LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN, LLC

(Brand Name: N/A)

188 S.Northwest Highway, Cary, IL60013, USA

LED Luminaires

Model name(s): LED-8145M30-A

Representative (Tested) Model: LED-8145M30-A

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

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: May.18,2018

Review By:

Univ Xie

Manager: Univ Xie

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 NVLAP, NIST, or any agency of the Federal Government.

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN, LLC	
Brand Name	N/A	
Model Number	LED-8145M30-A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120 -277Vac, 50/60 Hz	
Nominal Power	45W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	SAMSUNG ELECTRONICS CO., LTD	
LED Model	SPMWH1228FD5WAV0SE	
Sample Number	GZE1801030-H-N1	
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	May.01,2018
Date of Test	May.02,2018
Test item	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	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
Reference Work Instruction	QD25

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 °C ±1 °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 ºC ±1 ºC. 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 ºC ±1 ºC. 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

(Refer to Work Instruction QD25)

Test date	2018-05-02	Test Ambient:	25.2 ºC
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8145M30-A		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE180103 0-H-N1	120.0	60	0.3855	45.38	0.9809	8.41
	277.0	60	0.1778	45.72	0.9282	13.38

Chromaticity Measurement - Sphere-Spectroradiometer Method:

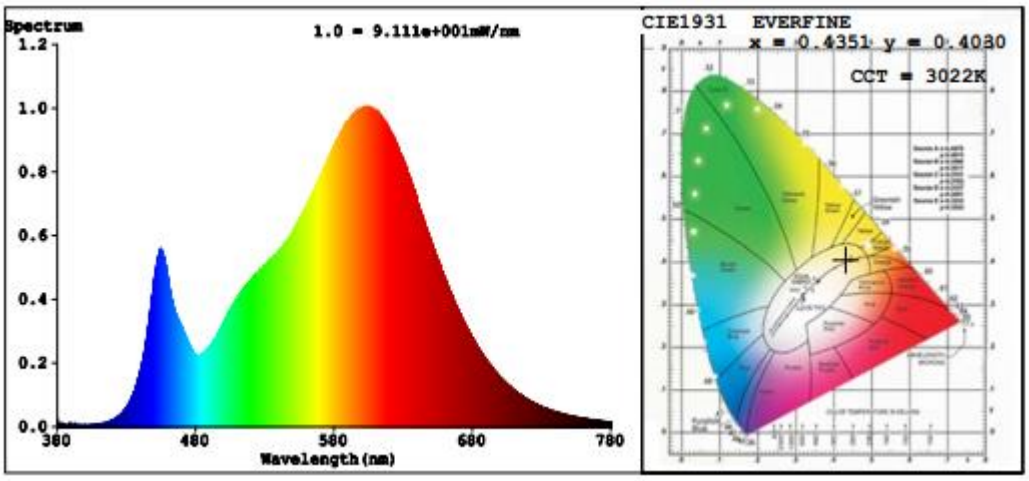
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3022
Duv	-0.0002
Chromaticity (x, y)	x=0.4351 y=0.4030
Chromaticity (u', v')	u'=0.2499 v'=0.5207
Color Rendering Index (CRI)	82.7
R9	8

Special Color Rendering Indices			
R1	81	R9	8
R2	92	R10	82
R3	95	R11	79
R4	80	R12	71
R5	82	R13	84
R6	91	R14	98
R7	82	R15	74
R8	59	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	5338.4	5398.4
Luminous Efficacy (lm/W)	117.64	118.08
Most worst Luminous/Highest Watts	116.76	
Beam Angle ( )	324.1	--
Center Beam Candle Power (cd)	3	--

Spectral Power Distribution & Chromaticity Diagram

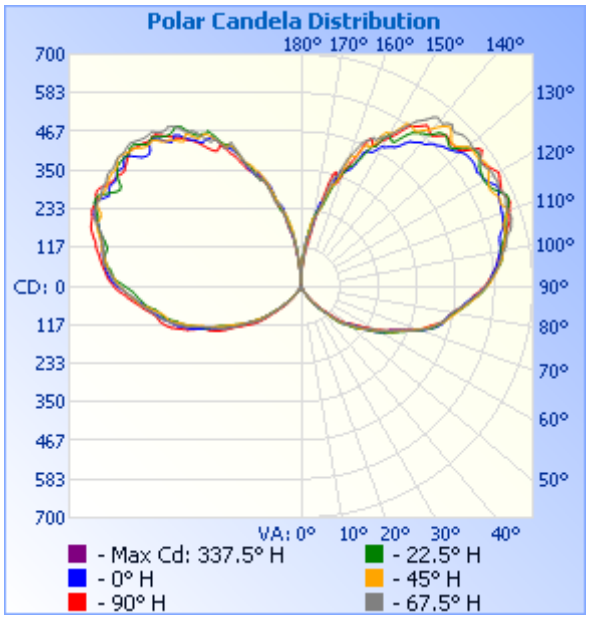


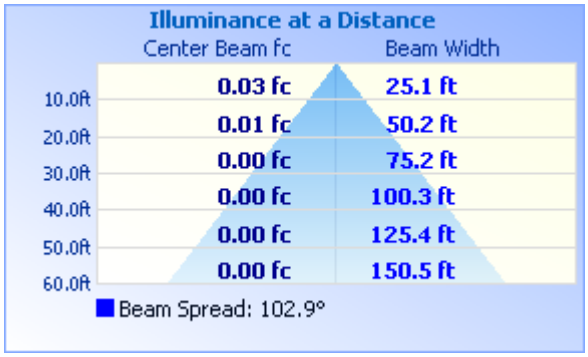
Zonal Lumen Tabulation

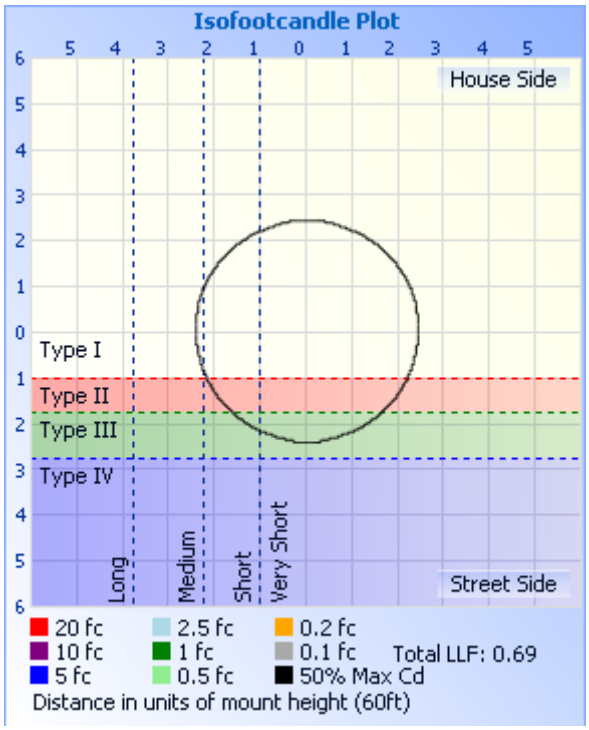
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	8.5	0.2%
0-40	37.8	0.7%
0-60	317.7	6%
60-90	1,313.0	24.6%
70-100	1,645.2	30.8%
90-120	1,974.7	37%
0-90	1,630.7	30.5%
90-180	3,707.9	69.5%
0-180	5,338.6	100%

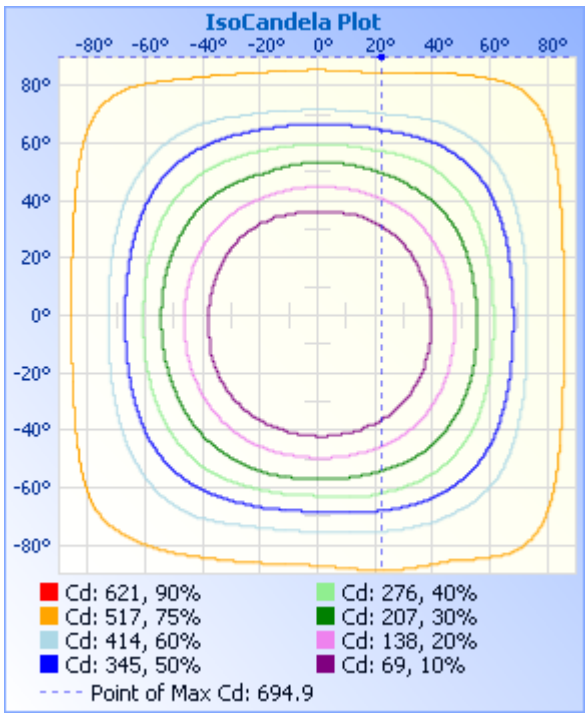
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	0.3	0.0%	90-100	643.4	12.1%
10-20	1.7	0.0%	100-110	674.5	12.6%
20-30	6.5	0.1%	110-120	656.9	12.3%
30-40	29.3	0.5%	120-130	592.1	11.1%
40-50	91.8	1.7%	130-140	489.9	9.2%
50-60	188.1	3.5%	140-150	356.0	6.7%
60-70	311.2	5.8%	150-160	205.7	3.9%
70-80	446.8	8.4%	160-170	78.4	1.5%
80-90	555.0	10.4%	170-180	11.0	0.2%

Photometric Data









Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
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1	3	3	3	3	2	3	3	3	3	2	3	3	2	2	2	3	3
2	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	3
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123	633	644	670	662	670	664	692	678	650	662	664	671	637	621	650	**695**	633
124	636	650	671	660	660	667	689	679	645	663	670	674	641	632	644	**695**	636

125	640	659	664	661	661	673	670	689	653	662	675	676	645	641	647	689	640
126	641	668	660	667	672	671	660	692	662	660	671	674	649	646	656	674	641
127	639	668	659	674	684	662	654	688	654	656	666	671	653	652	659	666	639
128	639	666	661	670	677	650	647	681	637	657	659	671	660	658	654	665	639
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142	551	586	597	647	616	584	627	632	567	613	571	610	561	587	607	609	551
143	547	580	585	630	606	585	603	599	554	602	577	586	552	580	592	603	547
144	533	573	580	618	596	572	592	582	545	576	560	576	539	569	570	596	533
145	517	558	587	608	589	543	601	588	530	557	544	572	520	559	562	593	517
146	506	539	589	589	582	518	594	589	526	547	543	557	502	556	562	583	506
147	502	519	587	572	560	515	583	587	528	549	544	530	488	558	559	566	502
148	496	516	561	554	540	495	584	581	525	543	542	514	481	545	540	553	496
149	489	523	540	538	527	478	560	571	526	547	526	515	483	521	526	539	489
150	488	530	532	520	514	454	519	552	506	524	508	510	491	508	517	527	488
151	471	508	532	513	501	438	509	537	488	496	488	479	480	510	511	511	471
152	458	479	513	508	482	447	521	519	473	482	474	473	455	521	490	509	458
153	455	474	476	495	475	433	495	495	464	482	480	477	442	503	483	508	455
154	454	452	467	500	490	396	455	466	448	464	467	484	416	480	475	493	454
155	444	426	473	487	492	370	432	432	423	423	426	441	396	477	464	487	444
156	404	412	456	480	463	338	441	404	388	401	410	396	380	475	461	472	404

157	384	394	424	468	425	317	433	409	371	400	400	378	384	459	445	428	384
158	378	391	422	445	402	294	394	395	359	361	388	360	358	425	419	382	378
159	371	374	424	427	379	297	373	381	368	343	372	341	356	395	409	360	371
160	368	358	381	409	354	321	346	386	353	344	364	346	342	380	406	344	368
161	368	341	339	375	328	304	325	380	343	337	346	330	329	353	397	355	368
162	344	323	324	350	338	244	312	339	330	310	327	303	312	340	371	353	344
163	320	301	319	343	361	211	265	295	312	295	299	264	281	320	345	331	320
164	288	277	292	329	352	184	241	268	266	265	270	254	253	313	328	298	288
165	280	255	276	288	320	170	232	249	256	239	255	260	246	294	292	270	280
166	256	240	249	258	275	160	206	233	252	234	241	247	233	285	266	248	256
167	260	240	227	234	237	149	182	220	242	221	229	216	221	249	267	255	260
168	241	230	220	219	217	119	156	201	203	218	224	185	184	235	255	251	241
169	202	217	212	203	190	109	147	167	174	202	193	171	169	245	247	238	202
170	180	208	207	165	157	102	142	142	164	177	191	162	160	244	228	207	180
171	158	186	187	156	144	87	115	123	149	168	171	159	146	220	187	179	158
172	156	170	154	152	129	57	87	108	134	136	148	133	117	207	183	172	156
173	152	142	141	136	114	41	61	74	111	120	109	105	97	181	184	170	152
174	132	129	122	105	98	29	44	70	78	96	97	95	89	171	168	150	132
175	95	109	95	88	78	14	27	48	64	63	67	74	71	148	140	126	95
176	90	96	89	76	71	6	17	35	43	37	43	45	32	125	112	107	90
177	79	73	74	64	54	5	8	18	24	23	25	19	15	99	95	86	79
178	55	44	48	43	42	9	6	7	7	7	8	7	6	82	90	64	55
179	39	22	30	31	24	21	15	12	7	7	8	8	7	68	63	38	39
180	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-327	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-12	2018-07-11
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
GO-R5000	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-12	2018-07-11
PF210	Power Meter for Goniophotometer	2017-07-07	2018-07-06
Expand Uncertainty: Photometric Measurement (Sphere):2.04%, k=2 Chromaticity Measurement(Sphere):28.8K, k=2 Photometric Measurement(Goniophotometer):2.36%, k=2			

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