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-CLW07-054WBCA1-abcK
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-CLW07-054WBCA1-ab30K
AST-CLW07-054WBCA1-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

1.1 Product Information:

Organization Name	ASMART LIGHT CO., LTD	
Brand Name	ASMART	
Model Number	AST-CLW07-054WBCA1-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	54W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,5000K,5700K	
LED Manufacturer	Samsung Electronics Co., LTD.	
LED Model	SPMWH1228xxxxxxxxx	
Sample Number	BLC1808001E-D1(3000K),E2(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	Aug 10,2018
Date of Test	Aug 13,2018
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.

Certificate#4810.01

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	20118-8-13	Test Ambient:	25.2 º C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-CLW07-054WBCA1-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 1E-D1	120.0	60	0.4494	53.39	0.99	11.38
	277.0	60	0.2098	51.77	0.891	16.16
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

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

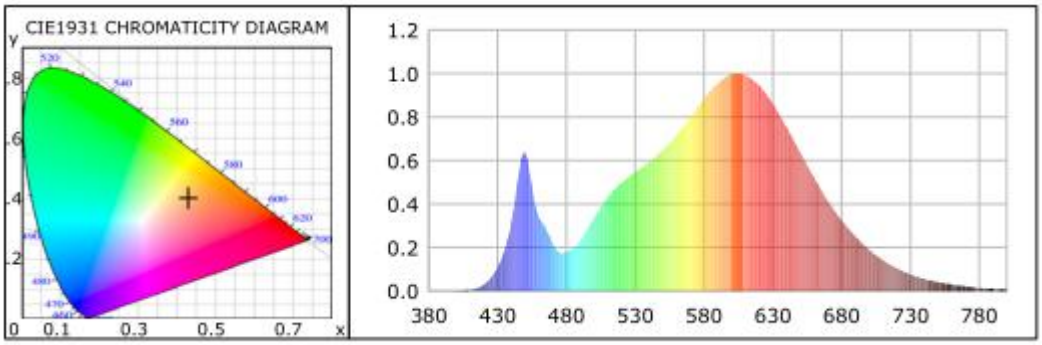
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3090
Duv	-0.00086
Chromaticity (x, y)	x=0.4295 y=0.3993
Chromaticity (u', v')	u(u')=0.2478 v'=0.5184
Color Rendering Index (CRI)	83.9
R9	16

Special Color Rendering Indices			
R1	82	R9	16
R2	90	R10	78
R3	96	R11	82
R4	83	R12	71
R5	83	R13	84
R6	88	R14	98
R7	84	R15	76
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)	6262.65	6015.16	5000-10000(-10%)
Luminous Efficacy (lm/W)	117.30	116.19	>= 90(-3%)
Most worst Luminous/Highest Watts	112.66		
Zonal lumens in the 0-90° zone (%)	81	--	>= 65(-3%)
Beam Angle (°)	172.9	--	--
Center Beam Candle Power (cd)	216	--	--

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

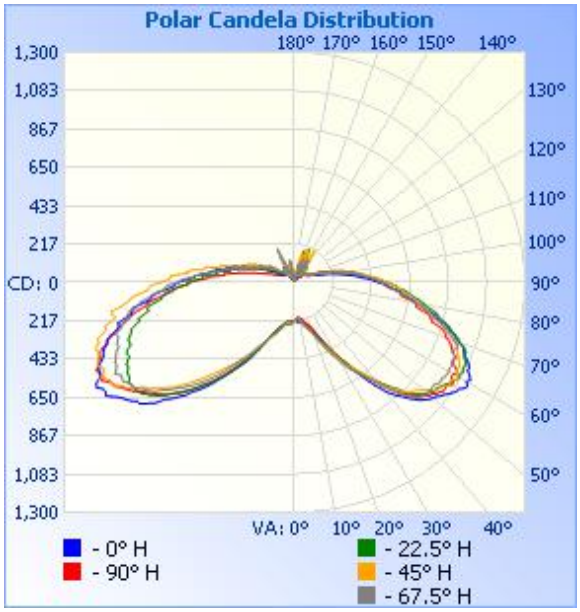
Zonal Lumen Summary

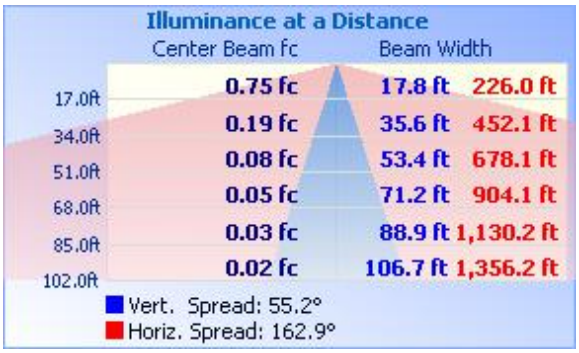
Zone	Lumens	% Lamp	% Luminaire
0-30	268.2	4.3%	4.3%
0-40	643.3	10.3%	10.3%
0-60	2,245.1	35.8%	35.8%
60-90	2,830.7	45.2%	45.2%
70-100	2,267.1	36.2%	36.2%
90-120	946.3	15.1%	15.1%
0-90	5,075.8	81%	81%
90-180	1,187.3	19%	19%
0-180	6,263.1	100%	100%

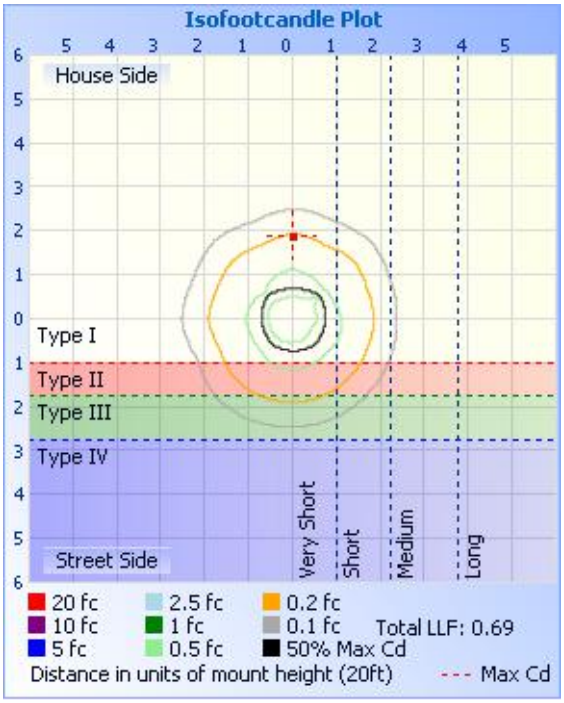
Lumens Per Zone

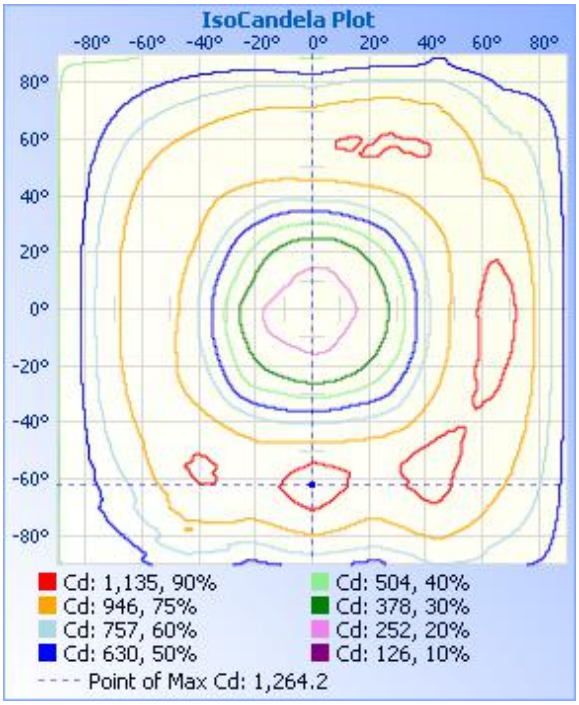
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	21.2	0.3%	90-100	510.6	8.2%
10-20	73.6	1.2%	100-110	289.4	4.6%
20-30	173.5	2.8%	110-120	146.3	2.3%
30-40	375.1	6.0%	120-130	84.9	1.4%
40-50	666.6	10.6%	130-140	55.6	0.9%
50-60	935.2	14.9%	140-150	40.4	0.6%
60-70	1,074.2	17.2%	150-160	38.0	0.6%
70-80	991.8	15.8%	160-170	20.2	0.3%
80-90	764.7	12.2%	170-180	1.8	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	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216
1	215	214	214	214	211	212	215	216	217	218	220	221	219	219	219	218	215
2	218	215	214	210	208	208	211	213	220	224	227	229	221	220	224	223	218
3	218	209	207	208	205	205	208	212	222	225	229	230	223	222	227	228	218
4	219	206	203	204	201	202	206	214	221	222	227	232	225	227	233	235	219
5	225	209	205	205	199	200	205	215	219	220	226	235	232	231	233	239	225
6	227	214	209	207	200	201	206	215	220	219	226	236	236	236	233	233	227
7	223	217	214	211	202	202	207	215	222	221	226	241	236	240	231	230	223
8	221	219	221	216	204	203	209	219	226	220	226	243	235	244	231	229	221
9	224	225	227	221	206	207	212	223	228	220	226	241	234	244	232	228	224
10	227	229	236	226	209	209	217	228	229	222	232	240	234	243	235	229	227
11	231	235	244	232	212	213	223	232	231	226	237	240	236	242	238	231	231
12	236	242	251	237	217	218	229	237	233	232	242	244	237	243	242	233	236
13	241	248	256	244	222	224	234	245	237	238	248	247	240	245	247	236	241
14	246	253	261	252	227	228	242	251	243	244	256	253	244	249	253	242	246
15	251	259	270	259	234	233	251	258	250	250	266	260	249	254	261	249	251
16	257	268	276	267	240	236	259	262	256	257	270	269	257	261	269	257	257
17	266	274	282	276	246	244	266	268	264	263	277	278	265	270	277	266	266
18	275	282	291	287	253	255	272	276	269	270	286	285	274	279	286	276	275
19	285	290	299	300	261	266	279	284	276	277	297	297	285	289	295	286	285
20	296	299	310	315	269	276	289	293	285	286	308	304	295	300	304	295	296
21	308	310	323	330	281	289	299	305	295	296	315	311	305	311	314	305	308
22	320	322	339	347	295	304	310	318	308	309	322	321	315	323	327	317	320
23	336	337	355	366	310	318	322	331	323	323	334	332	326	335	337	329	336
24	351	352	370	388	329	335	335	348	340	337	344	345	339	349	347	341	351
25	370	370	387	409	350	355	351	365	361	356	352	355	353	360	361	357	370
26	391	390	407	430	372	376	366	384	383	375	366	367	368	376	375	373	391
27	413	411	427	452	394	397	383	404	405	397	385	380	383	392	391	395	413
28	439	434	448	470	421	421	398	425	428	421	403	396	403	410	409	417	439
29	464	457	469	492	445	442	412	450	454	447	421	413	424	429	432	442	464

Certificate#4810.01

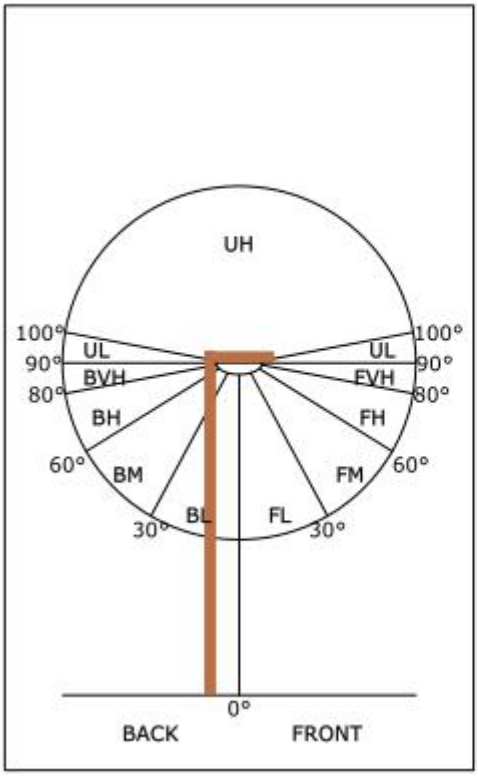
30	487	481	492	520	471	466	428	474	485	474	439	433	448	449	453	469	487
31	515	504	519	541	495	488	442	498	512	499	460	455	473	471	480	498	515
32	548	525	544	565	524	508	459	522	537	523	482	477	502	495	507	531	548
33	577	545	562	586	553	531	476	544	559	548	505	497	528	521	531	559	577
34	600	573	581	605	585	555	495	569	584	578	525	519	557	551	554	591	600
35	631	604	600	626	613	581	519	591	612	608	547	541	586	580	579	624	631
36	665	635	620	649	634	610	543	612	637	632	564	564	617	608	598	652	665
37	702	665	643	671	655	636	567	636	668	658	584	597	648	635	622	676	702
38	736	689	674	695	676	660	593	665	696	685	604	629	677	665	650	702	736
39	770	714	707	728	705	685	619	689	731	713	625	663	704	693	684	730	770
40	808	736	742	763	730	708	653	717	762	741	650	691	732	717	719	763	808
41	833	764	774	793	761	739	687	749	792	764	674	718	756	737	748	795	833
42	861	790	804	821	793	763	718	779	819	790	699	743	781	760	774	823	861
43	878	813	823	858	835	787	746	810	844	815	725	773	813	782	800	853	878
44	904	838	852	885	864	808	784	840	886	841	757	798	844	805	821	876	904
45	929	875	868	908	891	825	805	863	908	862	784	826	873	832	842	904	929
46	951	897	892	938	916	835	838	881	939	890	814	845	898	852	858	931	951
47	975	928	909	957	936	853	872	905	964	913	847	875	920	870	878	959	975
48	989	942	912	967	953	873	892	921	987	941	867	891	941	884	897	983	989
49	1005	963	927	976	973	893	930	947	1038	972	905	922	966	899	924	1004	1005
50	1017	976	949	983	997	916	956	965	1059	997	918	944	983	913	938	1029	1017
51	1025	986	961	976	1001	922	967	967	1090	1015	949	966	999	934	966	1052	1025
52	1043	1002	987	979	1020	939	975	974	1111	1037	972	1001	1019	952	982	1072	1043
53	1054	1000	1011	977	1028	970	995	980	1113	1047	986	1017	1036	959	1005	1100	1054
54	1072	1008	1011	979	1041	975	1010	990	1139	1069	1021	1034	1050	982	1032	1119	1072
55	1087	1017	1025	994	1041	973	1021	996	1156	1076	1033	1046	1078	978	1047	1130	1087
56	1102	1031	1046	996	1036	988	1039	1003	1170	1083	1063	1071	1096	996	1069	1138	1102
57	1105	1046	1046	992	1062	1000	1068	1019	1189	1084	1096	1083	1117	983	1073	1140	1105
58	1129	1044	1041	1003	1057	1005	1092	1032	1217	1087	1120	1088	1131	1000	1097	1153	1129
59	1139	1066	1062	1004	1032	1006	1110	1036	1242	1094	1134	1100	1147	1008	1111	1128	1139
60	1122	1072	1068	1005	1034	1017	1113	1041	1233	1077	1161	1118	1173	994	1110	1146	1122
61	1135	1068	1050	1000	1053	1024	1137	1048	1239	1075	1187	1114	1176	1017	1126	1145	1135

62	1120	1077	1042	1004	1032	1038	1176	1060	1264	1069	1178	1113	1193	1004	1136	1125	1120
63	1098	1067	1046	999	1002	1018	1161	1060	1258	1053	1198	1138	1222	1000	1140	1146	1098
64	1098	1070	1036	993	998	1005	1155	1044	1222	1056	1220	1122	1206	1006	1143	1135	1098
65	1083	1069	1023	1004	1008	1012	1168	1036	1211	1039	1186	1109	1216	999	1152	1126	1083
66	1062	1050	1011	978	979	1009	1191	1052	1211	1022	1185	1110	1224	988	1148	1129	1062
67	1042	1041	1001	973	966	993	1154	1057	1202	1030	1206	1097	1207	976	1134	1102	1042
68	1031	1045	993	990	953	972	1141	1034	1173	1020	1199	1088	1195	963	1124	1108	1031
69	1024	1021	978	988	939	953	1138	1021	1158	992	1187	1076	1173	954	1122	1106	1024
70	990	989	958	958	911	945	1138	1027	1150	991	1172	1056	1176	943	1105	1079	990
71	966	978	931	943	904	932	1119	1031	1136	994	1181	1061	1150	932	1078	1070	966
72	947	951	900	919	883	908	1101	1012	1113	978	1180	1050	1116	921	1062	1050	947
73	914	925	881	889	855	889	1106	986	1108	965	1154	1040	1101	907	1043	1025	914
74	893	909	869	866	809	855	1069	962	1080	960	1158	1051	1067	893	1019	1011	893
75	861	883	835	839	797	821	1018	934	1040	932	1122	1019	1041	873	1001	982	861
76	831	847	797	809	790	812	1019	916	1021	902	1096	1004	1014	845	963	943	831
77	814	831	787	779	769	811	1046	909	1025	906	1100	993	979	826	966	932	814
78	778	817	776	756	721	772	990	867	981	872	1060	956	951	809	941	904	778
79	745	782	743	733	698	732	925	836	940	840	1031	958	931	800	886	852	745
80	720	748	713	699	698	727	931	820	931	844	1044	951	894	778	880	822	720
81	696	734	698	676	687	736	966	815	925	831	1049	903	851	726	855	812	696
82	667	710	683	651	640	700	911	774	876	792	997	889	838	724	819	768	667
83	636	676	662	635	605	654	836	736	827	758	962	869	808	687	797	721	636
84	616	662	642	612	608	638	827	720	814	754	935	830	758	649	751	691	616
85	595	642	620	586	601	658	860	716	798	724	920	810	736	642	737	679	595
86	570	617	604	564	572	629	816	685	766	689	872	779	715	610	722	645	570
87	544	585	589	548	530	593	764	654	724	674	830	733	683	576	656	595	544
88	519	576	567	532	525	567	734	633	692	655	820	729	645	556	641	580	519
89	503	547	544	510	519	578	754	621	676	604	804	715	608	526	645	566	503
90	479	526	529	487	503	555	721	600	661	610	760	654	593	508	581	529	479
91	454	501	507	474	470	532	692	580	627	588	722	645	565	481	544	491	454
92	437	483	489	459	453	511	659	562	599	536	704	619	521	443	548	485	437
93	414	458	466	442	441	504	652	539	569	517	698	581	492	446	513	464	414

94	387	432	445	422	432	476	623	518	560	524	657	560	478	421	476	416	387
95	368	406	422	402	406	459	610	506	532	494	605	531	434	366	457	401	368
96	353	392	411	387	394	452	584	495	501	437	610	498	400	383	439	398	353
97	326	378	385	371	380	431	562	460	479	451	580	482	399	367	419	358	326
98	308	348	366	357	362	397	531	440	469	437	517	450	364	309	377	333	308
99	288	323	344	329	346	387	521	437	447	408	515	415	329	327	359	335	288
100	268	320	326	315	340	383	510	420	420	367	504	412	320	306	351	305	268
101	250	306	312	306	321	364	486	385	402	386	444	374	294	262	309	278	250
102	232	271	284	281	297	333	450	370	393	363	426	366	265	275	283	276	232
103	217	256	265	256	288	323	438	370	369	317	427	351	249	249	279	252	217
104	200	254	251	251	279	315	431	341	345	328	391	294	227	225	245	231	200
105	181	224	232	235	250	302	403	323	330	316	351	359	201	231	218	217	181
106	167	197	205	214	236	273	365	312	306	274	351	293	183	192	209	200	167
107	150	194	195	206	223	259	356	298	285	273	336	244	166	197	187	189	150
108	137	184	185	193	202	249	338	276	270	256	278	311	154	196	176	172	137
109	129	158	165	175	194	232	312	262	249	233	309	250	148	168	169	172	129
110	122	148	153	162	181	212	281	252	226	232	276	215	142	187	159	171	122
111	115	145	146	149	162	196	265	230	215	210	235	257	127	159	151	148	115
112	109	132	134	139	158	188	247	219	202	209	283	225	118	154	142	151	109
113	103	122	125	129	148	175	221	210	182	196	232	226	109	157	131	132	103
114	98	121	120	123	127	162	204	188	180	180	235	217	100	125	120	127	98
115	92	114	112	118	120	150	182	178	162	180	253	178	94	141	113	125	92
116	88	104	107	110	114	143	170	173	146	162	197	215	90	130	105	104	88
117	85	100	102	105	101	130	161	153	146	153	222	181	87	112	100	97	85
118	82	97	97	100	93	119	142	149	126	160	204	190	85	124	97	92	82
119	80	92	94	95	89	113	136	139	126	136	188	171	83	100	96	90	80
120	79	90	90	91	87	108	134	130	112	131	192	145	82	120	97	88	79
121	78	88	88	88	82	102	120	128	104	122	166	163	81	102	95	88	78
122	77	86	86	87	78	97	118	117	102	105	173	140	80	98	94	87	77
123	76	85	84	85	75	93	110	112	90	115	167	167	79	99	94	87	76
124	76	84	81	82	72	89	103	102	84	99	168	138	78	99	94	86	76
125	75	82	79	80	70	86	103	94	81	120	151	155	77	100	95	86	75

126	74	81	78	79	68	84	94	88	79	96	146	129	77	101	95	86	74
127	73	79	78	79	66	81	91	84	78	118	131	102	77	101	96	86	73
128	72	77	76	78	65	79	89	82	77	95	100	98	77	101	97	85	72
129	70	75	74	75	64	76	87	81	76	94	98	95	77	101	97	85	70
130	68	71	71	72	62	73	85	79	74	94	96	94	78	101	97	84	68
131	66	68	67	68	61	70	84	78	73	93	94	93	78	100	98	84	66
132	64	65	64	64	60	67	80	76	72	92	92	90	78	99	98	83	64
133	62	63	61	61	58	64	78	75	71	91	90	86	78	98	98	81	62
134	59	60	62	58	56	61	74	73	69	89	88	83	77	96	95	78	59
135	57	64	86	56	54	57	70	71	67	86	86	80	75	93	92	75	57
136	54	78	108	54	52	54	66	68	65	83	83	77	74	91	88	71	54
137	51	95	88	52	49	52	61	66	62	79	78	72	72	88	83	67	51
138	48	52	56	52	47	48	55	62	59	74	72	65	70	85	79	62	48
139	46	50	55	74	44	45	50	59	56	70	68	60	68	81	74	57	46
140	44	67	82	72	42	42	46	56	53	65	64	59	65	75	67	52	44
141	44	73	69	44	39	40	42	52	50	61	60	97	61	70	60	48	44
142	66	112	47	62	37	38	39	48	46	55	57	105	57	65	53	44	66
143	64	102	86	81	36	36	37	45	43	50	54	78	52	61	47	42	64
144	64	97	125	96	33	34	35	42	40	45	50	73	48	89	42	64	64
145	80	126	156	94	32	32	34	39	38	40	69	103	44	81	38	67	80
146	81	100	186	115	30	30	32	37	36	37	64	76	39	71	59	88	81
147	63	97	204	149	28	29	31	35	34	35	36	71	43	72	60	87	63
148	65	81	213	137	26	27	30	33	32	33	52	68	98	92	69	89	65
149	88	104	180	80	24	26	29	31	31	32	85	123	46	91	105	92	88
150	88	106	167	119	22	25	27	30	29	30	92	162	33	89	113	110	88
151	90	125	170	118	21	23	26	29	27	29	89	148	56	63	121	120	90
152	100	107	142	142	19	22	25	27	26	28	115	196	86	32	121	121	100
153	107	155	108	88	18	21	24	26	25	27	143	213	58	46	120	124	107
154	108	150	87	59	17	20	23	24	23	27	95	129	56	87	124	125	108
155	130	172	129	40	17	19	22	23	22	32	113	58	69	93	141	110	130
156	159	201	176	72	16	19	21	22	21	53	107	59	84	136	201	103	159
157	176	171	193	87	16	18	21	21	20	54	97	80	82	86	201	133	176

158	194	186	150	100	15	18	21	21	19	55	91	37	107	75	180	105	194
159	172	173	155	78	15	19	52	20	18	83	91	58	91	57	186	104	172
160	151	158	200	107	14	35	54	31	17	57	90	60	58	115	169	119	151
161	135	169	182	90	13	49	84	19	16	54	77	32	73	136	151	102	135
162	95	162	153	120	12	46	68	26	15	55	99	37	80	124	124	129	95
163	70	187	126	89	11	14	16	30	14	80	101	52	63	89	104	108	70
164	65	167	136	95	10	12	15	14	13	58	75	63	79	91	115	123	65
165	49	156	135	100	10	11	13	13	13	51	104	67	83	92	123	104	49
166	36	124	168	111	11	11	12	12	12	32	112	73	89	67	97	102	36
167	32	114	116	100	11	10	12	11	12	49	130	76	50	94	98	108	32
168	30	60	135	96	11	10	11	10	12	49	108	112	21	75	70	110	30
169	27	59	132	91	11	9	10	9	12	39	94	125	11	67	72	108	27
170	25	31	71	31	10	8	10	9	12	49	53	107	10	47	58	45	25
171	22	25	52	23	9	8	9	9	13	41	41	39	9	33	42	47	22
172	21	21	22	19	8	7	8	9	13	21	73	55	10	24	23	46	21
173	17	16	18	15	8	7	8	9	12	24	43	16	10	15	18	39	17
174	13	15	18	14	10	7	8	9	11	19	11	16	9	12	13	22	13
175	11	14	14	13	10	8	8	9	10	10	14	14	9	11	11	12	11
176	12	13	14	14	11	8	8	9	10	10	13	8	10	11	12	10	12
177	12	13	13	13	12	9	9	10	10	11	10	9	11	12	11	10	12
178	12	12	13	12	12	10	9	9	10	10	10	10	11	11	10	10	12
179	11	11	12	12	12	11	9	9	10	10	10	10	11	11	10	10	11
180	11	11	11	11	12	11	9	9	11	11	11	11	11	11	9	9	11



ZONE	LUMENS	% LAMP LUMENS
FORWARD LIGHT	2484	39.7
FL (0°-30°)	136	2.2
FM (30°-60°)	997	15.9
FH (60°-80°)	999	16.0
FVH (80°-90°)	351	5.6
BACK LIGHT	2592	41.4
BL (0°-30°)	132	2.1
BM (30°-60°)	980	15.6
BH (60°-80°)	1067	17.0
BVH (80°-90°)	413	6.6
UP LIGHT	1187	19.0
UL (90°-100°)	511	8.2
UH (100°-180°)	677	10.8
TRAPPED LIGHT	NA	NA

Certificate#4810.01

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2018-8-13	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-CLW07-054WBCA1-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 1E-D2	120.0	60	0.4500	53.41	0.9891	11.28
	277.0	60	0.2079	52.03	0.9034	15.9
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

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

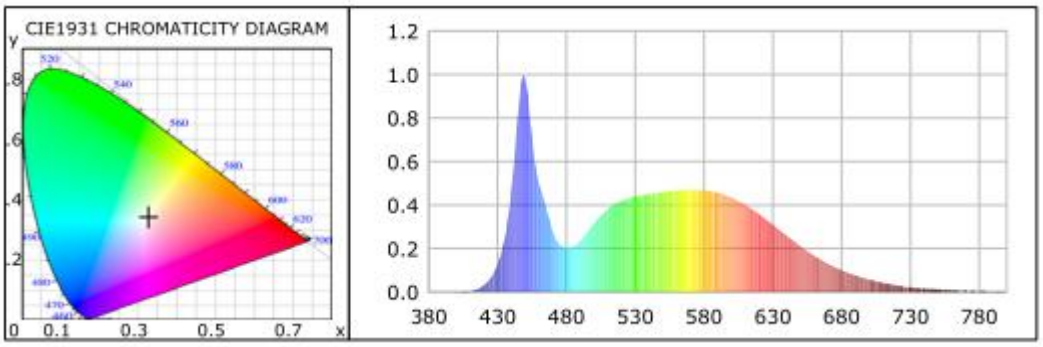
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	5782
Duv	0.00162
Chromaticity (x, y)	x=0.3263 y=0.3387
Chromaticity (u', v')	u(u')=0.2035 v'=0.4754
Color Rendering Index (CRI)	83.7
R9	14

Special Color Rendering Indices			
R1	83	R9	14
R2	87	R10	70
R3	90	R11	84
R4	85	R12	61
R5	83	R13	84
R6	82	R14	95
R7	88	R15	78
R8	72	--	--

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)	6583.85	6369.51	5000-10000(-10%)
Luminous Efficacy (lm/W)	123.27	122.42	>= 90(-3%)
Most worst Luminous/Highest Watts	119.26		

Spectral Power Distribution & Chromaticity Diagram



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

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-CLW07-054WBCA1-ab30K	6262.65	53.39	117.3
AST-CLW07-054WBCA1-ab35K	6316.18	53.40	118.28
AST-CLW07-054WBCA1-ab40K	6369.72	53.40	119.28
AST-CLW07-054WBCA1-ab50K	6423.25	53.40	120.29
AST-CLW07-054WBCA1-ab57K	6583.85	53.41	123.27

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 ******