

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN, LLC

(Brand Name: LIGHT EFFICIENT DESIGN)

Suite 301,188 S.Northwest Highway, Cary, IL60013, USA

LED Luminaires

Model name(s): LED-8242M50

Representative (Tested) Model: LED-8242M50

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Apr.18,2019

Review By:

Johnson Sun

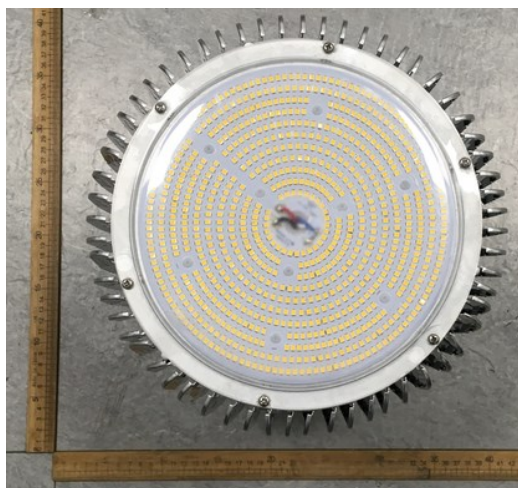
Manager: Johnson Sun

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-8242M50	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	100-277Vac, 50/60Hz	
Nominal Power	270W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	Samsung Electronics Co., LTD	
LED Model	SPMWHx228xxxxxxxxxx	
Sample Number	JBE190113-H-BB1	
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	Apr.11,2019
Date of Test	Apr.12,2019
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	2019-04-12	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LED-8242M50	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE190113-	120.0	60	2.343	281.3	0.9937	9.89
H-BB1	277.0	60	0.9322	258.3	0.9199	15.43

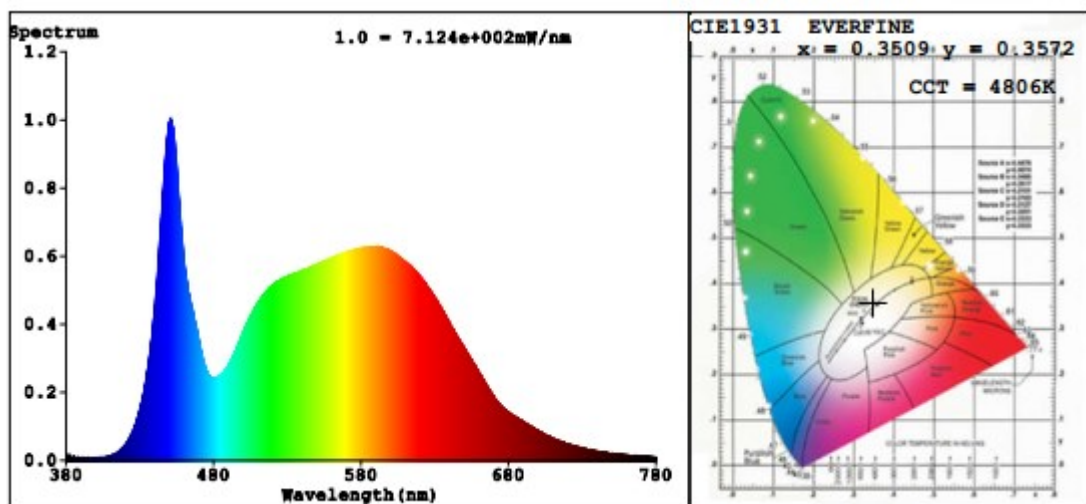
Chromaticity Measurement - Sphere-Spectroradiometer
Method(Self-absorption:):

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	22
Frequency (Hz)	60	R2	90	R10	75
CCT (K)	4806	R3	93	R11	84
Duv	0.0005	R4	85	R12	60
Chromaticity (x, y)	x=0.3509 y=0.3572	R5	84	R13	86
Chromaticity (u', v')	u'=0.2132 v'=0.4882	R6	85	R14	96
Color Rendering Index (CRI)	85.2	R7	89	R15	80
R9	22	R8	72	--	--

Photometric Measurement – Goniophotometer Method(Test Distance: 26.00m):

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	35443	35423
Luminous Efficacy (lm/W)	125.99	137.16
Beam Angle (°)	115.0	--
Center Beam Candle Power (cd)	12131	--

Spectral Power Distribution & Chromaticity Diagram

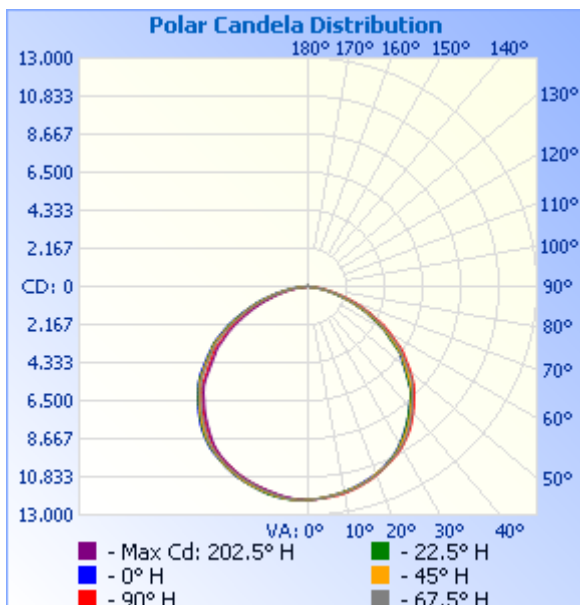


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	9,561.8	27%
0-40	15,818.2	44.6%
0-60	28,231.3	79.7%
60-90	6,901.7	19.5%
70-100	2,729.4	7.7%
90-120	193.3	0.5%
0-90	35,133.0	99.1%
90-180	306.9	0.9%
0-180	35,439.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	1,148.1	3.2%	90-100	69.1	0.2%
10-20	3,309.2	9.3%	100-110	87.9	0.2%
20-30	5,104.5	14.4%	110-120	36.3	0.1%
30-40	6,256.4	17.7%	120-130	26.8	0.1%
40-50	6,552.7	18.5%	130-140	26.3	0.1%
50-60	5,860.4	16.5%	140-150	24.3	0.1%
60-70	4,241.3	12.0%	150-160	19.4	0.1%
70-80	2,149.0	6.1%	160-170	11.9	0%
80-90	511.3	1.4%	170-180	4.8	0%

Photometric Data



Illuminance at a Distance

Center Beam fc	Beam Width	Beam Width
3.3ft	1,114.0 fc	10.4 ft 10.3 ft
6.6ft	278.5 fc	20.8 ft 20.6 ft
9.9ft	123.8 fc	31.2 ft 30.9 ft
13.2ft	69.6 fc	41.6 ft 41.2 ft
16.5ft	44.6 fc	52.0 ft 51.5 ft
19.8ft	30.9 fc	62.3 ft 61.8 ft

■ Vert. Spread: 115.2°
■ Horiz. Spread: 114.7°

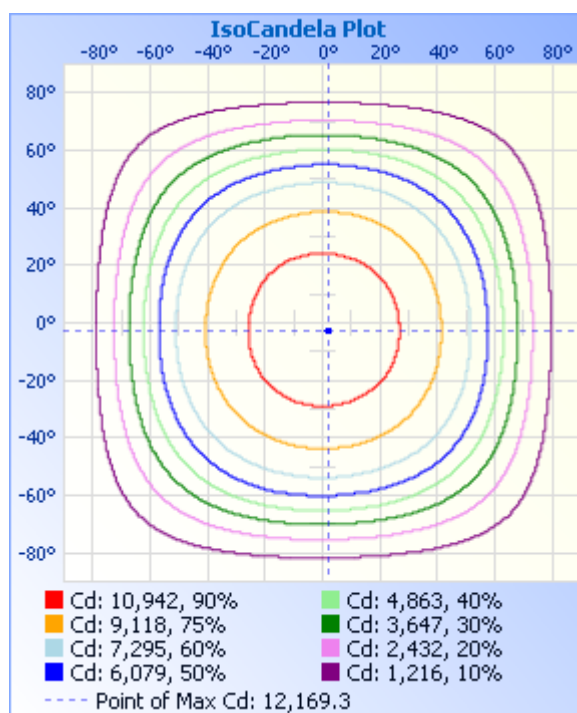
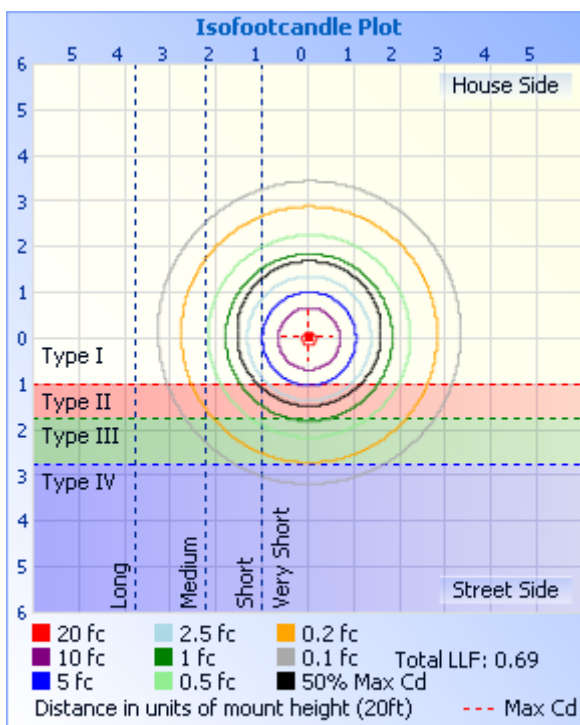


Table--1 UNIT: *10cd

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	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	1213	
5	1211	1206	1205	1204	1202	1202	1201	1203	1205	1207	1209	1213	1214	1215	1214	1213	
10	1190	1187	1185	1185	1184	1184	1187	1190	1194	1196	1199	1203	1203	1205	1199	1194	
15	1167	1164	1163	1162	1161	1164	1164	1168	1171	1176	1181	1182	1181	1182	1179	1172	
20	1139	1138	1132	1130	1132	1133	1132	1138	1141	1149	1154	1157	1157	1155	1154	1146	
25	1105	1101	1095	1091	1092	1094	1096	1099	1103	1114	1119	1125	1123	1122	1119	1114	
30	1062	1055	1045	1040	1037	1040	1045	1054	1060	1069	1077	1083	1084	1081	1077	1072	
35	997	986	983	975	970	971	982	993	1003	1013	1023	1032	1031	1028	1022	1010	
40	926	915	904	899	897	897	906	917	928	942	951	959	963	956	950	941	
45	852	839	828	820	820	821	831	840	853	865	873	883	886	882	874	865	
50	749	733	721	718	714	716	725	746	760	775	789	807	805	800	791	781	
55	656	637	628	623	622	618	631	644	661	669	682	694	700	693	685	674	
60	543	524	506	505	502	502	510	526	544	561	587	602	603	594	588	571	
65	423	399	386	380	380	380	391	413	425	447	471	482	484	478	466	451	
70	307	287	273	265	265	268	276	294	308	329	348	358	363	354	346	332	
75	198	179	168	160	159	160	172	185	199	217	232	244	245	237	230	219	
80	108	91.5	83.6	76.7	73.8	76.7	83.2	94.6	109	121	135	143	145	141	132	122	
85	37.0	30.5	25.1	22.3	20.5	20.8	26.1	32.1	39.4	49.0	57.3	63.1	66.2	63.0	56.8	48.2	
90	8.08	6.80	6.32	6.16	6.16	6.41	6.49	6.77	7.74	9.43	10.7	12.8	13.9	12.8	10.8	9.82	
95	5.67	5.76	5.74	5.68	5.70	5.93	5.93	5.93	5.78	5.83	5.82	5.73	5.75	5.85	5.74	5.51	
100	6.68	7.49	8.37	9.01	9.11	9.16	8.35	7.04	5.89	5.62	5.51	5.48	5.55	5.65	5.53	5.79	
105	11.0	9.93	9.08	8.23	8.00	8.22	8.43	9.12	10.0	10.9	10.2	10.4	10.1	11.1	11.7	11.0	
110	5.41	5.35	5.06	4.55	4.62	4.85	5.05	5.24	5.03	5.24	6.17	7.00	7.57	7.10	6.60	5.24	
115	3.38	3.30	3.21	3.18	3.17	3.26	3.24	3.22	2.85	3.11	3.33	3.90	3.90	3.91	3.62	3.14	
120	2.98	3.07	3.16	3.22	3.28	3.30	3.22	3.08	2.48	2.44	2.42	2.46	2.51	2.51	2.53	2.51	
125	3.21	3.30	3.38	3.47	3.50	3.52	3.46	3.29	2.65	2.60	2.57	2.55	2.54	2.61	2.62	2.62	
130	3.37	3.51	3.53	3.61	3.64	3.64	3.59	3.49	2.87	2.80	2.80	2.77	2.75	2.80	2.81	2.82	
135	3.57	3.64	3.71	3.76	3.80	3.80	3.75	3.66	3.16	3.11	3.09	3.07	3.07	3.09	3.09	3.09	
140	3.80	3.85	3.89	3.95	3.95	3.99	3.94	3.89	3.45	3.42	3.41	3.37	3.35	3.37	3.37	3.40	
145	3.94	4.02	4.07	4.09	4.09	4.12	4.09	4.05	3.77	3.74	3.71	3.69	3.66	3.67	3.67	3.68	
150	4.16	4.24	4.25	4.30	4.34	4.35	4.30	4.25	4.08	4.06	4.03	4.02	3.93	3.97	3.97	4.00	
155	4.29	4.36	4.40	4.43	4.43	4.44	4.44	4.38	4.11	4.12	4.11	4.07	4.02	4.01	4.05	4.06	
160	4.29	4.36	4.42	4.42	4.44	4.45	4.43	4.43	3.89	3.84	3.86	3.82	3.78	3.78	3.77	3.79	
165	4.32	4.40	4.38	4.39	4.45	4.47	4.48	4.45	3.81	3.81	3.79	3.78	3.75	3.74	3.72	3.75	
170	4.71	4.77	4.83	4.82	4.89	4.90	4.83	4.81	4.66	4.68	4.65	4.64	4.62	4.62	4.63	4.62	
175	5.16	5.17	5.18	5.21	5.23	5.28	5.28	5.22	5.27	5.24	5.26	5.27	5.23	5.25	5.25	5.27	
180	5.17	5.27	5.26	5.26	5.26	5.24	5.23	5.24	5.15	5.19	5.21	5.21	5.25	5.26	5.23	5.20	

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-332	Standard Lamp	2018-07-04	2019-07-03
ST-R-333	Power Meter for Integrating Sphere	2018-06-28	2019-06-27
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2018-07-04	2019-07-03
ST-R-358	Power Meter for Goniophotometer	2018-06-28	2019-06-27
Expand Uncertainty: Photometric Measurement (Sphere):2.66%, k=2 Chromaticity Measurement(Sphere):28.6K, k=2 Photometric Measurement(Goniophotometer):2.76%, k=2			

******* END OF REPORT *******