794	802	790	812	799	792	774	779			
40	879	887	880	900	893	902	897	910	903	920	902	933	917	914	891	902			
45	977	981	982	994	994	994	999	998	1004	1011	1004	1029	1025	1014	997	995			
50	1067	1068	1072	1084	1087	1082	1085	1085	1088	1094	1088	1115	1115	1103	1084	1079			
55	1136	1153	1143	1167	1160	1164	1153	1167	1156	1172	1153	1191	1182	1183	1155	1159			
60	1197	1215	1201	1230	1210	1221	1207	1223	1213	1234	1211	1253	1235	1244	1214	1224			
65	1235	1261	1243	1280	1248	1264	1246	1267	1246	1278	1259	1305	1275	1292	1255	1268			
70	1263	1297	1271	1317	1275	1304	1274	1302	1266	1314	1280	1347	1306	1332	1283	1310			
75	1284	1321	1293	1341	1297	1336	1298	1329	1286	1333	1296	1368	1333	1357	1304	1329			
80	1297	1339	1308	1362	1314	1359	1316	1350	1300	1352	1312	1389	1350	1378	1319	1349			
85	1314	1352	1321	1373	1327	1371	1328	1361	1305	1361	1318	1399	1356	1386	1327	1361			
90	1315	1356	1323	1376	1328	1372	1327	1362	1306	1359	1321	1397	1361	1384	1329	1362			
95	1309	1349	1315	1366	1319	1362	1317	1350	1294	1351	1308	1392	1352	1380	1323	1358			
100	1289	1336	1293	1351	1298	1343	1295	1334	1274	1330	1289	1371	1329	1357	1300	1336			
105	1259	1306	1262	1319	1267	1309	1264	1301	1238	1293	1255	1336	1297	1323	1269	1300			
110	1220	1266	1222	1275	1224	1261	1221	1252	1196	1247	1217	1290	1254	1281	1226	1256			
115	1174	1210	1173	1218	1173	1198	1168	1190	1146	1189	1168	1230	1200	1223	1176	1199			
120	1118	1143	1116	1147	1111	1130	1107	1120	1087	1120	1102	1162	1137	1158	1121	1133			
125	1043	1063	1043	1063	1039	1043	1034	1032	1010	1034	1026	1075	1065	1073	1044	1055			
130	956	964	951	959	946	943	939	931	913	932	929	970	968	971	949	954			
135	848	862	845	858	836	842	828	830	806	830	817	863	855	867	843	855			
140	732	747	727	738	717	724	706	713	691	712	701	742	735	747	730	746			
145	608	606	601	597	592	578	581	570	570	576	578	598	605	614	609	608			
150	479	479	472	467	461	451	454	448	447	450	447	468	480	484	479	477			
155	354	360	348	345	335	332	325	328	323	331	327	345	351	365	355	360			
160	234	232	226	220	214	209	207	206	204	208	210	219	226	234	237	234			
165	129	127	123	118	113	109	106	106	106	108	110	115	123	129	132	131			
170	51.3	50.6	47.5	45.9	42.7	40.1	39.0	38.3	38.7	39.0	40.5	43.4	48.8	51.9	53.2	52.1			
175	11.4	11.5	10.3	9.81	8.88	8.34	7.76	7.89	7.71	8.09	8.68	8.54	9.45	12.2	13.1	13.1			
180	2.39	2.45	2.49	2.45	2.68	2.69	2.99	2.57	2.93	3.14	3.08	3.09	3.03	3.10	3.09	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 *******