

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-8033E30-A

LED-8033-NW-E27-A

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

Representative (Tested) Model: LED-8033E30-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

Tel: 8620-3229 0320

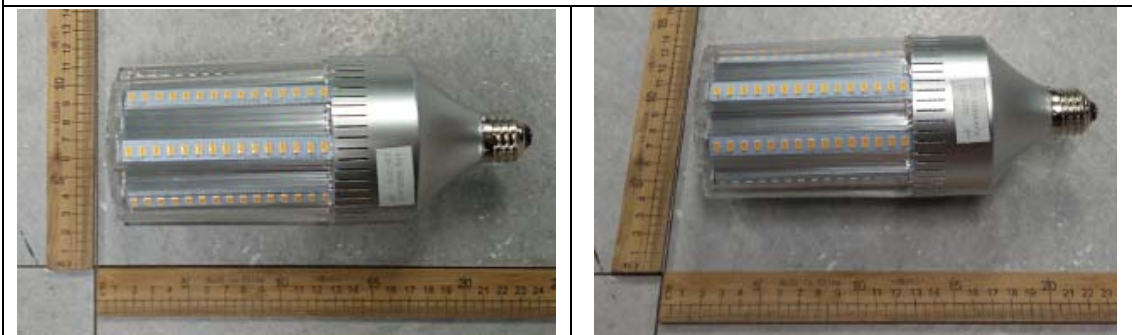
Fax: 8620-32290422

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

1.1 Product Information:

Organization Name	LIGHT EFFICIENT DESIGN	
Brand Name	N/A	
Model Number	LED-8033E30-A;LED-8033-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	35W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	Samsung	
LED Model	LM561B	
Sample Number	GZE161214-AO1	
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-8033E30-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161214-	120.0	60	0.2982	35.04	0.9791
AO1	277.0	60	0.1363	34.40	0.9110

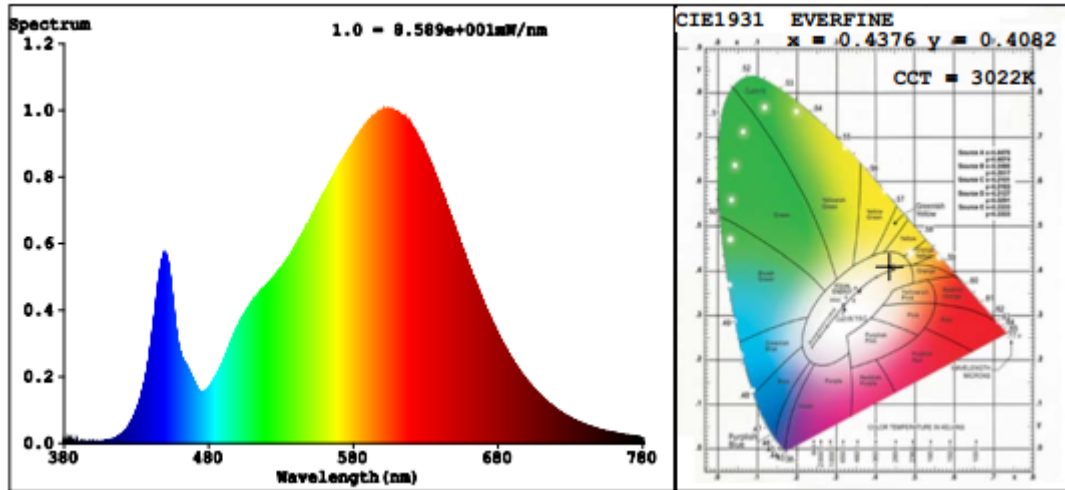
Chromaticity Measurement - Sphere-Spectroradiometer Method :

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	12
Frequency (Hz)	60	R2	89	R10	75
CCT (K)	3022	R3	97	R11	79
Duv	0.0015	R4	81	R12	68
Chromaticity (x, y)	x=0.4376 y=0.4082	R5	80	R13	82
Chromaticity (u', v')	u'=0.2492 v'=0.5231	R6	86	R14	98
Color Rendering Index (CRI)	82.3	R7	85	R15	74
R9	12	R8	62	--	--

Photometric Measurement – Goniophotometer Method :

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	4238.5	4174.9
Luminous Efficacy (lm/W)	120.96	121.36
Beam Angle (°)	279.6	--
Center Beam Candle Power (cd)	193	--

Spectral Power Distribution & Chromaticity Diagram

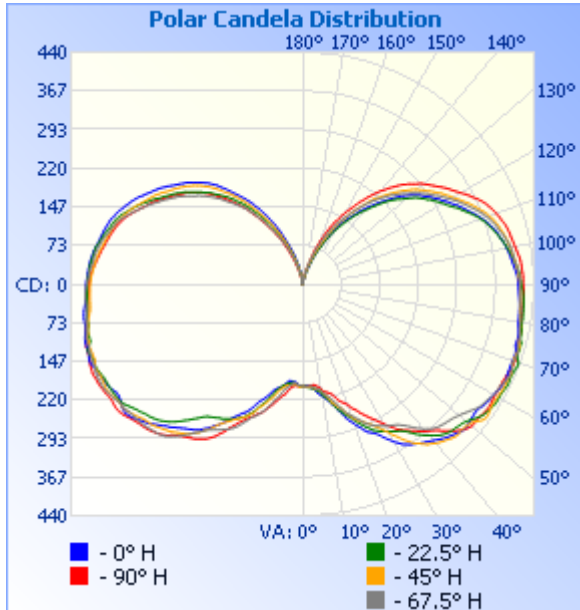


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	218.6	5.2%
0-40	434.2	10.2%
0-60	1,105.0	26.1%
60-90	1,319.0	31.1%
70-100	1,338.7	31.6%
90-120	1,193.6	28.2%
0-90	2,424.0	57.2%
90-180	1,814.8	42.8%
0-180	4,238.8	100%

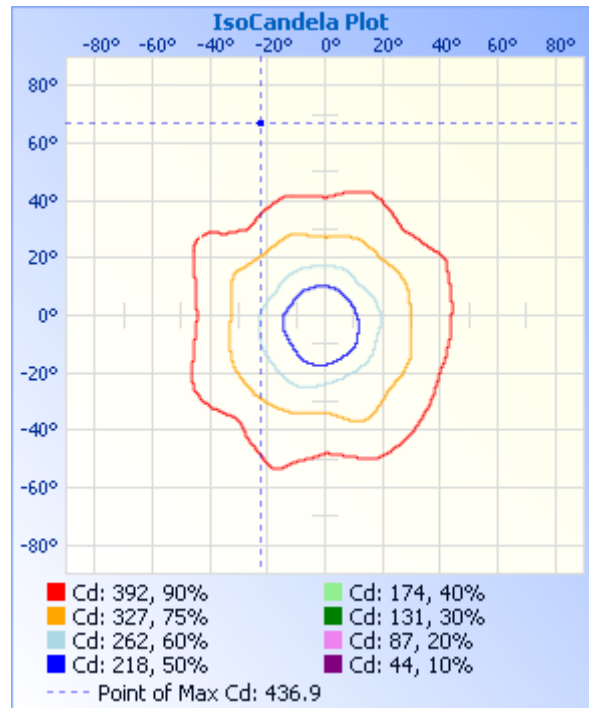
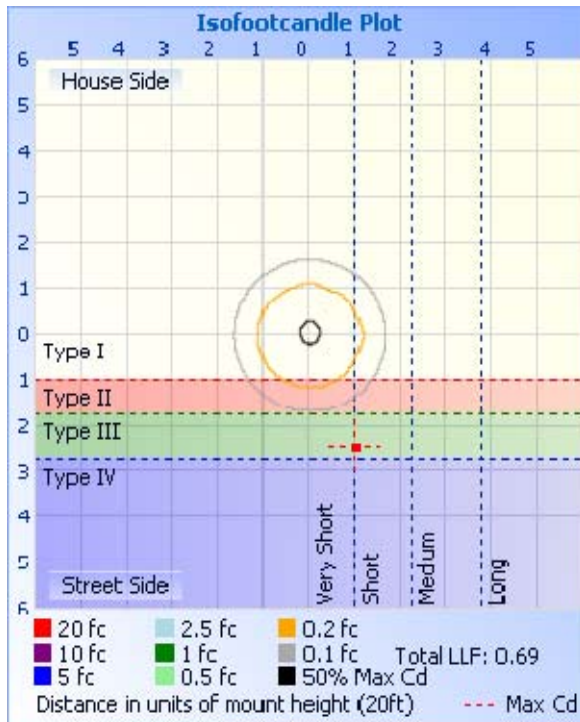
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	18.9	0.4%	90-100	440.9	10.4%
10-20	66.3	1.6%	100-110	407.0	9.6%
20-30	133.5	3.1%	110-120	345.8	8.2%
30-40	215.5	5.1%	120-130	268.6	6.3%
40-50	300.1	7.1%	130-140	188.3	4.4%
50-60	370.8	8.7%	140-150	108.6	2.6%
60-70	421.2	9.9%	150-160	45.4	1.1%
70-80	446.8	10.5%	160-170	10.0	0.2%
80-90	451.0	10.6%	170-180	0.4	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	0.67 fc	
34.0ft	0.17 fc	
51.0ft	0.07 fc	
68.0ft	0.04 fc	
85.0ft	0.03 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	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193
1	193	194	194	194	194	194	192	192	194	194	195	192	193	192	192	191	193
2	193	195	195	194	194	193	191	190	192	193	195	192	194	192	192	192	193
3	194	197	196	194	193	193	191	187	189	191	192	190	193	193	193	193	194
4	196	197	196	194	192	190	190	186	187	189	190	189	193	196	195	194	196
5	198	198	197	195	192	190	191	186	187	187	191	189	194	198	198	197	198
6	200	200	198	197	192	191	191	187	186	188	193	191	197	201	202	201	200
7	203	202	199	199	193	192	191	189	185	189	193	193	200	205	205	207	203
8	209	204	202	201	196	194	192	191	186	190	193	198	206	210	210	210	209
9	212	206	203	202	199	197	194	193	189	192	195	200	211	213	215	214	212
10	215	212	206	206	202	199	196	195	193	195	198	205	214	218	220	217	215
11	220	217	212	211	207	202	200	197	196	196	200	211	218	224	226	222	220
12	224	222	217	215	210	205	204	198	200	200	204	218	224	229	234	226	224
13	229	228	224	220	211	209	208	200	203	204	210	224	229	234	240	231	229
14	235	234	232	225	214	213	212	203	205	209	217	230	235	239	248	239	235
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16	250	248	242	237	223	220	219	212	214	223	228	245	246	252	263	250	250
17	258	254	246	245	230	224	225	216	220	231	235	251	253	258	272	256	258
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22	294	284	279	275	255	249	251	238	252	265	267	278	274	283	300	283	294
23	302	290	283	281	260	255	256	243	260	271	273	285	279	287	303	288	302
24	308	297	287	288	267	259	258	247	266	277	277	292	284	290	307	292	308
25	311	302	292	293	273	265	262	253	270	280	281	299	291	294	311	299	311
26	315	309	296	297	279	269	267	259	276	284	285	304	299	301	317	304	315
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113	349	346	365	360	382	370	377	366	371	359	358	350	350	344	338	340	349
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117	330	322	345	339	363	350	361	348	357	340	342	331	331	321	320	319	330
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123	299	294	316	308	332	319	331	317	330	308	319	299	303	289	295	285	299
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132	249	241	266	257	284	271	288	273	288	261	280	250	260	235	254	231	249
133	241	234	260	251	279	265	284	268	284	255	274	244	254	229	248	223	241
134	234	227	253	244	273	259	279	262	278	251	269	238	248	222	239	217	234
135	226	221	246	239	267	253	273	256	273	244	263	231	240	216	231	210	226
136	218	212	239	232	260	247	269	250	267	237	257	225	232	209	224	202	218
137	211	204	231	225	252	240	263	245	262	232	250	217	225	201	217	196	211
138	203	197	224	219	245	234	259	238	255	225	243	210	217	195	211	189	203
139	195	189	217	212	237	227	252	231	249	220	235	204	210	187	202	183	195
140	189	182	210	206	231	220	246	225	240	213	227	198	202	180	194	175	189
141	182	176	202	199	223	215	238	217	233	207	222	192	195	173	188	167	182
142	175	169	193	190	215	208	230	211	224	198	214	185	187	165	180	161	175
143	167	162	185	183	208	202	223	203	216	192	207	179	181	158	173	152	167
144	159	155	176	176	198	195	215	197	209	185	198	171	172	151	163	146	159
145	153	146	167	169	191	188	208	190	201	177	190	164	162	143	154	137	153
146	146	139	160	161	182	181	199	183	195	170	182	156	155	136	147	129	146
147	141	132	151	153	173	175	192	176	187	162	173	148	146	128	138	122	141
148	133	126	144	147	166	166	183	169	181	155	165	141	139	122	129	114	133
149	124	118	136	139	158	158	176	161	172	148	155	132	130	114	122	108	124
150	116	112	127	134	152	151	166	153	165	141	149	125	123	106	112	100	116
151	105	104	120	127	143	143	157	146	156	133	140	117	115	100	104	94	105
152	98	96	112	119	135	136	150	139	148	127	133	111	109	92	95	87	98
153	90	88	105	113	129	127	141	132	140	118	124	104	101	87	86	78	90
154	82	80	95	106	120	120	134	124	131	111	117	98	95	79	80	70	82
155	76	75	86	98	112	112	124	117	124	105	108	91	86	71	72	64	76
156	69	68	80	91	103	106	116	109	116	97	101	85	78	65	67	58	69

Laboratory: Standard-Tech Co. Ltd Testing Center
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157	62	62	73	83	94	99	107	103	108	91	93	77	72	58	61	53	62
158	55	58	65	75	87	92	100	96	98	84	86	72	64	52	53	47	55
159	47	51	58	70	78	84	91	89	90	78	78	66	58	47	47	41	47
160	40	44	51	62	71	77	84	81	82	72	69	59	51	41	40	36	40
161	35	38	47	56	62	72	75	73	76	65	63	54	46	35	34	31	35
162	30	33	40	50	51	64	68	67	68	58	56	47	39	31	30	26	30
163	26	28	33	43	44	58	60	60	63	52	50	41	35	26	25	23	26
164	21	23	29	37	38	51	51	54	56	47	43	36	30	23	21	18	21
165	17	18	25	30	31	45	45	48	49	41	38	32	23	19	17	14	17
166	14	16	21	25	26	38	36	43	43	37	32	26	18	14	13	12	14
167	11	12	16	21	21	31	30	37	37	31	29	21	13	12	10	9	11
168	9	9	13	16	17	24	24	32	33	27	23	17	12	9	8	7	9
169	6	8	11	13	13	19	20	27	28	22	19	14	10	7	5	5	6
170	4	6	8	11	8	14	15	22	24	19	15	12	8	5	4	3	4
171	2	4	6	7	5	10	12	17	16	13	11	8	6	4	2	2	2
172	2	3	4	5	4	7	9	10	10	9	8	6	5	2	2	1	2
173	1	2	3	3	3	5	6	6	4	6	5	4	3	2	1	1	1
174	1	1	2	2	2	4	3	2	2	3	3	4	2	1	1	1	1
175	1	1	1	2	1	2	2	2	1	2	3	2	2	1	1	1	1
176	1	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1
177	1	1	1	1	1	1	1	1	1	2	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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