

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-8038E57-A
LED-8038-DL-E27-A

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

Representative (Tested) Model: LED-8038E57-A

Model Different: N/A

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Mar.30,2017

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-8038E57-A, LED-8038-DL-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	5700K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-T1	
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**1) Photometric and Light Distribution Measurement – Goniophotometer Method:**

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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.

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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.

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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.

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-8038E57-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	120.0	60	0.1308	14.95	0.9527
T1	277.0	60	0.0587	14.90	0.9163

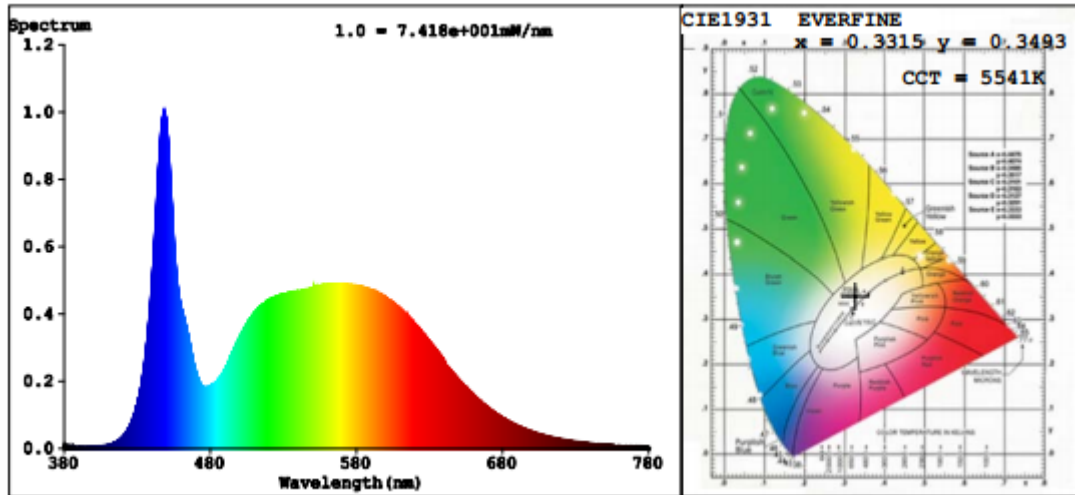
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	79	R9	2
Frequency (Hz)	60	R2	85	R10	65
CCT (K)	5541	R3	90	R11	82
Duv	0.0046	R4	83	R12	59
Chromaticity (x, y)	x=0.3315 y=0.3493	R5	81	R13	80
Chromaticity (u', v')	u'=0.2031 v'=0.4815	R6	80	R14	94
Color Rendering Index (CRI)	81.5	R7	87	R15	74
R9	2	R8	68	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	2217.4	2159.1
Luminous Efficacy (lm/W)	148.32	144.91
Beam Angle (°)	274.7	--
Center Beam Candle Power (cd)	93	--

Spectral Power Distribution & Chromaticity Diagram

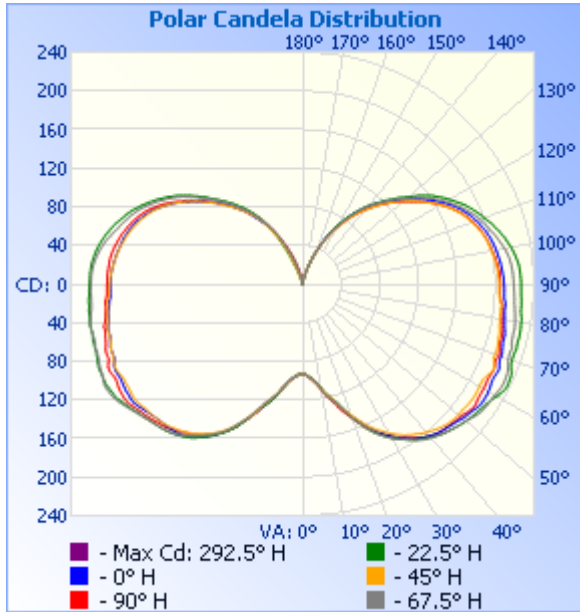


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	121.2	5.5%
0-40	242.2	10.9%
0-60	601.1	27.1%
60-90	685.7	30.9%
70-100	693.8	31.3%
90-120	621.3	28%
0-90	1,286.9	58%
90-180	930.7	42%
0-180	2,217.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	9.6	0.4%	90-100	229.2	10.3%
10-20	35.8	1.6%	100-110	211.5	9.5%
20-30	75.8	3.4%	110-120	180.5	8.1%
30-40	121.0	5.5%	120-130	137.9	6.2%
40-50	162.3	7.3%	130-140	93.3	4.2%
50-60	196.7	8.9%	140-150	54.1	2.4%
60-70	221.1	10.0%	150-160	20.6	0.9%
70-80	231.2	10.4%	160-170	3.4	0.2%
80-90	233.4	10.5%	170-180	0.1	0%

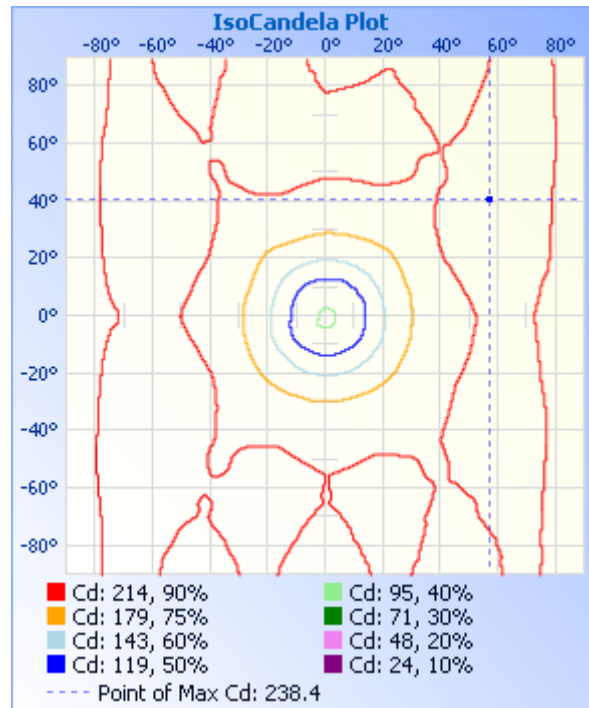
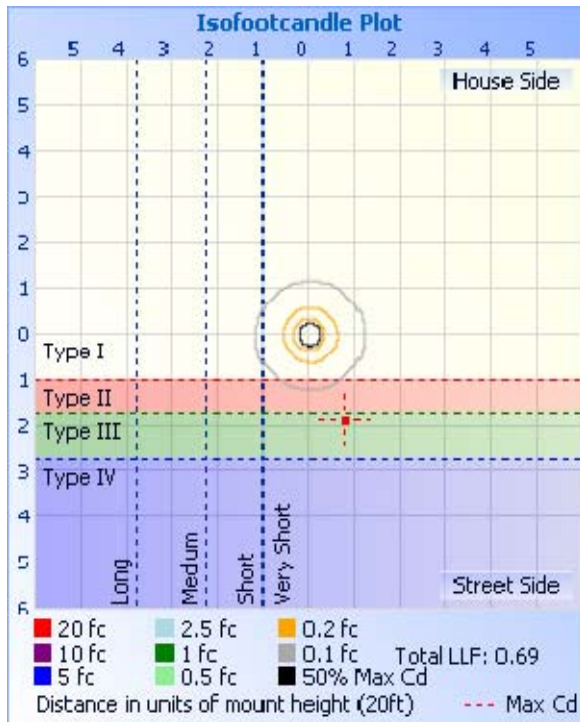
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	0.32 fc	15.9 ft
34.0ft	0.08 fc	31.7 ft
51.0ft	0.04 fc	47.6 ft
68.0ft	0.02 fc	63.4 ft
85.0ft	0.01 fc	79.3 ft
102.0ft	0.01 fc	95.1 ft

■ Beam Spread: 50.0°



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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	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
1	93	93	93	94	94	92	92	92	92	92	93	93	93	92	93	93	93
2	94	94	94	94	94	92	93	93	93	93	94	94	94	93	94	93	94
3	95	95	95	96	96	93	94	94	94	94	94	95	95	94	95	94	95
4	96	96	96	97	97	95	95	95	95	95	95	96	96	96	96	96	96
5	97	98	98	98	99	96	96	97	96	96	97	97	97	97	98	97	97
6	99	99	99	100	100	97	98	98	97	98	98	98	98	98	99	98	99
7	101	101	102	102	102	100	100	100	99	100	100	99	100	100	101	100	101
8	103	104	104	104	105	103	102	103	101	101	101	102	102	101	103	102	103
9	106	106	107	107	108	105	105	105	104	104	104	103	104	104	105	104	106
10	109	108	109	111	111	108	108	109	107	108	107	107	107	107	108	108	109
11	113	113	113	114	115	111	111	112	110	110	109	109	110	109	111	111	113
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24	160	163	159	163	163	161	157	159	158	158	156	156	158	159	156	161	160
25	164	167	163	167	166	165	161	163	162	163	161	160	162	163	160	165	164
26	168	171	166	171	170	168	165	167	166	167	165	165	166	167	163	168	168
27	172	174	169	175	173	172	169	170	170	171	168	169	170	170	167	171	172
28	175	178	172	178	176	175	172	174	173	174	172	172	173	173	169	174	175

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29	179	181	175	181	178	178	175	178	177	177	174	176	176	176	172	177	179
30	181	184	178	184	182	181	179	180	180	180	177	178	179	179	175	180	181
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61	222	234	212	231	216	233	211	230	213	227	210	230	219	235	208	227	222
62	221	236	212	232	216	234	211	230	213	228	210	230	218	236	209	228	221
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92	208	226	203	218	205	222	203	220	199	221	200	219	203	225	201	214	208

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93	208	226	203	218	205	222	203	220	199	221	199	219	203	224	200	213	208
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120	169	175	164	171	165	175	164	175	163	175	163	172	166	175	163	170	169
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123	160	166	155	162	155	167	155	165	155	166	155	163	156	165	153	160	160
124	156	164	152	159	152	164	152	162	151	163	152	161	153	161	151	157	156

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134	124	126	120	125	120	130	121	126	121	127	120	125	121	126	119	121	124
135	121	123	117	122	117	126	118	122	117	124	116	122	117	123	116	118	121
136	118	119	114	118	114	122	115	119	115	120	113	119	115	120	113	114	118
137	114	116	111	115	110	119	111	116	111	117	110	115	111	116	109	111	114
138	111	113	107	112	107	115	109	113	108	113	107	112	108	114	107	108	111
139	108	109	103	109	104	112	105	110	105	111	104	108	105	110	103	105	108
140	105	106	101	106	100	109	102	107	101	107	101	104	102	107	101	102	105
141	101	102	97	102	97	105	99	104	98	103	98	101	100	103	97	98	101
142	98	98	93	99	93	101	96	100	94	101	94	98	97	99	93	95	98
143	94	95	90	94	90	97	92	97	91	97	92	95	93	95	90	92	94
144	91	91	86	89	87	94	88	93	87	94	88	91	91	91	87	88	91
145	86	87	82	86	83	90	85	88	84	90	85	87	87	87	83	85	86
146	82	83	78	81	79	86	80	81	81	86	82	84	84	84	80	81	82
147	78	80	74	78	76	82	75	74	77	83	78	80	80	80	76	78	78
148	74	76	71	73	71	78	68	66	74	78	74	77	76	76	73	74	74
149	70	72	67	69	68	74	64	59	70	74	69	73	72	72	69	70	70
150	67	67	64	66	64	70	59	55	67	68	65	70	69	68	65	67	67
151	63	63	60	62	60	66	55	48	62	63	59	66	65	64	61	62	63
152	59	59	56	57	57	60	48	43	56	56	55	63	60	60	57	58	59
153	55	54	53	54	53	55	41	38	52	51	50	58	57	55	53	55	55
154	51	50	49	49	49	49	35	35	47	42	46	54	53	51	49	50	51
155	47	46	45	44	45	45	27	33	44	36	41	49	49	46	45	47	47
156	43	42	42	41	40	39	21	25	40	29	35	44	45	41	42	42	43

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