



Report No.: BLC1808024E-C

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 High Bay Luminaires (UL Type B)

Model name(s): AST-CLW07-125WBCA1-acK

Remark: "a" refers to lamp base, "E" is E39 lamp base, "EX" is EX39 lamp base.

"cK" refers to CCT, can be 30K, 35K, 40K, 50K, 57K.

Representative (Tested) Model: AST-CLW07-125WBCA1-a30K
AST-CLW07-125WBCA1-a57K

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

Test & Report By:

Grace Li

Engineer: Grace Li

Date: September 6, 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-CLW07-125WBCA1-acK	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Replacement Lamps for High Bay Luminaires (UL Type B)	
Rated Voltage / Frequency	100-277Vac, 50/60 Hz	
Nominal Power	125W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,3500K,4000K,5000K,5700K	
LED Manufacturer	Samsung Electronics Co., LTD.	
LED Model	SPMWH1228xxxxxxxxxx	
Sample Number	BLC1808024E-C1(3000K),C2(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 29,2018
Date of Test	Aug 31,2018
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	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° 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 BL-QP-033)*

Test date	2018-8-31	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-CLW07-125WBCA1-a30K		

Electrical Measurement in Lithonia THD 400S A15:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180802	120.0	60	1.048	125.45	0.998	1.99
4E-C1	277.0	60	0.454	119.45	0.950	7.59
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia THD 400S A15:

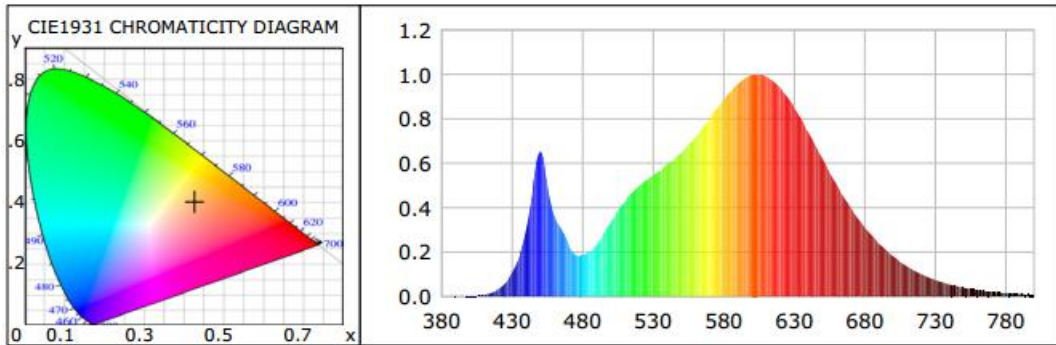
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	14
Frequency (Hz)	60	R2	90	R10	78
CCT (K)	3115	R3	96	R11	82
Duv	-0.00102	R4	82	R12	71
Chromaticity (x, y)	x=0.4276 y=0.3982	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2471 v'(v')=0.5177	R6	88	R14	98
Color Rendering Index (CRI)	83.6	R7	84	R15	76
R9	14	R8	63	--	--

Photometric Measurement – Goniophotometer Method in Lithonia THD 400S A15:

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	14645.03	14098.68	>=10000(-10%)
Luminous Efficacy (lm/W)	116.74	118.03	>= 100(-3%)
Most worst Luminous/Highest Watts	112.38		
Zonal lumens in the 20-50° zone (%)	45.3	--	>= 30(-10)
Beam Angle (°)	131.7	--	--
Center Beam Candle Power (cd)	2580	--	--



Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary

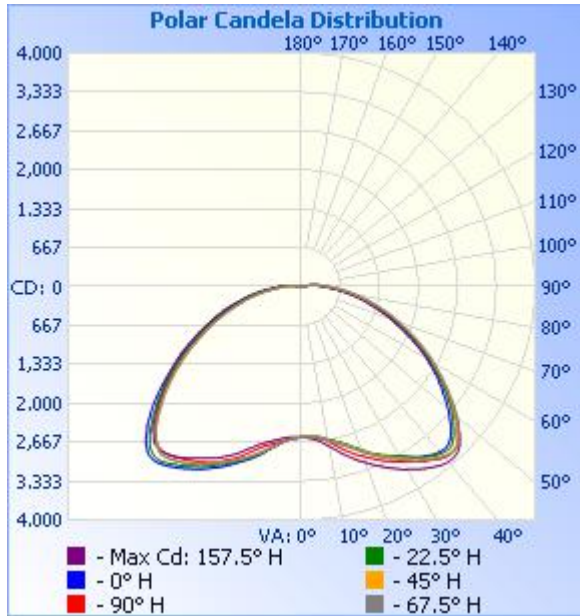
Zone	Lumens	% Lamp	% Luminaire
0-30	2,610.5	17.8%	17.8%
0-40	4,907.1	33.5%	33.5%
0-60	10,305.0	70.4%	70.4%
60-90	3,996.4	27.3%	27.3%
70-100	2,264.2	15.5%	15.5%
90-120	312.6	2.1%	2.1%
0-90	14,301.5	97.7%	97.7%
90-180	342.9	2.3%	2.3%
0-180	14,644.4	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	253.0	1.7%	90-100	270.9	1.8%
10-20	827.8	5.7%	100-110	35.6	0.2%
20-30	1,529.7	10.4%	110-120	6.1	0%
30-40	2,296.5	15.7%	120-130	6.5	0%
40-50	2,811.2	19.2%	130-140	6.5	0%
50-60	2,586.8	17.7%	140-150	6.7	0%
60-70	2,003.2	13.7%	150-160	6.0	0%
70-80	1,317.7	9.0%	160-170	3.6	0%
80-90	675.6	4.6%	170-180	1.1	0%



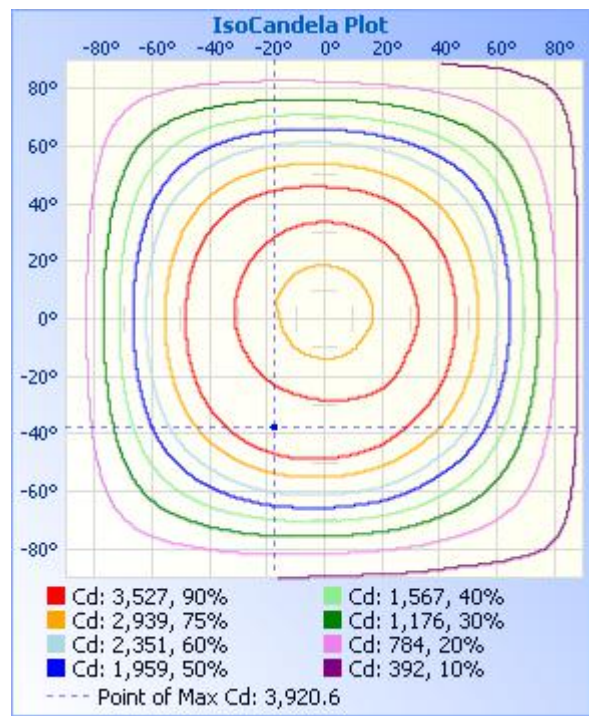
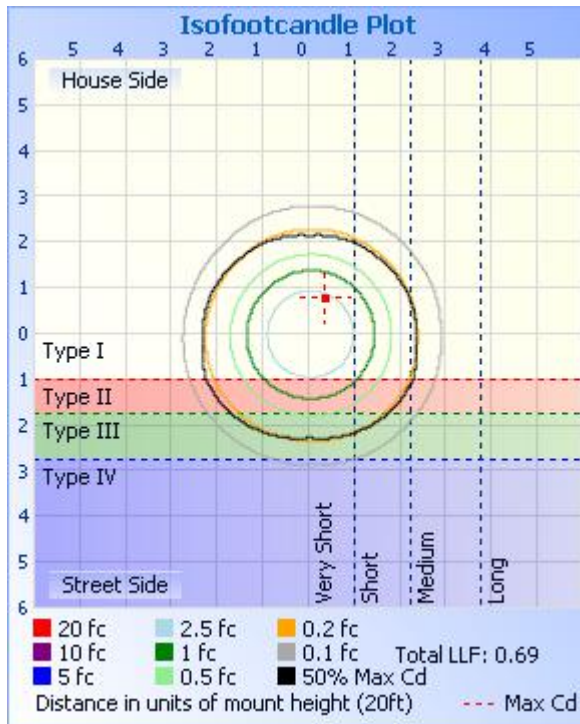
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	8.93 fc	73.5 ft	54.1 ft
34.0ft	2.23 fc	147.0 ft	108.3 ft
51.0ft	0.99 fc	220.5 ft	162.4 ft
68.0ft	0.56 fc	294.0 ft	216.5 ft
85.0ft	0.36 fc	367.6 ft	270.7 ft
102.0ft	0.25 fc	441.1 ft	324.8 ft

■ Vert. Spread: 130.4°
■ Horiz. Spread: 115.7°





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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	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580
1	2577	2574	2571	2571	2580	2578	2581	2587	2585	2589	2584	2585	2588	2580	2578	2577	2577
2	2568	2566	2564	2571	2581	2579	2586	2592	2594	2598	2591	2594	2601	2587	2581	2576	2568
3	2572	2569	2566	2574	2585	2583	2593	2601	2607	2609	2605	2605	2604	2595	2587	2579	2572
4	2581	2574	2571	2576	2590	2594	2604	2612	2620	2619	2617	2615	2615	2606	2595	2583	2581
5	2586	2580	2578	2582	2595	2602	2615	2628	2637	2637	2638	2633	2631	2621	2609	2592	2586
6	2593	2586	2586	2594	2606	2620	2637	2646	2656	2660	2657	2650	2655	2637	2617	2604	2593
7	2606	2596	2601	2613	2625	2639	2658	2676	2691	2690	2685	2683	2674	2659	2636	2619	2606
8	2622	2617	2626	2638	2641	2659	2691	2709	2723	2721	2717	2711	2691	2677	2656	2639	2622
9	2644	2644	2651	2659	2669	2696	2723	2747	2762	2761	2753	2744	2713	2695	2678	2655	2644
10	2663	2663	2676	2687	2701	2732	2759	2781	2798	2796	2784	2776	2730	2709	2695	2677	2663
11	2687	2686	2696	2709	2740	2772	2799	2820	2835	2824	2818	2808	2754	2730	2711	2698	2687
12	2701	2708	2717	2741	2778	2808	2840	2865	2875	2867	2857	2847	2778	2755	2737	2718	2701
13	2728	2732	2744	2769	2822	2858	2888	2916	2929	2916	2900	2884	2803	2780	2762	2746	2728
14	2760	2758	2770	2796	2864	2906	2935	2960	2970	2953	2933	2926	2836	2811	2794	2772	2760
15	2783	2781	2801	2822	2906	2947	2969	3000	3012	2995	2964	2961	2871	2850	2825	2800	2783
16	2820	2814	2829	2854	2943	2986	3012	3042	3056	3032	3006	3002	2914	2892	2864	2837	2820
17	2860	2852	2868	2893	2985	3027	3053	3087	3097	3069	3044	3042	2957	2937	2911	2884	2860
18	2898	2891	2905	2929	3028	3066	3093	3133	3133	3112	3086	3090	3005	2978	2953	2920	2898
19	2937	2931	2944	2970	3063	3106	3130	3168	3170	3148	3116	3119	3055	3030	3001	2963	2937
20	2982	2975	2990	3013	3093	3141	3171	3207	3209	3180	3153	3146	3106	3078	3052	3015	2982
21	3028	3016	3037	3058	3132	3179	3214	3251	3255	3219	3187	3186	3149	3131	3094	3061	3028
22	3074	3064	3074	3097	3172	3222	3258	3294	3294	3261	3225	3225	3189	3176	3136	3105	3074
23	3114	3104	3118	3145	3210	3259	3299	3336	3337	3294	3254	3263	3226	3213	3177	3145	3114
24	3151	3136	3160	3184	3253	3300	3344	3373	3379	3338	3287	3302	3265	3252	3211	3182	3151
25	3191	3178	3197	3222	3288	3340	3381	3419	3419	3373	3322	3334	3305	3299	3256	3224	3191
26	3228	3213	3234	3266	3328	3379	3422	3458	3454	3410	3361	3375	3343	3333	3295	3264	3228
27	3264	3246	3269	3300	3360	3417	3461	3496	3495	3447	3389	3405	3372	3369	3328	3297	3264
28	3295	3281	3310	3341	3398	3454	3500	3537	3534	3483	3421	3445	3404	3404	3359	3326	3295
29	3326	3315	3354	3383	3433	3494	3543	3583	3579	3525	3463	3482	3433	3431	3384	3360	3326

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32	3440	3438	3482	3513	3533	3609	3658	3682	3679	3629	3558	3574	3519	3521	3486	3466	3440
33	3483	3487	3527	3563	3573	3653	3702	3727	3714	3664	3596	3612	3544	3552	3521	3502	3483
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35	3563	3570	3608	3635	3658	3724	3774	3791	3781	3729	3654	3664	3592	3611	3587	3578	3563
36	3592	3611	3645	3669	3683	3759	3808	3823	3811	3758	3678	3689	3617	3643	3621	3611	3592
37	3621	3646	3681	3706	3718	3795	3839	3853	3843	3792	3704	3708	3644	3675	3653	3642	3621
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39	3676	3708	3755	3773	3794	3847	3888	3903	3893	3841	3737	3742	3678	3719	3699	3688	3676
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42	3707	3755	3823	3840	3838	3887	3909	3917	3900	3829	3699	3685	3682	3715	3709	3698	3707
43	3686	3754	3825	3840	3834	3879	3898	3906	3873	3797	3652	3639	3648	3681	3681	3687	3686
44	3660	3719	3814	3831	3813	3840	3873	3877	3819	3751	3585	3599	3599	3635	3635	3647	3660
45	3614	3681	3780	3797	3771	3794	3817	3829	3781	3682	3542	3532	3553	3588	3572	3584	3614
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47	3501	3567	3664	3692	3654	3671	3687	3700	3622	3533	3378	3395	3414	3465	3444	3474	3501
48	3418	3499	3594	3618	3590	3606	3621	3623	3563	3445	3302	3315	3337	3382	3361	3384	3418
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53	3037	3134	3191	3229	3178	3198	3188	3175	3096	2995	2860	2885	2946	2994	2987	2996	3037
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60	2494	2554	2601	2625	2569	2549	2522	2505	2415	2355	2234	2255	2341	2410	2409	2440	2494
61	2408	2484	2528	2544	2488	2478	2412	2404	2327	2262	2154	2165	2252	2343	2327	2361	2408

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67	1885	1959	2018	2015	1950	1935	1894	1869	1801	1755	1649	1656	1731	1793	1816	1830	1885
68	1810	1879	1939	1957	1864	1857	1795	1777	1741	1674	1587	1591	1648	1728	1715	1761	1810
69	1723	1813	1841	1851	1787	1783	1738	1712	1655	1615	1504	1501	1583	1644	1649	1676	1723
70	1658	1719	1786	1787	1713	1694	1649	1622	1582	1523	1432	1416	1491	1554	1565	1616	1658
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72	1512	1582	1624	1627	1568	1542	1496	1467	1407	1370	1267	1269	1337	1424	1437	1467	1512
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74	1375	1440	1457	1462	1407	1387	1340	1318	1257	1222	1146	1140	1199	1258	1277	1321	1375
75	1300	1353	1395	1401	1340	1318	1264	1231	1193	1153	1068	1064	1121	1191	1205	1253	1300
76	1221	1270	1308	1329	1254	1246	1196	1171	1127	1072	1007	1017	1053	1108	1125	1186	1221
77	1153	1203	1230	1235	1194	1184	1146	1119	1050	1021	956	961	1001	1041	1063	1099	1153
78	1083	1131	1171	1187	1132	1105	1054	1034	995	959	882	881	927	974	1002	1042	1083
79	1023	1057	1095	1119	1052	1037	995	980	933	891	831	833	870	898	929	985	1023
80	957	999	1027	1039	990	987	944	918	852	835	772	774	816	844	861	921	957
81	889	925	975	986	930	897	853	834	805	764	700	703	740	783	815	858	889
82	835	868	897	918	848	839	802	795	731	701	660	655	680	709	750	803	835
83	783	825	840	851	802	792	749	720	670	658	611	601	646	669	689	734	783
84	714	757	797	806	736	711	668	652	624	572	526	529	568	624	649	684	714
85	665	696	718	732	666	662	630	614	545	518	488	494	515	542	588	645	665
86	614	651	662	666	626	613	558	526	500	484	440	443	481	500	521	568	614
87	539	584	615	626	557	534	503	495	469	426	391	392	408	453	486	512	539
88	498	514	528	536	500	507	481	464	408	401	381	383	389	394	425	480	498
89	460	482	491	502	476	472	421	410	395	378	343	343	379	386	392	416	460
90	402	437	463	478	415	415	399	401	367	326	307	308	320	358	384	395	402
91	392	400	410	416	397	407	381	360	321	315	299	299	309	311	339	385	392
92	372	388	393	403	381	359	324	322	308	291	254	258	293	305	310	330	372
93	321	352	372	379	322	327	313	302	272	245	232	234	244	272	302	314	321

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94	313	321	325	327	311	310	280	260	239	232	217	221	231	235	259	301	313
95	289	306	312	318	288	262	239	237	225	202	178	186	215	227	234	251	289
96	246	276	289	292	236	237	227	215	185	163	156	160	172	201	225	238	246
97	237	242	244	247	224	223	195	171	158	148	138	142	153	163	191	222	237
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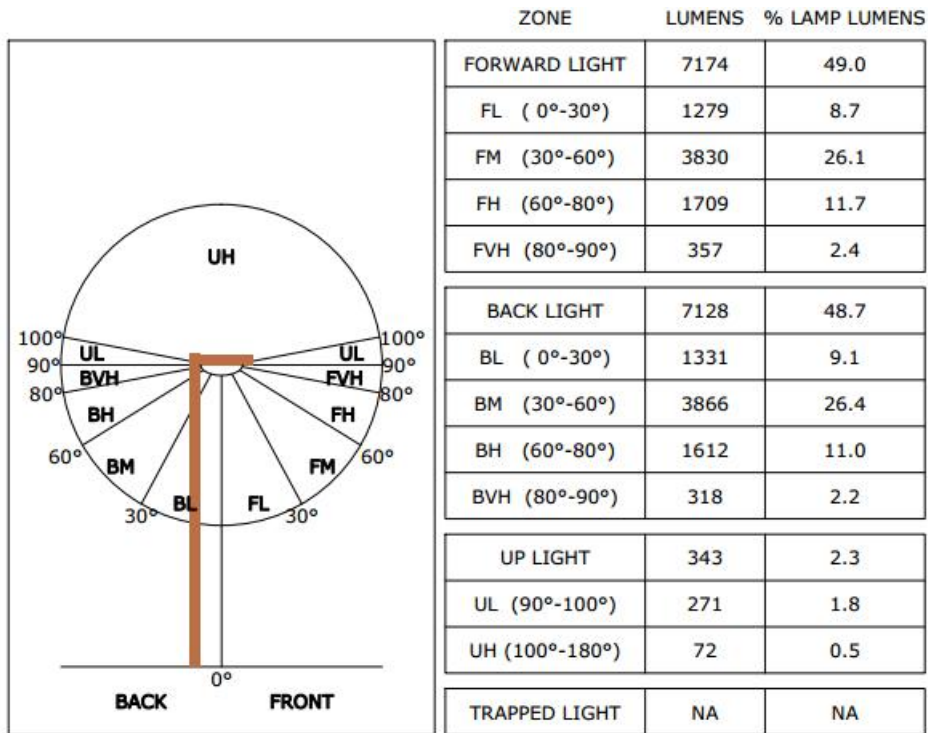
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**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

Test date	2018-8-31	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-CLW07-125WBCA1-a57K		

Electrical Measurement in Lithonia THD 400S A15:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180802	120.0	60	1.046	125.27	0.9983	2.14
4E-C2	277.0	60	0.452	119.17	0.9512	7.63
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method in Lithonia THD 400S A15:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	14
Frequency (Hz)	60	R2	88	R10	70
CCT (K)	5942	R3	90	R11	84
Duv	0.00147	R4	85	R12	60
Chromaticity (x, y)	x=0.3230 y=0.3355	R5	84	R13	84
Chromaticity (u', v')	u(u')=0.2025 v'(v')=0.4733	R6	83	R14	95
Color Rendering Index (CRI)	83.9	R7	88	R15	79
R9	14	R8	72	--	--

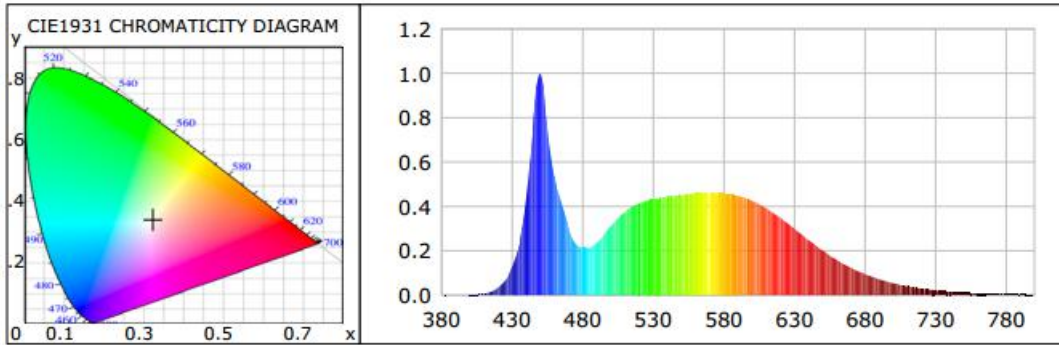
Photometric Measurement – Sphere-Spectroradiometer Method in Lithonia THD 400S A15:

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	15474.60	14883.14	>=10000(-10%)
Luminous Efficacy (lm/W)	123.53	124.89	>= 100(-3%)
Most worst Luminous/Highest Watts	118.81		



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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-CLW07-125WBCA1-a30K	14645.03	125.45	116.74
AST-CLW07-125WBCA1-a35K	14810.94	125.36	118.15
AST-CLW07-125WBCA1-a40K	14976.86	125.36	119.47
AST-CLW07-125WBCA1-a50K	15142.77	125.36	120.79
AST-CLW07-125WBCA1-a57K	15474.6	125.27	123.53



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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 *****