



Report No.: GZE160698-C

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest Highway Cary, IL60013

LED Lamp

Model name(s): LED-8089M30

Representative (Tested) Model: LED-8089M30 (3000K)

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

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Jul.12,2016

Review By:

Tommy Liang

Manager: Tommy Liang

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8089M30	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamp	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	80W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	CREE	
LED Model	XHP50A-00-0000-0DOHG230G	
Sample Number	GZE160698-C1(3000K)	
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	Jul.11,2016
Date of Test	Jul.12,2016
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
Reference Work Instruction	QD25

1.3 Test Methods

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</p> <p>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.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</p> <p>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.</p>
<p>3) Electrical Measurements:</p> <p>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.</p>

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2016-07-11	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8089M30(3000K)		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160698-	120.0	60	0.6862	81.19	0.9860	13.10
C1	277.0	60	0.3204	80.25	0.9042	19.61
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

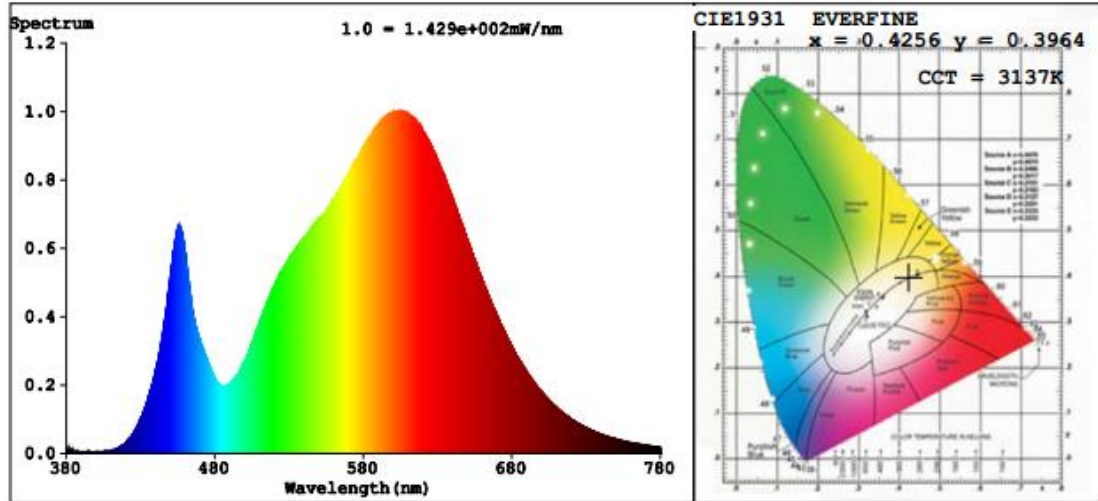
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	15
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	3137	R3	96	R11	77
Duv	-0.0014	R4	80	R12	64
Chromaticity (x, y)	x=0.4256 y=0.3964	R5	81	R13	84
Chromaticity (u', v')	u'=0.2465 v'=0.5166	R6	86	R14	97
Color Rendering Index (CRI)	82.9	R7	85	R15	76
R9	15	R8	63	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result		DLC V4.0 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	7122.3	7137.2	--	
Luminous Efficacy (lm/W)	87.72	88.94	--	--
Beam Angle (°)	106.7	--	--	
Center Beam Candle Power (cd)	2653	--	--	

Spectral Power Distribution & Chromaticity Diagram

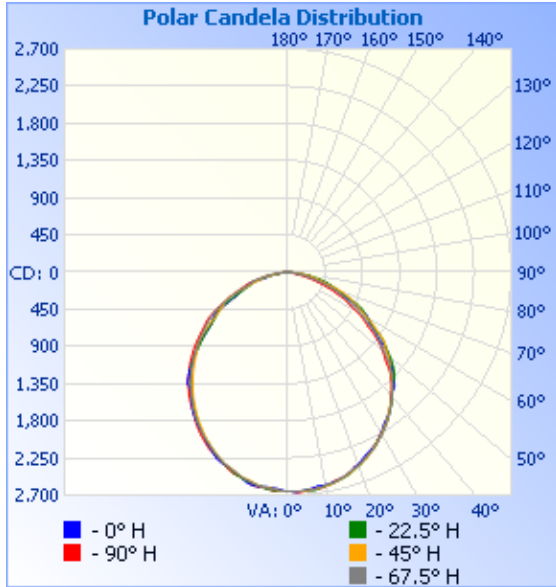


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	2,041.6	28.7%
0-40	3,325.1	46.7%
0-60	5,781.4	81.2%
60-90	1,326.0	18.6%
70-100	513.0	7.2%
90-120	4.2	0.1%
0-90	7,107.4	99.8%
90-180	14.1	0.2%
0-180	7,121.5	100%

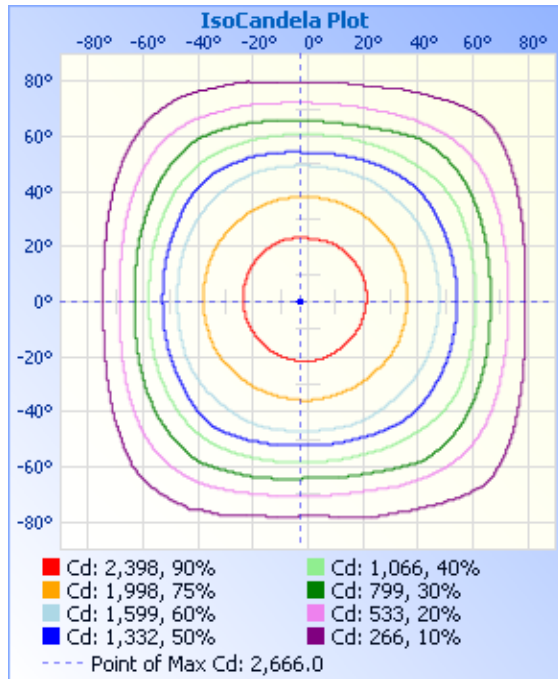
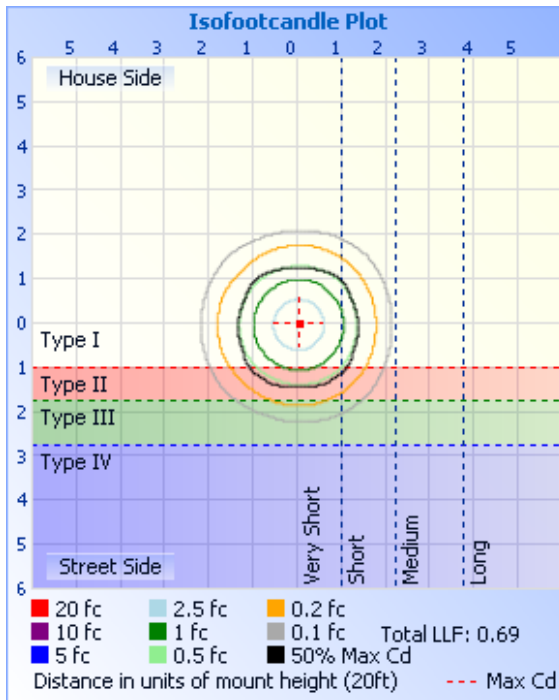
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	250.8	3.5%	90-100	1.0	0%
10-20	715.5	10.0%	100-110	1.1	0%
20-30	1,075.3	15.1%	110-120	2.0	0%
30-40	1,283.5	18.0%	120-130	2.3	0%
40-50	1,319.0	18.5%	130-140	2.4	0%
50-60	1,137.3	16.0%	140-150	2.1	0%
60-70	814.0	11.4%	150-160	1.7	0%
70-80	419.6	5.9%	160-170	1.1	0%
80-90	92.4	1.3%	170-180	0.4	0%

Photometric Data



	Illuminance at a Distance	
	Center Beam fc	Beam Width
17.0ft	9.18 fc	45.6 ft 46.1 ft
34.0ft	2.29 fc	91.2 ft 92.2 ft
51.0ft	1.02 fc	136.7 ft 138.3 ft
68.0ft	0.57 fc	182.3 ft 184.4 ft
85.0ft	0.37 fc	227.9 ft 230.5 ft
102.0ft	0.25 fc	273.5 ft 276.6 ft

■ Vert. Spread: 106.6°
■ Horiz. Spread: 107.2°



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Table--1

UNIT:

C (DEG) y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653	2653
5	2632	2638	2636	2637	2645	2653	2657	2652	2653	2642	2640	2630	2613	2639	2618	2625
10	2603	2591	2602	2602	2614	2627	2626	2619	2630	2604	2609	2589	2606	2579	2567	2577
15	2524	2525	2530	2545	2569	2578	2573	2568	2573	2548	2544	2523	2497	2516	2491	2497
20	2412	2435	2441	2464	2477	2497	2492	2488	2479	2460	2446	2432	2430	2404	2394	2402
25	2312	2313	2332	2349	2369	2386	2388	2389	2380	2351	2332	2309	2294	2284	2265	2281
30	2175	2188	2198	2221	2252	2263	2260	2267	2250	2219	2190	2170	2157	2142	2125	2146
35	2018	2041	2037	2074	2109	2119	2114	2124	2115	2074	2041	2017	2014	1981	1967	2001
40	1864	1880	1877	1916	1946	1962	1947	1960	1943	1912	1872	1851	1836	1806	1793	1832
45	1686	1702	1696	1772	1805	1821	1770	1775	1753	1725	1681	1715	1682	1652	1609	1647
50	1497	1497	1523	1545	1592	1621	1583	1525	1506	1476	1492	1468	1429	1412	1429	1450
55	1284	1284	1310	1300	1304	1385	1396	1291	1233	1233	1317	1223	1161	1163	1219	1247
60	1100	1109	1062	1081	1121	1114	1113	1037	989	1001	1022	1023	1018	983	969	1071
65	841	884	888	835	848	924	892	787	734	764	827	789	712	734	836	844
70	625	634	625	602	632	649	688	565	477	546	621	559	546	522	557	610
75	446	471	397	435	449	481	426	342	261	314	361	429	352	419	354	438
80	207	269	243	282	271	278	263	190	71.2	178	239	261	180	195	209	263
85	85.3	114	84.5	57.8	53.1	80.8	109	60.6	1.73	65.0	62.4	49.5	40.7	48.2	76.7	105
90	24.8	19.2	7.80	2.68	1.03	1.71	2.45	1.81	0.16	0.93	0.21	0.16	0.32	2.34	6.67	17.9
95	0.26	0.37	0.99	0.79	0.32	0.43	0.63	0.42	0.37	0.42	0.37	0.32	0.32	1.11	1.27	0.32
100	0.53	0.42	0.90	0.80	0.42	0.48	0.74	0.74	0.79	0.74	0.69	0.58	0.59	0.90	0.80	0.53
105	0.89	0.89	1.27	1.22	0.95	1.01	1.27	1.27	1.01	1.16	0.96	1.06	1.17	1.28	1.17	0.90
110	1.48	1.48	1.85	1.59	1.43	1.49	1.69	1.64	1.54	1.48	1.38	1.22	1.38	1.60	1.69	1.43
115	2.11	2.17	2.33	2.17	2.12	2.07	2.12	2.27	2.06	1.80	1.75	1.59	1.86	1.97	1.96	1.95
120	2.91	2.69	2.65	2.28	2.50	2.34	2.43	2.59	2.48	2.11	1.96	1.59	2.18	2.07	2.22	2.17
125	3.27	3.22	2.92	2.38	2.50	2.02	2.91	3.11	2.48	2.38	2.02	1.86	2.13	2.08	2.38	2.48
130	3.54	3.38	2.97	3.13	3.35	2.81	3.02	3.22	2.64	2.48	2.44	2.60	2.98	2.82	2.65	2.54
135	3.59	3.38	2.86	3.34	3.35	3.29	3.02	3.22	2.81	2.59	2.70	3.03	3.19	3.51	2.80	2.85
140	3.91	3.54	2.92	3.66	3.45	3.67	3.02	3.33	3.22	2.96	2.86	3.29	3.35	3.56	2.91	2.91
145	3.86	3.54	2.97	3.66	3.29	3.51	3.02	3.38	3.22	3.28	3.24	3.45	3.51	3.88	3.28	3.12
150	3.70	3.54	3.44	3.66	3.50	3.56	3.02	3.43	3.22	3.65	3.50	3.45	3.51	3.83	3.76	3.23
155	3.91	3.28	3.76	3.93	3.82	3.83	3.54	3.70	3.22	3.70	3.50	3.82	3.56	3.77	3.92	3.33
160	3.07	3.28	4.08	3.93	3.82	3.88	3.81	3.86	2.96	3.28	3.50	3.93	3.77	3.83	3.92	3.33
165	3.06	3.28	4.03	3.93	3.93	3.88	3.86	3.86	3.43	3.17	3.56	4.09	3.83	3.98	3.97	3.70
170	3.54	3.75	4.50	3.93	4.19	4.36	4.60	3.86	3.86	3.75	4.13	4.78	4.84	4.79	4.71	4.60
175	3.80	3.86	4.77	4.57	4.94	4.73	4.71	3.91	3.86	3.75	4.08	4.78	4.78	5.16	4.76	4.81
180	3.39	4.07	4.93	4.67	5.26	4.78	4.82	4.02	3.54	3.43	4.08	4.83	4.67	5.16	4.76	4.81

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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-331	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-01	2017-06-30
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
EE-09	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-01	2017-06-30
PF210	Power Meter for Goniophotometer	2016-07-01	2017-06-30
ST-R-181A	Temperature Tester	2016-07-01	2017-06-30
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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

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