



Ningbo TengLi Testing Co., Ltd

2nd floor, Block B, Ningbo Testing and Certification Base, No. 66
Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
Fax: 86574-8783 5902

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN, LLC

(Brand Name: LIGHT EFFICIENT DESIGN)

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

Model name(s): LED-8242M40C

Report Type: Testing and Report According to IES LM-79-2008

**Type of
Luminaire:** LED Luminaires

Report Date: 2019-04-02
Ningbo TengLi Testing Co., Ltd

Prepared By: 2nd floor, Block B, Ningbo Testing and Certification Base,
No. 66 Qingyi Road, Ningbo National Hi-Tech Zone,
Ningbo, Zhejiang

Test & Report By:

Xeon Ren

Engineer: Xeon Ren

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.

Report No.: JBE190113-H-Q

Report Format Number STD/QP019-409-A/0-NB

<http://www.standard-tech.com>



1.1 Product Information:		
Model Number	LED-8242M40C	
Remark	N/A	
Representative (Tested) Model	LED-8242M40C	
Model Difference	All construction and rating are the same, except CCT	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
LED Manufacturer	SAMSUNG	
LED Model	4000K: SPMWH1228FD5WAT☆S3	
Dimming	Non-Dimmable	
Sample Number	JBE190113-H-Q1(4000K)	
Date of Receipt	2019-03-21	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

1.2 Rated Values:	
Rated Voltage / Frequency	220-347Vac, 50/60Hz
Nominal Power	270W
Rated Initial Lamp Lumen	--
Declared CCT	4000K,

1.3 Test Specifications:

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 C78.377-2015 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

1.4 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 277 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 277 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 277 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 Electrical, Photometric and Chromaticity Measurements

Test date	2019-03-26	Test Ambient:	25.0° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8242M40C		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JBE190113-	277.0	60	0.9801	261.7	0.9639	13.37
H-Q1	347.0	60	0.8073	259.3	0.9256	17.26

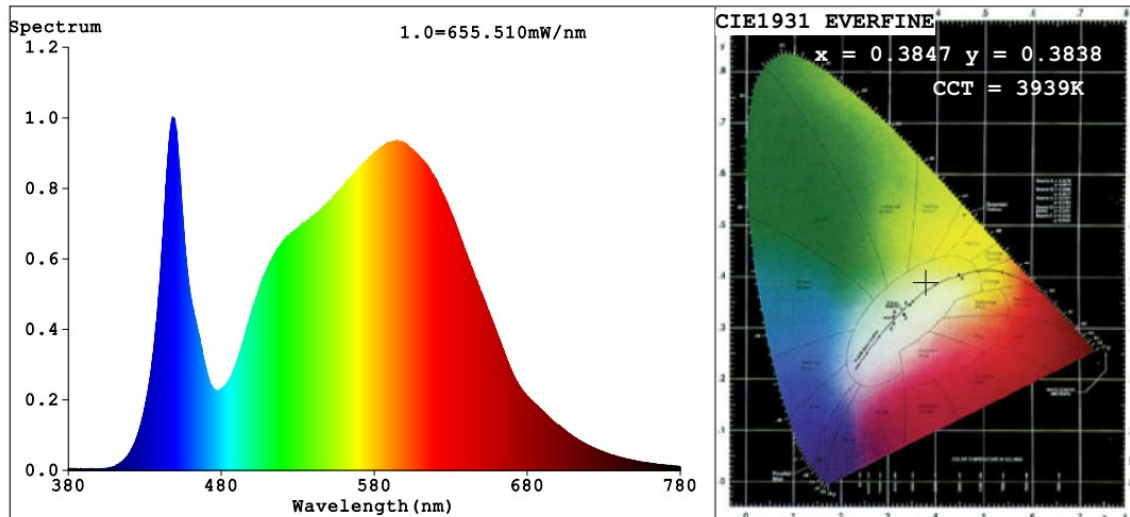
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	81	R9	10
Frequency (Hz)	60	R2	88	R10	71
CCT (K)	3939	R3	93	R11	83
Duv	0.0021	R4	83	R12	62
Chromaticity (x, y)	x=0.3847 y=0.3838	R5	81	R13	82
Chromaticity (u', v')	u'=0.2251 v'=0.5053	R6	83	R14	96
Color Rendering Index (CRI)	82.9	R7	87	R15	75
R9	10	R8	66	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result	
Test Voltage (V)	277.0	347.0
Frequency (Hz)	60	60
Total Luminous (lm)	34217	34085
Luminous Efficacy (lm/W)	130.75	131.45
Beam Angle (°)	113.7	--
Center Beam Candle Power (cd)	11913	--

Spectral Power Distribution & Chromaticity Diagram

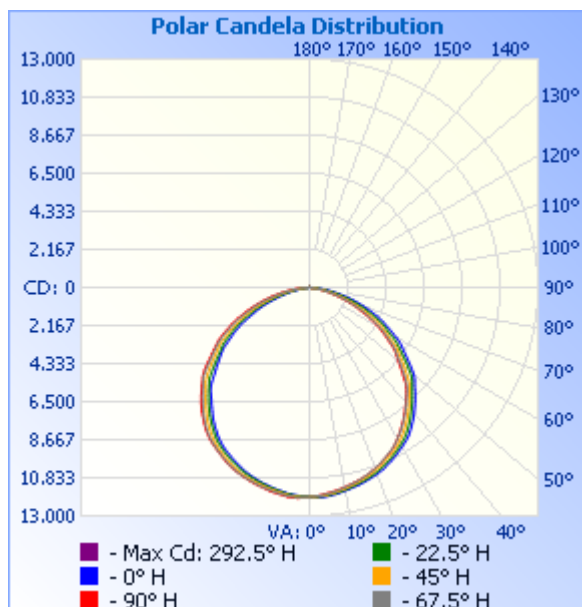


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	9,313.3	27.2%
0-40	15,371.2	44.9%
0-60	27,296.3	79.8%
60-90	6,663.8	19.5%
70-100	2,667.5	7.8%
90-120	183.0	0.5%
0-90	33,960.0	99.3%
90-180	253.6	0.7%
0-180	34,213.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	1,125.2	3.3%	90-100	73.2	0.2%
10-20	3,227.6	9.4%	100-110	80.3	0.2%
20-30	4,960.5	14.5%	110-120	29.5	0.1%
30-40	6,057.9	17.7%	120-130	16.0	0%
40-50	6,309.0	18.4%	130-140	15.8	0%
50-60	5,616.1	16.4%	140-150	15.1	0%
60-70	4,069.5	11.9%	150-160	12.4	0%
70-80	2,070.8	6.1%	160-170	8.0	0%
80-90	523.4	1.5%	170-180	3.2	0%

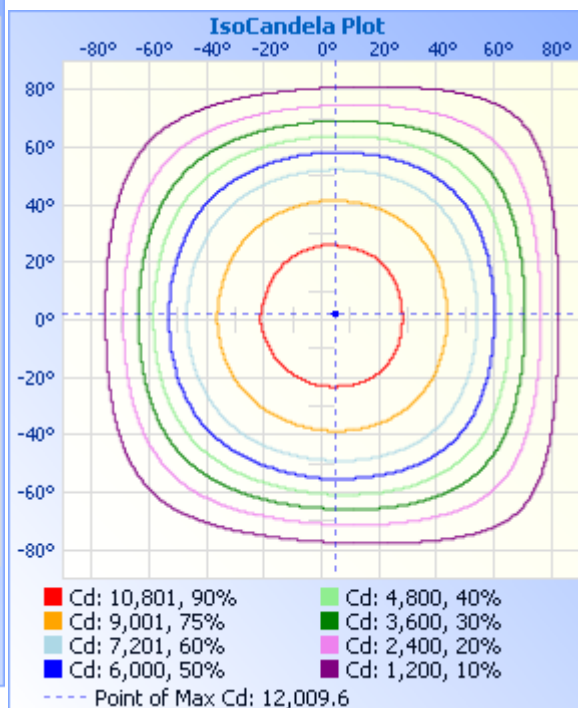
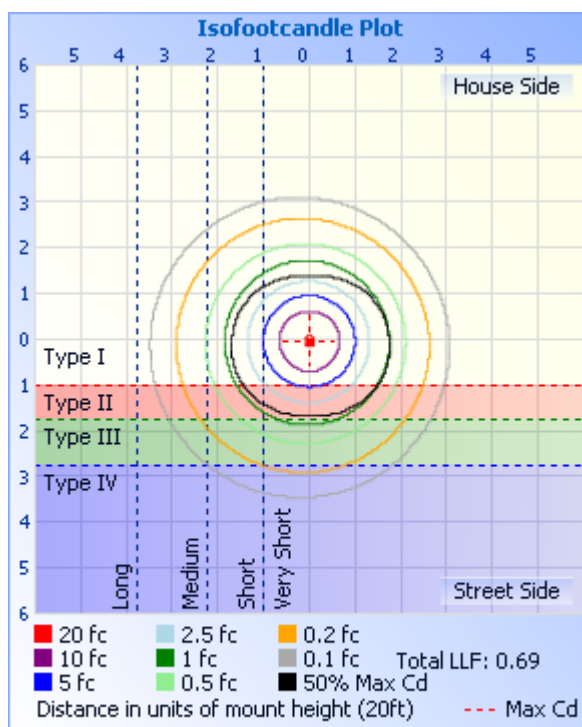
Photometric Data



Illuminance at a Distance

Center Beam fc	Beam Width	
17.0ft	41.2 fc	52.0 ft 51.7 ft
34.0ft	10.3 fc	103.9 ft 103.4 ft
51.0ft	4.6 fc	155.9 ft 155.1 ft
68.0ft	2.6 fc	207.9 ft 206.8 ft
85.0ft	1.6 fc	259.8 ft 258.5 ft
102.0ft	1.1 fc	311.8 ft 310.2 ft

Vert. Spread: 113.6°
Horiz. Spread: 113.3°





Certificate#4703.02

Ningbo TengLi Testing Co., Ltd

2nd floor, Block B, Ningbo Testing and Certification Base, No. 66
Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
Fax: 86574-8783 5902

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	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191	
5	1198	1201	1199	1194	1191	1187	1183	1177	1174	1171	1171	1174	1180	1183	1190	1193	
10	1183	1185	1185	1177	1173	1169	1162	1155	1152	1147	1149	1152	1161	1163	1171	1178	
15	1162	1161	1160	1154	1152	1145	1136	1128	1127	1120	1123	1127	1135	1140	1150	1159	
20	1137	1135	1135	1129	1128	1117	1105	1093	1093	1085	1087	1091	1102	1111	1126	1134	
25	1105	1107	1108	1098	1092	1079	1063	1049	1051	1045	1045	1050	1060	1073	1089	1101	
30	1060	1066	1067	1059	1050	1035	1017	997	996	989	988	996	1012	1029	1046	1059	
35	1015	1019	1022	1011	997	976	953	930	927	915	915	924	946	964	988	1008	
40	949	955	952	941	926	901	880	856	852	841	840	848	867	891	915	939	
45	874	882	878	865	849	826	804	782	773	756	753	769	795	813	836	861	
50	796	809	804	794	777	746	705	675	663	654	649	660	687	718	756	788	
55	691	705	703	689	667	634	609	581	569	545	545	562	596	618	650	678	
60	598	613	605	593	572	531	497	472	457	441	435	448	483	516	548	585	
65	488	498	496	487	462	429	386	354	342	325	321	335	361	400	437	469	
70	372	384	382	370	348	313	272	244	228	211	210	224	255	288	321	350	
75	264	273	271	261	236	204	170	144	130	120	119	128	150	179	210	239	
80	159	168	169	160	137	113	86.9	69.2	55.5	46.9	46.6	53.4	70.0	90.2	117	141	
85	78.5	88.8	87.6	79.2	62.8	43.3	27.8	15.4	10.3	8.49	8.66	10.3	16.8	31.0	45.5	64.0	
90	23.2	27.9	27.8	22.6	13.9	7.81	5.77	5.14	5.29	5.47	5.48	5.41	5.58	6.59	9.44	16.1	
95	5.73	6.24	5.91	5.24	4.85	4.75	4.91	4.64	4.63	4.89	5.13	4.94	5.24	5.31	5.28	5.46	
100	4.99	5.00	4.95	4.89	4.79	5.07	7.16	10.3	11.2	11.1	10.6	10.1	10.4	8.51	5.97	5.28	
105	8.98	8.40	7.58	8.76	11.2	10.9	9.14	6.65	5.95	5.24	5.55	5.83	7.42	9.08	10.5	10.6	
110	7.37	8.14	8.03	7.79	6.77	5.62	4.70	3.30	2.91	2.77	3.08	3.12	3.94	4.30	5.34	6.57	
115	3.45	3.75	3.83	3.59	3.21	2.69	2.11	1.86	1.85	1.81	1.89	1.88	2.05	2.36	2.91	3.35	
120	1.82	1.77	1.82	1.83	1.68	1.67	1.68	1.78	1.84	1.87	1.94	1.91	1.82	1.76	1.76	1.80	
125	1.61	1.59	1.56	1.64	1.60	1.66	1.72	1.81	1.90	1.96	2.01	1.98	1.87	1.79	1.71	1.67	
130	1.75	1.71	1.71	1.73	1.77	1.83	1.90	1.98	2.07	2.13	2.16	2.14	2.05	1.96	1.89	1.82	
135	1.91	1.88	1.89	1.89	1.92	1.98	2.02	2.10	2.14	2.19	2.23	2.22	2.15	2.06	2.00	1.94	
140	2.10	2.09	2.07	2.08	2.12	2.17	2.25	2.28	2.30	2.34	2.36	2.35	2.30	2.22	2.17	2.10	
145	2.33	2.31	2.30	2.31	2.35	2.41	2.47	2.52	2.50	2.53	2.56	2.53	2.49	2.42	2.37	2.32	
150	2.54	2.53	2.52	2.54	2.58	2.63	2.69	2.73	2.68	2.70	2.74	2.72	2.68	2.62	2.57	2.51	
155	2.64	2.62	2.62	2.62	2.66	2.70	2.75	2.79	2.68	2.70	2.74	2.74	2.70	2.66	2.62	2.58	
160	2.67	2.66	2.67	2.67	2.71	2.72	2.79	2.80	2.70	2.70	2.74	2.73	2.72	2.68	2.66	2.63	
165	2.75	2.74	2.74	2.75	2.77	2.82	2.83	2.86	2.75	2.77	2.80	2.80	2.80	2.74	2.72	2.69	
170	3.13	3.12	3.12	3.11	3.13	3.15	3.23	3.27	3.22	3.22	3.24	3.26	3.22	3.19	3.18	3.11	
175	3.55	3.59	3.53	3.55	3.58	3.60	3.56	3.54	3.46	3.45	3.48	3.51	3.53	3.54	3.53	3.50	
180	3.50	3.50	3.54	3.54	3.53	3.54	3.53	3.54	3.43	3.43	3.45	3.47	3.49	3.48	3.48	3.46	

Report No.: JBE190113-H-Q

Report Format Number STD/QP019-409-A/0-NB

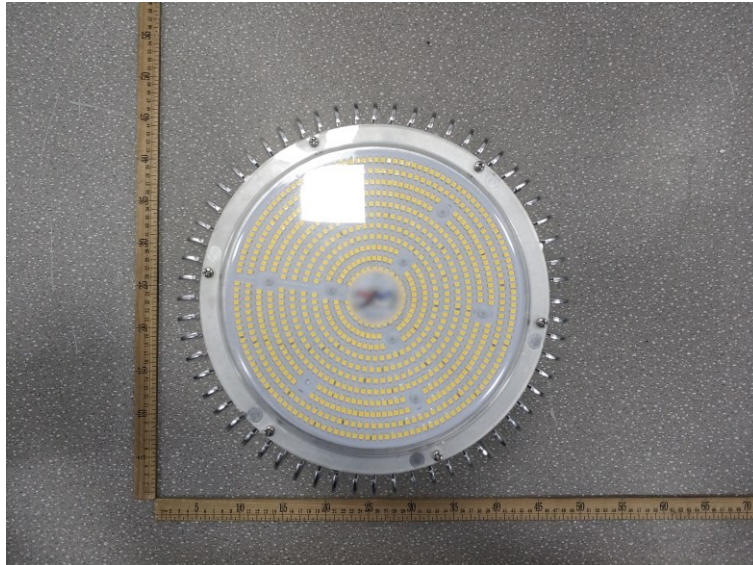
<http://www.standard-tech.com>



3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-705	Standard Lamp	2019-02-07	2020-02-06
ST-R-704	Power Meter for Integrating Sphere	2019-01-06	2020-01-05
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp	2019-02-12	2020-02-11
ST-R-711	Power Meter for Goniophotometer	2019-01-06	2020-01-05
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

4. Product Photo



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