



Report No.: BLC1808001E-A

## LM-79-08 Test Report

For

# ASmart LIGHT CO., LTD

(Brand Name: ASmart)

506 N GARFIELD AVE SUITE#210 ALHAMBRA CA 91801

## Replacement Lamps for Outdoor Pole/Arm-Mounted

### Decorative Luminaires (UL Type B)

Model name(s): AST-CLW07-027WBCA1-ab30K

Remark: “a” represents the lamp base type which “E”=E39, “EX”=EX39 or BLANK=E26; “b” represents the Top cover material which “P”=plastic or “m” for metal; “c” represents the CCT which can be any two digital.

Representative (Tested) Model: AST-CLW07-027WBCA1-ab30K  
AST-CLW07-027WBCA1-ab57K

Model Different: All construction and rating are the same, except CCT

Test & Report By:

*Grace Li*

Engineer: Grace Li

Date: Aug 16, 2018

Review By:

*Tommy Liang*

Manager: Tommy Liang



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**1.1 Product Information:**

Organization Name	ASmart LIGHT CO., LTD	
Brand Name	ASmart	
Model Number	AST-CLW07-027WBCA1-abcK	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Replacement Lamps for Outdoor Pole/Arm-Mounted Decorative Luminaires (UL Type B)	
Rated Voltage / Frequency	100-277Vac, 50/60 Hz	
Nominal Power	27W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,5000K,5700K	
LED Manufacturer	Samsung Electronics Co., LTD.	
LED Model	SPMWH1228xxxxxxxxxx	
Sample Number	BLC1808001E-A1(3000K),A2(5700K)	
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	Aug 10,2018
Date of Test	Aug 13,2018
Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
Reference Work Instruction	BL-QP-033

**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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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 BL-QP-033)*

<b>Test date</b>	20118-8-13	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AST-CLW07-027WBCA1-ab30K		

**Electrical Measurement in King Luminaire K400 Series (Mogul Socket Version) :**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180800	120.0	60	0.2164	25.79	0.993	7.82
1E-A1	277.0	60	0.1082	27.31	0.911	11.41
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

**Chromaticity Measurement - Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version) :**

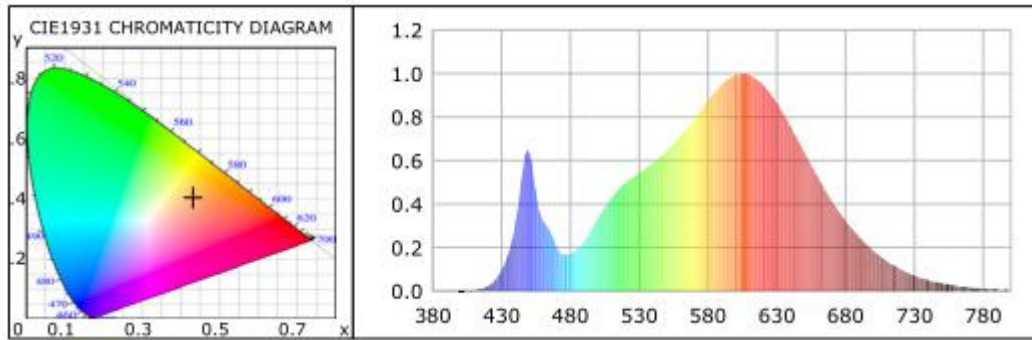
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	17
Frequency (Hz)	60	R2	90	R10	78
CCT (K)	3071	R3	97	R11	83
Duv	-0.00056	R4	83	R12	71
Chromaticity (x, y)	x=0.4312 y=0.4006	R5	83	R13	84
Chromaticity (u', v')	u(u')=0.2483 v'(v')=0.5192	R6	88	R14	98
Color Rendering Index (CRI)	84	R7	85	R15	76
R9	17	R8	64	--	--

**Photometric Measurement – Goniophotometer Method in King Luminaire K400 Series (Mogul Socket Version) :**

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	3059.98	3218.48	250-5000(-10%)
Luminous Efficacy (lm/W)	118.65	117.85	>= 90(-3%)
Most worst Luminous/Highest Watts	112.05		
Zonal lumens in the 0-90° zone (%)	75.7	--	>= 65(-3%)
Beam Angle (°)	195.8	--	--
Center Beam Candle Power (cd)	93	--	--



**Spectral Power Distribution & Chromaticity Diagram**

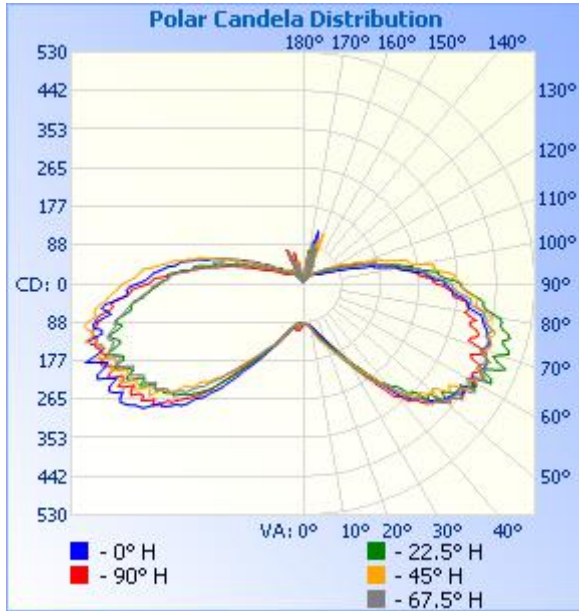


**Zonal Lumen Tabulation**

Zonal Lumen Summary				Lumens Per Zone					
Zone	Lumens	% Lamp	% Luminaire	Zone	Lumens	% Total	Zone	Lumens	% Total
0-30	118.8	3.9%	3.9%	0-10	9.3	0.3%	90-100	331.2	10.8%
0-40	275.2	9%	9%	10-20	33.2	1.1%	100-110	199.4	6.5%
0-60	942.4	30.8%	30.8%	20-30	76.3	2.5%	110-120	96.1	3.1%
60-90	1,374.7	44.9%	44.9%	30-40	156.5	5.1%	120-130	47.7	1.6%
70-100	1,249.5	40.8%	40.8%	40-50	278.9	9.1%	130-140	27.7	0.9%
90-120	626.8	20.5%	20.5%	50-60	388.3	12.7%	140-150	12.4	0.4%
0-90	2,317.1	75.7%	75.7%	60-70	456.4	14.9%	150-160	15.2	0.5%
90-180	743.1	24.3%	24.3%	70-80	483.4	15.8%	160-170	12.1	0.4%
0-180	3,060.3	100%	100%	80-90	434.9	14.2%	170-180	1.2	0%



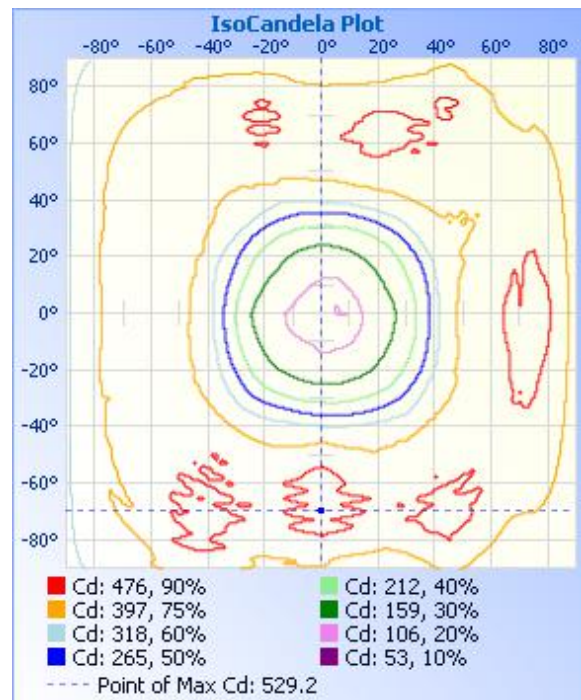
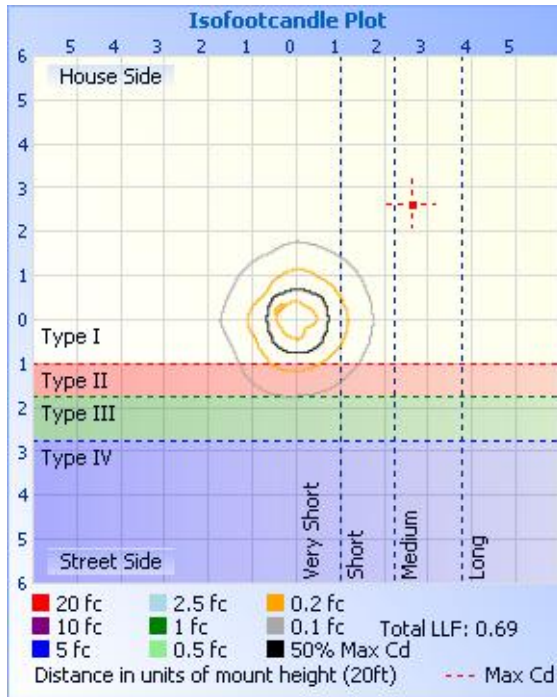
**Photometric Data**



**Illuminance at a Distance**

Height	Center Beam fc	Beam Width
17.0ft	0.32 fc	22.1 ft
34.0ft	0.08 fc	44.1 ft
51.0ft	0.04 fc	66.2 ft
68.0ft	0.02 fc	88.3 ft
85.0ft	0.01 fc	110.3 ft
102.0ft	0.01 fc	132.4 ft

■ Beam Spread: 66.0°





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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	94	94	93	92	92	92	91	91	91	91	96	97	95	94	93
2	93	92	93	93	94	92	91	91	91	90	91	92	101	102	99	95	93
3	93	92	93	93	94	92	90	91	90	90	92	94	103	106	102	96	93
4	93	93	92	94	94	92	90	91	91	92	93	95	105	108	104	96	93
5	93	95	93	93	94	92	90	92	93	93	94	96	106	109	105	96	93
6	94	96	94	94	94	93	91	92	94	93	95	97	105	106	105	99	94
7	96	97	97	95	95	94	93	95	95	92	95	99	105	105	104	102	96
8	97	99	99	98	97	95	95	97	95	92	96	98	107	103	104	103	97
9	99	102	102	101	97	96	97	99	96	93	97	98	106	103	104	103	99
10	101	104	105	105	99	99	100	102	97	96	98	97	105	104	104	102	101
11	103	106	109	107	100	102	103	105	99	99	100	97	104	105	104	103	103
12	105	109	113	112	102	105	106	109	100	102	100	98	104	104	104	103	105
13	107	112	119	115	105	106	110	113	103	105	102	101	105	105	105	104	107
14	110	115	124	121	107	109	115	118	106	107	105	105	105	106	108	106	110
15	113	119	131	125	112	113	120	121	110	109	108	108	106	109	111	109	113
16	116	123	133	128	116	118	126	127	115	111	111	110	109	112	115	112	116
17	120	127	138	132	119	123	128	128	119	116	115	113	113	116	119	117	120
18	125	133	141	136	124	126	131	133	124	120	118	115	117	121	124	122	125
19	129	136	144	139	129	130	134	136	127	125	125	120	122	127	129	128	129
20	132	141	149	144	133	133	138	137	131	129	132	123	126	133	134	133	132
21	137	144	153	149	136	137	141	143	136	134	135	130	132	139	141	140	137
22	143	148	158	155	142	142	146	146	142	141	140	136	137	146	146	146	143
23	149	154	162	161	146	150	151	151	149	145	146	145	143	152	153	151	149
24	155	160	167	169	152	156	156	157	155	152	153	148	148	159	159	156	155
25	162	166	173	175	158	164	161	164	160	157	155	158	153	164	165	162	162
26	169	172	177	182	166	172	166	171	166	161	159	160	159	168	169	169	169
27	176	179	182	190	174	179	171	178	174	168	163	164	166	172	174	177	176
28	184	185	189	197	184	186	177	185	182	173	167	168	172	178	179	183	184
29	192	192	196	207	193	194	182	192	192	181	176	172	179	185	185	190	192

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38	292	289	287	292	314	296	268	295	302	276	249	253	270	257	265	288	292
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41	340	314	329	323	344	324	296	326	343	320	284	287	321	299	303	332	340
42	349	315	346	335	363	334	312	338	353	329	290	297	335	314	312	342	349
43	360	331	345	354	364	341	328	343	360	338	300	309	350	324	325	358	360
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49	404	385	383	402	412	392	393	395	428	391	357	375	409	365	394	423	404
50	417	414	389	423	424	397	405	404	426	390	386	388	433	370	403	417	417
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55	440	429	407	436	447	445	461	443	485	416	428	413	447	375	416	458	440
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61	443	447	450	450	441	436	476	465	508	458	465	432	483	407	429	486	443

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62	464	487	463	475	437	426	460	446	500	455	475	447	463	384	428	498	464
63	458	483	458	463	446	428	459	440	479	435	449	442	464	422	465	521	458
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69	449	466	446	435	445	452	513	452	503	457	476	462	493	418	456	480	449
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92	296	326	342	313	298	340	416	351	354	309	386	310	340	306	358	296	296
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94	282	309	338	289	268	317	398	338	343	310	373	308	298	287	338	274	282
95	279	309	319	284	263	319	395	337	331	291	370	284	290	274	317	256	279
96	255	286	305	273	254	306	386	334	321	273	349	266	279	251	303	243	255
97	244	262	300	271	249	303	373	318	314	257	335	255	256	234	291	233	244
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107	123	156	182	149	155	213	252	185	190	161	186	151	125	133	144	122	123
108	112	140	182	143	141	204	241	173	184	144	185	130	112	123	134	119	112
109	97	129	144	126	138	188	231	164	168	126	170	118	98	115	122	102	97
110	89	120	140	122	141	182	218	157	161	122	149	115	88	110	105	95	89
111	87	113	131	109	128	179	206	154	147	121	128	108	87	102	101	87	87
112	74	102	134	104	112	159	191	135	137	105	136	97	84	96	98	85	74
113	68	97	108	96	108	149	185	120	128	97	118	92	78	95	91	82	68
114	67	90	107	88	106	147	170	129	122	94	104	92	72	92	83	78	67
115	63	83	101	79	97	140	155	118	110	103	98	87	65	84	78	71	63
116	58	81	103	77	82	123	143	102	96	83	98	82	58	82	76	67	58
117	53	79	96	76	74	116	135	92	97	82	86	77	53	79	64	66	53
118	49	74	82	67	70	116	121	96	91	78	78	75	48	70	60	57	49
119	47	67	87	64	64	104	110	82	77	84	76	69	46	62	57	56	47
120	45	65	77	67	54	96	102	77	67	68	65	62	44	57	55	52	45
121	42	60	66	65	51	91	97	70	67	68	59	59	43	56	54	51	42
122	41	55	66	56	49	87	84	72	58	62	56	56	43	55	54	53	41
123	40	50	57	61	46	80	84	61	52	60	52	51	42	55	53	49	40
124	40	47	50	59	42	81	85	61	60	65	52	49	41	55	53	49	40
125	40	46	48	49	39	81	70	56	47	56	50	48	41	54	53	49	40

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Certificate#4810.01

126	40	44	47	47	37	68	67	56	44	51	49	46	40	54	53	49	40
127	39	43	45	46	36	69	68	50	46	49	51	45	40	53	53	48	39
128	39	42	44	44	36	66	57	45	42	48	49	44	39	52	53	48	39
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130	38	40	41	41	35	47	50	43	40	47	47	41	37	51	51	48	38
131	38	38	40	38	34	43	47	41	40	47	46	39	36	49	50	48	38
132	37	37	39	37	33	40	45	42	40	46	45	37	36	47	49	47	37
133	36	35	38	36	32	38	43	38	39	46	43	35	35	45	47	45	36
134	35	33	36	34	30	35	40	37	39	45	41	34	35	44	46	43	35
135	33	31	34	32	30	33	38	35	38	44	39	32	33	41	44	41	33
136	32	29	31	31	29	32	35	34	37	42	38	31	32	39	41	38	32
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138	28	25	26	26	26	27	29	30	34	37	33	27	28	34	35	33	28
139	26	24	23	23	25	25	26	29	32	34	30	25	26	31	32	30	26
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141	22	21	18	19	21	21	21	25	27	28	24	22	22	26	25	24	22
142	20	19	17	18	20	20	20	24	25	25	22	20	21	23	22	22	20
143	19	18	16	17	18	19	19	22	22	22	20	19	19	21	19	20	19
144	18	17	15	15	17	18	18	21	20	20	18	17	33	32	17	18	18
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146	15	15	14	14	15	16	17	18	18	18	16	16	16	18	15	16	15
147	15	14	14	13	14	14	16	17	17	16	15	24	28	46	14	15	15
148	14	14	14	13	13	14	16	16	16	16	14	34	18	78	14	14	14
149	14	13	14	12	12	13	15	15	15	15	14	14	13	61	13	14	14
150	13	12	36	34	11	12	14	15	14	14	13	33	14	80	13	13	13
151	13	12	48	47	10	11	13	14	14	14	13	41	35	87	13	13	13
152	12	12	24	36	9	11	13	13	13	13	12	36	45	76	13	15	12
153	12	12	13	27	8	10	12	12	12	13	12	60	61	82	14	59	12
154	11	29	36	27	8	9	12	12	12	12	11	78	86	81	31	60	11
155	11	48	53	59	7	9	11	11	11	11	11	76	61	83	55	61	11
156	11	37	85	11	7	9	11	11	10	11	11	74	76	70	74	62	11
157	11	39	103	46	6	8	10	10	10	10	11	47	58	33	110	63	11

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01  
Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,  
Guangzhou, People' s Republic of China. Website: <http://www.blst.com>

Report Format Number BL-FM-SA-012



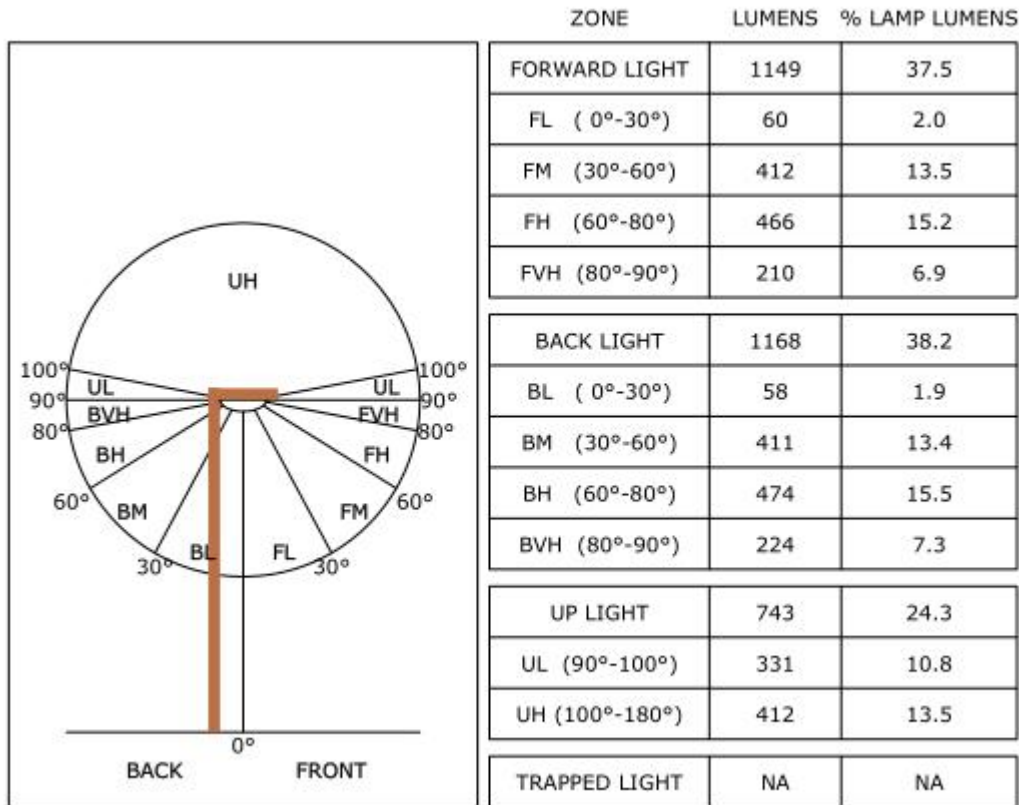
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Certificate#4810.01

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159	39	66	49	86	6	8	9	9	9	9	35	14	49	84	150	63	39
160	57	50	65	71	5	8	9	9	8	9	38	10	40	99	170	87	57
161	79	48	103	86	5	8	8	8	8	9	35	30	58	88	184	88	79
162	91	60	76	62	5	14	8	8	7	27	32	12	49	87	157	70	91
163	113	56	55	86	4	6	7	7	7	34	52	16	52	129	147	91	113
164	125	80	46	95	4	5	7	7	6	10	52	18	73	114	115	69	125
165	87	41	43	44	4	5	7	6	6	18	51	18	41	100	88	57	87
166	100	23	11	44	4	5	6	6	6	7	31	42	52	91	66	62	100
167	59	20	70	92	4	4	5	5	5	6	12	41	45	67	66	87	59
168	36	38	40	61	3	4	5	5	5	6	10	43	12	55	58	90	36
169	12	41	70	36	3	4	4	4	4	5	11	49	12	68	61	115	12
170	7	78	12	55	3	3	4	4	4	5	11	30	6	53	64	88	7
171	5	57	47	33	3	3	3	4	4	5	14	6	5	58	66	85	5
172	5	10	53	7	2	3	3	4	4	5	13	6	5	44	80	31	5
173	5	5	5	6	2	2	3	3	4	4	8	8	5	9	15	17	5
174	4	5	5	4	3	3	3	3	3	4	5	11	5	6	7	14	4
175	4	4	4	4	4	3	3	3	4	4	4	5	4	5	6	8	4
176	4	4	4	4	4	3	3	3	4	4	4	4	5	5	5	4	4
177	4	4	4	4	4	3	3	3	4	4	4	4	4	5	4	3	4
178	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	3	4
179	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	3	4
180	4	4	4	4	4	4	3	3	4	4	4	4	4	4	3	3	4



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**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

<b>Test date</b>	2018-8-13	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AST-CLW07-027WBCA1-ab57K		

**Electrical Measurement in King Luminaire K400 Series (Mogul Socket Version) :**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180800	120.0	60	0.2186	26.03	0.9924	7.36
1E-A2	277.0	60	0.1095	27.64	0.9113	11.13
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

**Chromaticity Measurement - Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version) :**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	11
Frequency (Hz)	60	R2	86	R10	66
CCT (K)	5608	R3	89	R11	84
Duv	0.00185	R4	84	R12	60
Chromaticity (x, y)	x=0.3300 y=0.3426	R5	82	R13	82
Chromaticity (u', v')	u(u')=0.2046 v'(v')=0.4779	R6	81	R14	94
Color Rendering Index (CRI)	82.5	R7	87	R15	77
R9	11	R8	71	--	--

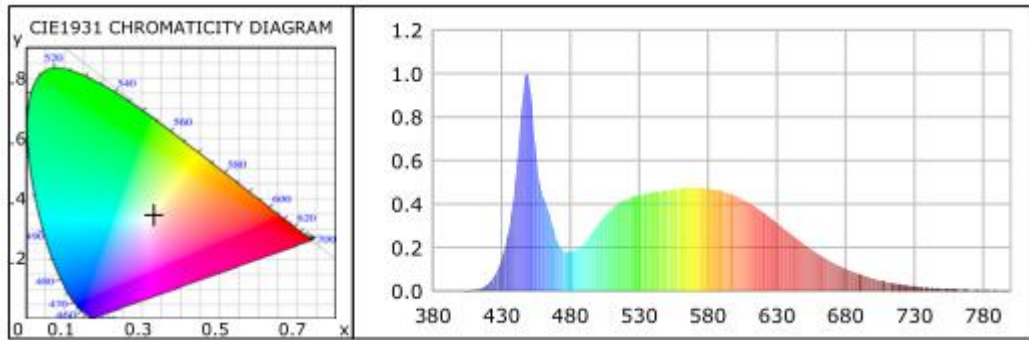
**Photometric Measurement – Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version) :**

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	3225.12	3383.69	250-5000(-10%)
Luminous Efficacy (lm/W)	123.90	122.42	>= 90(-3%)
Most worst Luminous/Highest Watts	116.68		



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## Spectral Power Distribution & Chromaticity Diagram





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**Calculated Efficacy Data for family models (3500K,4000K and 5000K):**

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-CLW07-027WBCA1-ab30K	3059.98	25.79	118.65
AST-CLW07-027WBCA1-ab35K	3087.50	25.91	119.16
AST-CLW07-027WBCA1-ab40K	3115.03	25.91	120.22
AST-CLW07-027WBCA1-ab50K	3142.55	25.91	121.29
AST-CLW07-027WBCA1-ab57K	3225.12	26.03	123.9





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### 3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2019-01-15
AC Power Source	CHP-500C	N/A	2019-01-14
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2019-01-22
Digital Power Meter	WT500	DYDWQ200006	2019-01-14
Integral Sphere (2M)	2M	DYJCE120067	2019-01-15
Digital Power Meter	WT500	DYDWQ200006	2019-01-14
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2019-01-15

Expand Uncertainty:  
Photometric Measurement (Sphere): 2.04%, k=2  
Chromaticity Measurement(Sphere):28.8K, k=2  
Photometric Measurement(Goniophotometer):2.7%, k=2

\*\*\*\*\* END OF REPORT \*\*\*\*\*