



Report No.:
BLC2010033E-B-R1-CP

LM-79-08 Test Report

For

Beyond LED Technology

(Brand Name: Beyond LED Technology)

1939 Parker Court, Stone Mountain, GA 30087

Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires

Model name(s): BLT-SWP05M-60HBSGSA1-BRW50

Remark: The letter "a" can be 2 letters represent lamp colors, "BH = Black, WH=White, BR=Brown or Customized". The letter "b" can be " AP=AC Photocontrol", "M=microwave sensor", "R=PIR sensor", "DP=DC Photocontrol", "APM=AC photocontrol+ microwave sensor", "APR=AC photocontrol+ PIR sensor", "DPM=DC photocontrol+ microwave sensor"; "DPR=DC photocontrol+ PIR sensor" or blank.

The letter "c" can be "S" or blank for Surge-Protective Device provided or not;
The letter "e" can be two digits to represent CCT setting, 40=4000K, 45=4500K, 50=5000K, 57=5700K, 65=6500K.

The letter "g" can be "A" for Auxiliary output 12V or empty for no Auxiliary output 12V.

Representative (Tested) Model:

AST-SWP05M-60HBSGSA1-abcW40fg

AST-SWP05M-60HBSGSA1-abcW65fg

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

Test & Report By:

Arvin Qin

Engineer: Arvin Qin

Date: 2020-11-12

Remark: This report is multiple listed report of BLC2010033E-B, all constructions are the same except wattage adjustable

Review By:

Jason Luo

Manager: Jason Luo

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01
Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,
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1.1 Product Information:

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED Technology	
Model Number	BLT-SWP05M-60HBSGSA1-BRW50	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires	
Rated Voltage / Frequency	120-277 VAC, 50/60 Hz	
Nominal Power	60W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,4500K,5000K,5700K,6500K	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-AA80RA35000H1	
Sample Number	BLC2010033E-B1(4000K), B2(6500K)	
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	2020-11-06
Date of Test	2020-11-09
Test item	<ol style="list-style-type: none">1. Total Luminous Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. 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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, 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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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 $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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	2020-11-09	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-SWP05M-60HBGSA1-BRW50 g		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %	
BLC201003	120.0	60	0.518	61.34	0.986	15.11	
3E-B1	277.0	60	0.232	58.82	0.917	15.66	
DLC Pass Criteria						>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	4117
Duv	0.0020
Chromaticity (x, y)	x=0.3767 y=0.3786
Chromaticity (u', v')	u(u')=0.2219 v'(v')=0.5018
Color Rendering Index (CRI)	82
R9	2
Rf	83
Rg	95
Rcs,h1(%)	-13

Special Color Rendering Indices			
R1	80	R9	2
R2	88	R10	71
R3	94	R11	81
R4	81	R12	59
R5	80	R13	81
R6	83	R14	97
R7	86	R15	73
R8	63	--	--
--	--	--	--
--	--	--	--
--	--	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	8773.7	8464.1	5000-10000lm (-10%)
Total Luminous Efficacy (lm/W)	143.0	143.9	--
Most worst Luminous/Highest Watts	137.99		
0-90 °Luminous Efficacy (lm/W)	127.21	128.01	Premium: >= 120(-3%)* **
Zonal lumens in the 80-90° zone (%)	10.91	--	<=10%(+3) ***
Beam Angle (°)	100.8	--	--
Center Beam Candle Power (cd)	2038	--	--



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*** Lumen output and efficacy are evaluated considering the light output in the 0-90° zone only.

Electrical Measurement with DC photosensor (Test Date 2020-12-15) :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC201003	120.0	60	0.518	61.42	0.989	15.23
3E-B1	277.0	60	0.232	58.91	0.917	15.66
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Calculated efficacy with DC photosensor:

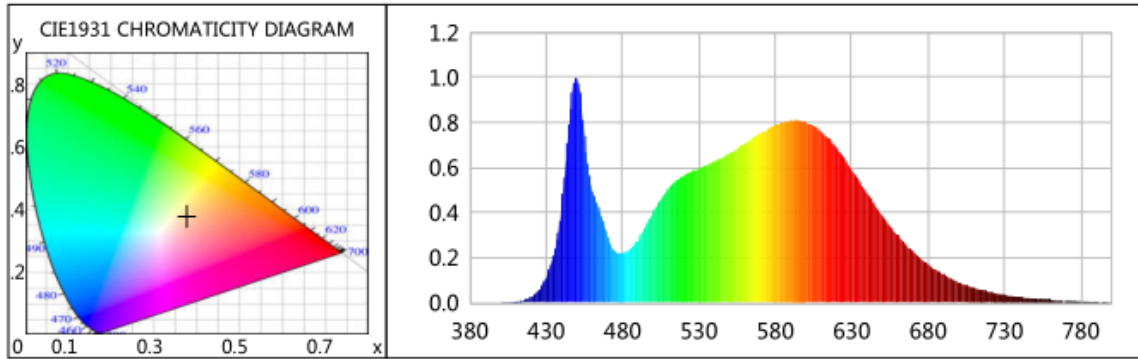
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	8773.7	8464.1	5000-10000lm (-10%)
Total Luminous Efficacy (lm/W)	142.85	143.68	--
Most worst Luminous/Highest Watts	137.99		
0-90 °Luminous Efficacy (lm/W)	127.05	127.81	Premium: >= 120(-3%)* **



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Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0000	0.0028	525	0.5824	107.9107	670	0.2280	42.2389
385	0.0005	0.0870	530	0.5960	110.4164	675	0.1974	36.5739
390	0.0004	0.0806	535	0.6101	113.0402	680	0.1702	31.5424
395	0.0006	0.1174	540	0.6264	116.0570	685	0.1468	27.2030
400	0.0009	0.1701	545	0.6409	118.7349	690	0.1260	23.3475
405	0.0018	0.3367	550	0.6625	122.7451	695	0.1077	19.9518
410	0.0050	0.9286	555	0.6827	126.4781	700	0.0915	16.9545
415	0.0122	2.2609	560	0.7069	130.9773	705	0.0785	14.5418
420	0.0266	4.9226	565	0.7288	135.0267	710	0.0668	12.3826
425	0.0559	10.3622	570	0.7506	139.0565	715	0.0573	10.6169
430	0.1135	21.0283	575	0.7725	143.1271	720	0.0485	8.9886
435	0.2168	40.1708	580	0.7903	146.4225	725	0.0414	7.6702
440	0.4192	77.6726	585	0.7991	148.0442	730	0.0349	6.4673
445	0.7921	146.7610	590	0.8084	149.7684	735	0.0294	5.4481
450	1.0000	185.2717	595	0.8096	150.0024	740	0.0257	4.7649
455	0.7383	136.7941	600	0.8033	148.8274	745	0.0212	3.9330
460	0.5004	92.7152	605	0.7859	145.6032	750	0.0184	3.4104
465	0.4072	75.4499	610	0.7630	141.3702	755	0.0164	3.0392
470	0.2964	54.9102	615	0.7290	135.0591	760	0.0142	2.6320
475	0.2276	42.1692	620	0.6896	127.7636	765	0.0101	1.8731
480	0.2214	41.0251	625	0.6411	118.7710	770	0.0108	1.9975
485	0.2398	44.4193	630	0.5907	109.4438	775	0.0076	1.4103
490	0.2773	51.3751	635	0.5389	99.8488	780	0.0074	1.3685
495	0.3384	62.6877	640	0.4874	90.2937	785	0.0050	0.9253
500	0.4025	74.5807	645	0.4357	80.7233	790	0.0056	1.0398
505	0.4582	84.8897	650	0.3860	71.5099	795	0.0043	0.7994
510	0.5061	93.7733	655	0.3405	63.0865	800	0.0028	0.5185
515	0.5400	100.0450	660	0.3002	55.6259			
520	0.5636	104.4138	665	0.2612	48.3870			

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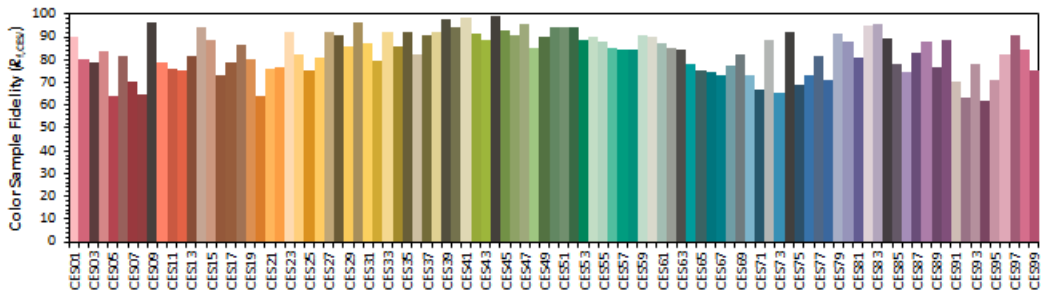
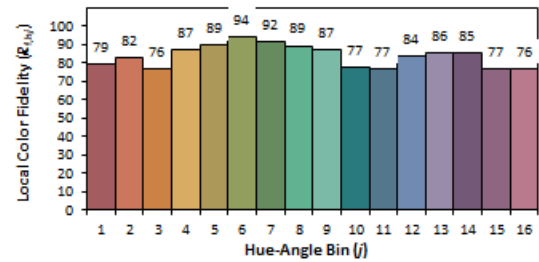
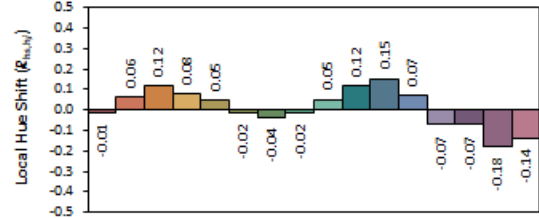
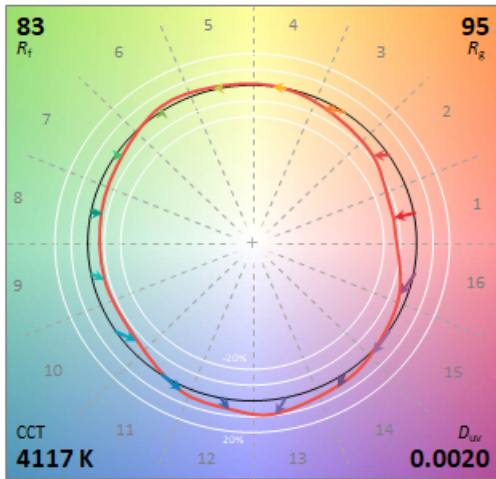
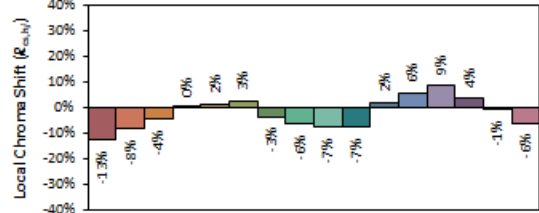
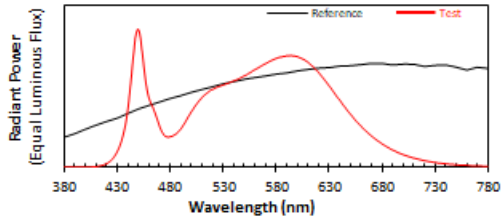
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TM30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-AA80RA35000H1
Date: 2020/11/9

Manufacturer: ASHART LIGHT CO., LTD
Model: AST-SWP05M-60HBSGSA1-abcW40fg



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x **0.3767**
 y **0.3786**
 u' **0.2219**
 v' **0.5018**

CIE 13.3-1995 (CRI)	
R_a	82
R_9	2



Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	1,401.9	16%	16%
0-40	2,359.3	26.9%	26.9%
0-60	4,701.7	53.8%	53.6%
60-90	3,102.3	35.4%	35.4%
70-100	2,405.3	27.4%	27.4%
90-120	846.7	9.7%	9.7%
0-90	7,803.3	88.9%	88.9%
90-180	970.4	11.1%	11.1%
0-180	8,773.7	100%	100%

Lumens Per Zone

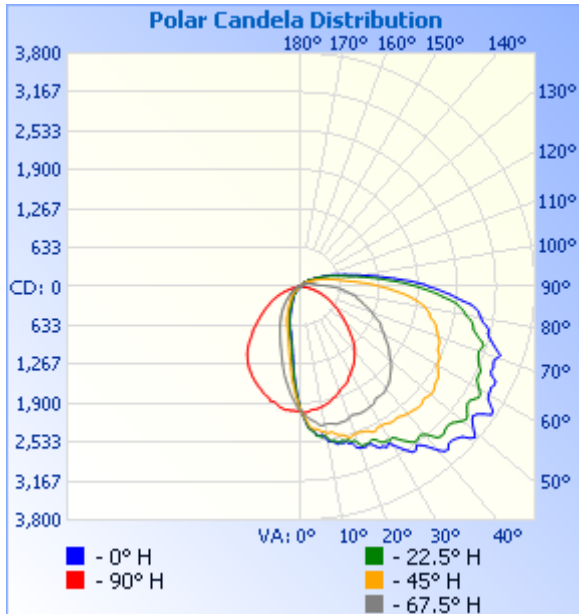
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	180.1	2.1%	90-100	477.2	5.4%
10-20	484.7	5.5%	100-110	240.6	2.7%
20-30	737.0	8.4%	110-120	129.0	1.5%
30-40	957.4	10.9%	120-130	66.9	0.8%
40-50	1,135.9	12.9%	130-140	33.9	0.4%
50-60	1,205.8	13.7%	140-150	14.9	0.2%
60-70	1,174.3	13.4%	150-160	5.3	0.1%
70-80	1,076.6	12.3%	160-170	2.0	0%
80-90	851.5	9.7%	170-180	0.6	0%



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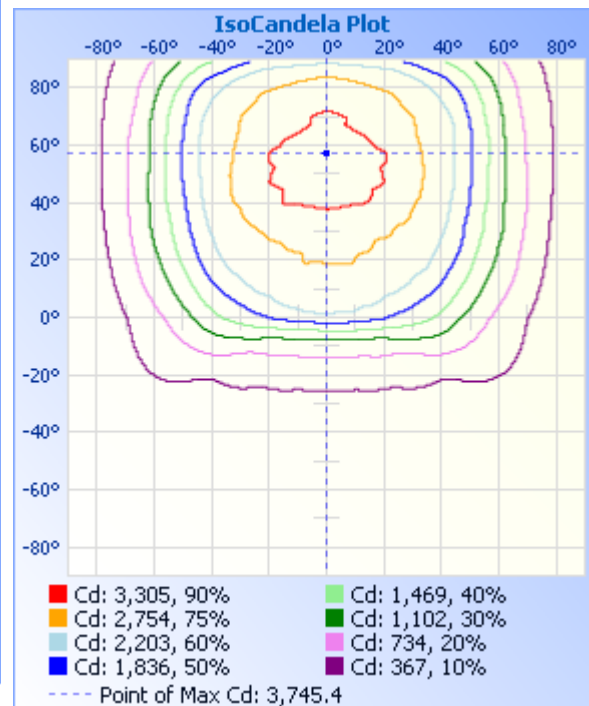
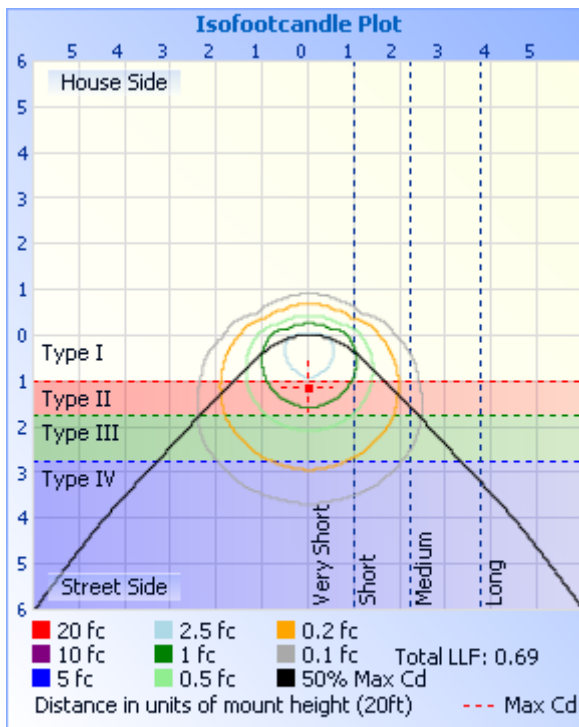
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	7.05 fc	36.4 ft	41.1 ft
34.0ft	1.76 fc	72.8 ft	82.3 ft
51.0ft	0.78 fc	109.3 ft	123.4 ft
68.0ft	0.44 fc	145.7 ft	164.5 ft
85.0ft	0.28 fc	182.1 ft	205.6 ft
102.0ft	0.20 fc	218.5 ft	246.8 ft

■ Vert. Spread: 93.9°
■ Horiz. Spread: 100.8°



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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	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038	2038
1	2115	2111	2097	2072	2048	2012	1940	1910	1899	1913	1940	2003	2026	2051	2072	2098	2115
2	2208	2190	2159	2106	2052	1950	1845	1804	1779	1799	1833	1952	2031	2074	2127	2179	2208
3	2303	2300	2242	2137	2043	1886	1758	1662	1631	1650	1756	1888	2021	2106	2199	2275	2303
4	2329	2343	2304	2160	2026	1832	1646	1551	1513	1540	1648	1831	2022	2139	2268	2325	2329
5	2354	2371	2328	2191	2008	1769	1554	1415	1364	1410	1566	1789	2025	2185	2308	2332	2354
6	2429	2438	2331	2211	2008	1699	1453	1274	1224	1286	1477	1724	2015	2220	2322	2388	2429
7	2445	2452	2350	2254	2011	1642	1337	1168	1119	1182	1359	1664	2025	2253	2337	2431	2445
8	2432	2471	2381	2282	2003	1597	1240	1074	1020	1079	1261	1606	2012	2287	2393	2443	2432
9	2482	2446	2389	2282	1994	1550	1161	994	951	1001	1176	1553	2001	2291	2421	2419	2482
10	2555	2513	2424	2277	1979	1497	1089	917	886	929	1104	1501	1990	2291	2437	2491	2555
11	2567	2563	2422	2274	1974	1437	1022	863	832	875	1034	1443	1969	2280	2432	2547	2567
12	2585	2563	2417	2283	1955	1377	962	815	786	825	975	1381	1943	2270	2419	2560	2585
13	2632	2583	2456	2289	1944	1314	905	772	750	782	914	1316	1925	2256	2468	2587	2632
14	2609	2625	2486	2307	1935	1249	861	737	720	743	869	1257	1926	2264	2503	2644	2609
15	2640	2588	2501	2310	1907	1194	821	710	685	715	826	1204	1923	2290	2517	2607	2640
16	2622	2614	2511	2302	1886	1141	785	678	650	682	787	1155	1892	2312	2505	2651	2622
17	2670	2609	2558	2304	1876	1092	746	644	615	651	750	1101	1872	2310	2516	2632	2670
18	2672	2658	2589	2301	1855	1048	710	616	586	621	716	1058	1860	2298	2544	2684	2672
19	2764	2648	2560	2294	1838	1005	686	586	557	587	692	1017	1846	2302	2515	2687	2764
20	2796	2709	2557	2280	1813	965	661	559	520	560	667	981	1825	2284	2529	2752	2796
21	2800	2776	2549	2257	1790	927	636	530	486	530	639	943	1801	2259	2542	2803	2800
22	2811	2772	2550	2245	1775	891	612	500	455	499	613	904	1785	2238	2520	2775	2811
23	2784	2775	2570	2257	1764	858	586	465	426	468	587	866	1767	2248	2550	2804	2784
24	2806	2754	2573	2270	1752	827	559	437	395	441	562	838	1748	2258	2557	2788	2806
25	2871	2745	2592	2272	1741	795	533	410	367	411	535	808	1726	2273	2576	2787	2871
26	2923	2777	2635	2274	1720	770	509	380	341	384	511	781	1712	2268	2625	2809	2923
27	2919	2836	2645	2269	1682	745	486	354	320	357	486	751	1690	2257	2618	2865	2919
28	2963	2869	2617	2267	1657	721	461	332	304	335	463	726	1670	2236	2581	2910	2963



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29	2917	2869	2607	2257	1637	696	433	313	290	316	439	701	1652	2235	2590	2907	2917
30	2971	2894	2613	2250	1611	669	409	298	278	300	411	677	1625	2240	2591	2907	2971
31	3045	2864	2611	2248	1588	645	386	284	265	287	388	653	1600	2235	2591	2866	3045
32	3116	2912	2626	2237	1569	624	367	270	253	275	367	626	1586	2211	2599	2903	3116
33	3185	2976	2646	2205	1549	603	346	259	240	263	348	603	1557	2185	2593	2968	3185
34	3249	3030	2655	2187	1524	582	326	248	230	252	330	582	1533	2182	2622	3035	3249
35	3252	3085	2652	2190	1501	561	307	236	221	240	311	560	1509	2188	2651	3092	3252
36	3191	3126	2642	2193	1467	539	292	225	211	227	296	538	1479	2183	2636	3138	3191
37	3231	3134	2649	2187	1439	519	279	215	201	217	282	518	1449	2184	2625	3139	3231
38	3294	3106	2672	2186	1414	497	267	205	193	207	269	495	1421	2178	2635	3102	3294
39	3382	3099	2684	2174	1380	477	255	196	184	198	257	473	1392	2167	2640	3089	3382
40	3480	3139	2698	2156	1352	458	245	187	176	190	248	452	1357	2145	2657	3139	3480
41	3551	3215	2704	2139	1325	434	235	179	167	179	238	432	1318	2116	2684	3208	3551
42	3570	3308	2713	2128	1290	412	225	171	158	171	229	413	1280	2090	2695	3286	3570
43	3512	3333	2725	2101	1250	391	216	161	149	162	218	391	1240	2071	2706	3314	3512
44	3501	3334	2735	2076	1210	370	204	152	141	153	208	373	1186	2048	2704	3311	3501
45	3516	3305	2740	2047	1167	350	196	144	132	144	199	353	1146	2026	2704	3294	3516
46	3546	3287	2730	2018	1123	330	185	135	123	136	189	334	1103	2004	2692	3284	3546
47	3582	3293	2710	1996	1080	311	177	127	114	127	180	316	1076	1979	2678	3294	3582
48	3684	3311	2705	1970	1044	294	168	118	106	119	171	298	1046	1952	2678	3309	3684
49	3745	3357	2727	1937	1006	278	159	110	98	111	163	282	998	1928	2683	3349	3745
50	3672	3404	2735	1908	969	261	151	102	90	103	154	266	953	1906	2690	3403	3672
51	3589	3443	2744	1862	931	247	143	95	84	96	147	253	920	1874	2693	3415	3589
52	3527	3428	2738	1823	892	235	136	88	78	89	139	239	878	1836	2682	3386	3527
53	3496	3376	2716	1794	862	225	128	82	73	83	131	228	843	1796	2679	3354	3496
54	3531	3331	2693	1768	825	216	120	76	68	76	123	218	809	1751	2660	3321	3531
55	3616	3304	2683	1735	789	207	114	71	65	70	116	209	777	1698	2644	3312	3616
56	3731	3311	2676	1701	753	199	107	64	61	65	109	200	740	1665	2638	3313	3731
57	3716	3356	2661	1663	726	191	99	59	58	60	102	193	715	1637	2624	3354	3716
58	3628	3405	2625	1620	699	183	93	54	55	55	95	186	681	1601	2607	3382	3628
59	3545	3396	2591	1587	665	174	87	50	51	50	89	178	655	1587	2575	3370	3545
60	3517	3345	2553	1561	633	166	81	45	46	46	82	170	622	1559	2562	3338	3517

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61	3509	3285	2540	1523	599	159	75	41	39	41	76	163	593	1514	2541	3280	3509
62	3498	3237	2540	1484	575	151	69	37	35	37	71	156	568	1461	2534	3226	3498
63	3524	3223	2526	1461	553	143	64	33	29	33	65	149	543	1419	2521	3218	3524
64	3517	3227	2492	1441	523	136	58	29	25	29	60	143	523	1394	2475	3218	3517
65	3413	3223	2448	1424	496	129	54	24	21	24	55	137	494	1390	2433	3229	3413
66	3376	3171	2437	1385	467	123	49	20	14	20	50	130	464	1360	2412	3197	3376
67	3392	3131	2436	1328	439	117	44	15	12	15	45	125	442	1303	2407	3157	3392
68	3370	3107	2426	1288	412	111	40	11	4	10	40	119	418	1247	2394	3115	3370
69	3354	3084	2405	1248	384	105	35	4	4	4	36	112	388	1201	2370	3080	3354
70	3397	3072	2367	1227	357	100	32	4	4	4	32	107	357	1177	2348	3082	3397
71	3426	3094	2343	1196	331	95	27	3	3	4	28	102	331	1154	2324	3097	3426
72	3343	3118	2324	1156	308	89	24	4	3	4	24	97	309	1130	2311	3112	3343
73	3276	3074	2293	1113	281	85	21	4	4	5	22	92	285	1108	2288	3067	3276
74	3218	2998	2281	1068	258	80	18	4	4	4	19	87	259	1070	2264	2974	3218
75	3162	2940	2243	1033	236	76	17	4	4	4	19	83	236	1030	2227	2906	3162
76	3131	2886	2191	1011	215	72	16	3	4	4	18	78	212	1004	2182	2869	3131
77	3131	2870	2147	974	194	67	16	4	5	5	17	74	190	970	2152	2865	3131
78	3079	2846	2137	936	173	64	15	4	5	5	16	70	172	911	2110	2839	3079
79	3003	2800	2101	919	155	61	15	5	5	5	15	66	153	870	2059	2778	3003
80	2976	2729	2065	903	138	57	14	4	6	5	15	63	133	856	2030	2721	2976
81	2939	2691	2023	854	120	54	14	5	5	5	14	60	117	834	1992	2686	2939
82	2912	2643	1962	807	107	52	13	5	5	5	14	57	103	799	1921	2637	2912
83	2851	2583	1898	779	94	49	12	5	6	6	14	55	88	775	1867	2571	2851
84	2779	2525	1825	734	84	47	12	5	6	6	13	53	77	739	1800	2516	2779
85	2633	2416	1756	703	74	45	12	5	6	6	13	51	67	701	1753	2400	2633
86	2520	2309	1662	681	64	44	12	5	6	6	13	49	59	679	1670	2296	2520
87	2429	2212	1565	638	57	43	12	6	6	6	13	48	52	637	1576	2194	2429
88	2305	2108	1478	593	52	41	12	6	7	6	13	46	46	576	1481	2106	2305
89	2201	1994	1399	548	46	40	11	6	6	6	13	44	41	540	1404	1992	2201
90	2080	1896	1306	501	42	38	11	6	7	7	12	42	38	491	1330	1881	2080
91	2008	1778	1219	457	40	37	11	6	7	7	12	40	36	438	1253	1777	2008
92	1880	1688	1142	408	39	35	11	6	7	7	11	39	35	389	1160	1683	1880

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93	1774	1567	1060	367	38	33	10	6	7	7	11	37	35	341	1071	1568	1774
94	1635	1455	966	332	37	31	10	6	7	7	11	35	36	306	998	1446	1635
95	1531	1357	892	302	37	30	10	6	7	7	11	33	37	277	922	1364	1531
96	1420	1270	829	277	37	29	9	6	8	8	11	32	39	255	852	1269	1420
97	1320	1173	767	260	39	28	9	7	7	8	11	30	40	240	786	1177	1320
98	1230	1096	717	243	40	26	9	7	8	8	11	29	42	228	730	1088	1230
99	1141	1018	671	230	41	25	9	7	8	8	10	28	43	218	677	1010	1141
100	1063	948	630	221	42	24	9	7	8	8	10	27	44	210	624	937	1063
101	991	888	595	212	43	23	8	7	8	8	10	26	45	202	582	874	991
102	926	824	560	204	45	22	9	7	8	8	10	25	46	194	546	812	926
103	860	769	527	197	45	21	8	7	8	8	10	24	47	188	508	764	860
104	807	723	499	189	47	21	8	7	8	7	10	23	47	179	480	713	807
105	760	677	472	181	47	20	8	8	8	8	9	22	48	171	450	668	760
106	712	638	446	173	48	19	8	7	8	8	9	21	48	163	422	631	712
107	666	603	425	166	49	18	8	7	8	8	10	21	48	157	401	588	666
108	633	566	403	160	50	17	8	7	8	8	9	20	47	150	379	560	633
109	599	540	379	154	50	17	7	7	8	8	8	19	46	144	358	531	599
110	564	510	358	147	50	17	7	7	8	8	9	19	45	138	339	503	564
111	530	481	337	141	50	15	7	7	8	8	9	18	45	131	321	472	530
112	497	452	315	134	49	15	7	7	8	8	9	17	43	125	301	442	497
113	468	423	295	128	48	15	7	6	7	8	8	17	42	119	282	417	468
114	436	400	279	122	46	14	7	7	7	8	8	16	41	113	265	396	436
115	404	377	264	116	44	14	6	7	8	7	8	15	39	108	250	374	404
116	371	357	248	111	42	13	6	6	8	7	8	15	38	105	234	354	371
117	345	334	233	106	39	13	7	6	8	8	8	15	37	101	220	333	345
118	323	312	220	103	38	13	6	6	8	7	8	14	36	98	207	312	323
119	306	293	208	99	35	12	7	7	7	8	7	14	34	95	197	293	306
120	288	276	197	96	34	12	6	6	8	8	8	14	34	91	187	275	288
121	269	259	187	92	32	11	6	7	8	8	8	14	33	88	178	259	269
122	252	242	178	88	30	12	6	6	7	8	8	13	31	84	169	243	252
123	235	228	169	85	29	11	6	6	8	8	8	13	30	81	161	228	235
124	220	216	159	81	28	11	6	6	7	7	8	12	29	77	152	215	220

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125	208	203	150	78	27	10	6	7	8	8	8	12	28	73	144	202	208
126	195	192	142	75	26	10	6	7	8	8	8	12	26	69	135	192	195
127	184	182	134	71	25	10	6	6	7	8	7	12	25	66	128	181	184
128	174	174	126	68	23	10	5	6	8	7	8	12	24	63	121	171	174
129	165	164	119	64	23	9	6	7	7	7	7	11	23	59	114	161	165
130	157	155	113	61	22	9	6	7	8	8	8	11	22	56	107	152	157
131	151	146	107	57	21	9	6	7	8	8	7	11	21	52	100	142	151
132	143	138	101	54	20	9	6	7	8	8	7	11	20	50	95	134	143
133	135	130	95	51	20	9	6	7	8	7	7	11	20	47	90	125	135
134	128	122	91	48	19	9	6	7	7	8	7	11	19	45	85	117	128
135	120	113	86	45	18	8	6	7	8	8	7	10	18	42	80	109	120
136	113	106	81	43	17	8	6	8	8	8	7	10	17	40	76	102	113
137	108	99	77	41	17	8	6	7	7	8	8	10	17	37	71	95	108
138	102	93	72	38	16	8	6	7	8	8	7	10	16	35	68	88	102
139	95	86	68	36	15	7	6	7	8	8	8	10	15	33	64	82	95
140	89	81	63	34	15	7	6	8	8	8	7	9	15	31	60	75	89
141	84	74	59	32	14	6	6	8	8	8	8	9	14	30	56	69	84
142	78	68	55	30	13	6	6	8	8	8	7	8	14	28	52	63	78
143	72	63	50	29	12	6	6	7	8	8	8	8	13	26	48	58	72
144	66	57	46	27	12	5	6	7	8	8	8	8	13	25	44	54	66
145	62	53	42	25	11	5	6	8	8	8	8	7	12	23	41	49	62
146	56	48	38	24	11	5	5	8	8	9	8	8	12	22	37	45	56
147	51	44	34	22	10	5	7	8	8	8	8	6	11	20	33	41	51
148	46	40	31	20	10	5	6	8	9	8	8	7	10	19	30	37	46
149	41	36	28	19	9	5	6	8	8	8	8	7	10	18	27	34	41
150	36	33	25	18	9	5	7	7	8	9	8	7	9	17	24	31	36
151	33	29	23	16	8	5	7	8	8	9	8	7	9	15	22	28	33
152	30	26	21	15	7	4	7	8	8	8	8	8	8	14	20	26	30
153	27	24	19	14	7	5	7	8	8	8	8	8	7	13	18	24	27
154	24	21	17	13	6	5	7	8	8	9	8	7	7	12	16	22	24
155	21	18	16	11	6	5	7	8	9	9	8	7	5	10	14	19	21
156	20	16	15	10	4	5	7	8	8	8	8	7	6	9	13	17	20

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157	17	15	13	9	5	6	7	8	8	8	8	7	5	9	12	16	17
158	15	13	12	9	4	6	7	8	9	8	8	7	5	8	11	14	15
159	13	11	11	8	5	5	6	8	8	8	8	7	5	8	10	12	13
160	10	11	10	8	4	6	7	8	9	8	8	7	5	7	9	10	10
161	10	10	9	7	4	6	6	8	9	8	8	7	5	6	8	8	10
162	8	9	8	8	4	6	7	8	8	8	8	7	5	6	8	8	8
163	8	9	8	7	4	6	7	8	8	7	8	8	5	6	8	8	8
164	8	8	7	6	5	6	7	8	8	7	8	7	5	5	7	8	8
165	8	8	7	7	4	5	7	8	8	8	8	7	5	5	6	7	8
166	7	7	6	7	4	5	7	8	8	8	8	8	5	5	6	7	7
167	7	7	6	7	5	6	7	7	8	8	8	8	5	5	6	7	7
168	7	7	6	6	4	6	7	7	8	8	8	8	4	5	6	6	7
169	7	7	7	7	5	5	7	8	8	8	8	8	5	5	5	6	7
170	6	6	7	7	5	6	7	8	8	8	8	8	5	5	5	6	6
171	6	6	7	7	5	6	6	7	8	8	7	8	5	5	6	6	6
172	6	7	7	7	5	6	6	7	8	8	7	7	5	6	5	6	6
173	6	6	7	7	5	6	6	7	7	7	7	8	5	5	6	5	6
174	6	6	6	7	5	6	6	7	7	7	7	7	5	6	6	5	6
175	6	6	7	6	5	6	6	7	7	6	7	7	5	5	6	5	6
176	5	6	6	7	4	6	6	7	7	7	7	7	5	6	5	6	5
177	6	6	7	6	5	6	6	6	6	6	7	6	6	6	5	6	6
178	6	6	6	6	4	6	6	6	6	7	7	6	5	6	5	6	6
179	6	6	6	6	5	6	6	6	6	7	6	6	5	6	6	6	6
180	5	6	6	6	5	6	6	6	6	5	6	6	6	6	6	6	5



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BUG Rating

Lum. Classification System (LCS)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	1029.1	11.7	11.7
FM (30-60)	2924.4	33.3	33.3
FH (60-80)	2162.8	24.7	24.7
FVH (80-90)	836.6	9.5	9.5
BL (0-30)	372.9	4.3	4.2
BM (30-60)	375.3	4.3	4.3
BH (60-80)	87.8	1.0	1.0
BVH(80-90)	14.8	0.2	0.2
UL (90-100)	477.1	5.4	5.4
UH (100-180)	493.1	5.6	5.6
Total	8773.9	100.0	100.0
BUG Rating	B1-U3-G5		



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Report No.:
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Test date	2020-11-09	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	AST-SWP05M-60HBSGSA1-abcW65f g		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %	
BLC201003	120.0	60	0.517	61.21	0.986	15.16	
3E-B1	277.0	60	0.231	58.76	0.919	15.98	
DLC Pass Criteria						>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	77	R9	-13
Frequency (Hz)	60	R2	88	R10	72
CCT (K)	6550	R3	93	R11	76
Duv	0.0082	R4	77	R12	52
Chromaticity (x, y)	x=0.3107 y=0.3370	R5	78	R13	81
Chromaticity (u', v')	u(u')=0.1935 v'(v')=0.4722	R6	83	R14	97
Color Rendering Index (CRI)	81	R7	85	R15	71
R9	-13	R8	63	--	--
Rf	81	--	--	--	--
Rg	90	--	--	--	--
Rcs,h1(%)	-16	--	--	--	--

Photometric Measurement –Sphere-Spectroradiometer Method:

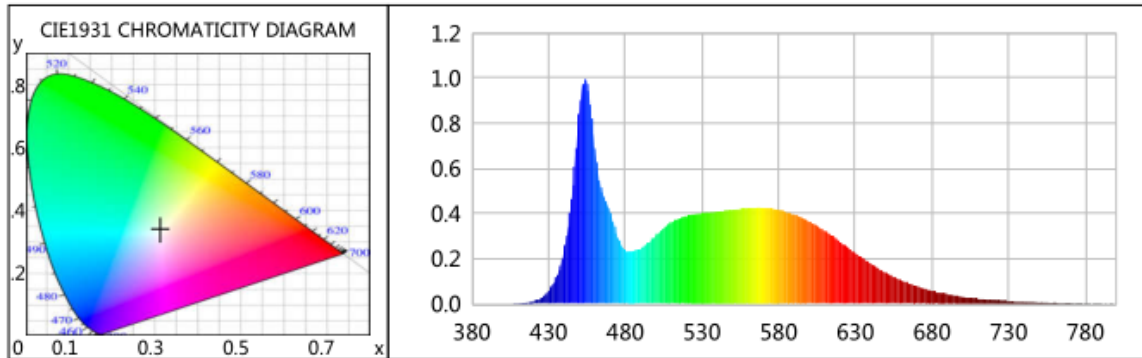
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	8957.9	8650.3	5000-10000lm (-10%)
Total Luminous Efficacy (lm/W)	146.3	147.2	--
Most worst Luminous/Highest Watts	141.32		



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Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.1396	525	0.3973	129.8868	670	0.0788	25.7493
385	0.0005	0.1751	530	0.4017	131.3318	675	0.0677	22.1461
390	0.0003	0.0955	535	0.4038	132.0099	680	0.0582	19.0235
395	0.0006	0.1811	540	0.4090	133.7236	685	0.0501	16.3811
400	0.0007	0.2220	545	0.4116	134.5758	690	0.0424	13.8474
405	0.0009	0.2930	550	0.4168	136.2601	695	0.0360	11.7549
410	0.0021	0.6780	555	0.4200	137.3186	700	0.0307	10.0423
415	0.0049	1.6070	560	0.4245	138.7835	705	0.0258	8.4294
420	0.0117	3.8396	565	0.4246	138.8066	710	0.0223	7.3014
425	0.0259	8.4784	570	0.4241	138.6553	715	0.0192	6.2666
430	0.0560	18.3045	575	0.4219	137.9173	720	0.0171	5.5834
435	0.1163	38.0140	580	0.4174	136.4761	725	0.0145	4.7417
440	0.2295	75.0459	585	0.4076	133.2708	730	0.0114	3.7375
445	0.4646	151.8886	590	0.3968	129.7344	735	0.0096	3.1469
450	0.8483	277.3293	595	0.3836	125.4143	740	0.0094	3.0648
455	0.9815	320.8984	600	0.3657	119.5456	745	0.0077	2.5087
460	0.6894	225.3940	605	0.3462	113.1920	750	0.0055	1.7934
465	0.4943	161.5884	610	0.3243	106.0234	755	0.0052	1.6998
470	0.4033	131.8504	615	0.3016	98.6147	760	0.0051	1.6550
475	0.2976	97.2985	620	0.2761	90.2516	765	0.0036	1.1620
480	0.2376	77.6719	625	0.2510	82.0749	770	0.0042	1.3613
485	0.2338	76.4256	630	0.2262	73.9611	775	0.0025	0.8294
490	0.2449	80.0657	635	0.2020	66.0566	780	0.0015	0.4801
495	0.2692	88.0226	640	0.1792	58.5709	785	0.0023	0.7566
500	0.3023	98.8475	645	0.1580	51.6477	790	0.0020	0.6668
505	0.3346	109.3996	650	0.1380	45.1008	795	0.0011	0.3478
510	0.3607	117.9311	655	0.1208	39.4977	800	0.0017	0.5707
515	0.3789	123.8776	660	0.1051	34.3641			
520	0.3890	127.1899	665	0.0907	29.6412			

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TM30

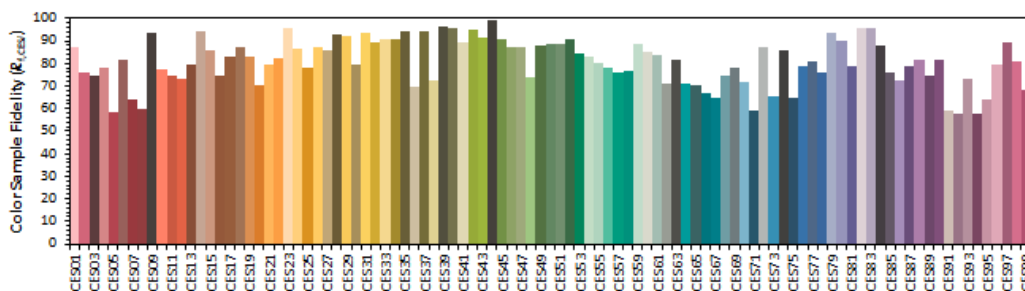
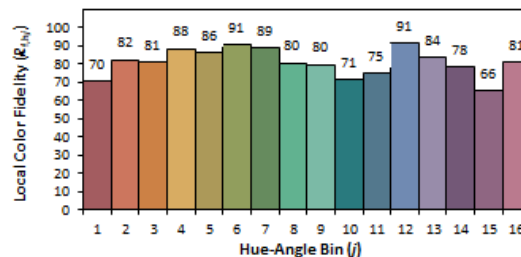
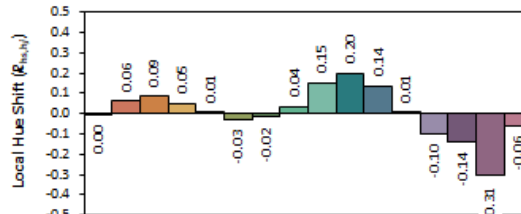
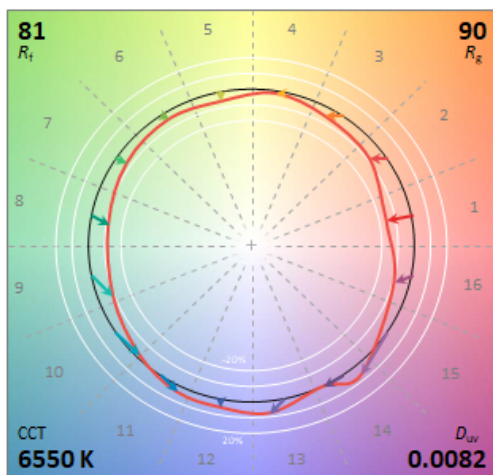
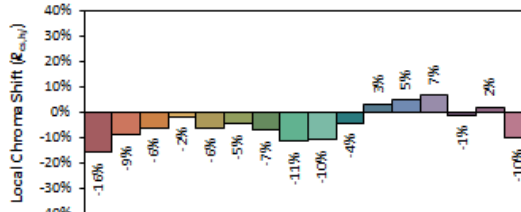
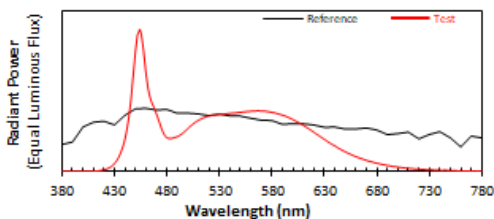
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-AA80RA35000H1

Manufacturer: ASmart LIGHT CO., LTD

Date: 2020/11/9

Model: AST-SWP05M-60HBSGSA1-abcW65fg



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3107
 y 0.3370
 u' 0.1935
 v' 0.4722

CIE 13.3-1995 (CRI)
 R_a 81
 R_9 -13



Certificate#4810.01

Report No.:
BLC2010033E-B-R1-CP

Calculated Efficacy Data for family models (4500K, 5000K and 5700K):

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-SWP05M-60HBSGSA1-abcW40f g	8773.7	61.34	143.03
AST-SWP05M-60HBSGSA1-abcW45f g	8819.8	61.28	143.94
AST-SWP05M-60HBSGSA1-abcW50f g	8865.8	61.28	144.69
AST-SWP05M-60HBSGSA1-abcW57f g	8911.9	61.28	145.44
AST-SWP05M-60HBSGSA1-abcW65f g	8957.9	61.21	146.35

*1: This value is calculated and the calculation formula is as below:

$$8819.8 = (8957.9 - 8773.7) / 4 + 8773.7$$

$$8865.8 = (8957.9 - 8773.7) / 4 + 8819.8$$

$$8911.9 = (8957.9 - 8773.7) / 4 + 8865.8$$

*2: This value is calculated and the calculation formula is as below:

$$61.28 = (61.34 + 61.21) / 2$$

*3: This value is calculated and the calculation formula is as below:

$$143.94 = 8819.8 / 61.28$$

$$144.69 = 8865.8 / 61.28$$

$$145.44 = 8911.9 / 61.28$$



Certificate#4810.01

Report No.:
BLC2010033E-B-R1-CP

3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2021-02-26
AC Power Source	CHP-500C	N/A	2021-03-29
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2021-03-01
Digital Power Meter	WT500	DYDWQ200006	2021-03-29
Integral Sphere (2M)	2M	DYJCE120067	2021-02-26
Digital Power Meter	WT500	DYDWQ200006	2021-03-29
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2021-02-26

Expand Uncertainty:
Photometric Measurement (Sphere): 2.08%, k=2
Chromaticity Measurement(Sphere):25.6K, k=2
Photometric Measurement(Goniophotometer):2.645%, k=2

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