LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest Highway Cary, IL 60013

LED Lamp

Model name(s): LED-8039E30-A

Representative (Tested) Model: LED-8039E30-A

Model Different :N/A

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: Apr.28,2016

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.

NVLAP LAB CODE 201011-0

U.S. Department of Energy

Lighting Facts™ Uniform LM-79 Reporting Template

Laboratory Information:

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Apr.28,2016
Test Report No.	GZE160347-Q
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8039E30-A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamp	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Electrical Measurements:	**Integrating Sphere Output**	**Goniophotometer Output**	
Input Wattage	--	18.23	W
Input Current	--	0.1538	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9877	
Off-State Power	--	0	W
Photometric Characteristics			
Total Initial Lumen Output	--	2055.9	lm
Initial Lumen Efficacy	--	112.75	lm/w
Correlated color temperature / CCT	2958	--	K
Color rendering index / CRI	82.4	--	
R9 Value	7	--	
Duv	-0.0000	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	83	cd
Beam angle (if applicable)		280.2	°
Zonal lumens in the 0°-60° zone		25.4	%
Zonal lumens in the 60°-90° zone		30.9	%
Zonal lumens in the 90°-120° zone		28.7	%
Zonal lumens in the 120°-180° zone		15	%

Test Specifications:	
Date of Receipt	: Apr.01,2016
Date of Test	: Apr.24,2016
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

Test Methods

1. Photometric and Electrical measurements – Light Distribution 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 Volts, 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. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25°C ± 1°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 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

1. Product Information:

Brand Name	N/A
Model Number	LED-8039E30-A
Luminaire Type	LED Lamp
Rated Voltage / Frequency	120~277 Vac, 50/60Hz
Nominal Power	18W
Rated Initial Lamp Lumen	--
Declared CCT	3000K
LED Manufacturer	N/A
LED Model	N/A
Sample Receipt Date	Apr.01,2016
Sample Number	GZE160347-Q1(3000K)

Photo

2.1 Electrical, Photometric and Chromaticity Measurements *(Refer to Work Instruction QD25)*	**IES LM-79 2008**

Test date	2016-04-24	**Test Ambient:**	25.2 °C
Test Orientation	As intended	**Stabilization Time (min)**	90
Model Number	LED-8039E30-A		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160347	120.0	60	0.1538	18.23	0.9877	11.80
-Q1	277.0	60	0.0677	16.90	0.9015	18.66

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.4
R9	7
CCT (K)	2958
Chromaticity (x, y)	x=0.4400 y=0.4051
Chromaticity (u', v')	u'=0.2521 v'=0.5222
Duv	-0.0000

Special Color Rendering Indices			
R1	81	R9	7
R2	91	R10	80
R3	96	R11	79
R4	80	R12	71
R5	81	R13	83
R6	89	R14	99
R7	82	R15	73
R8	59	--	--

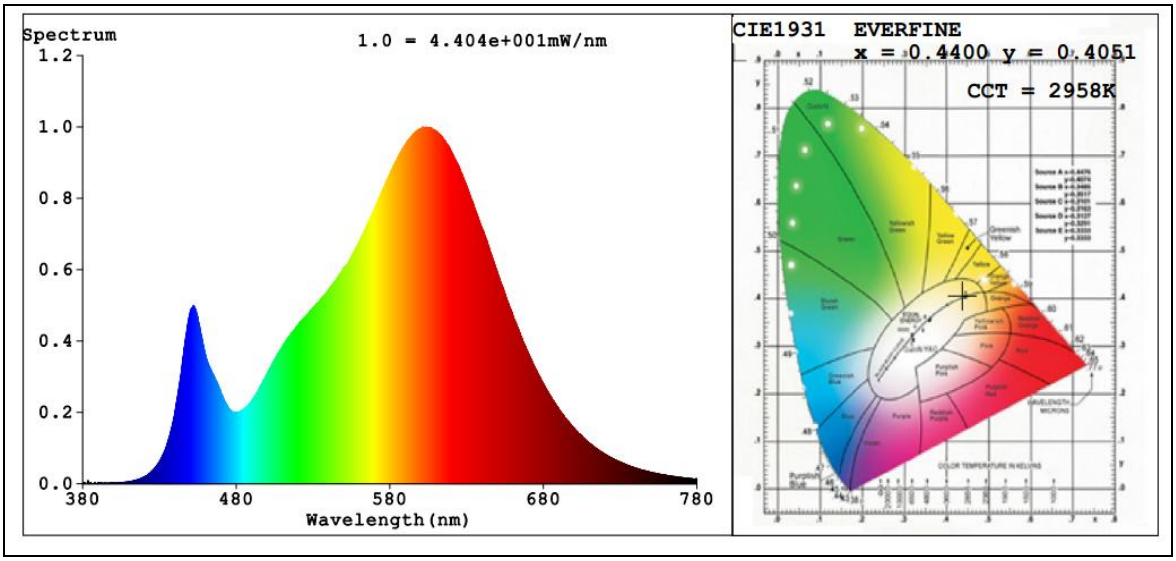
Goniophotometer Method :

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2055.9
Luminous Efficacy (lm/W)	112.75
Beam Angle°	280.2
Center Beam Candle Power (cd)	83

Goniophotometer Methodn :

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1899.7
Luminous Efficacy (lm/W)	112.43

Spectral Power Distribution & Chromaticity Diagram



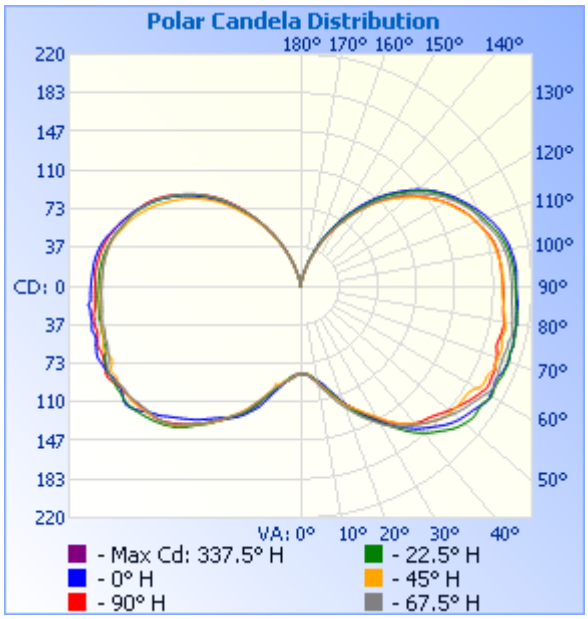
NVLAP LAB CODE 201011-0

Zonal Lumen Tabulation

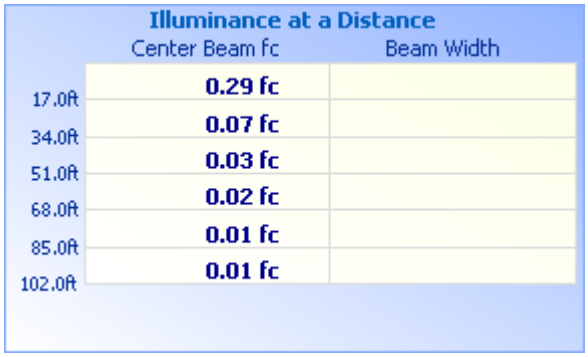
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	100.9	4.9%
0-40	202.6	9.9%
0-60	523.0	25.4%
60-90	634.5	30.9%
70-100	648.6	31.5%
90-120	589.5	28.7%
0-90	1,157.5	56.3%
90-180	898.4	43.7%
0-180	2,055.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	8.4	0.4%	90-100	215.7	10.5%
10-20	30.2	1.5%	100-110	201.1	9.8%
20-30	62.2	3.0%	110-120	172.8	8.4%
30-40	101.6	4.9%	120-130	135.9	6.6%
40-50	143.0	7.0%	130-140	93.6	4.6%
50-60	177.5	8.6%	140-150	52.7	2.6%
60-70	201.6	9.8%	150-160	21.9	1.1%
70-80	214.5	10.4%	160-170	4.7	0.2%
80-90	218.4	10.6%	170-180	0.1	0%

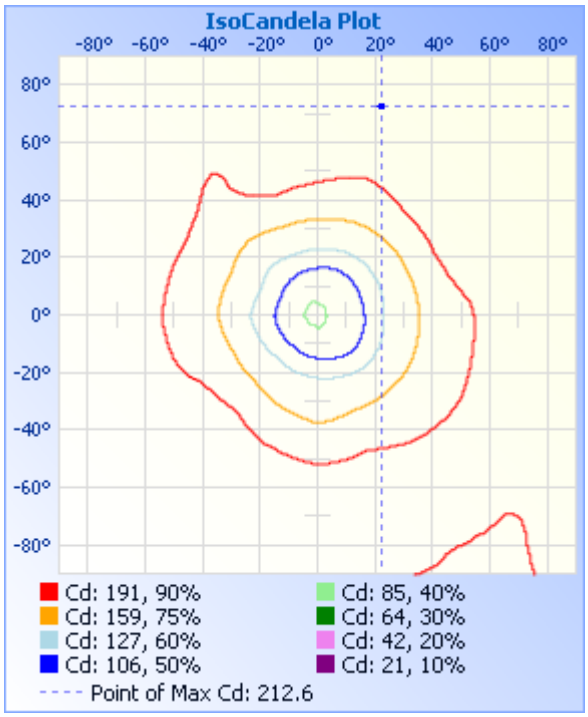
Photometric Data



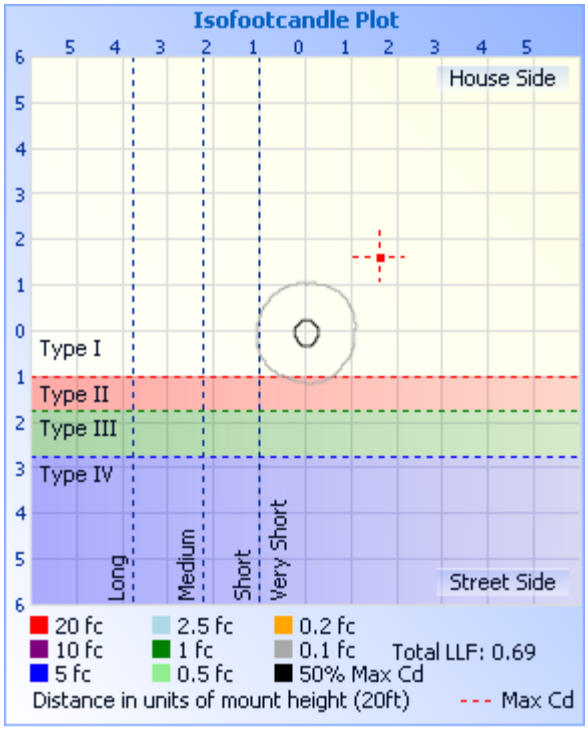
Illuminance Plots



ISOCANDELA DIAGRAM



ISOLUX DIAGRAM



Candela Table - Type C

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137	119	116	110	112	111	114	114	114	109	112	107	113	114	117	121	118	119
138	115	112	106	108	107	110	110	110	106	109	103	110	111	114	118	115	115
139	111	109	103	104	104	106	106	106	102	105	100	106	107	110	114	111	111
140	107	105	99	100	100	102	102	102	98	100	96	102	103	106	110	108	107
141	104	101	95	96	96	99	99	98	95	97	92	98	99	102	106	104	104
142	100	97	91	93	92	95	95	94	91	93	88	94	95	98	102	100	100
143	96	93	87	89	88	91	90	90	87	88	84	90	91	94	97	96	96
144	92	89	84	85	84	87	86	86	83	85	81	86	87	90	94	92	92
145	88	85	80	81	80	82	82	82	80	81	78	82	83	86	89	87	88
146	84	81	76	77	76	78	78	78	76	77	74	78	79	82	85	84	84
147	80	78	72	73	73	75	75	75	72	74	71	74	75	78	81	80	80
148	76	73	69	69	69	71	71	71	69	70	68	71	71	75	77	76	76
149	72	70	65	66	65	67	68	67	65	66	64	67	68	71	73	72	72
150	68	66	61	63	61	63	64	64	61	62	61	63	64	67	69	68	68
151	64	62	58	59	58	59	61	60	58	59	57	60	60	63	65	64	64
152	60	59	54	56	55	56	57	57	54	55	53	57	57	60	62	60	60
153	57	55	51	52	51	52	53	53	50	51	50	53	54	56	58	57	57
154	53	52	47	48	48	48	49	49	46	47	46	50	50	52	54	54	53
155	49	48	44	45	44	45	46	46	43	44	42	46	46	49	50	50	49
156	46	44	40	41	41	42	42	42	39	40	39	42	43	45	47	47	46

157	42	41	37	38	38	38	39	39	36	37	36	38	40	42	43	44	42
158	39	37	34	34	34	35	35	35	33	34	33	34	36	38	40	40	39
159	35	34	30	31	31	31	32	32	30	30	30	31	33	35	36	37	35
160	32	31	27	28	28	28	28	28	27	27	27	28	30	32	32	33	32
161	28	27	24	25	25	25	25	25	23	24	24	25	27	28	29	29	28
162	25	24	21	22	22	22	22	22	20	21	20	22	23	25	26	26	25
163	22	21	19	19	19	19	19	19	17	18	17	19	20	22	23	23	22
164	19	18	16	17	16	16	16	17	15	16	15	16	17	19	20	20	19
165	17	16	14	14	14	14	13	14	13	13	13	14	15	16	17	17	17
166	14	14	11	12	11	11	11	11	11	11	10	11	13	13	14	15	14
167	12	11	9	10	9	9	9	9	8	9	8	9	11	11	12	13	12
168	10	9	7	8	7	7	7	7	7	7	6	7	8	9	10	10	10
169	7	6	5	6	5	5	5	5	5	5	5	5	7	7	8	8	7
170	6	4	3	4	4	4	4	4	3	3	3	4	5	6	6	6	6
171	4	2	1	3	2	3	2	3	2	2	2	2	4	4	5	5	4
172	3	2	1	2	1	1	1	2	1	1	1	1	2	3	3	3	3
173	2	1	0	0	0	0	0	1	0	0	0	1	2	2	2	2	2
174	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2015-07-01	2016-06-30
ST-R-331	Spectral analysis system HAAS-2000	2015-07-01	2016-06-30
D204	Standard Lamp	2015-07-01	2016-06-30
PF2010	Power Meter for Integrating Sphere	2015-07-01	2016-06-30
EE-09	Goniophotometer system	2015-07-01	2016-06-30
D908S	Standard Lamp	2015-07-01	2016-06-30
PF210	Power Meter for Goniophotometer	2015-07-01	2016-06-30
ST-R-181A	Temperature Tester	2015-07-01	2016-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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