LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest HighwayCary, IL60013

LED Luminaires

Model name(s): LED-8038E30-A
LED-8038-NW-E27-A

Remark: The two models are the same product with two model names

Representative (Tested) Model: LED-8038E30-A

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Apr.13,2017

Review By:

Tommy Liang

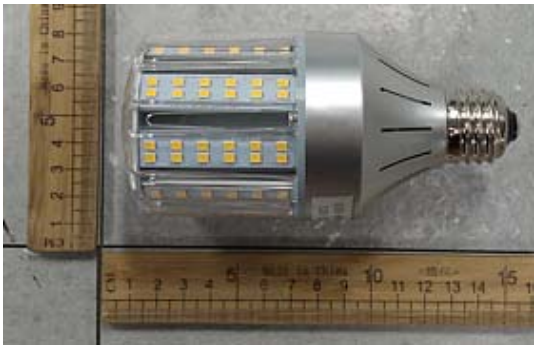
Manager: Tommy Liang

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

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8038E30-A;LED-8038-NW-E27-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	14W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-AP1	
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	Jan 16,2017
Date of Test	Jan 17,2017
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 25º C ± 1º 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 25º C ± 1º 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

(Refer to Work Instruction QD25)

Test date	2017-01-17	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8038E30-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-AP1	120.0	60	0.1083	12.75	0.9813
	277.0	60	0.0506	13.00	0.9273

Chromaticity Measurement - Sphere-Spectroradiometer Method :

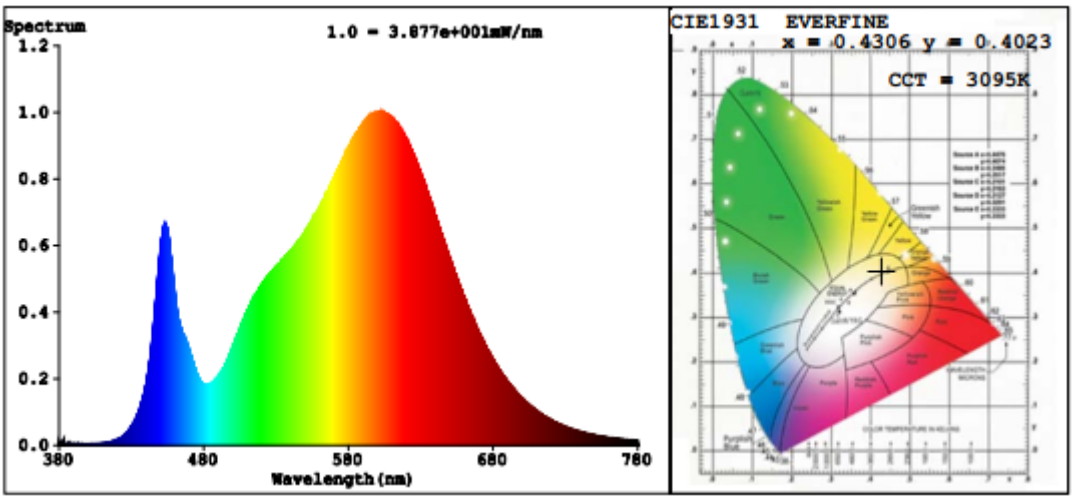
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3095
Duv	0.0002
Chromaticity (x, y)	x=0.4306 y=0.4023
Chromaticity (u', v')	u'=0.2473 v'=0.5197
Color Rendering Index (CRI)	81.5
R9	3

Special Color Rendering Indices			
R1	80	R9	3
R2	90	R10	76
R3	96	R11	77
R4	79	R12	64
R5	79	R13	82
R6	87	R14	98
R7	83	R15	73
R8	58	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	1840.1	1811.2
Luminous Efficacy (lm/W)	144.32	139.32
Beam Angle (°)	274.4	--
Center Beam Candle Power (cd)	78	--

Spectral Power Distribution & Chromaticity Diagram

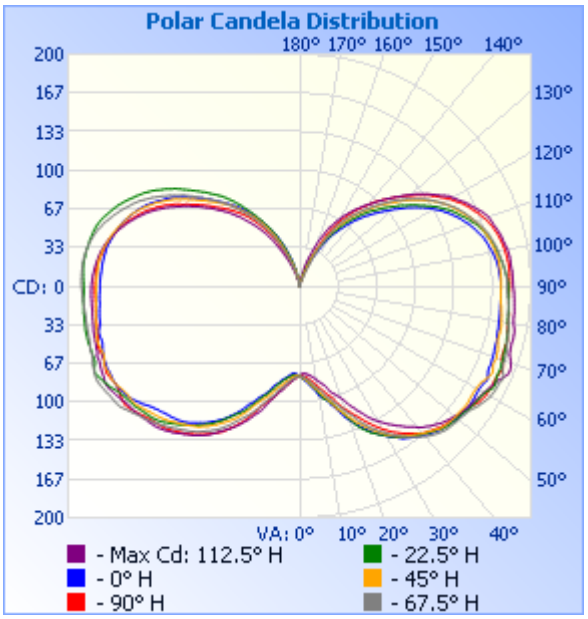


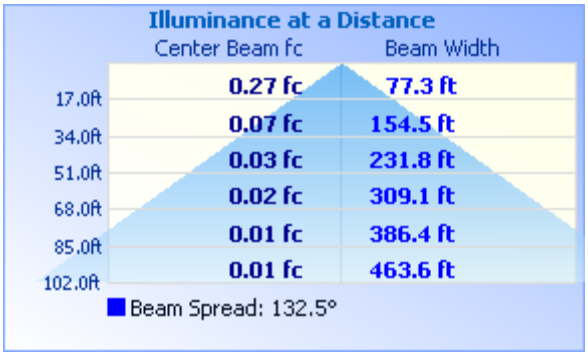
Zonal Lumen Tabulation

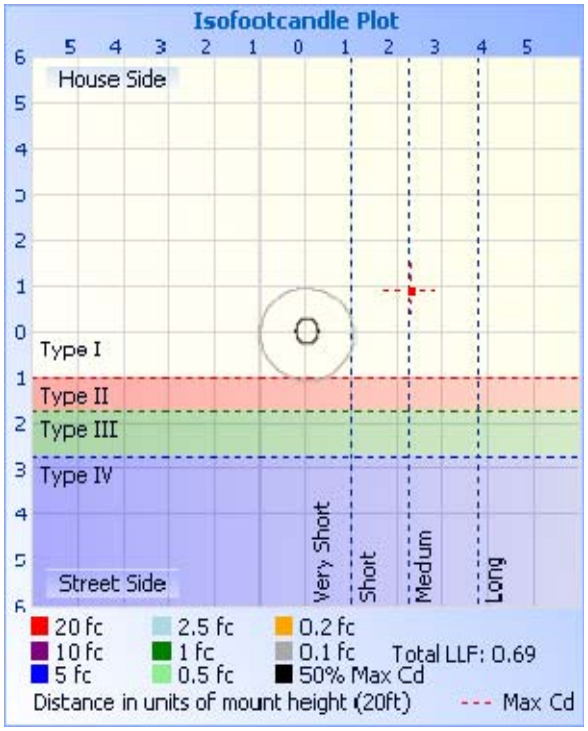
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	96.0	5.2%
0-40	191.8	10.4%
0-60	482.3	26.2%
60-90	571.7	31.1%
70-100	582.2	31.6%
90-120	526.7	28.6%
0-90	1,054.1	57.3%
90-180	786.1	42.7%
0-180	1,840.2	100%

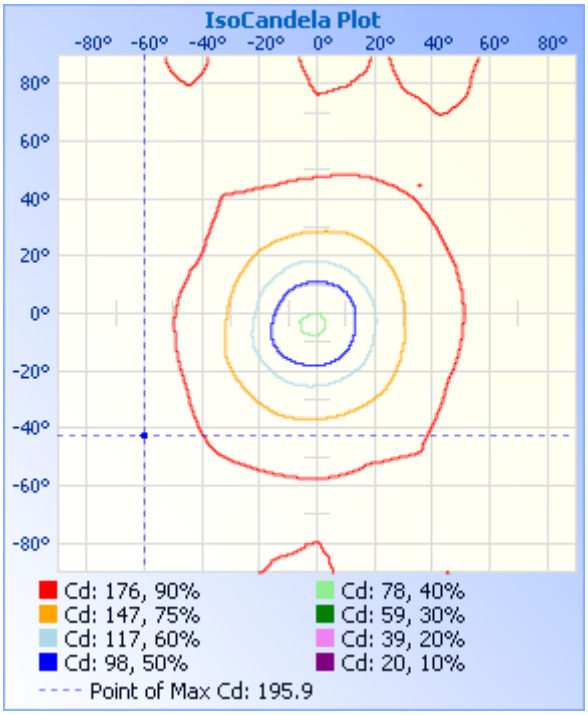
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	7.9	0.4%	90-100	193.6	10.5%
10-20	28.6	1.6%	100-110	180.1	9.8%
20-30	59.5	3.2%	110-120	153.0	8.3%
30-40	95.8	5.2%	120-130	115.9	6.3%
40-50	130.6	7.1%	130-140	77.4	4.2%
50-60	159.9	8.7%	140-150	44.6	2.4%
60-70	183.1	10.0%	150-160	18.0	1%
70-80	192.9	10.5%	160-170	3.4	0.2%
80-90	195.7	10.6%	170-180	0.1	0%

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	79	78	78	78	77	76	76	77	77	77	77	78	78	78	78	79	79
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6	86	85	84	83	81	77	76	77	77	79	81	83	84	84	85	86	86
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141	71	75	81	82	88	89	91	89	89	96	87	86	81	73	70	68	71
142	68	73	78	79	85	87	89	86	87	93	84	83	78	70	67	64	68
143	64	70	75	77	83	84	86	84	84	89	82	80	76	67	63	62	64
144	61	67	71	74	80	82	83	81	81	86	78	76	73	64	60	59	61
145	59	63	68	71	76	79	80	78	78	82	76	74	69	61	57	56	59
146	56	60	65	68	73	76	77	75	75	79	73	70	66	57	54	53	56
147	53	57	62	64	70	74	75	72	72	75	70	67	63	55	51	50	53
148	50	54	59	61	66	71	72	69	70	72	67	64	60	51	48	47	50
149	47	50	55	57	63	68	69	66	66	68	64	60	56	48	46	44	47
150	44	48	52	53	60	65	65	63	64	65	60	57	53	44	43	40	44
151	40	44	49	48	56	62	63	60	61	61	58	54	50	40	40	38	40
152	36	41	45	43	51	59	60	58	58	58	54	51	47	37	37	34	36
153	33	38	40	37	45	56	58	55	55	55	51	46	44	34	33	32	33
154	30	35	37	32	41	53	55	52	52	52	47	43	41	31	31	29	30
155	28	32	33	26	35	50	53	49	49	49	44	39	37	29	27	26	28
156	25	29	29	21	30	46	49	47	46	45	41	36	33	26	24	24	25

157	22	26	25	16	27	43	46	43	43	42	36	33	31	23	22	21	22
158	20	23	21	12	22	39	42	40	40	38	34	29	27	21	19	19	20
159	17	19	17	8	18	36	38	37	37	35	30	26	24	18	17	16	17
160	15	16	13	6	16	32	35	33	33	32	26	23	21	16	14	14	15
161	13	14	11	5	14	28	32	30	30	29	23	20	19	14	12	12	13
162	10	12	9	4	12	26	29	27	27	26	21	18	17	12	11	9	10
163	8	10	7	3	10	23	25	24	24	22	19	16	15	9	9	8	8
164	7	8	5	2	9	21	22	21	21	20	17	14	14	8	6	6	7
165	6	6	4	2	8	18	18	18	18	18	15	12	10	7	5	5	6
166	5	4	3	2	5	15	13	13	15	16	12	9	8	5	4	4	5
167	3	3	2	1	2	12	10	7	12	13	10	7	6	4	3	3	3
168	2	3	2	1	1	8	6	2	8	11	8	6	5	3	2	2	2
169	2	2	1	0	2	7	3	1	4	7	8	5	4	2	2	1	2
170	1	1	1	0	1	5	2	1	2	5	6	4	3	2	1	1	1
171	1	1	1	0	0	3	2	2	1	3	4	3	2	1	1	1	1
172	1	1	1	0	0	1	1	1	1	4	3	2	2	1	1	0	1
173	0	0	0	0	0	1	1	1	1	3	2	2	1	0	0	0	0
174	0	0	0	0	0	1	1	1	2	2	1	1	1	0	0	0	0
175	0	0	0	0	0	1	1	2	1	1	1	0	0	0	0	0	0
176	0	0	0	0	0	0	1	1	1	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-331	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-327	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-12	2017-07-11
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
GO-R5000	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-12	2017-07-11
PF210	Power Meter for Goniophotometer	2016-07-07	2017-07-06

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 ********