

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-8029M57-A

LED-8029-DL-E40-A

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

Representative (Tested) Model: LED-8029M57-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.

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

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8029M57-A;LED-8029-DL-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	5700K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-AM1	
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-8029M57-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	120.0	60	0.2035	24.20	0.9910
AM1	277.0	60	0.0954	24.60	0.9307

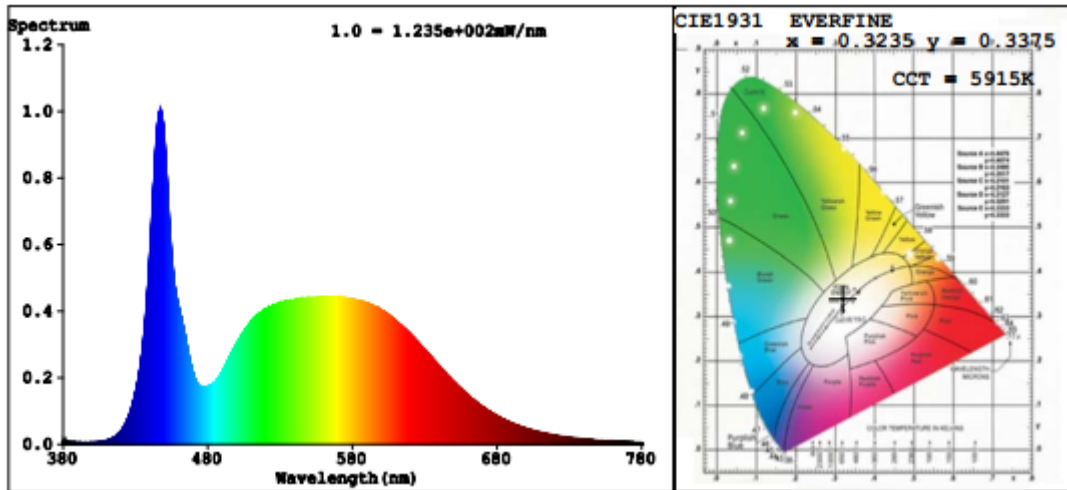
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	9
Frequency (Hz)	60	R2	85	R10	64
CCT (K)	5915	R3	87	R11	84
Duv	0.0023	R4	84	R12	60
Chromaticity (x, y)	x=0.3235 y=0.3375	R5	82	R13	82
Chromaticity (u', v')	u'=0.2021 v'=0.4744	R6	80	R14	93
Color Rendering Index (CRI)	82.0	R7	87	R15	76
R9	9	R8	71	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	3374.4	3428.4
Luminous Efficacy (lm/W)	139.44	139.37
Beam Angle (°)	269.8	--
Center Beam Candle Power (cd)	238	--

Spectral Power Distribution & Chromaticity Diagram

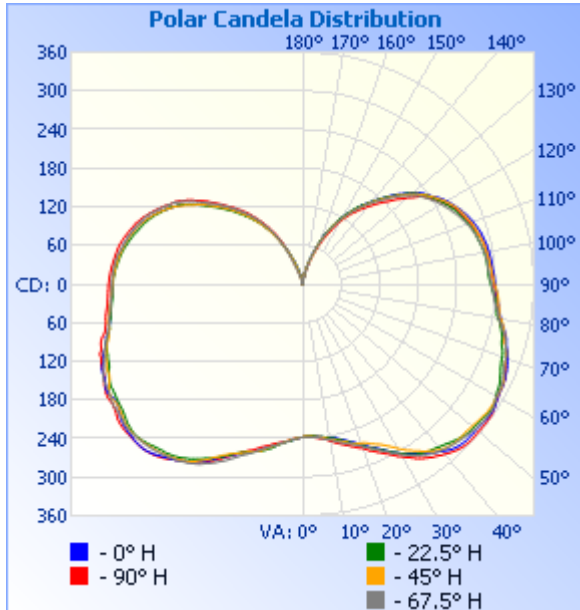


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	232.2	6.9%
0-40	437.4	13%
0-60	1,020.0	30.2%
60-90	1,006.1	29.8%
70-100	988.7	29.3%
90-120	879.2	26.1%
0-90	2,026.0	60%
90-180	1,348.5	40%
0-180	3,374.6	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	23.3	0.7%	90-100	320.2	9.5%
10-20	74.2	2.2%	100-110	298.9	8.9%
20-30	134.7	4.0%	110-120	260.2	7.7%
30-40	205.2	6.1%	120-130	205.1	6.1%
40-50	268.5	8.0%	130-140	139.4	4.1%
50-60	314.1	9.3%	140-150	82.0	2.4%
60-70	337.6	10.0%	150-160	35.1	1%
70-80	338.9	10.0%	160-170	7.4	0.2%
80-90	329.6	9.8%	170-180	0.3	0%

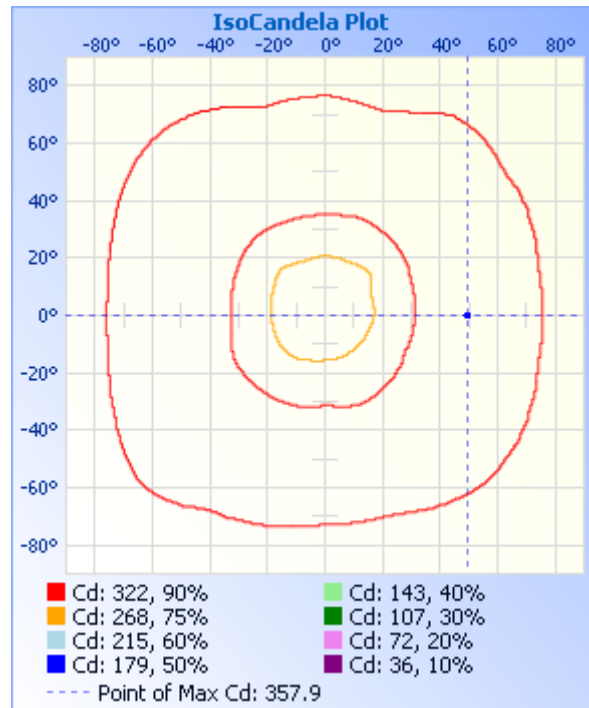
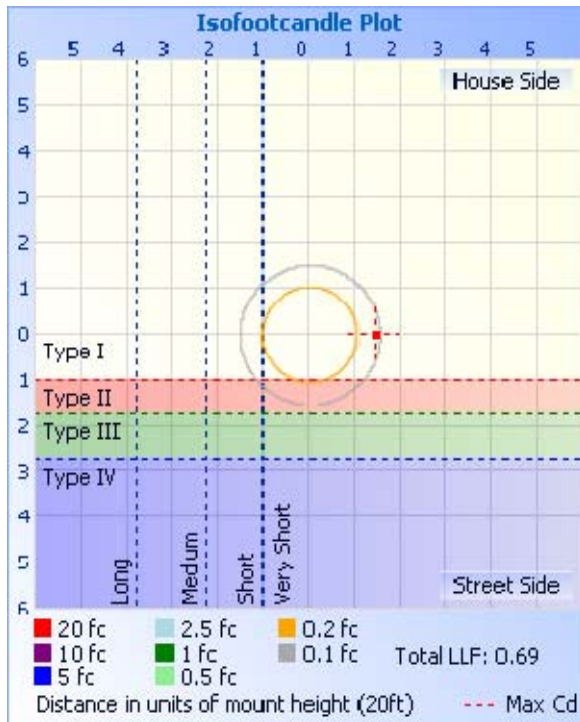
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	0.82 fc	34.0 ft
34.0ft	0.21 fc	68.0 ft
51.0ft	0.09 fc	102.0 ft
68.0ft	0.05 fc	136.0 ft
85.0ft	0.03 fc	170.0 ft
102.0ft	0.02 fc	204.0 ft

■ Beam Spread: 90.0°



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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	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
1	238	237	236	237	237	237	238	238	239	238	238	239	238	238	239	238	238
2	237	236	236	237	237	237	238	239	240	239	239	240	239	239	240	238	237
3	237	236	237	238	238	237	238	240	241	241	241	241	241	239	239	238	237
4	237	237	238	239	238	238	239	242	243	243	242	242	242	240	239	238	237
5	238	238	238	239	239	239	241	243	244	245	244	245	244	241	241	239	238
6	238	239	238	240	241	241	242	243	246	246	246	247	245	243	242	239	238
7	239	239	239	241	241	243	243	245	248	249	248	248	247	245	243	241	239
8	240	240	241	243	242	244	244	246	250	251	250	250	248	247	244	242	240
9	241	241	243	244	245	245	246	249	253	253	252	253	250	249	245	243	241
10	242	243	244	245	247	246	249	252	255	257	255	255	252	250	246	245	242
11	243	244	246	247	249	248	251	256	258	260	257	257	254	252	247	247	243
12	244	246	248	250	252	251	254	259	260	262	260	259	257	254	249	249	244
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16	253	255	256	258	261	262	263	268	270	270	270	271	267	264	257	256	253
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25	282	283	274	284	289	285	287	295	297	296	293	304	299	296	281	284	282
26	286	287	277	289	293	289	289	300	300	299	298	308	303	301	285	288	286
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28	295	296	285	297	301	297	295	306	310	307	307	316	311	309	293	297	295

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29	299	299	289	301	306	300	300	309	314	309	312	319	316	314	298	301	299
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93	298	289	296	291	295	297	293	294	294	294	294	296	300	296	302	289	298
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134	199	198	196	194	185	189	178	174	171	168	171	177	179	182	191	194	199
135	194	192	190	189	181	184	174	170	165	163	165	172	175	177	185	189	194
136	188	187	186	183	176	178	169	164	161	159	161	167	169	171	181	183	188
137	183	183	180	178	171	174	164	161	156	153	156	162	163	166	175	179	183
138	178	177	176	173	166	169	160	156	152	148	151	157	160	162	169	173	178
139	172	172	170	168	161	165	154	152	147	144	146	153	155	157	165	168	172
140	167	167	164	164	157	160	150	148	142	138	142	147	150	153	160	162	167
141	163	162	160	159	152	156	145	144	137	134	136	143	145	147	155	157	163
142	158	157	154	154	148	151	141	139	132	129	132	137	141	142	149	152	158
143	153	153	149	149	143	147	137	134	127	125	126	133	135	138	145	147	153
144	148	148	145	144	139	142	131	130	121	120	120	127	130	133	139	142	148
145	142	144	140	139	135	137	127	124	116	116	115	123	125	128	133	137	142
146	138	139	135	134	130	132	122	120	111	111	110	117	119	121	129	131	138
147	132	133	130	129	124	126	117	114	106	105	105	111	114	116	123	127	132
148	128	128	124	124	120	122	111	109	101	100	99	106	108	111	118	122	128
149	122	122	119	118	114	116	106	103	96	94	93	99	103	106	113	116	122
150	116	118	113	113	109	112	99	98	90	89	87	93	96	101	107	112	116
151	111	112	109	108	102	106	95	92	84	82	81	86	91	95	102	106	111
152	105	106	103	102	95	101	89	86	78	77	75	79	85	89	96	101	105
153	99	101	97	98	90	95	85	80	71	70	71	71	79	83	90	95	99
154	94	95	92	92	84	90	79	74	66	66	64	63	70	77	86	89	94
155	88	89	85	86	79	83	74	68	60	60	58	54	62	70	79	84	88
156	83	84	80	80	73	78	68	61	56	55	53	47	54	64	73	78	83

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157	77	76	74	74	66	71	62	57	50	50	48	38	46	58	67	73	77
158	70	72	68	68	61	64	56	52	46	44	43	30	40	54	61	66	70
159	65	65	61	62	55	59	51	48	41	41	37	24	33	48	56	60	65
160	59	58	55	56	51	54	46	43	37	36	33	18	29	43	50	55	59
161	54	53	49	51	47	49	41	38	33	31	27	15	24	39	45	49	54
162	49	47	44	47	42	44	38	34	29	26	22	12	20	35	41	43	49
163	43	42	39	41	38	40	33	29	26	23	18	10	17	30	37	38	43
164	38	39	35	37	33	35	31	25	20	18	14	8	15	27	31	32	38
165	33	35	33	32	28	31	26	20	17	16	11	6	12	19	25	27	33
166	28	30	29	27	25	27	21	18	14	13	9	4	11	15	17	22	28
167	24	25	25	22	20	23	18	15	13	10	7	3	7	12	10	14	24
168	19	21	20	18	18	20	15	13	10	8	6	2	4	9	3	9	19
169	14	18	16	16	16	16	12	9	7	6	4	2	2	6	1	5	14
170	11	11	14	12	13	14	10	7	5	5	3	1	2	2	1	2	11
171	9	8	11	9	8	10	8	5	4	3	2	1	2	1	2	2	9
172	5	8	8	8	6	8	5	3	3	2	2	1	1	1	2	2	5
173	4	7	7	6	4	6	3	2	2	2	1	1	1	1	2	2	4
174	4	4	4	3	2	4	2	1	1	1	1	1	1	1	2	2	4
175	2	3	2	2	1	3	2	1	1	1	1	1	1	1	1	2	2
176	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	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

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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