



Report No.: BLC1809011E-U-G

## LM-79-08 Test Report

For

# Beyond LED Technology

(Brand Name: Beyond LED Technology)

1939 Parker Ct, Stone Mountain, GA 30087, USA

### Architectural Flood and Spot Luminaires

Model name(s): BLT-SP01-1200WMHT1B1-acd

Remark: "a" can be any two letters to represent lamp colors,  
"c" can be "S" for Surge-Protective Device provided or blank for no Surge-Protective  
Device provided,

"d" can be any two digits to represent CCT

Representative (Tested) Model: AST-SP01-1200WMHT1B1-ac40  
AST-SP01-1200WMHT1B1-ac57

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

Test & Report By:

*Grace Li*

Engineer: Grace Li

Date: Sept 19, 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-SP01-1200WMHT1B1-acd	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	100-277Vac, 50/60 Hz	
Nominal Power	1200W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,4500K,5000K,5700K	
LED Manufacturer	OSRAM	
LED Model	GW PUSTA1.PM	
Sample Number	BLC1809011E-U-G1(4000K),G2(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	Sept 13,2018
Date of Test	Sept 17,2018
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 C78.377-2008 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>	2018-09-17	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AST-SP01-1200WMHT1B1-ac40		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180901	120.0	60	10.3944	1244.83	0.998	4.89
1E-U-G1	277.0	60	4.4985	1199.97	0.963	7.24
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

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

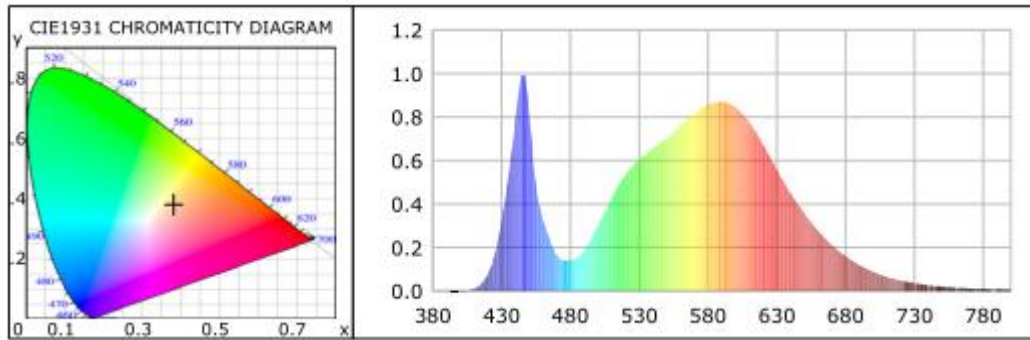
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	72	R9	0
Frequency (Hz)	60	R2	80	R10	54
CCT (K)	3977	R3	88	R11	72
Duv	-0.00008	R4	74	R12	51
Chromaticity (x, y)	x=0.3814 y=0.3772	R5	72	R13	73
Chromaticity (u', v')	u(u')=0.2256 v'(v')=0.5019	R6	73	R14	93
Color Rendering Index (CRI)	74.2	R7	81	R15	65
R9	0	R8	54	--	--

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	161549	162891.3	>=30000(-10%)
Luminous Efficacy (lm/W)	129.78	135.75	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	129.78		
Zonal lumens in the 0-90° zone (%)	99.7	--	>=85(-3)
Beam Angle (°)	13	--	--
Center Beam Candle Power (cd)	1402325	--	--



**Spectral Power Distribution & Chromaticity Diagram**

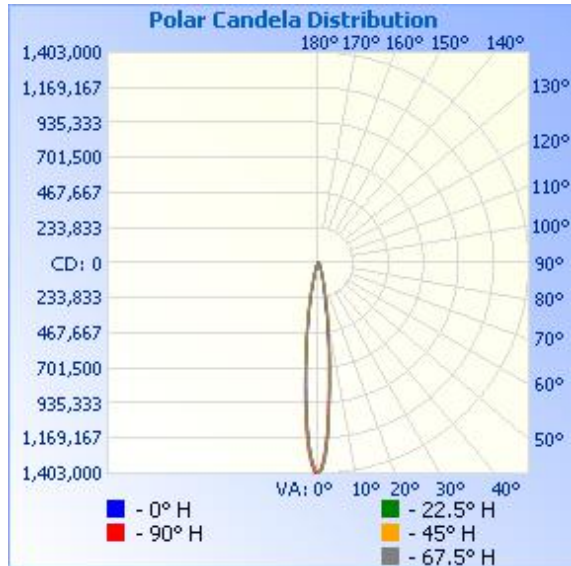


**Zonal Lumen Tabulation**

Zonal Lumen Summary				Lumens Per Zone					
Zone	Lumens	% Lamp	% Luminaire	Zone	Lumens	% Total	Zone	Lumens	% Total
0-30	126,608.1	78.4%	78.5%	0-10	68,200.1	42.3%	90-100	119.7	0.1%
0-40	135,189.7	83.7%	83.9%	10-20	43,657.5	27.1%	100-110	0	0%
0-60	148,917.7	92.2%	92.4%	20-30	14,750.5	9.1%	110-120	0	0%
60-90	12,183.2	7.5%	7.6%	30-40	8,581.6	5.3%	120-130	0	0%
70-100	6,928.0	4.3%	4.3%	40-50	7,261.7	4.5%	130-140	0	0%
90-120	119.7	0.1%	0.1%	50-60	6,466.3	4.0%	140-150	0	0%
0-90	161,100.9	99.7%	99.9%	60-70	5,374.9	3.3%	150-160	0	0%
90-180	119.7	0.1%	0.1%	70-80	3,996.3	2.5%	160-170	0	0%
0-180	161,220.5	99.8%	100%	80-90	2,812.0	1.7%	170-180	0	0%



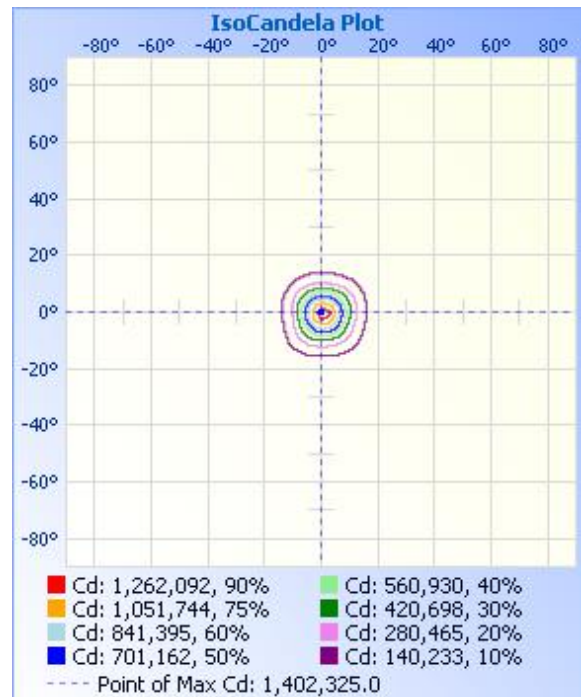
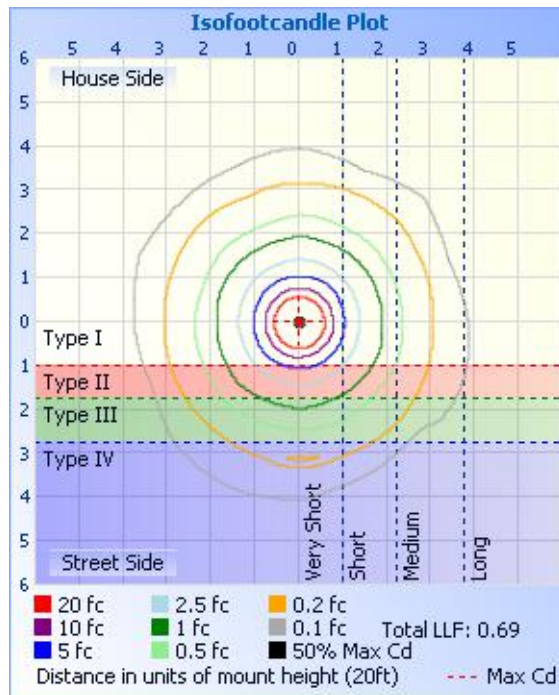
**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
17.0ft	4,852 fc	3.9 ft	3.9 ft
34.0ft	1,213 fc	7.8 ft	7.8 ft
51.0ft	539 fc	11.7 ft	11.6 ft
68.0ft	303 fc	15.5 ft	15.5 ft
85.0ft	194 fc	19.4 ft	19.4 ft
102.0ft	135 fc	23.3 ft	23.3 ft

■ Vert. Spread: 13.0°  
■ Horiz. Spread: 13.0°





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**Candela Table - Type C**

	0	22.5	45	67.5	90	112.	135	157.	180	202.	225	247.	270	292.	315	337.	360
						5	5	5	5	5	5	5	5	5	5	5	5
0	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1	1378	1377	1373	1370	1351	1354	1359	1367	1373	1378	1381	1378	1400	1396	1392	1385	1378
	488	770	366	352	970	042	642	005	383	458	207	400	132	192	878	290	488
2	1297	1296	1288	1284	1252	1260	1274	1290	1304	1308	1311	1311	1341	1339	1330	1312	1297
	424	266	487	913	701	262	433	833	472	106	886	272	630	085	705	619	424
3	1169	1153	1145	1156	1119	1132	1157	1184	1206	1213	1219	1215	1250	1242	1224	1192	1169
	064	718	190	740	184	405	243	686	588	949	384	727	289	176	029	937	064
4	1014	9978	9918	1007	9520	9874	1020	1042	1069	1094	1104	1095	1131	1116	1086	1043	1014
	141	63	65	855	13	32	626	468	582	394	047	134	874	165	533	437	141
5	8569	8458	8441	8449	8038	8389	8784	9040	9311	9586	9694	9565	9966	9771	9393	8894	8569
	31	18	00	01	31	86	54	64	04	88	66	42	34	37	08	05	31
6	7163	7142	7164	7146	6745	6939	7361	7740	7979	8236	8335	8170	8568	8420	7907	7488	7163
	23	36	54	07	44	50	25	68	50	69	41	77	18	52	65	76	23
7	5844	6025	6099	6041	5636	5802	6259	6618	6769	6982	6974	6755	7124	7090	6760	6140	5844
	53	23	58	20	18	68	02	57	81	73	60	53	59	32	23	04	53
8	4800	5065	5188	5091	4568	4823	5332	5565	5600	5768	5917	5657	5958	6015	5745	5075	4800
	86	23	62	99	61	57	86	23	84	75	14	21	93	78	26	13	86
9	3899	4133	4328	4271	3727	3974	4544	4748	4774	4835	5021	4738	4982	5093	4865	4145	3899
	07	03	59	92	90	32	80	81	86	61	49	26	86	93	23	56	07
10	3152	3399	3647	3570	3022	3204	3817	4049	3913	4069	4285	3983	4167	4322	4117	3370	3152
	33	52	25	69	55	55	30	60	48	30	79	38	84	28	65	08	33
11	2549	2765	3040	2908	2430	2615	3233	3415	3214	3405	3643	3323	3469	3642	3465	2737	2549
	68	04	26	15	64	65	24	09	04	77	81	02	39	63	48	76	68
12	2084	2252	2516	2401	1972	2152	2747	2868	2628	2856	3112	2779	2874	3065	2861	2244	2084
	22	39	06	88	21	22	09	10	62	88	42	01	02	93	33	85	22
13	1686	1834	2064	1973	1613	1771	2318	2375	2125	2376	2641	2265	2313	2505	2377	1811	1686
	11	72	64	29	11	41	69	81	88	10	64	26	45	19	38	63	11
14	1414	1510	1683	1626	1316	1476	1953	1903	1709	1919	2195	1883	1887	2074	1964	1506	1414
	85	45	83	73	37	96	37	52	60	06	22	45	61	62	36	25	85
15	1208	1243	1364	1349	1130	1238	1639	1571	1368	1562	1829	1555	1546	1711	1618	1274	1208
	12	66	24	73	25	51	84	89	81	30	72	61	68	33	19	02	12

**Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01**  
**Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,**  
**Guangzhou, People' s Republic of China. Website: <http://www.blst.com>**

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1	1047	1062	1138	1133	9632	1037	1382	1254	1102	1277	1523	1297	1272	1415	1345	1092	1047
6	44	15	69	88	3	31	49	01	25	71	57	64	50	94	77	10	44
1	9152	9165	9518	9579	8300	8846	1134	1021	9215	1046	1253	1078	1060	1172	1129	9492	9152
7	5	8	8	5	6	1	55	46	2	22	97	35	06	49	22	6	5
1	8050	7991	8128	8013	7235	7619	9503	8445	7909	8700	1035	8933	8961	9806	9540	8292	8050
8	0	1	6	6	2	5	2	5	0	3	29	8	7	7	9	4	0
1	7000	6919	6960	6790	6282	6521	7893	7079	6834	7232	8412	7539	7633	8088	7937	7226	7000
9	7	6	2	8	6	1	2	6	6	0	9	4	2	8	2	5	7
2	5970	5913	5904	5773	5345	5479	6568	5920	5854	6154	7010	6457	6445	6830	6713	6138	5970
0	1	7	3	9	7	1	8	0	2	2	2	0	6	9	2	8	1
2	5149	5048	5064	4956	4578	4809	5489	5047	5058	5276	5807	5440	5511	5760	5677	5291	5149
1	5	4	0	6	0	5	2	9	6	4	5	1	8	8	5	7	5
2	4472	4376	4308	4195	3960	4121	4591	4360	4388	4582	4851	4682	4769	4915	4848	4594	4472
2	9	7	0	5	7	1	6	3	3	9	5	1	2	9	9	7	9
2	3896	3783	3745	3646	3468	3542	3828	3791	3818	3917	4129	4002	4098	4205	4211	3994	3896
3	6	1	7	5	8	2	9	4	3	5	9	1	6	6	8	6	6
2	3411	3355	3314	3250	3061	3154	3329	3331	3345	3470	3552	3443	3606	3695	3643	3503	3411
4	1	2	5	3	4	2	9	9	3	7	0	7	6	5	7	9	1
2	3028	3014	2939	2894	2735	2800	2959	2988	2966	3036	3095	3060	3127	3207	3216	3081	3028
5	9	6	7	7	5	6	6	1	3	5	9	1	2	4	9	9	9
2	2700	2630	2633	2598	2425	2478	2652	2609	2593	2649	2736	2679	2732	2784	2865	2725	2700
6	0	4	5	4	3	3	0	9	5	1	6	5	4	9	4	6	0
2	2408	2380	2368	2302	2177	2243	2335	2341	2305	2414	2439	2389	2444	2509	2504	2441	2408
7	7	5	0	1	8	6	0	1	4	8	8	4	1	6	5	1	7
2	2208	2136	2152	2093	1996	2008	2121	2062	2054	2146	2168	2143	2209	2312	2322	2228	2208
8	3	8	4	1	0	9	6	9	8	2	0	0	1	4	5	6	3
2	2036	1983	1958	1899	1811	1833	1942	1937	1888	1921	1999	1905	1983	2049	2071	2062	2036
9	0	7	7	7	1	7	7	9	8	2	3	9	5	6	4	9	0
3	1891	1833	1815	1771	1679	1699	1795	1753	1776	1796	1818	1749	1811	1852	1923	1853	1891
0	9	8	0	8	5	1	2	5	0	3	2	9	1	5	9	5	9
3	1738	1699	1696	1672	1569	1599	1682	1628	1666	1624	1674	1628	1638	1699	1779	1706	1738
1	4	4	3	0	9	0	2	5	4	5	5	3	8	1	5	6	4
3	1657	1555	1599	1559	1497	1523	1578	1519	1534	1496	1583	1537	1585	1617	1675	1647	1657
2	0	7	5	7	8	9	6	1	8	4	9	8	5	8	9	2	0
3	1569	1524	1527	1459	1444	1439	1493	1490	1481	1477	1490	1491	1529	1495	1556	1569	1569
3	3	5	6	8	5	4	9	9	6	6	1	0	1	7	7	1	3





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3	1500	1465	1437	1419	1328	1364	1437	1462	1431	1418	1424	1438	1435	1433	1509	1481	1500
4	4	1	0	3	6	3	4	8	5	3	5	0	1	1	6	6	4
3	1437	1399	1362	1325	1294	1298	1377	1353	1346	1358	1383	1335	1385	1358	1459	1400	1437
5	7	5	1	7	1	6	8	4	9	9	9	1	0	0	4	3	7
3	1321	1290	1274	1247	1187	1223	1283	1269	1312	1271	1293	1260	1294	1301	1330	1347	1321
6	8	2	6	7	6	5	6	0	4	5	3	2	1	7	7	2	8
3	1246	1199	1180	1225	1146	1179	1242	1203	1209	1196	1196	1219	1215	1248	1271	1247	1246
7	6	6	9	9	9	7	8	4	1	5	5	7	8	5	1	1	6
3	1190	1196	1162	1179	1103	1114	1161	1184	1171	1190	1165	1166	1137	1176	1220	1240	1190
8	3	5	1	1	0	0	2	6	5	2	2	6	5	6	9	9	3
3	1218	1134	1168	1141	1062	1070	1176	1140	1099	1146	1149	1107	1103	1142	1151	1215	1218
9	5	0	4	7	2	2	9	9	4	5	6	4	0	1	8	9	5
4	1130	1118	1096	1066	1056	1057	1111	1103	1143	1084	1102	1048	1049	1082	1145	1147	1130
0	8	4	5	8	0	6	0	4	3	0	8	1	7	7	5	1	8
4	1133	1112	1040	1035	1012	1067	1051	1065	1074	1109	1099	1048	1071	1095	1092	1100	1133
1	9	1	3	6	1	0	4	8	4	0	6	1	6	2	2	2	9
4	1118	1065	1021	1048	1005	1004	1054	1044	1030	1012	1052	1038	1030	1073	1079	1078	1118
2	2	3	5	1	8	5	5	0	5	2	8	7	9	3	6	4	2
4	1027	1012	9966	1032	9714	9888	1042	1037	1061	1009	1018	1010	9839	9919	1032	1031	1027
3	4	2		5			0	7	8	0	4	7			6	5	4
4	1018	1009	9716	9639	9118	9356	9949	1000	1002	1005	1018	9764	9682	9638	1032	9783	1018
4	0	0						2	3	9	4				6		0
4	9647	9309	8966	9046	8648	8981	9635	9596	9961	9591	9653	9327	9275	9387	9729	9846	9647
5																	
4	9052	8841	8622	8703	8241	8355	9353	9127	9240	9278	9528	8859	9056	8855	9447	8814	9052
6																	
4	8457	8091	8653	8547	7771	8480	9227	8783	8770	8872	8872	8609	8774	8762	8788	8627	8457
7																	
4	8144	8122	8091	7923	7834	7729	8662	8783	8739	8653	8466	8516	8429	8104	8411	8158	8144
8																	
4	8363	8091	8247	7767	7646	8073	8317	8283	8739	8841	8716	8204	7959	7885	8160	8345	8363
9																	
5	8395	7560	7466	7798	7959	7698	8254	8252	8708	8404	8310	8141	7834	7792	8097	8064	8395
0																	
5	8175	7685	7310	7798	7113	7447	8097	8189	8269	8060	8185	7830	8147	7604	7972	8033	8175
1																	

**Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01**  
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5	7893	7373	7466	7892	7489	7666	7878	8064	8269	8216	8247	7954	7990	7385	7846	7939	7893
2																	
5	7925	7591	7498	7580	7364	6915	7689	7814	8238	7872	7498	7143	7646	7260	7658	7877	7925
3																	
5	7705	7341	7373	6956	6925	7260	7626	7845	8081	7654	7935	7455	7270	6978	7532	7345	7705
4																	
5	7893	7404	6904	6613	7050	6446	7156	7595	7862	7435	7404	7018	7489	6822	7375	7126	7893
5																	
5	7737	7216	6373	6738	6643	6915	7313	6814	7517	7529	6966	7112	6956	6102	7344	7439	7737
6																	
5	7173	6654	6592	6707	6549	6540	6748	7001	7267	7091	6935	6551	6612	6571	6779	7158	7173
7																	
5	6797	6873	6279	6894	5797	6571	6936	6470	7236	7091	6935	6457	6737	6446	7030	6783	6797
8																	
5	6672	6529	6592	6488	6298	5883	6779	6408	6703	6560	6779	6551	6737	5914	6654	6970	6672
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6	6390	6592	6373	5896	5672	5977	6497	6345	6265	6467	6467	6426	6048	6634	6716	6283	6390
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6	6327	6123	6092	5833	5766	5539	6497	6501	6233	6404	6123	6457	5766	5539	6057	6314	6327
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6	6139	5717	6123	6395	5578	5914	6089	6033	5763	5936	6061	6083	5672	5977	6434	6283	6139
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6	6171	5779	5561	5864	5578	5194	5838	5720	6265	5686	5904	5958	5202	5413	6246	5626	6171
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6	5137	5811	4967	5646	5045	5257	5492	5689	5231	5561	6061	4929	5609	5288	6057	6314	5137
4																	
6	5575	5373	5436	5490	5233	5007	5618	5282	5325	4936	5373	5334	4512	5100	5398	5157	5575
5																	
6	4886	5436	5030	5272	4575	5163	5335	5501	5294	5436	5436	5209	4794	4788	5524	5501	4886
6																	
6	5419	5467	4811	5053	4763	4788	5273	4907	5450	4873	5186	4741	4982	5226	5492	5657	5419
7																	
6	5137	5311	4967	5022	4512	4662	4865	5220	5356	4436	5123	4773	5045	4475	5398	5220	5137
8																	
6	5262	5155	4342	4461	4794	4569	5053	4876	4886	4811	4780	4991	4732	5007	4739	5064	5262
9																	

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7	3696	4249	4342	4086	3604	4037	4488	4720	4855	3967	4561	4211	3917	4193	4645	4345	3696
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7	4886	4374	4311	3681	3854	3442	4425	4251	3915	4061	4217	3806	3604	2973	2856	4282	4886
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7	4698	4467	3811	4336	3321	3317	4080	3501	4135	4249	3905	3837	3948	4037	3954	4313	4698
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7	4009	3686	2968	4211	3572	3160	4017	3407	4009	3468	3905	3962	3541	2910	4143	4407	4009
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7	4291	3030	3874	3899	3729	2816	4080	3407	3978	3780	3343	3962	2914	2722	3923	4376	4291
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7	3414	3530	3374	3275	2757	3254	3703	3532	3884	3593	3686	3743	3478	2910	3892	3845	3414
7																	
7	3727	1937	3311	3306	3102	2190	3515	3657	3571	3530	3280	3618	3071	2785	3390	3813	3727
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9	2381	2562	1812	2464	2005	1752	1914	2313	1441	2624	2031	2402	2131	2222	2260	2594	2381
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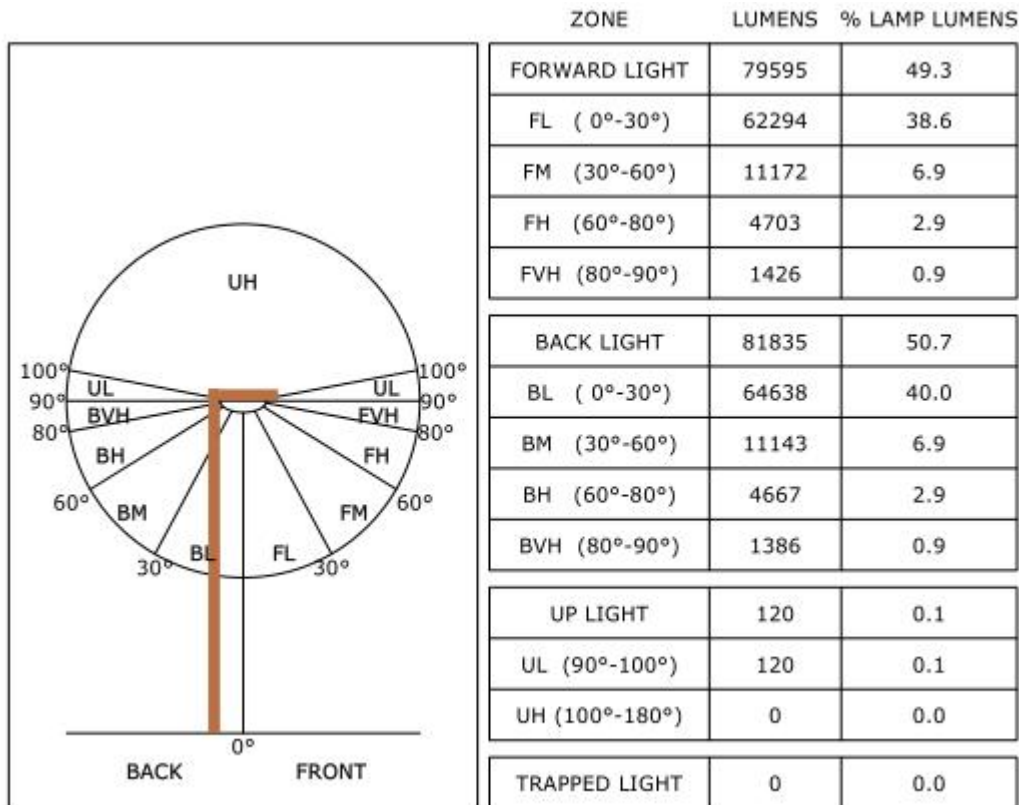
Report No.: BLC1809011E-U-G

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

<b>Test date</b>	2018-09-17	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	AST-SP01-1200WMHT1B1-ac57		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180901	120.0	60	10.3845	1243.9	0.9982	4.72
1E-U-G2	277.0	60	4.4995	1199.62	0.9625	7.13
<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	73	R9	0
Frequency (Hz)	60	R2	77	R10	46
CCT (K)	5694	R3	80	R11	75
Duv	0.00226	R4	76	R12	49
Chromaticity (x, y)	x=0.3281 y=0.3417	R5	74	R13	73
Chromaticity (u', v')	u(u')=0.2037 v'(v')=0.4772	R6	70	R14	89
Color Rendering Index (CRI)	74.1	R7	81	R15	68
R9	0	R8	62	--	--

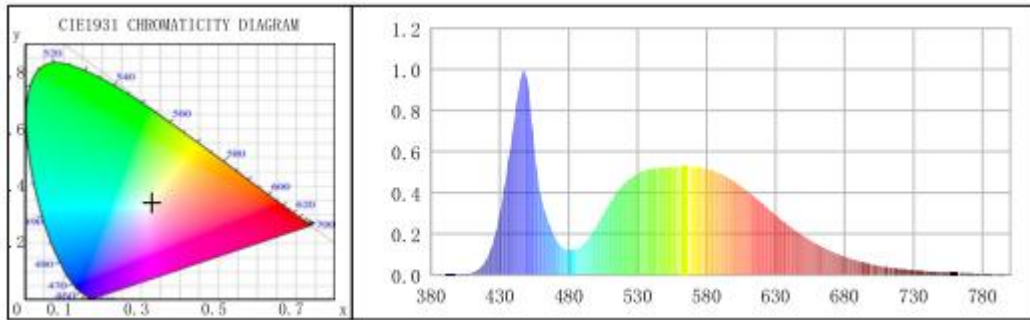
**Photometric Measurement – Sphere-Spectroradiometer Method:**

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	165675.04	166531.25	>=30000(-10%)
Luminous Efficacy (lm/W)	133.19	138.82	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	133.19		



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**Spectral Power Distribution & Chromaticity Diagram**





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

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
AST-SP01-1200WMHT1B1-ac40	161549	1244.83	129.78
AST-SP01-1200WMHT1B1-ac45	162580.51	1244.37	130.65
AST-SP01-1200WMHT1B1-ac50	163612.02	1244.37	131.48
AST-SP01-1200WMHT1B1-ac57	165675.04	1243.9	133.19



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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 \*\*\*\*\*