

LM-79-08 Test Report

For

LIGHT EFFICIENT DESIGN

(Brand Name:N/A)

188 S. Northwest Highway Cary, IL60013

LED Luminaires

Model name(s): LED-8029M30-A

LED-8029-NW-E40-A

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

Representative (Tested) Model: LED-8029M30-A

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Apr.17,2017

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.

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

Tel: 8620-3229 0320

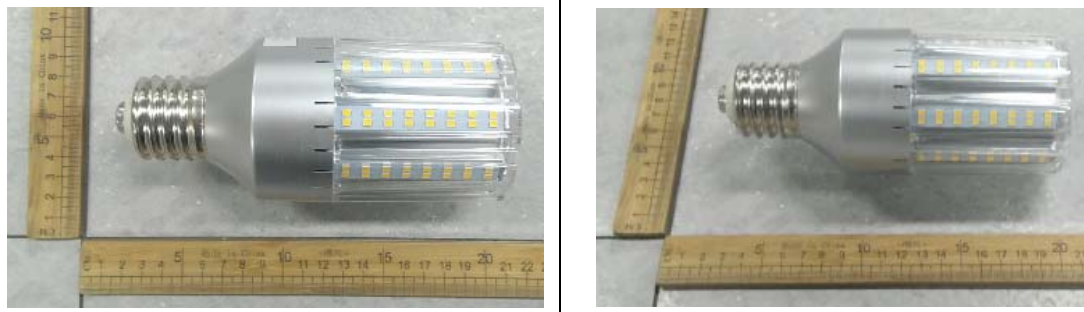
Fax: 8620-32290422

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

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8029M30-A;LED-8029-NW-E40-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	24W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-BE1	
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	<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: 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.</p>
<p>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° 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 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: Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25° C ± 1° 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	2017-01-17	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED-8029M30-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	120.0	60	0.1971	23.38	0.9884
BE1	277.0	60	0.0945	24.20	0.9246

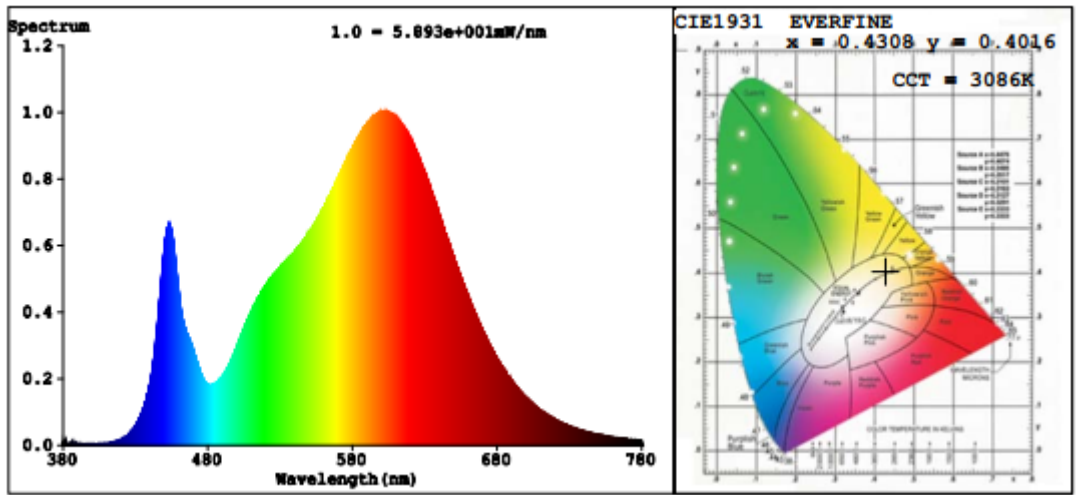
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	4
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	3086	R3	96	R11	77
Duv	-0.0001	R4	79	R12	64
Chromaticity (x, y)	x=0.4308 y=0.4016	R5	79	R13	82
Chromaticity (u', v')	u'=0.2477 v'=0.5195	R6	87	R14	98
Color Rendering Index (CRI)	81.5	R7	83	R15	73
R9	4	R8	58	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	3430.8	3450.4
Luminous Efficacy (lm/W)	146.74	142.58
Beam Angle (°)	269.2	--
Center Beam Candle Power (cd)	258	--

Spectral Power Distribution & Chromaticity Diagram

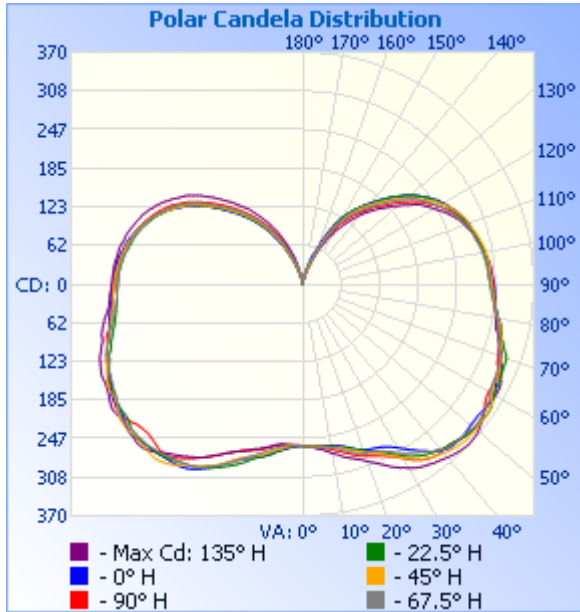


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	247.1	7.2%
0-40	460.9	13.4%
0-60	1,056.1	30.8%
60-90	1,019.1	29.7%
70-100	1,001.4	29.2%
90-120	889.0	25.9%
0-90	2,075.2	60.5%
90-180	1,355.8	39.5%
0-180	3,430.9	100%

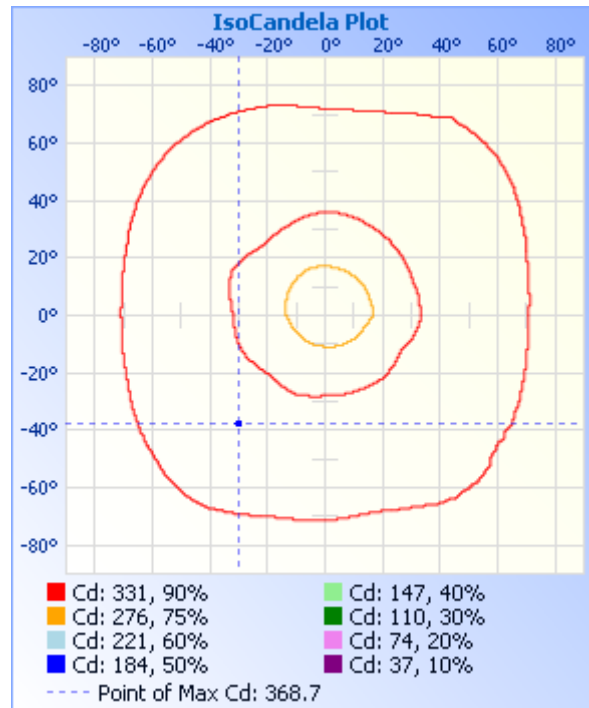
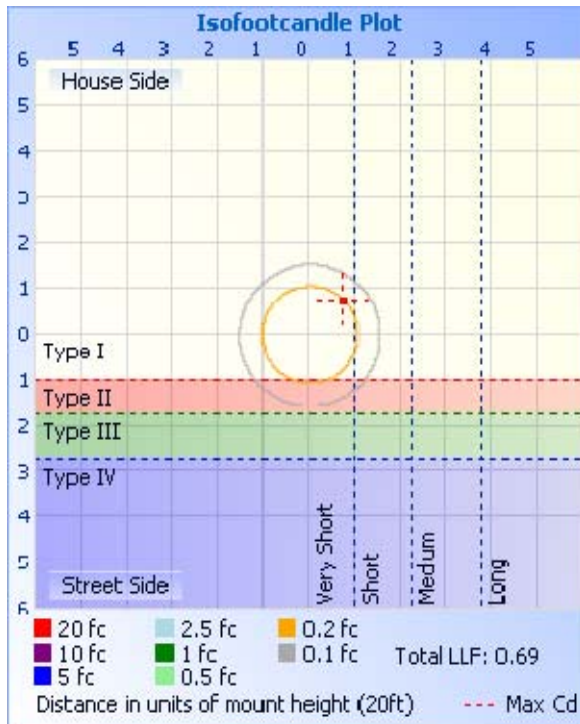
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	25.1	0.7%	90-100	324.4	9.5%
10-20	79.3	2.3%	100-110	302.2	8.8%
20-30	142.7	4.2%	110-120	262.4	7.6%
30-40	213.8	6.2%	120-130	205.4	6%
40-50	275.6	8.0%	130-140	139.3	4.1%
50-60	319.6	9.3%	140-150	81.6	2.4%
60-70	342.1	10.0%	150-160	33.5	1%
70-80	343.1	10.0%	160-170	6.7	0.2%
80-90	333.9	9.7%	170-180	0.3	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	0.89 fc	
34.0ft	0.22 fc	
51.0ft	0.10 fc	
68.0ft	0.06 fc	
85.0ft	0.04 fc	
102.0ft	0.02 fc	



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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
0	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258
1	258	258	258	259	258	261	259	260	258	258	257	257	257	258	258	259	258
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27	292	303	306	300	309	321	328	324	329	330	325	327	307	311	306	305	292
28	294	307	311	303	312	324	332	328	333	332	328	330	311	315	311	308	294

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93	299	298	300	298	300	296	303	302	302	295	300	295	299	295	304	296	299
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133	204	205	199	194	186	179	179	176	174	177	180	183	188	198	204	202	204
134	200	200	193	188	181	173	174	170	169	172	174	178	182	193	199	198	200
135	195	195	188	184	176	167	170	166	164	167	168	174	178	186	193	192	195
136	189	188	183	178	173	164	165	161	159	161	163	169	172	182	188	187	189
137	184	184	178	172	169	159	159	156	155	157	158	163	167	176	183	182	184
138	179	178	174	168	164	154	155	152	149	152	154	159	163	172	177	176	179
139	174	172	168	163	158	150	150	146	144	148	149	154	157	168	173	172	174
140	170	168	165	159	153	145	145	142	140	142	144	150	153	162	168	167	170
141	164	163	160	154	148	140	139	136	134	136	140	145	148	158	162	161	164
142	160	158	155	149	143	135	133	132	130	131	135	140	143	153	158	157	160
143	154	154	151	145	139	131	128	126	124	126	130	135	138	147	153	152	154
144	149	149	145	140	134	126	122	119	118	121	124	130	133	143	149	148	149
145	145	145	140	135	129	121	117	115	113	115	119	125	129	137	143	143	145
146	140	139	135	131	124	116	111	109	107	109	114	120	123	131	137	138	140
147	135	134	130	125	118	110	105	104	102	105	108	114	117	127	132	134	135
148	130	130	123	121	112	106	100	97	96	99	103	110	113	121	127	128	130
149	124	124	116	116	105	100	94	91	90	94	97	103	108	116	121	123	124
150	119	117	109	110	98	95	89	86	84	88	92	99	104	111	116	119	119
151	113	112	103	102	92	89	82	80	78	83	86	93	98	105	110	114	113
152	106	99	95	86	85	82	76	74	73	77	79	88	93	101	106	108	106
153	99	89	89	79	79	77	71	68	67	70	74	82	87	95	100	98	99
154	91	80	81	74	73	70	65	62	62	65	68	76	81	88	94	89	91
155	85	71	73	66	66	65	60	56	56	58	63	71	76	83	89	84	85
156	76	63	66	60	61	59	53	50	50	53	56	64	69	77	82	77	76

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157	66	54	59	54	53	53	48	46	46	47	51	58	64	72	76	68	66
158	61	44	51	48	47	48	43	41	41	43	45	52	58	66	71	63	61
159	55	35	43	43	42	44	37	36	36	38	41	47	53	59	65	59	55
160	51	34	37	40	37	39	32	31	31	33	37	42	48	54	59	57	51
161	49	31	33	41	33	32	24	28	27	29	33	37	43	48	53	52	49
162	42	27	28	39	28	26	19	24	24	24	29	33	40	43	48	48	42
163	37	27	23	37	24	19	15	20	20	21	25	29	35	40	44	44	37
164	30	25	20	33	21	13	13	16	17	18	22	26	31	35	38	38	30
165	24	22	18	27	17	8	11	12	13	15	19	22	26	32	32	33	24
166	20	18	16	21	13	5	10	10	10	12	15	18	22	27	26	29	20
167	18	14	12	17	10	4	7	8	9	9	12	15	19	24	19	23	18
168	13	11	8	11	7	3	4	6	7	7	9	12	16	19	15	18	13
169	9	10	5	6	4	2	3	5	5	5	7	10	14	15	12	13	9
170	7	9	3	4	2	1	2	3	3	4	6	7	10	12	10	9	7
171	6	8	3	3	1	1	2	2	2	3	4	5	7	11	10	6	6
172	5	7	2	1	1	1	1	1	2	2	3	4	5	7	8	4	5
173	2	3	1	1	1	1	1	1	1	1	2	3	3	5	6	3	2
174	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	3	1
175	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	1
176	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1
177	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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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 *******

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