Certificate#4810.01

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-TCLW-P-50WACA1Z-aaK

Remark: "Z" refers to lamp base, "-E" is E39 lamp base, "-EX" is EX39 lamp base.
"aaK" refers to CCT, can be 30K, 35K,40K, 45K, 50K, 57K.

Representative (Tested) Model: AST-TCLW-P-50WACA1Z-30K
AST-TCLW-P-50WACA1Z-57K

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

Test & Report By:

Grace li

Engineer: Grace Li

Date: May 10, 2018

Review By:

Tommy Liang

Manager: Tommy Liang

1.1 Product Information:

Organization Name	ASMART LIGHT CO., LTD	
Brand Name	ASMART	
Model Number	AST-TCLW-P-50WACA1Z-aaK	
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	50W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,4500K,5000K,5700K	
LED Manufacturer	Hongli Zhihui Group Co.,Ltd.	
LED Model	HL-AS-PU2835DW-S1-08-PCT-HR3	
Sample Number	BLC1804018E-K1(3000K),K2(5700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo

Certificate#4810.01

1.2 Test Specifications:

Date of Receipt	May 03,2018
Date of Test	May 09,2018
Test item	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	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	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° 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.

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 25º C ± 1º 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 25º C ± 1º 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)

Test date	2018-5-09	Test Ambient:	25.2 º C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-TCLW-P-50WACA1Z-30K		

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

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180401 8E-K1	120.0	60	0.4032	47.88	0.9896	6.77
	277.0	60	0.1918	47.55	0.8952	14.62
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

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

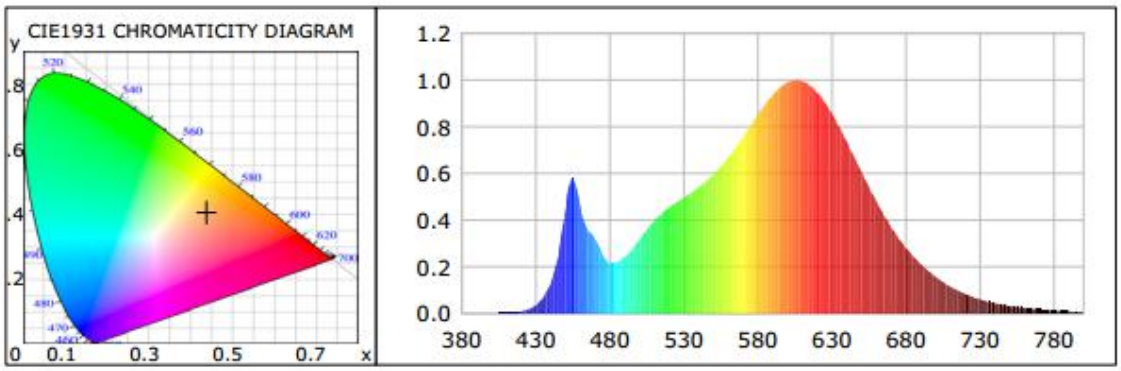
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	2976
Duv	0.00060
Chromaticity (x, y)	x=0.4378 y=0.4029
Chromaticity (u', v')	u(u')=0.2516 v'=0.5210
Color Rendering Index (CRI)	84
R9	0

Special Color Rendering Indices			
R1	83	R9	0
R2	93	R10	84
R3	95	R11	81
R4	82	R12	73
R5	84	R13	86
R6	92	R14	98
R7	82	R15	76
R8	61	--	--

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)	4924.27	4769.05	5000-10000(-10%)
Luminous Efficacy (lm/W)	102.85	100.30	>= 90(-3%)
Most worst Luminous/Highest Watts	99.6		
Zonal lumens in the 0-90° zone (%)	73.9	--	>= 65(-3%)
Beam Angle (°)	207.9	--	--
Center Beam Candle Power (cd)	197	--	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

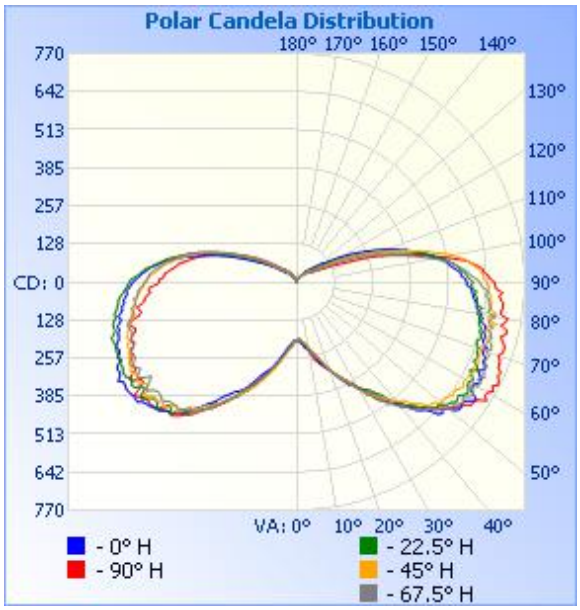
Zonal Lumen Summary

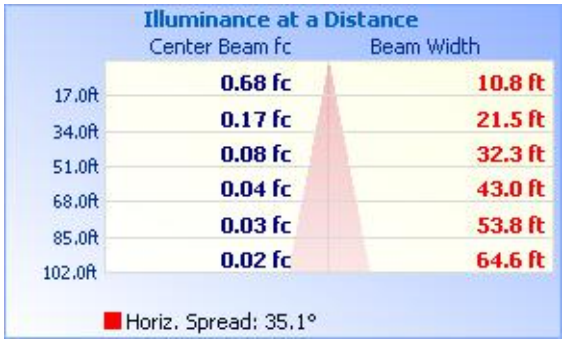
Zone	Lumens	% Lamp	% Luminaire
0-30	282.2	5.7%	5.7%
0-40	596.0	12.1%	12.1%
0-60	1,662.9	33.8%	33.8%
60-90	1,977.7	40.2%	40.2%
70-100	1,881.2	38.2%	38.2%
90-120	1,138.2	23.1%	23.1%
0-90	3,640.5	73.9%	73.9%
90-180	1,284.2	26.1%	26.1%
0-180	4,924.7	100%	100%

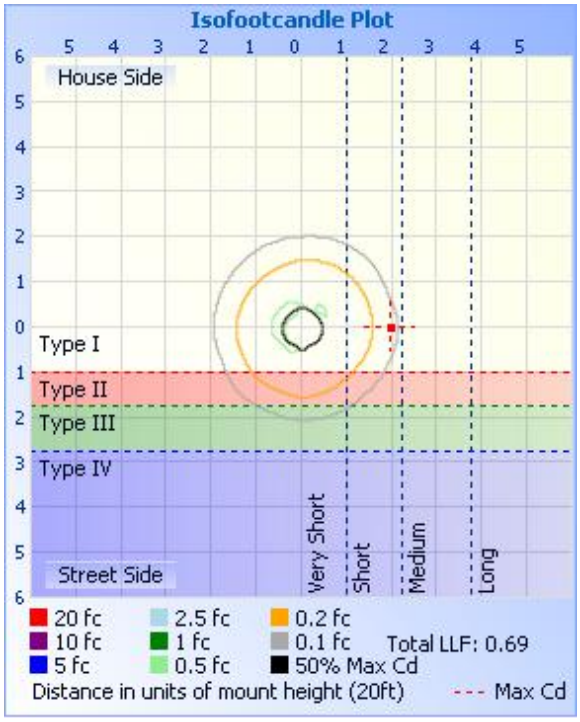
Lumens Per Zone

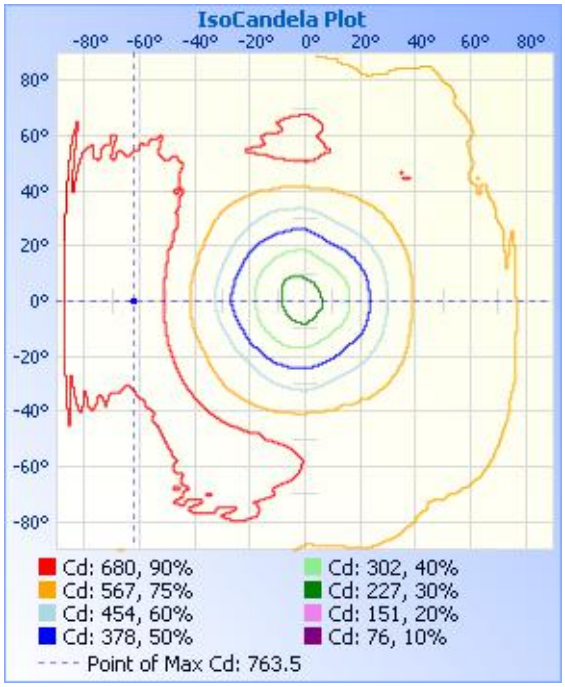
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	21.2	0.4%	90-100	561.3	11.4%
10-20	81.9	1.7%	100-110	380.5	7.7%
20-30	179.1	3.6%	110-120	196.4	4%
30-40	313.8	6.4%	120-130	83.0	1.7%
40-50	468.9	9.5%	130-140	38.3	0.8%
50-60	597.9	12.1%	140-150	17.2	0.3%
60-70	657.8	13.4%	150-160	5.8	0.1%
70-80	671.1	13.6%	160-170	1.5	0%
80-90	648.7	13.2%	170-180	0.2	0%

Photometric Data









Certificate#4810.01

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	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197
1	198	197	196	196	194	195	196	197	198	199	200	200	200	200	199	199	198
2	199	199	195	195	193	193	195	196	198	199	203	203	205	203	203	202	199
3	203	199	197	196	193	195	197	198	200	204	208	208	211	210	208	204	203
4	207	202	198	198	194	198	201	202	206	212	215	215	216	216	212	209	207
5	211	204	201	202	201	204	206	207	210	219	219	219	221	222	218	215	211
6	217	208	202	206	206	211	212	213	216	223	228	225	226	226	225	219	217
7	222	214	206	209	214	218	219	220	221	230	236	231	232	232	229	224	222
8	225	218	209	213	220	223	226	227	228	238	242	237	237	240	235	228	225
9	228	221	213	221	228	231	234	235	237	246	249	246	245	247	242	233	228
10	231	224	219	232	236	238	244	245	245	253	261	254	254	252	252	239	231
11	238	229	226	239	246	244	248	253	253	262	271	260	261	259	260	246	238
12	245	237	234	246	258	250	255	259	264	274	278	270	270	267	266	255	245
13	251	243	242	250	268	258	261	267	273	286	287	280	279	273	274	268	251
14	259	249	251	257	274	264	269	273	280	295	299	287	289	281	281	278	259
15	271	260	257	261	279	271	276	281	291	303	306	292	299	289	292	288	271
16	283	269	266	269	287	279	286	290	300	313	318	304	308	298	302	305	283
17	290	279	273	279	294	289	298	299	308	322	328	318	312	309	311	313	290
18	294	289	286	288	301	300	307	310	316	333	339	326	321	318	321	322	294
19	302	298	296	299	307	311	322	317	323	344	347	334	330	329	330	333	302
20	314	308	308	309	313	323	330	328	330	356	357	349	341	341	337	342	314
21	321	319	323	322	323	332	340	337	339	364	374	359	356	351	347	354	321
22	329	326	326	331	333	350	354	349	352	373	383	363	366	361	364	366	329
23	341	336	338	347	339	357	364	362	364	387	387	376	377	374	375	378	341
24	355	347	352	348	348	371	378	373	377	400	398	389	387	384	384	394	355
25	363	355	354	367	354	376	384	382	392	407	409	396	397	393	397	400	363
26	376	368	369	367	365	388	400	395	402	418	418	402	409	404	410	407	376
27	389	378	377	384	372	403	413	404	410	432	424	414	422	414	412	421	389
28	391	389	391	391	386	418	423	419	417	441	435	432	437	426	421	431	391
29	397	402	403	405	394	432	440	430	422	449	447	446	451	438	434	435	397

30	410	411	416	419	408	445	461	438	432	460	457	455	463	449	447	447	410
31	422	422	435	425	419	458	471	450	444	469	467	466	475	461	455	460	422
32	430	426	437	450	436	471	486	461	453	481	481	482	487	473	464	466	430
33	444	432	448	456	453	483	495	471	465	490	490	499	502	489	479	475	444
34	456	441	461	474	467	506	507	482	484	498	504	509	514	500	490	485	456
35	467	455	469	490	480	519	515	493	497	514	517	521	521	509	501	495	467
36	483	468	485	494	494	532	523	507	508	535	518	532	531	519	517	504	483
37	500	476	493	517	503	545	532	517	522	533	524	542	547	531	527	513	500
38	511	502	507	520	513	551	540	528	541	540	547	557	565	546	525	527	511
39	531	518	519	536	524	560	546	541	550	564	555	565	576	558	539	534	531
40	548	522	523	546	536	564	555	554	565	582	552	567	582	566	562	540	548
41	555	545	534	553	550	572	561	565	583	572	561	571	598	577	565	560	555
42	567	560	537	576	566	580	575	580	592	580	589	579	608	589	567	582	567
43	590	564	557	584	578	582	588	599	601	606	597	584	617	597	584	581	590
44	602	583	572	591	588	596	596	610	613	617	580	585	614	607	607	580	602
45	609	600	580	611	596	611	612	619	615	597	587	584	615	615	620	594	609
46	625	604	593	613	608	618	630	641	623	598	614	587	621	617	621	612	625
47	654	623	614	629	624	635	636	652	636	620	616	589	630	617	620	613	654
48	662	636	612	646	637	651	645	651	637	637	608	600	637	624	638	615	662
49	653	633	619	650	649	659	660	665	639	623	615	603	644	633	663	621	653
50	665	643	639	667	664	669	665	684	650	619	619	598	644	637	663	625	665
51	687	657	633	676	671	677	677	684	653	624	614	596	641	630	652	634	687
52	698	660	635	669	685	684	701	688	657	638	625	596	643	616	653	638	698
53	695	674	641	684	695	696	703	702	672	654	640	607	647	614	660	632	695
54	691	671	651	697	705	712	718	716	672	646	626	623	659	626	673	624	691
55	697	667	649	683	721	706	747	725	670	627	610	620	667	638	687	651	697
56	717	680	649	690	722	710	740	722	675	628	613	598	639	626	690	662	717
57	722	689	659	706	730	736	738	726	677	653	629	585	619	594	673	645	722
58	697	684	666	703	755	713	756	736	678	655	634	607	617	585	652	632	697
59	689	673	655	683	742	707	741	733	675	648	625	625	647	600	657	641	689
60	690	672	659	703	746	719	746	731	675	645	624	617	652	608	669	636	690
61	702	682	662	708	759	702	756	739	688	659	634	603	626	597	678	635	702

62	705	669	663	694	748	711	742	734	674	659	636	613	613	585	661	640	705
63	695	657	670	710	763	695	742	725	670	658	627	622	625	588	661	640	695
64	681	677	665	703	759	674	742	723	672	653	625	611	627	578	663	636	681
65	699	674	666	698	749	686	725	717	667	657	619	600	615	574	660	633	699
66	695	654	672	703	754	656	715	715	649	647	618	606	603	569	660	630	695
67	683	661	665	689	740	648	714	707	657	653	615	606	610	575	660	628	683
68	687	660	663	691	738	654	689	705	645	651	607	596	601	573	657	617	687
69	674	651	664	696	735	630	699	707	640	650	610	588	586	558	643	616	674
70	667	654	666	680	724	650	706	713	647	650	605	594	586	563	647	612	667
71	680	642	663	696	734	642	683	707	642	647	598	590	592	565	652	612	680
72	662	640	673	692	737	627	697	709	631	650	603	584	582	564	647	609	662
73	660	651	675	680	733	631	688	694	628	653	596	579	569	549	640	596	660
74	662	648	673	685	722	625	670	680	626	642	589	583	567	545	629	600	662
75	653	640	681	678	714	630	705	706	619	633	584	587	577	553	632	604	653
76	655	641	660	671	728	635	682	694	623	636	582	587	580	553	640	594	655
77	654	630	663	680	728	617	664	668	612	635	572	580	569	550	638	590	654
78	636	631	690	663	705	626	702	699	606	628	561	570	543	540	634	593	636
79	628	642	657	666	716	639	681	688	614	623	567	557	534	519	616	584	628
80	632	621	663	681	724	617	671	671	602	624	562	560	539	514	600	576	632
81	626	620	683	654	698	616	676	676	596	615	551	565	544	520	604	575	626
82	613	632	658	660	698	622	671	669	595	612	551	552	528	520	609	574	613
83	614	613	661	659	701	618	675	670	586	606	548	548	517	503	595	565	614
84	606	613	662	651	701	612	664	658	587	604	540	552	515	498	581	559	606
85	600	611	655	650	692	607	663	653	579	599	539	539	503	494	581	559	600
86	596	604	656	640	686	611	668	656	573	590	536	534	495	483	573	554	596
87	593	608	647	649	696	595	651	644	576	582	527	535	500	483	565	543	593
88	588	593	650	634	675	582	649	636	565	576	518	527	493	486	566	548	588
89	574	591	648	623	670	579	644	629	558	568	516	516	472	471	558	538	574
90	574	595	642	618	667	563	634	620	553	564	506	512	464	455	542	527	574
91	569	583	633	606	652	552	632	605	541	558	502	506	463	455	536	522	569
92	558	576	631	591	646	540	618	591	532	542	498	500	449	447	527	514	558
93	555	569	625	580	632	528	614	582	525	530	488	497	447	441	520	507	555

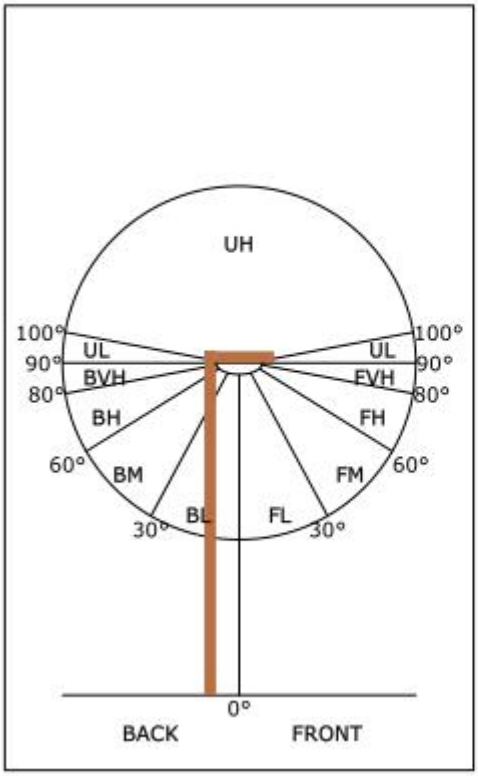
Certificate#4810.01

94	547	559	615	569	628	513	601	565	511	520	478	487	442	436	514	497	547
95	534	550	606	555	614	497	583	551	501	511	469	481	431	431	507	493	534
96	522	542	594	539	595	482	570	535	492	493	461	469	423	422	501	482	522
97	513	529	583	526	582	456	541	512	474	481	453	458	413	411	487	467	513
98	506	515	567	507	549	438	519	495	464	468	443	452	406	400	474	456	506
99	492	504	549	486	522	409	493	469	450	453	430	444	400	395	472	449	492
100	474	480	530	462	492	388	464	446	429	447	418	428	388	385	459	437	474
101	459	469	505	436	460	364	435	426	412	427	410	414	374	370	443	421	459
102	450	452	474	416	434	338	407	397	396	412	399	410	367	361	435	411	450
103	437	425	457	393	402	320	383	376	379	400	383	395	356	352	425	399	437
104	420	410	430	369	378	300	359	351	359	383	374	383	346	340	411	387	420
105	402	391	402	347	348	287	341	331	341	369	361	372	337	330	398	371	402
106	388	367	379	327	330	272	324	309	324	352	349	354	321	319	387	361	388
107	370	346	355	306	301	268	308	290	305	333	334	344	309	303	369	348	370
108	353	328	334	291	278	249	292	271	289	314	321	328	302	293	358	335	353
109	336	312	313	278	250	239	268	250	272	295	310	310	288	283	348	327	336
110	320	288	294	259	221	215	255	231	256	280	290	296	274	268	333	312	320
111	303	272	275	244	195	193	230	212	240	262	274	280	263	254	322	298	303
112	287	254	256	223	174	179	211	197	222	246	260	265	250	239	309	283	287
113	269	239	236	201	153	155	184	181	204	233	247	249	236	225	294	266	269
114	254	221	216	181	136	137	170	162	189	219	232	234	227	212	283	252	254
115	237	205	199	158	121	125	150	156	176	204	218	220	215	200	267	238	237
116	223	187	178	140	109	116	137	136	165	191	204	207	205	188	256	231	223
117	207	173	163	124	98	108	127	130	148	180	190	192	194	178	246	215	207
118	191	161	147	112	89	98	110	114	139	170	179	178	184	168	230	194	191
119	178	147	125	101	82	89	103	108	129	151	167	166	173	157	220	182	178
120	164	134	113	93	75	83	87	98	120	138	155	155	164	149	207	170	164
121	150	122	103	84	70	77	78	88	111	127	144	144	155	140	189	159	150
122	137	112	93	78	66	69	71	81	102	118	138	132	146	133	175	149	137
123	125	104	85	71	63	64	65	78	96	109	119	122	136	125	160	141	125
124	117	95	77	66	60	61	61	70	87	102	106	113	125	116	145	130	117
125	111	88	70	62	58	58	58	65	79	96	96	104	116	109	131	117	111

126	108	82	64	59	56	56	55	60	73	88	88	96	109	103	117	107	108
127	95	76	60	56	54	54	53	57	67	81	81	89	100	98	109	99	95
128	88	71	58	54	52	52	51	54	62	74	75	83	92	94	98	91	88
129	83	66	55	52	50	50	48	52	58	69	71	77	84	86	89	85	83
130	77	62	53	50	48	48	46	50	55	64	69	73	78	78	81	80	77
131	72	60	51	48	46	46	44	47	53	59	66	69	72	73	74	75	72
132	67	57	49	46	44	44	42	45	50	55	62	66	69	69	69	71	67
133	62	55	47	44	42	41	40	43	48	52	58	63	65	66	66	68	62
134	59	53	45	42	40	39	38	41	46	50	55	60	63	64	63	65	59
135	55	51	43	40	38	37	36	38	43	47	51	57	60	61	60	62	55
136	53	48	41	38	36	35	34	36	40	45	49	55	58	59	57	58	53
137	50	46	39	35	34	33	31	34	38	42	47	53	56	57	55	55	50
138	47	44	37	33	31	31	29	32	35	40	44	50	54	55	53	52	47
139	44	41	34	31	29	29	27	29	32	38	42	48	51	53	50	50	44
140	41	39	32	29	27	27	25	27	30	35	40	46	49	50	48	47	41
141	38	36	30	28	25	25	24	25	27	33	37	43	47	48	46	44	38
142	35	33	28	26	24	23	22	23	25	31	35	41	45	46	43	42	35
143	32	31	27	24	22	21	20	21	23	29	33	39	42	43	41	39	32
144	30	28	25	22	20	20	19	20	22	27	31	37	40	41	39	37	30
145	28	26	23	21	19	18	17	18	20	25	29	35	38	39	37	34	28
146	25	24	21	19	17	17	16	17	19	23	27	33	35	37	34	32	25
147	23	22	20	18	16	16	15	15	17	22	25	31	33	35	32	29	23
148	21	20	19	16	14	14	14	14	16	20	24	29	31	33	30	27	21
149	18	19	17	15	13	13	13	13	15	18	22	27	29	31	28	25	18
150	17	18	16	14	12	12	12	11	13	17	21	25	26	28	26	23	17
151	15	17	14	13	11	11	11	10	12	16	19	23	24	26	24	21	15
152	14	16	13	12	10	10	10	9	11	14	18	21	23	24	22	20	14
153	13	15	12	11	9	9	9	8	9	13	16	19	21	23	20	19	13
154	12	14	11	10	9	8	8	7	8	12	15	18	19	21	19	18	12
155	12	12	10	9	8	8	8	6	7	11	13	16	18	19	17	16	12
156	11	11	9	9	7	7	7	6	6	10	13	14	16	17	16	15	11
157	11	10	9	8	6	6	6	5	6	9	12	13	15	16	14	14	11

158	10	9	8	7	6	6	6	5	6	9	11	11	13	14	13	12	10
159	9	8	8	7	5	5	6	5	5	8	10	10	12	13	13	11	9
160	8	7	7	6	5	5	5	4	5	8	9	9	10	12	12	10	8
161	7	6	7	6	4	4	5	4	5	7	8	9	9	11	11	9	7
162	7	6	6	5	4	4	4	4	4	6	8	8	8	10	10	9	7
163	6	5	6	5	4	4	4	3	4	6	7	7	8	9	9	8	6
164	6	5	5	4	3	3	3	3	4	5	6	7	7	8	8	7	6
165	5	5	5	4	3	3	3	3	3	5	6	6	6	7	8	7	5
166	5	4	4	4	3	3	3	3	3	4	5	5	5	7	7	6	5
167	4	4	4	3	3	3	2	2	3	4	4	5	5	6	7	5	4
168	4	3	4	3	2	2	3	2	2	3	4	4	5	5	6	5	4
169	3	3	3	3	2	2	2	2	2	3	3	4	4	5	5	4	3
170	3	3	3	3	2	2	2	2	2	3	3	3	4	4	5	4	3
171	3	3	3	3	2	2	2	2	2	2	3	3	3	4	4	3	3
172	2	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3	2
173	2	2	3	2	2	2	2	2	2	2	2	2	3	3	3	2	2
174	2	2	3	2	2	2	2	2	2	2	2	2	2	3	2	2	2
175	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
176	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
177	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
178	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
179	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
180	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Certificate#4810.01



ZONE	LUMENS	% LAMP LUMENS
FORWARD LIGHT	1808	36.7
FL (0°-30°)	138	2.8
FM (30°-60°)	685	13.9
FH (60°-80°)	662	13.4
FVH (80°-90°)	324	6.6
BACK LIGHT	1832	37.2
BL (0°-30°)	144	2.9
BM (30°-60°)	696	14.1
BH (60°-80°)	667	13.5
BVH (80°-90°)	325	6.6
UP LIGHT	1284	26.1
UL (90°-100°)	561	11.4
UH (100°-180°)	723	14.7
TRAPPED LIGHT	NA	NA

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2018-5-9	Test Ambient:	25.2 º C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-TCLW-P-50WACA1Z-57K		

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

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180401 8E-K2	120.0	60	0.4088	48.59	0.9905	6.54
	277.0	60	0.1927	47.72	0.894	15.13
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

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

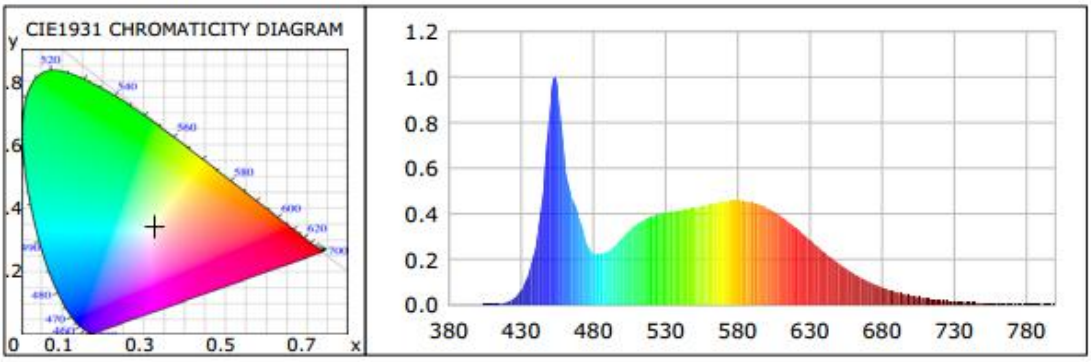
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	5812
Duv	0.00145
Chromaticity (x, y)	x=0.3256 y=0.3378
Chromaticity (u', v')	u(u')=0.2034 v'=0.4749
Color Rendering Index (CRI)	83.9
R9	0

Special Color Rendering Indices			
R1	83	R9	0
R2	91	R10	77
R3	94	R11	82
R4	82	R12	58
R5	83	R13	85
R6	85	R14	97
R7	86	R15	78
R8	68	--	--

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)	5259.38	5045.44	≤5000(-10%)
Luminous Efficacy (lm/W)	108.24	105.73	>= 90(-3%)
Most worst Luminous/Highest Watts	103.84		

Spectral Power Distribution & Chromaticity Diagram



Certificate#4810.01

Calculated Efficacy Data for family models (3500K,4000K,4500K and 5000K):

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-TCLW-P-50WACA1Z-30K	4924.27	47.88	102.85
AST-TCLW-P-50WACA1Z-35K	5008.05	48.24	103.83
AST-TCLW-P-50WACA1Z-40K	5063.90	48.24	104.98
AST-TCLW-P-50WACA1Z-45K	5119.75	48.24	106.14
AST-TCLW-P-50WACA1Z-50K	5175.60	48.24	107.30
AST-TCLW-P-50WACA1Z-57K	5259.38	48.59	108.24

3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometeric 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 ********