



Report No.: BLC1907009E-D

## LM-79-08 Test Report

For

# Beyond LED Technology (Brand Name: Beyond LED Technology)

1939 Parker Ct, Stone Mountain, GA 30087, USA

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

Model name(s): BLT-SWP01-100BA2-abcdf

Remark: "a" can be any two letters to represent lamp colors; "b" can be "S" or blank for Surge-Protective Device provided or not; "c" can be "R" or blank for PIR Sensor provided or not; "d" can be "P" or blank for Photocontrol provided or not; "f" can be any two digits to represent CCT.

Representative (Tested) Model: BLT-SWP01-100BA2-abcd40  
BLT-SWP01-100BA2-abcd57

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

Test & Report By:

*Sherry Yang*

Engineer: Sherry Yang

Date: July 11, 2019

Review By:

*Jason Luo*

Manager: Jason Luo



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### 1.1 Product Information:

Organization Name	ASmart LIGHT CO., LTD	
Brand Name	ASmart	
Model Number	AST-SWP01-100BA2-abcdef	
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	100-277Vac, 50/60 Hz	
Nominal Power	100W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,4500K,5000K,5700K	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-4080RA35000P1	
Sample Number	BLC1907009E-D1(4000K),D2(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	July. 08, 2019
Date of Test	July. 09, 2019
Test item	<ol style="list-style-type: none"><li>1. Total Luminous Flux</li><li>2. Luminous Distribution Intensity</li><li>3. Luminous Efficacy</li><li>4. Correlated Color Temperature</li><li>5. Color Rendering Index</li><li>6. Chromaticity Coordinate</li><li>7. Electrical Parameters</li></ol>
Reference Standard	<ol style="list-style-type: none"><li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li><li>2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products</li><li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li><li>4. CIE 15-2004 Technical Report Colorimetry</li><li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li><li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li></ol>
Reference Work Instruction	BL-QP-033

## 1.3 Test Methods

### 1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  horizontal intervals.

### 2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

### 3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

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

<b>Test date</b>	2019-07-09	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AST-SWP01-100BA2-abcd40		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC190700	120.0	60	0.8320	98.64	0.988	14.51
9E-D1	277.0	60	0.3740	98.2	0.948	10.76
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	9
Frequency (Hz)	60	R2	91	R10	77
CCT (K)	4018	R3	96	R11	80
Duv	0.00092	R4	81	R12	62
Chromaticity (x, y)	x=0.3803 y=0.3786	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2243 v'(v')=0.5024	R6	87	R14	98
Color Rendering Index (CRI)	83.5	R7	85	R15	76
R9	9	R8	64	--	--

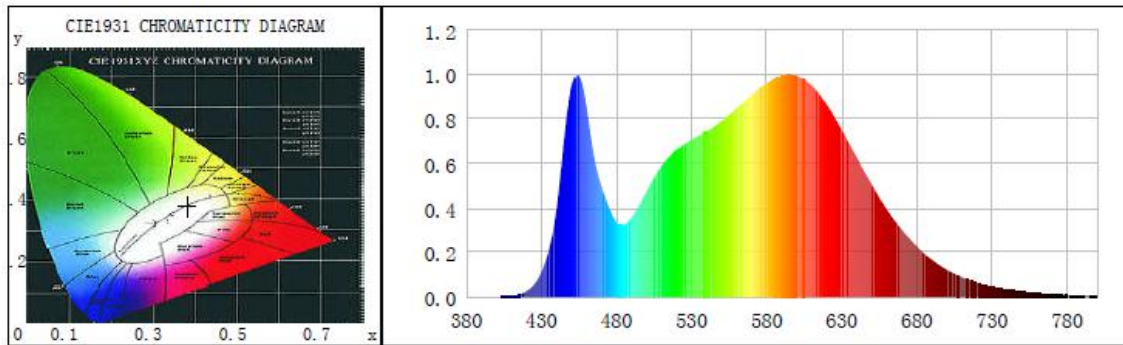
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result		DLC V4.4 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	12689.7	12703.8	>=10000 (-10%)
0-90° Luminous (lm)	11897.9	11905	
Luminous Efficacy (lm/W)	128.65	129.37	Premium: >= 120(-3%)
0-90° Luminous Efficacy (lm/W)	120.62	121.23	
Most worst Luminous/Highest	128.65		
Zonal lumens in the 80-90° zone (%) 80-90°/0-90°	6.36	--	<=10(+3)
Beam Angle (°)	103.5	--	--
Center Beam Candle Power (cd)	4767	--	--



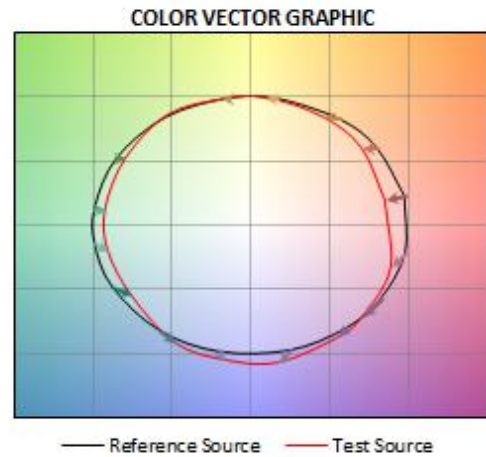
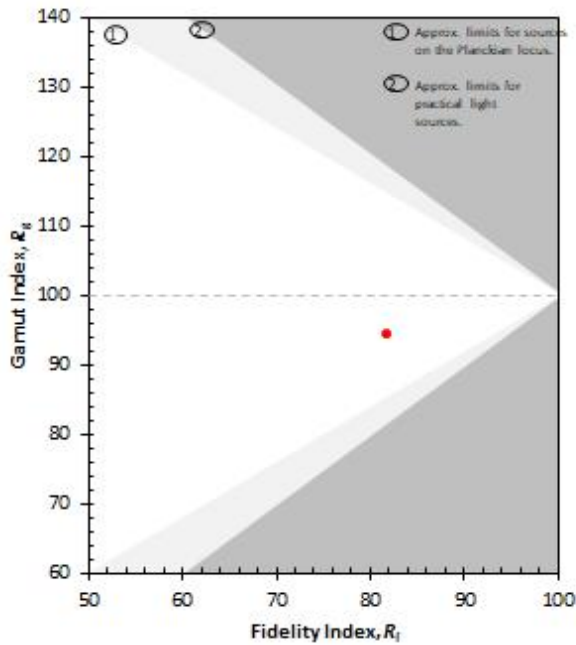
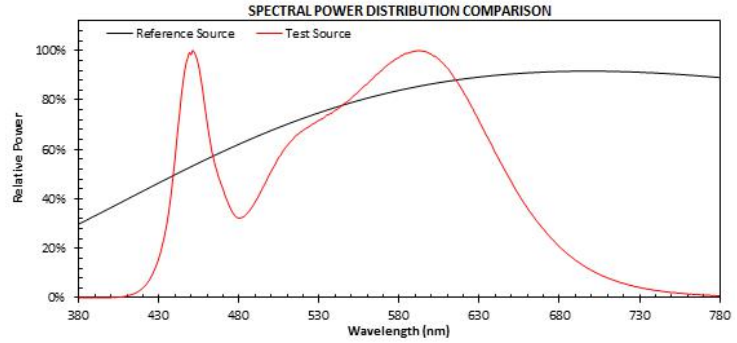
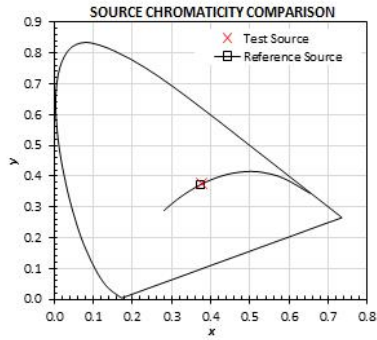
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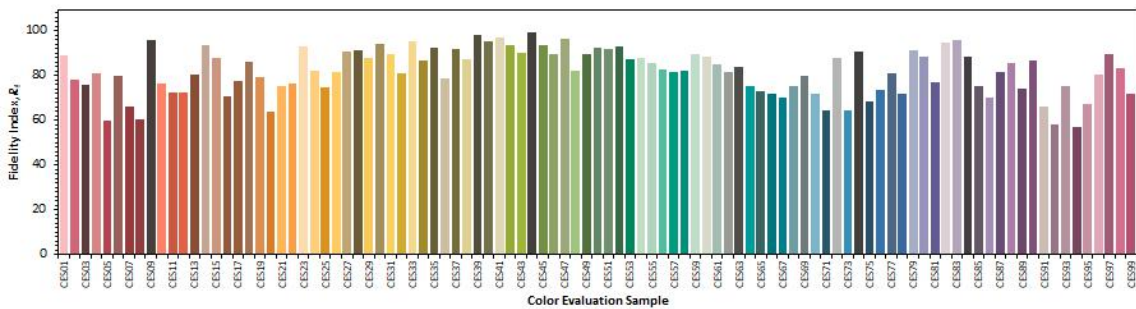
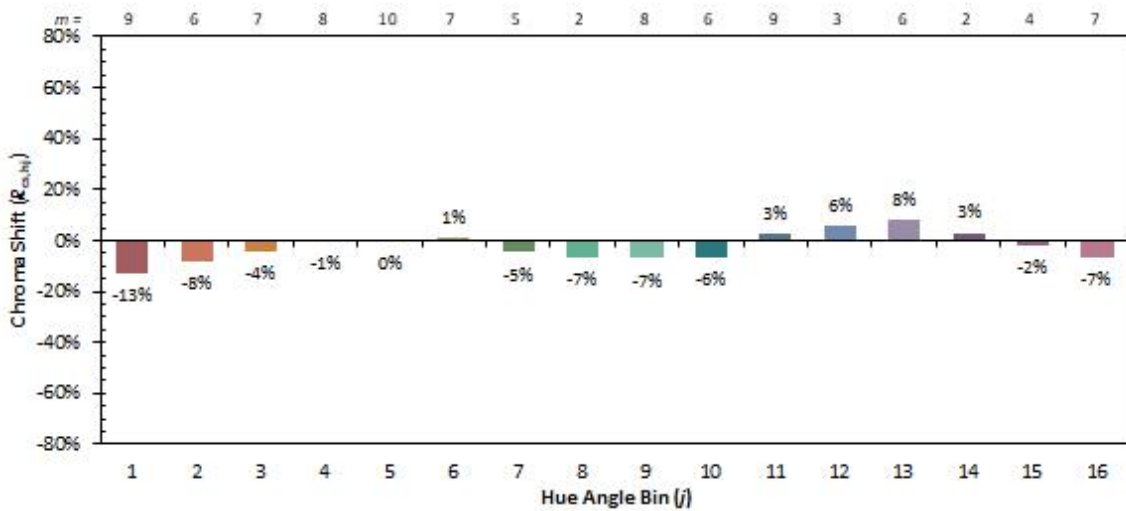
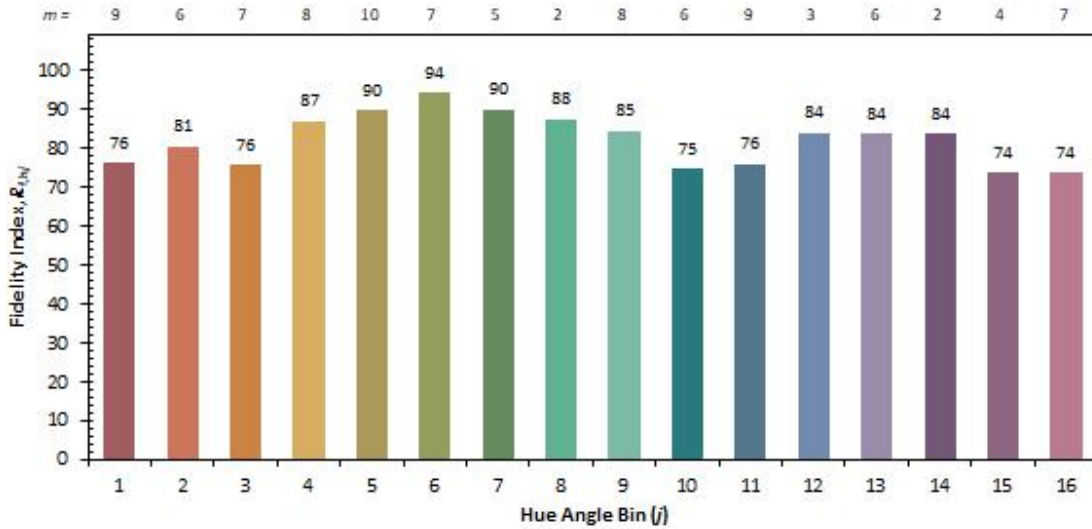
## Spectral Power Distribution & Chromaticity Diagram





**TM30**







**Zonal Lumen Tabulation**

**Zonal Lumen Summary**

Zone	Lumens	% Lamp	% Luminaire
0-30	2,849.5	22.5%	22.5%
0-40	4,665.8	36.8%	36.8%
0-60	8,380.4	66%	66%
60-90	3,517.4	27.7%	27.7%
70-100	2,350.5	18.5%	18.5%
90-120	698.8	5.5%	5.5%
0-90	11,897.9	93.8%	93.8%
90-180	791.3	6.2%	6.2%
0-180	12,689.1	100%	100%

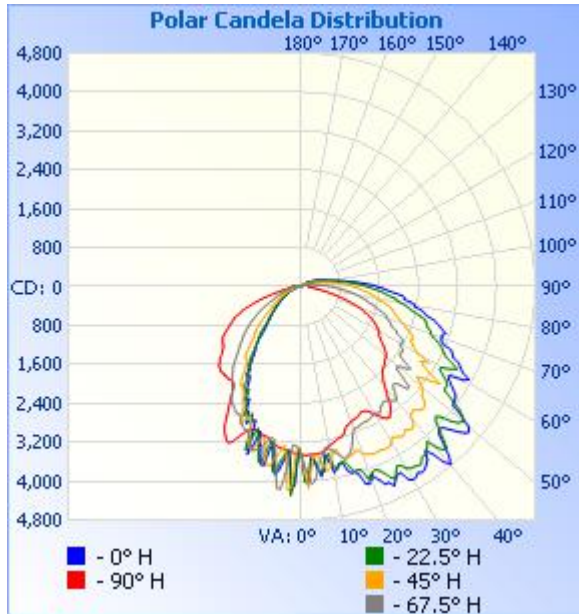
**Lumens Per Zone**

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	348.4	2.7%	90-100	406.0	3.2%
10-20	990.9	7.8%	100-110	191.8	1.5%
20-30	1,510.1	11.9%	110-120	101.0	0.8%
30-40	1,816.3	14.3%	120-130	50.9	0.4%
40-50	1,905.5	15.0%	130-140	21.5	0.2%
50-60	1,809.2	14.3%	140-150	8.7	0.1%
60-70	1,572.9	12.4%	150-160	6.1	0%
70-80	1,187.3	9.4%	160-170	3.9	0%
80-90	757.2	6.0%	170-180	1.4	0%



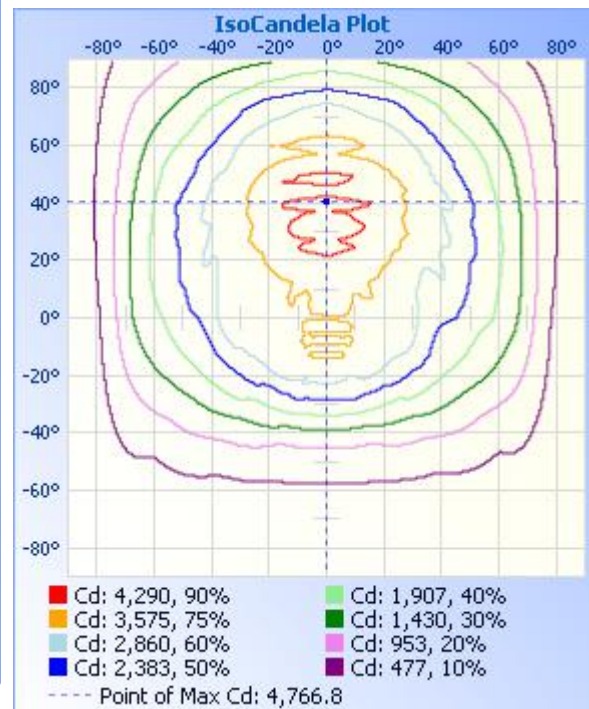
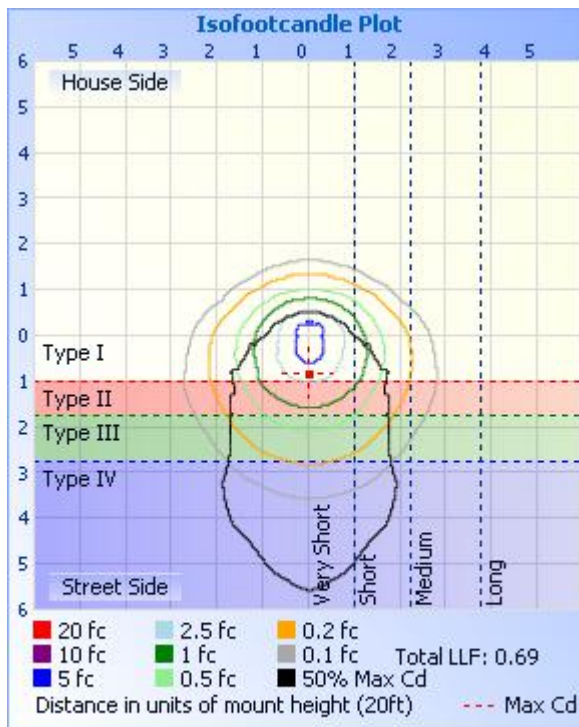


**Photometric Data**



	Center Beam fc	Beam Width	
17.0ft	12.0 fc	46.9 ft	43.1 ft
34.0ft	3.00 fc	93.8 ft	86.2 ft
51.0ft	1.33 fc	140.8 ft	129.3 ft
68.0ft	0.75 fc	187.7 ft	172.4 ft
85.0ft	0.48 fc	234.6 ft	215.5 ft
102.0ft	0.33 fc	281.5 ft	258.6 ft

■ Vert. Spread: 108.1°  
■ Horiz. Spread: 103.5°





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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	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468	3468
1	3987	4008	3854	3683	3464	3377	3343	3329	3330	3326	3324	3357	3445	3617	3831	3928	3987
2	4054	4064	4139	3898	3465	3321	3523	3954	4094	3919	3405	3276	3437	3841	4214	4165	4054
3	3535	3574	3774	4060	3460	3324	4202	4241	4186	4298	4139	3261	3418	4038	4043	3624	3535
4	3600	3529	3487	3998	3455	3510	4253	3515	3379	3571	4198	3460	3402	4151	3660	3520	3600
5	3769	3676	3476	3799	3460	3936	3701	3377	3447	3362	3604	3865	3389	4085	3508	3662	3769
6	3923	3846	3570	3617	3444	4238	3342	3519	3612	3513	3282	4187	3368	3921	3573	3832	3923
7	3740	3833	3697	3484	3434	4267	3414	3606	3792	3617	3379	4176	3354	3752	3690	3910	3740
8	3487	3541	3829	3367	3407	4076	3512	3897	3904	3879	3493	3846	3334	3582	3835	3632	3487
9	3657	3477	3769	3333	3379	3717	3572	3869	3609	3840	3570	3449	3311	3423	3917	3470	3657
10	3881	3730	3540	3396	3311	3323	3750	3479	3287	3425	3736	3196	3277	3350	3748	3660	3881
11	3786	3833	3426	3462	3279	3176	3826	3253	3383	3236	3736	3161	3242	3374	3552	3848	3786
12	3718	3750	3437	3499	3261	3204	3717	3372	3755	3409	3623	3210	3198	3421	3465	3770	3718
13	3712	3700	3567	3580	3231	3282	3446	3700	3748	3730	3356	3310	3168	3480	3500	3710	3712
14	3893	3731	3681	3645	3197	3348	3257	3729	3433	3695	3201	3379	3152	3535	3635	3709	3893
15	3970	3848	3652	3614	3194	3393	3212	3468	3328	3435	3256	3455	3152	3554	3725	3792	3970
16	3957	3950	3610	3575	3150	3504	3367	3289	3098	3265	3407	3503	3138	3584	3712	3913	3957
17	4040	3940	3610	3505	3058	3574	3544	3070	3411	3048	3525	3512	3088	3586	3681	3948	4040
18	4255	3962	3553	3372	3006	3520	3559	3145	3619	3224	3474	3411	3076	3529	3630	3933	4255
19	4295	4144	3558	3227	2990	3440	3394	3563	2910	3551	3316	3281	3102	3445	3582	4066	4295
20	4116	4227	3657	3130	2957	3352	3178	3206	2925	3078	3106	3202	3137	3359	3598	4200	4116
21	4201	4079	3696	3108	2946	3267	3098	2824	2958	2806	2944	3158	3189	3280	3666	4133	4201
22	4295	4054	3702	3108	2929	3170	2950	2883	3028	2852	2881	3154	3273	3202	3727	4051	4295
23	4414	4110	3746	3086	2917	3123	2911	2834	2782	2833	2984	3109	3376	3134	3752	4095	4414
24	4406	4207	3739	3073	2893	3134	3007	2916	2791	2892	3090	3054	3486	3082	3716	4141	4406
25	4519	4330	3734	3065	2858	3122	3060	2723	2545	2705	2874	2976	3542	3045	3690	4252	4519
26	4411	4392	3733	3072	2855	3015	2873	2657	2570	2627	2714	2917	3519	2998	3665	4322	4411
27	4339	4274	3758	3062	2869	2950	2696	2455	2601	2381	2643	2932	3451	2960	3688	4257	4339
28	4332	4180	3750	3042	2904	2909	2638	2362	2430	2426	2541	2897	3374	2934	3738	4143	4332

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29	4529	4200	3749	3013	2962	2915	2522	2481	2226	2452	2441	2851	3266	2904	3766	4151	4529
30	4588	4316	3693	3003	3040	2860	2409	2370	2129	2328	2407	2814	3074	2891	3749	4226	4588
31	4566	4357	3610	3028	3112	2777	2350	2182	2163	2127	2358	2781	2921	2893	3643	4283	4566
32	4514	4362	3646	3048	3182	2754	2318	2015	2124	1984	2377	2730	2771	2917	3586	4271	4514
33	4552	4390	3673	2982	3228	2702	2359	1937	1965	1945	2262	2622	2642	2938	3645	4294	4552
34	4529	4398	3713	2940	3242	2663	2272	1939	1842	1948	2113	2489	2541	2923	3712	4326	4529
35	4469	4306	3684	2911	3179	2596	2107	1915	1722	1866	2012	2415	2462	2887	3691	4307	4469
36	4407	4286	3638	2914	3118	2487	1997	1780	1627	1740	1891	2417	2428	2832	3622	4227	4407
37	4226	4264	3677	2925	3023	2379	1881	1650	1575	1604	1868	2392	2400	2784	3572	4192	4226
38	4358	4190	3701	2971	2876	2347	1831	1537	1509	1493	1873	2310	2414	2774	3631	4159	4358
39	4635	4103	3659	3020	2759	2328	1823	1445	1415	1426	1845	2248	2421	2804	3687	4105	4635
40	4767	4306	3498	3043	2655	2243	1820	1383	1253	1374	1761	2194	2408	2879	3649	4171	4767
41	4628	4447	3450	2949	2563	2172	1771	1319	1155	1311	1642	2136	2419	3040	3483	4300	4628
42	4378	4462	3424	2825	2496	2142	1681	1251	1085	1230	1543	2046	2394	3133	3385	4343	4378
43	4142	4262	3458	2758	2445	2104	1555	1171	1035	1123	1457	1961	2409	3014	3371	4248	4142
44	4064	4063	3533	2762	2396	2038	1458	1073	981	1026	1401	1897	2403	2780	3392	4118	4064
45	4101	3894	3544	2862	2369	1946	1376	980	930	960	1353	1831	2375	2700	3495	3898	4101
46	4223	3839	3520	3025	2350	1870	1319	923	883	920	1318	1765	2356	2687	3552	3801	4223
47	4367	3931	3450	3022	2332	1796	1278	879	840	871	1270	1733	2311	2703	3489	3840	4367
48	4495	4136	3322	2809	2301	1733	1228	834	802	827	1206	1656	2261	2791	3303	3993	4495
49	4562	4266	3296	2603	2269	1678	1188	790	768	783	1132	1605	2228	2879	3140	4212	4562
50	4483	4318	3233	2557	2268	1611	1135	749	706	742	1052	1554	2127	2749	3177	4236	4483
51	4237	4269	3140	2598	2232	1547	1058	712	670	706	976	1495	2103	2563	3223	4234	4237
52	3950	4119	3019	2742	2195	1511	991	675	642	673	908	1437	2042	2511	3061	4067	3950
53	3924	3884	3135	2803	2140	1443	913	644	612	639	847	1381	2016	2525	2990	3851	3924
54	3914	3641	3318	2595	2089	1379	843	612	574	601	802	1322	1998	2555	3098	3619	3914
55	3863	3613	3462	2473	2026	1328	796	572	542	572	751	1252	1980	2594	3314	3579	3863
56	3752	3615	3163	2440	1960	1284	740	546	511	538	713	1201	1954	2456	3378	3573	3752
57	3652	3541	2985	2460	1920	1214	694	518	485	512	677	1146	1943	2346	2961	3531	3652
58	3562	3425	2894	2457	1873	1171	657	486	457	478	632	1086	1884	2323	2796	3418	3562
59	3548	3316	3032	2371	1861	1105	616	455	433	452	591	1027	1836	2300	2818	3289	3548
60	3841	3318	2786	2337	1833	1047	577	428	410	427	548	964	1775	2343	2911	3269	3841

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Certificate#4810.01

61	3936	3494	2654	2372	1792	990	539	406	394	405	511	900	1711	2270	2665	3434	3936
62	3747	3618	2602	2371	1757	926	500	385	373	388	482	838	1667	2236	2589	3586	3747
63	3663	3481	2540	2277	1702	871	471	364	359	365	454	778	1615	2223	2534	3454	3663
64	3599	3306	2492	2167	1661	805	448	344	340	350	430	721	1559	2134	2453	3282	3599
65	3442	3229	2528	2147	1602	751	425	327	329	324	412	669	1521	2048	2472	3181	3442
66	3391	3167	2503	2039	1544	687	402	308	313	310	389	624	1447	1990	2470	3081	3391
67	3344	3116	2418	1994	1492	637	379	291	295	293	369	579	1366	1946	2379	3027	3344
68	3136	3012	2354	1968	1410	590	360	272	272	275	344	537	1304	1863	2313	2987	3136
69	3075	2901	2286	1906	1343	545	343	258	251	263	326	500	1214	1821	2246	2893	3075
70	3070	2817	2220	1843	1264	506	324	243	233	242	307	467	1123	1795	2173	2807	3070
71	3053	2807	2159	1854	1175	470	307	227	217	233	293	442	1030	1781	2126	2775	3053
72	3115	2729	2088	1777	1080	439	287	212	199	216	268	422	954	1715	2040	2688	3115
73	3029	2687	2029	1691	994	413	268	201	185	201	253	403	845	1621	1977	2628	3029
74	2954	2662	1986	1614	901	395	250	184	173	181	236	385	760	1551	1929	2587	2954
75	2868	2632	1953	1555	808	378	233	168	162	165	222	369	671	1477	1878	2558	2868
76	2790	2518	1920	1488	717	359	216	152	147	154	208	343	580	1421	1848	2489	2790
77	2633	2413	1870	1407	630	341	201	136	140	138	199	328	516	1334	1803	2387	2633
78	2576	2305	1800	1369	544	320	187	122	130	131	174	309	452	1261	1755	2272	2576
79	2507	2230	1731	1303	476	302	170	109	117	113	165	292	402	1206	1677	2189	2507
80	2363	2154	1658	1244	423	286	158	97	109	104	151	273	356	1156	1612	2118	2363
81	2353	2039	1580	1177	370	267	145	84	98	98	141	257	319	1056	1545	2003	2353
82	2256	1962	1528	1118	332	252	133	74	95	82	131	240	289	1012	1478	1924	2256
83	2126	1932	1483	1038	298	236	122	63	83	72	120	233	262	928	1411	1886	2126
84	2122	1795	1434	984	267	221	110	54	75	62	110	216	238	853	1349	1770	2122
85	2076	1731	1380	905	239	206	100	46	67	59	100	201	219	788	1300	1701	2076
86	1926	1682	1300	838	215	193	90	38	55	56	88	189	205	722	1237	1644	1926
87	1816	1597	1239	779	196	180	80	32	51	38	77	177	193	657	1190	1546	1816
88	1725	1504	1191	716	181	166	71	24	40	27	68	163	185	603	1140	1453	1725
89	1665	1430	1136	663	171	156	62	16	29	21	55	153	178	549	1079	1397	1665
90	1556	1358	1079	618	164	146	52	4	13	12	54	143	174	502	1014	1318	1556
91	1483	1274	1022	565	159	135	47	4	16	12	35	137	170	459	962	1238	1483
92	1385	1202	959	514	157	125	44	4	11	9	46	131	165	419	900	1168	1385

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94	1190	1064	838	426	150	111	38	4	15	15	38	113	155	345	777	1037	1190
95	1102	986	781	391	146	105	35	5	14	14	36	102	150	321	719	960	1102
96	1011	915	723	357	141	99	31	5	13	12	33	105	144	295	656	890	1011
97	936	846	663	327	137	94	29	4	16	16	28	102	138	273	603	823	936
98	865	779	621	303	131	88	27	5	16	16	30	95	133	251	555	766	865
99	791	724	567	286	127	83	25	5	17	15	31	94	128	233	508	710	791
100	725	667	516	264	123	78	24	5	14	15	29	83	123	219	462	648	725
101	671	624	470	254	119	74	21	5	17	15	22	85	118	207	424	596	671
102	618	579	435	234	115	69	20	5	14	12	25	74	113	194	388	558	618
103	571	537	402	221	110	65	18	6	16	12	24	67	109	182	364	517	571
104	534	503	369	208	105	61	17	5	14	17	24	71	104	170	336	482	534
105	505	466	342	190	102	58	15	6	17	17	24	69	99	158	310	446	505
106	476	437	318	179	97	55	14	5	15	13	20	58	95	147	289	417	476
107	453	408	292	162	93	51	12	5	19	15	20	63	91	136	268	392	453
108	424	386	276	157	88	47	12	6	14	14	20	56	87	127	252	367	424
109	404	361	259	146	85	44	11	6	17	14	18	56	84	119	238	343	404
110	382	339	239	137	79	40	10	5	16	17	14	55	79	114	224	322	382
111	367	322	231	131	75	37	9	5	11	14	16	41	76	105	212	303	367
112	349	303	217	124	72	35	9	5	15	18	16	49	73	98	200	288	349
113	328	287	206	119	68	32	8	5	16	15	18	46	70	93	190	275	328
114	309	279	190	110	65	29	7	6	16	18	16	46	66	87	181	262	309
115	296	265	186	105	62	28	7	6	17	14	17	42	62	83	173	251	296
116	280	253	177	102	58	25	7	5	16	13	17	42	58	79	166	240	280
117	266	242	167	97	54	23	6	6	16	15	14	33	55	74	158	229	266
118	254	227	164	94	51	22	6	6	17	14	19	35	51	70	149	215	254
119	241	213	151	83	48	19	6	6	16	10	12	23	48	66	141	200	241
120	221	202	141	79	44	18	6	6	17	11	17	31	45	62	131	189	221
121	198	188	130	76	40	16	6	6	16	19	14	32	42	58	125	177	198
122	178	178	128	75	38	15	6	6	14	14	15	28	38	55	116	167	178
123	162	168	121	69	35	14	5	6	14	16	17	28	35	52	107	156	162
124	146	159	109	66	31	12	6	6	15	15	16	28	33	48	99	149	146

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128	118	126	84	53	23	9	5	7	17	18	16	25	24	36	69	113	118
129	106	114	70	53	20	8	6	6	17	14	16	26	22	33	61	105	106
130	106	109	71	45	19	8	6	7	18	17	18	24	21	30	54	97	106
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132	91	89	59	43	16	7	6	7	16	16	15	22	17	26	40	81	91
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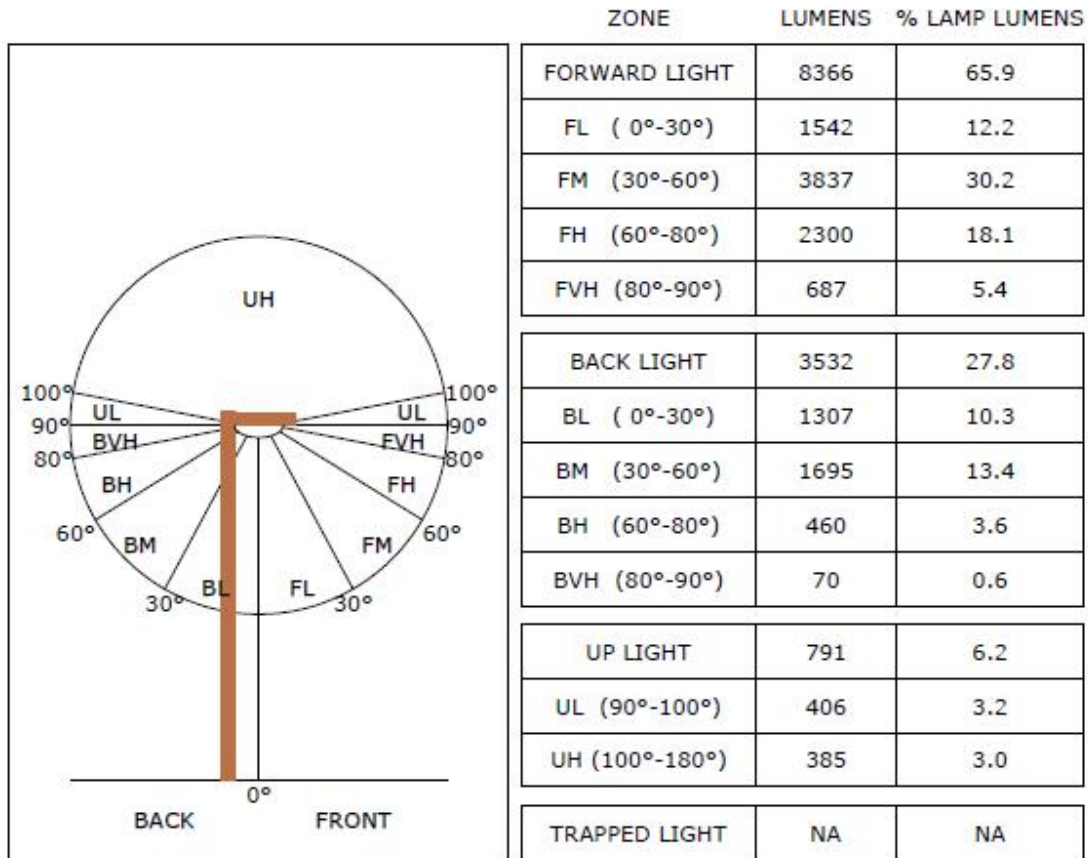
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178	20	18	21	17	7	8	9	10	19	19	14	27	8	8	8	8	20
179	15	17	16	28	7	8	9	10	17	17	18	22	7	8	9	8	15
180	16	20	20	26	8	8	8	9	11	19	19	24	8	8	8	9	16





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

<b>Test date</b>	2019-07-09	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AST-SWP01-100BA2-abcd57		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC190700	120.0	60	0.8338	98.76	0.987	15.49
9E-D2	277.0	60	0.3771	98.39	0.942	10.84
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	0
Frequency (Hz)	60	R2	87	R10	69
CCT (K)	5574	R3	92	R11	81
Duv	0.00273	R4	82	R12	59
Chromaticity (x, y)	x=0.3308 y=0.3450	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2042 v'(v')=0.4793	R6	82	R14	96
Color Rendering Index (CRI)	82	R7	86	R15	75
R9	0	R8	66	--	--

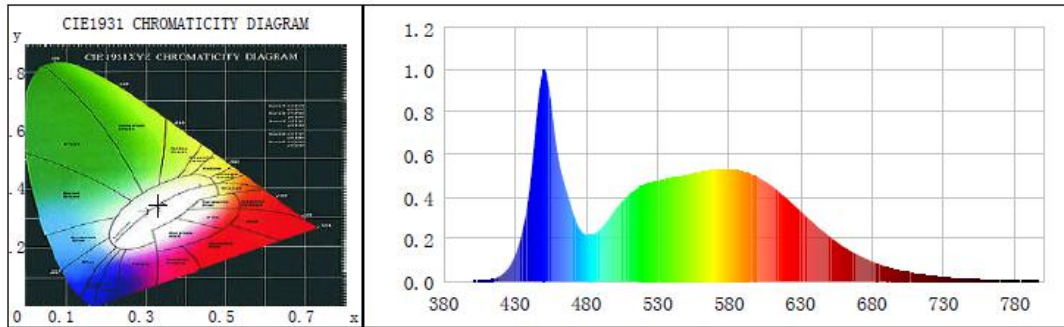
**Photometric Measurement – Sphere-Spectroradiometer Method:**

Parameter	Result		DLC V4.4 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	13205.2	13229.5	>=10000 (-10%)
Luminous Efficacy (lm/W)	133.71	134.46	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	133.71		



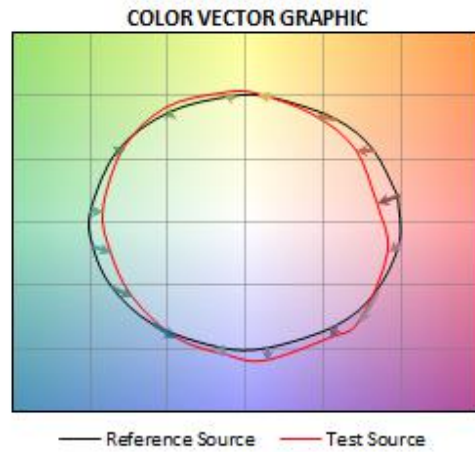
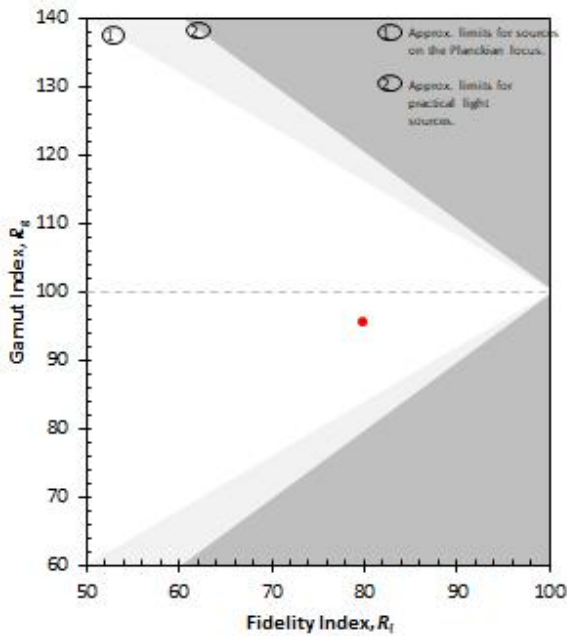
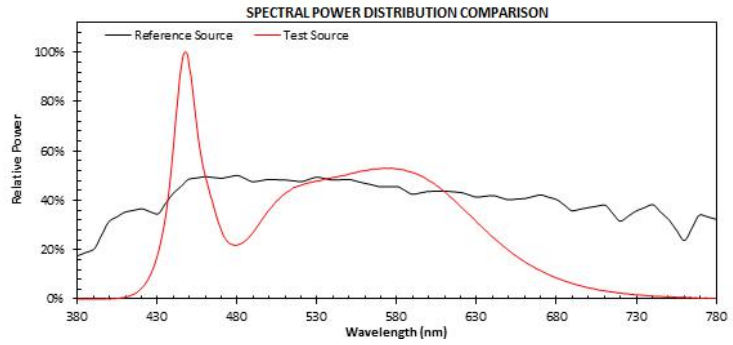
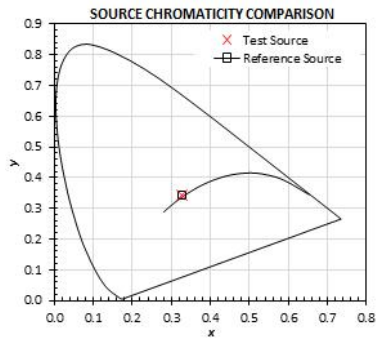
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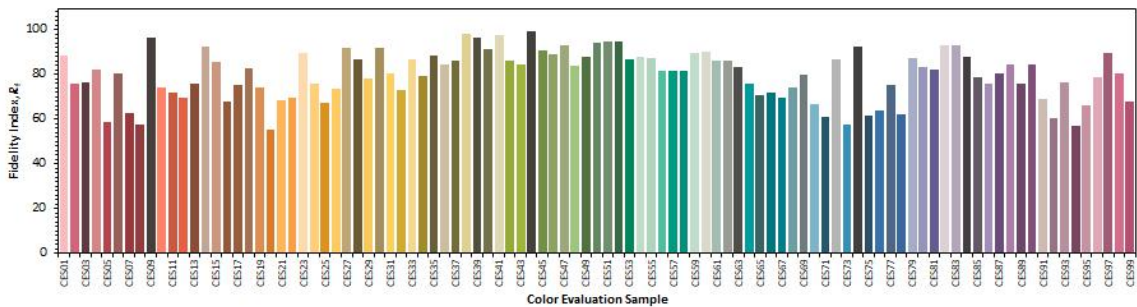
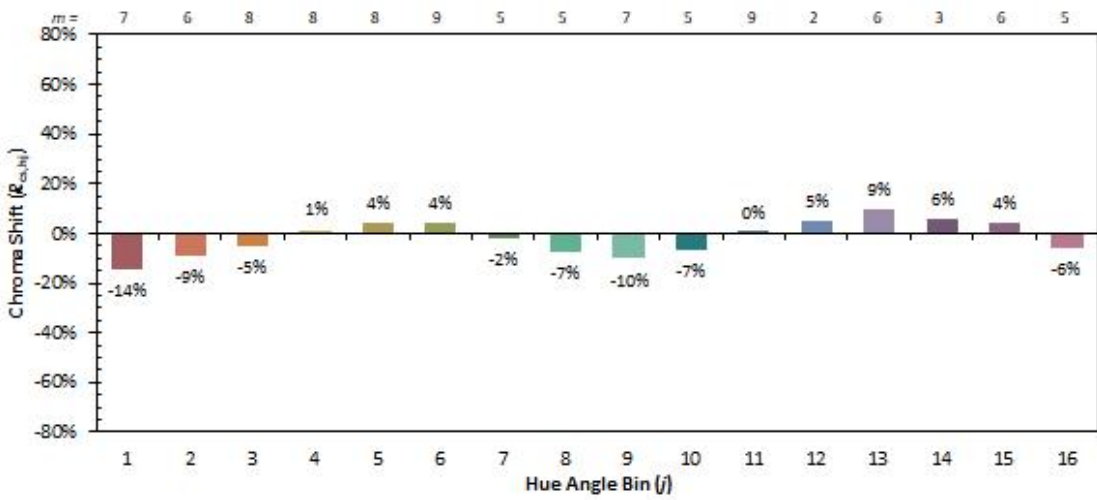
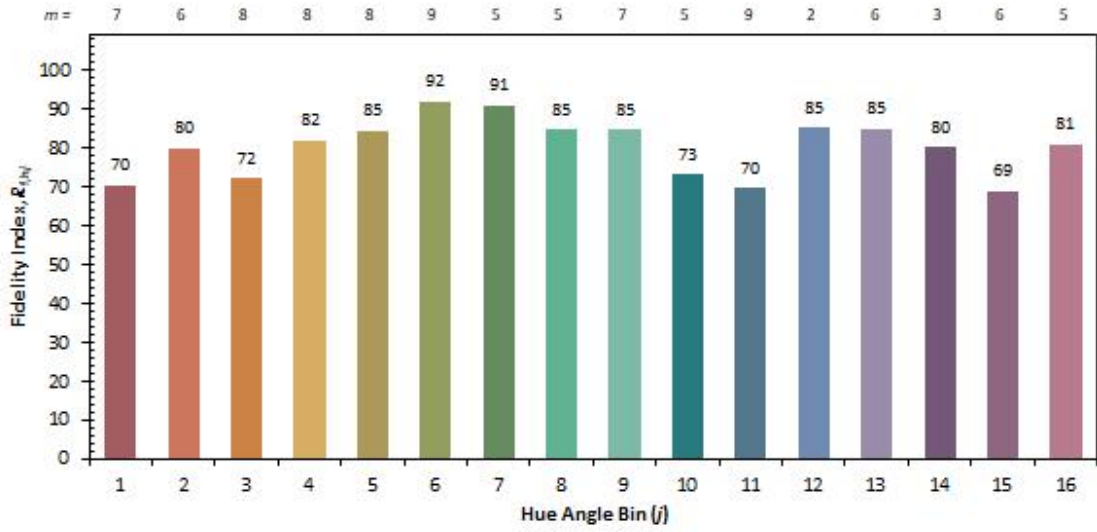
## Spectral Power Distribution & Chromaticity Diagram





**TM30**







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

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-SWP01-100BA2-abcd40	12689.7	98.64	128.65
AST-SWP01-100BA2-abcd45	12818.6	98.70	129.87
AST-SWP01-100BA2-abcd50	12947.4	98.70	131.18
AST-SWP01-100BA2-abcd57	13205.2	98.76	133.71

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

$$12818.6=(13205.2-12689.7)/4+12689.7$$

$$12947.4=(13205.2-12689.7)/4+12818.6$$

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

$$98.70=(98.64+98.76)/2$$

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

$$129.87=12818.6/98.70$$

$$131.18=12947.4/98.70$$



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### 3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2020-01-14
AC Power Source	CHP-500C	N/A	2020-01-13
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2020-01-21
Digital Power Meter	WT500	DYDWQ200006	2020-01-13
Integral Sphere (2M)	2M	DYJCE120067	2020-01-14
Digital Power Meter	WT500	DYDWQ200006	2020-01-13
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2020-01-14

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 \*\*\*\*\*