



Report No.: BLC1909006E-L-R

## LM-79-08 Test Report

For

# Shenzhen XinShengYang Opto- Electronics Technology Co., Ltd

(Brand Name: )

10-11/F, No. 2 Building, Hengchangrong High Tech Ind Park, Shangnan East Road, Hongtian, Shajing Town, Bao'an District, SHENZHEN Guangdong 518125

## High Bay Luminaires for Commercial and Industrial Buildings

Model name(s): XSY-LHB4P300-XXK-HL-HB-EF

Remark: XXK represents CCT, can be 40K for 4000K, 45K=4500K, 50K for 5000K, 57K=5700K. "E" can be "A" or "B", represent for motion sensor, A=without motion sensor, B= with motion sensor. "F" can be "A" or "B" or "C", represent for different mounting types.

Representative (Tested) Model:  
XSY-LHB4P300-40K-HL-HB-AF  
XSY-LHB4P300-57K-HL-HB-AF

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

Test & Report By:

*Sherry Yang*

Engineer: Sherry Yang

Date: Sept. 10, 2019

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,  
Guangzhou, People's Republic of China. Website: <http://www.bltest.com>

Report Format Number BL-FM-SA-012



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## Revision Summary

Date	Revisor	Item	Description of change
Sept. 10, 2019	Sherry Yang	/	Original Issue
Sept. 25, 2019	Sherry Yang	Tested dates	Added tested data at 277V



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### 1.1 Product Information:

Organization Name	Shenzhen XinShengYang Opto-Electronics Technology Co., Ltd	
Brand Name		
Model Number	XSY-LHB4P300-XXK-HL-HB-EF	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	High Bay Luminaires for Commercial and Industrial Buildings	
Rated Voltage / Frequency	120-347Vac, 50/60 Hz	
Nominal Power	300W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,5000K,5700K	
LED Manufacturer	Seoul Semiconductor Co., LTD	
LED Model	STW8A2PD-XX	
Sample Number	BLC1909006E-L1(4000K),L2(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. 06, 2019
Date of Test	Sept. 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 C78.377-2008 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>	2019-09-09	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	XSY-LHB4P300-40K-HL-HB-AF		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC190900 6E-L1	120.0	60	2.4695	294.56	0.994	10.08
	277.0	60	1.0221	292.19	0.969	9.15
	347.0	60	0.8864	290.06	0.943	8.09
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

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

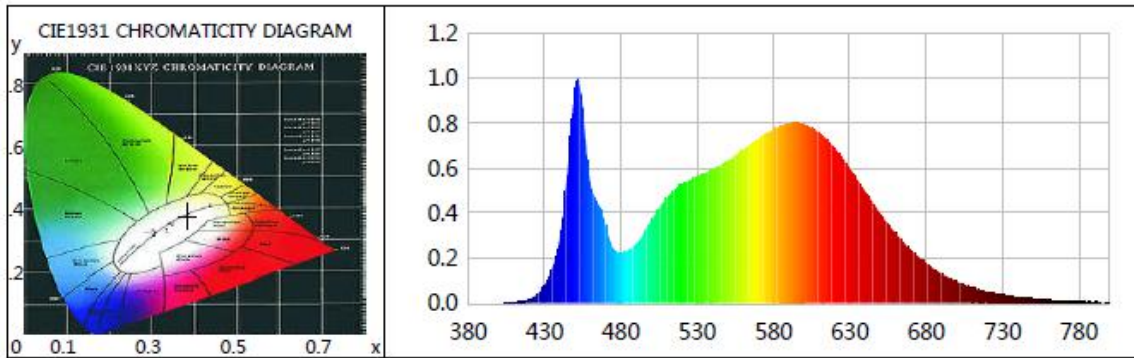
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	5
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	3970	R3	95	R11	80
Duv	0.00082	R4	81	R12	59
Chromaticity (x, y)	x=0.3824 y=0.3797	R5	81	R13	83
Chromaticity (u', v')	u(u')=0.2252 v'(v')=0.5032	R6	85	R14	98
Color Rendering Index (CRI)	82.5	R7	85	R15	74
R9	5	R8	63	--	--

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result			DLC V4.4 Pass Criteria
Test Voltage (V)	120.0	277.0	347.0	--
Frequency (Hz)	60	60	60	
Total Luminous (lm)	41235.8	40938.2	40693.1	>=10000 lm (-10%)
Luminous Efficacy (lm/W)	139.99	140.11	140.29	Premium: >= 130(-3%)
Most worst Luminous/Highest Watts	138.15			
Zonal lumens in the 20-50° zone (%)	54.3		--	>=30(-10)
Beam Angle (°)	103.5		--	--
Center Beam Candle Power (cd)	15949		--	--



### Spectral Power Distribution & Chromaticity Diagram



### Zonal Lumen Tabulation

#### Zonal Lumen Summary

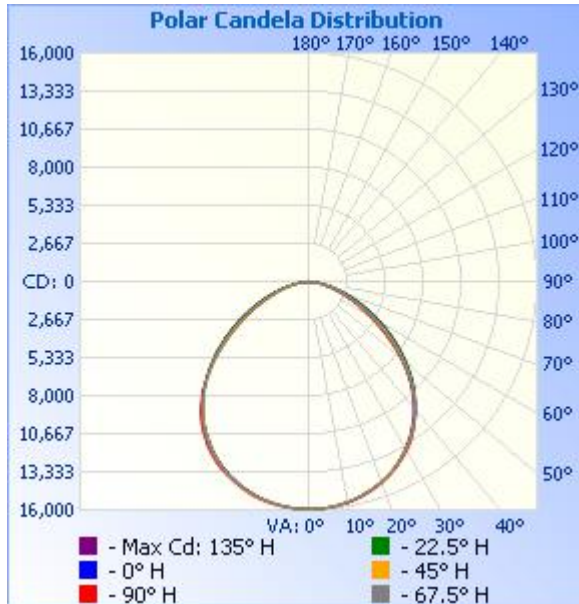
Zone	Lumens	% Lamp	% Luminaire
0-30	12,460.2	30.2%	30.2%
0-40	20,390.1	49.4%	49.5%
0-60	34,614.2	83.9%	84%
60-90	6,485.2	15.7%	15.7%
70-100	2,447.6	5.9%	5.9%
90-120	53.6	0.1%	0.1%
0-90	41,099.4	99.7%	99.7%
90-180	131.6	0.3%	0.3%
0-180	41,231.1	100%	100%

#### Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	1,509.6	3.7%	90-100	19.3	0%
10-20	4,339.8	10.5%	100-110	17.2	0%
20-30	6,610.8	16.0%	110-120	17.2	0%
30-40	7,929.8	19.2%	120-130	17.5	0%
40-50	7,879.4	19.1%	130-140	17.9	0%
50-60	6,344.7	15.4%	140-150	16.9	0%
60-70	4,056.9	9.8%	150-160	13.6	0%
70-80	1,942.5	4.7%	160-170	8.9	0%
80-90	485.8	1.2%	170-180	3.1	0%

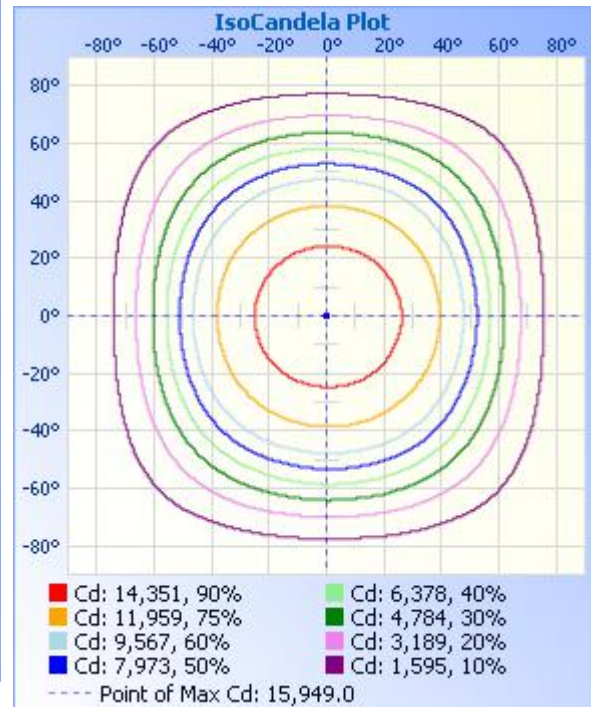
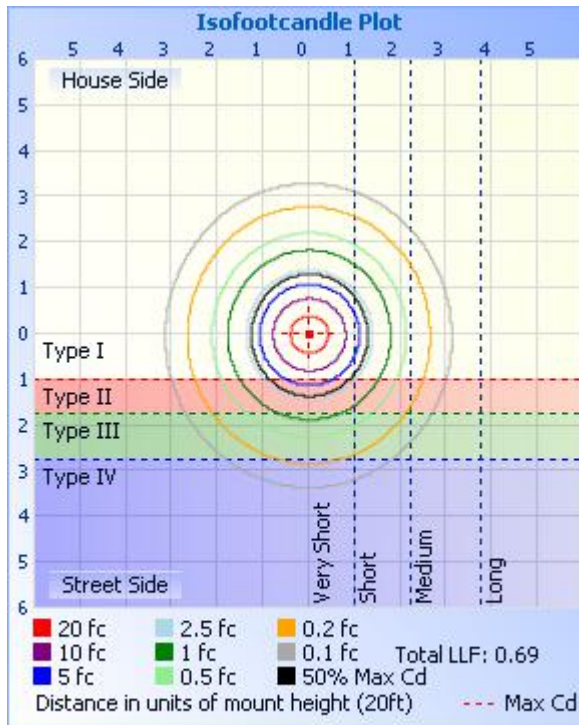


**Photometric Data**



	Center Beam fc	Beam Width	
17.0ft	55.2 fc	45.4 ft	43.1 ft
34.0ft	13.8 fc	90.9 ft	86.2 ft
51.0ft	6.13 fc	136.3 ft	129.3 ft
68.0ft	3.45 fc	181.8 ft	172.4 ft
85.0ft	2.21 fc	227.2 ft	215.5 ft
102.0ft	1.53 fc	272.6 ft	258.6 ft

■ Vert. Spread: 106.4°  
■ 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	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946	15946
1	15941	15934	15933	15938	15944	15947	15949	15948	15947	15940	15936	15941	15938	15944	15940	15937	15941
2	15932	15930	15924	15935	15934	15937	15937	15931	15937	15921	15933	15931	15928	15937	15924	15919	15932
3	15923	15918	15911	15922	15925	15922	15927	15913	15924	15910	15917	15921	15921	15922	15911	15917	15923
4	15906	15905	15900	15903	15908	15904	15910	15900	15900	15889	15902	15902	15908	15903	15892	15899	15906
5	15885	15878	15875	15883	15894	15880	15890	15878	15878	15860	15878	15875	15883	15878	15867	15867	15885
6	15850	15853	15842	15856	15875	15850	15863	15851	15847	15832	15854	15845	15875	15856	15835	15847	15850
7	15814	15812	15806	15821	15840	15816	15827	15806	15818	15802	15824	15818	15852	15830	15802	15814	15814
8	15770	15770	15768	15785	15813	15783	15783	15768	15769	15756	15794	15784	15814	15793	15760	15759	15770
9	15718	15721	15719	15738	15768	15742	15749	15716	15722	15712	15752	15735	15788	15758	15719	15712	15718
10	15663	15671	15666	15693	15735	15696	15697	15671	15675	15664	15695	15679	15749	15712	15670	15657	15663
11	15612	15620	15606	15640	15682	15648	15637	15609	15618	15614	15639	15632	15693	15665	15612	15600	15612
12	15555	15561	15548	15582	15624	15593	15585	15551	15558	15555	15584	15572	15647	15609	15553	15538	15555
13	15493	15487	15486	15520	15557	15529	15514	15487	15499	15492	15527	15513	15592	15556	15488	15477	15493
14	15424	15423	15424	15444	15500	15459	15451	15415	15418	15423	15461	15445	15527	15489	15425	15411	15424
15	15346	15348	15355	15372	15428	15396	15371	15339	15347	15348	15388	15374	15459	15418	15354	15349	15346
16	15269	15267	15273	15305	15356	15317	15291	15262	15263	15261	15315	15292	15385	15343	15280	15278	15269
17	15187	15185	15189	15222	15279	15232	15210	15175	15175	15175	15223	15212	15295	15261	15186	15192	15187
18	15100	15095	15091	15136	15185	15140	15121	15079	15083	15091	15131	15128	15208	15166	15095	15099	15100
19	15004	14989	14996	15039	15090	15048	15025	14986	14987	14996	15040	15039	15103	15075	15005	15004	15004
20	14912	14885	14895	14939	14997	14950	14919	14897	14861	14887	14938	14946	15005	14978	14912	14908	14912
21	14803	14796	14804	14843	14898	14843	14809	14781	14761	14803	14835	14858	14906	14875	14800	14802	14803
22	14698	14685	14693	14740	14788	14743	14708	14677	14644	14673	14728	14741	14792	14762	14698	14688	14698
23	14582	14565	14578	14623	14684	14623	14578	14545	14523	14556	14593	14637	14691	14646	14580	14570	14582
24	14467	14449	14460	14512	14544	14492	14454	14406	14400	14435	14466	14517	14596	14527	14465	14452	14467
25	14341	14308	14322	14378	14420	14367	14309	14274	14268	14309	14337	14400	14480	14403	14343	14325	14341
26	14196	14177	14191	14248	14292	14236	14170	14136	14121	14161	14203	14258	14362	14278	14222	14193	14196
27	14058	14037	14055	14106	14154	14098	14024	13991	13973	14024	14040	14119	14231	14148	14072	14053	14058
28	13919	13891	13916	13969	14016	13955	13863	13843	13830	13881	13890	13977	14081	14000	13936	13893	13919
29	13771	13747	13753	13821	13857	13789	13700	13674	13671	13722	13737	13820	13940	13860	13795	13748	13771

**Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01**  
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30	13620	13576	13598	13650	13710	13627	13518	13504	13510	13557	13575	13663	13780	13708	13646	13597	13620
31	13438	13415	13434	13483	13551	13464	13347	13337	13322	13391	13401	13493	13610	13549	13490	13436	13438
32	13266	13247	13266	13312	13388	13290	13175	13165	13156	13193	13214	13309	13445	13380	13328	13264	13266
33	13085	13068	13090	13130	13207	13097	12983	12981	12974	13007	13018	13128	13235	13205	13138	13089	13085
34	12903	12883	12909	12943	12994	12891	12796	12790	12796	12820	12833	12945	13055	13004	12956	12887	12903
35	12719	12695	12700	12734	12781	12686	12577	12570	12603	12630	12627	12744	12868	12813	12766	12708	12719
36	12511	12482	12500	12542	12566	12466	12372	12371	12389	12426	12420	12541	12665	12603	12562	12500	12511
37	12304	12291	12286	12321	12333	12248	12155	12165	12187	12196	12187	12306	12453	12386	12342	12285	12304
38	12093	12081	12078	12090	12098	12000	11942	11949	11977	11982	11974	12091	12231	12163	12111	12091	12093
39	11866	11866	11837	11849	11827	11761	11691	11705	11756	11759	11749	11857	12000	11921	11891	11866	11866
40	11640	11627	11585	11616	11573	11511	11452	11473	11528	11521	11519	11612	11772	11676	11638	11619	11640
41	11410	11389	11337	11342	11308	11248	11200	11232	11294	11279	11275	11349	11497	11407	11387	11395	11410
42	11156	11147	11104	11077	11041	10981	10940	10988	11028	11036	11023	11085	11213	11156	11132	11153	11156
43	10901	10903	10824	10808	10773	10709	10679	10733	10786	10764	10743	10784	10950	10877	10881	10902	10901
44	10657	10647	10556	10503	10468	10401	10386	10452	10534	10507	10482	10504	10635	10577	10621	10620	10657
45	10397	10382	10264	10211	10162	10105	10103	10183	10246	10241	10206	10203	10355	10296	10320	10367	10397
46	10124	10087	9950	9903	9862	9801	9816	9901	9985	9972	9925	9900	10025	9972	10005	10077	10124
47	9852	9817	9680	9588	9538	9489	9515	9616	9710	9667	9632	9554	9690	9662	9712	9806	9852
48	9582	9536	9374	9274	9213	9175	9218	9331	9434	9392	9303	9232	9371	9336	9433	9531	9582
49	9275	9243	9047	8932	8837	8814	8880	9004	9154	9109	8999	8909	9018	9025	9112	9219	9275
50	8995	8939	8747	8604	8495	8491	8578	8717	8843	8824	8697	8583	8682	8704	8812	8933	8995
51	8708	8628	8409	8245	8137	8151	8262	8410	8554	8501	8382	8242	8301	8322	8479	8606	8708
52	8387	8315	8065	7913	7794	7830	7989	8105	8260	8201	8060	7886	7984	8015	8153	8300	8387
53	8085	8041	7795	7570	7399	7455	7606	7788	7983	7911	7726	7542	7620	7654	7847	7978	8085
54	7812	7723	7469	7225	7043	7120	7288	7482	7672	7601	7406	7202	7235	7346	7521	7726	7812
55	7510	7399	7126	6897	6698	6784	6972	7182	7349	7298	7090	6874	6913	6986	7215	7399	7510
56	7201	7094	6812	6535	6358	6455	6656	6886	7051	6967	6742	6512	6552	6632	6875	7081	7201
57	6895	6794	6476	6194	5995	6092	6311	6557	6756	6662	6428	6191	6197	6299	6541	6798	6895
58	6592	6469	6155	5870	5672	5763	5995	6250	6460	6359	6107	5865	5848	5975	6226	6470	6592
59	6295	6156	5838	5567	5353	5446	5690	5953	6170	6063	5800	5557	5519	5664	5927	6181	6295
60	6010	5883	5548	5238	5038	5130	5380	5653	5842	5765	5494	5246	5227	5366	5603	5898	6010
61	5696	5585	5225	4918	4741	4826	5083	5365	5558	5447	5169	4920	4907	5046	5317	5588	5696

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62	5408	5275	4911	4639	4423	4508	4769	5058	5278	5164	4879	4634	4616	4738	5003	5278	5408
63	5125	4975	4613	4343	4144	4231	4488	4782	4972	4859	4598	4360	4327	4446	4712	4989	5125
64	4850	4690	4339	4039	3868	3951	4213	4508	4693	4609	4318	4083	4023	4171	4430	4706	4850
65	4570	4424	4072	3776	3607	3691	3948	4243	4423	4312	4051	3793	3776	3907	4162	4436	4570
66	4296	4154	3820	3536	3349	3434	3686	3977	4148	4045	3757	3535	3503	3637	3886	4181	4296
67	4045	3896	3548	3272	3088	3166	3413	3704	3892	3796	3507	3292	3260	3402	3645	3906	4045
68	3762	3622	3295	3021	2861	2933	3169	3456	3615	3544	3262	3055	2993	3150	3381	3637	3762
69	3513	3374	3049	2790	2643	2715	2940	3221	3372	3280	3006	2810	2768	2914	3140	3383	3513
70	3254	3138	2823	2575	2435	2501	2716	2989	3134	3044	2777	2592	2556	2695	2885	3141	3254
71	3029	2891	2602	2368	2218	2281	2481	2743	2903	2820	2562	2388	2362	2493	2685	2913	3029
72	2802	2678	2377	2179	2025	2081	2270	2523	2674	2593	2352	2188	2156	2276	2456	2675	2802
73	2563	2452	2181	1977	1847	1901	2076	2315	2438	2364	2154	2003	1984	2087	2254	2469	2563
74	2353	2223	1973	1798	1677	1728	1887	2113	2229	2157	1946	1807	1790	1884	2043	2238	2353
75	2123	2037	1785	1612	1502	1547	1695	1903	2029	1961	1764	1639	1619	1704	1850	2035	2123
76	1923	1831	1610	1453	1347	1391	1525	1715	1834	1775	1593	1480	1462	1539	1669	1849	1923
77	1741	1664	1436	1312	1208	1247	1366	1541	1651	1595	1427	1328	1309	1371	1494	1655	1741
78	1551	1474	1286	1157	1075	1110	1217	1373	1455	1405	1254	1169	1173	1230	1341	1492	1551
79	1389	1303	1130	1034	949	982	1075	1217	1289	1248	1108	1033	1033	1080	1181	1317	1389
80	1205	1145	995	894	820	848	930	1052	1130	1093	969	907	905	947	1037	1157	1205
81	1044	996	861	779	713	737	805	915	965	935	841	789	776	824	884	1003	1044
82	903	859	738	669	610	632	691	781	827	795	708	665	668	707	760	862	903
83	770	726	628	567	515	531	580	660	694	674	604	560	562	599	641	738	770
84	641	601	518	471	412	430	471	533	571	553	483	460	471	491	536	607	641
85	516	495	410	386	337	347	370	422	453	438	380	364	369	387	427	488	516
86	401	381	323	305	260	270	284	323	339	330	294	280	292	303	334	374	401
87	298	285	240	229	188	199	209	234	247	239	206	195	211	216	244	276	298
88	196	191	166	155	122	126	130	143	158	147	128	121	136	143	156	188	196
89	110	114	99	98	62	63	72	69	81	73	61	65	73	73	91	103	110
90	40	51	45	50	23	25	28	29	16	30	31	34	33	24	35	37	40
91	19	29	27	23	9	15	17	17	18	25	18	19	13	15	22	17	19
92	18	25	19	21	7	11	13	15	19	22	16	13	16	20	17	18	18
93	20	23	13	20	7	10	16	18	19	23	15	19	13	13	17	14	20

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94	20	24	14	20	8	12	18	13	17	23	17	19	11	14	17	14	20
95	18	28	24	25	0	10	13	14	17	15	15	19	15	13	18	16	18
96	19	23	20	23	9	12	16	15	19	21	18	23	14	15	18	17	19
97	19	25	21	22	8	12	12	17	17	15	13	19	12	14	18	18	19
98	20	18	23	19	7	10	12	11	18	23	14	18	13	15	16	15	20
99	20	22	23	25	7	13	19	11	17	25	15	22	11	15	17	16	20
100	18	23	20	22	8	11	15	14	18	25	15	17	15	17	18	17	18
101	23	21	19	22	0	11	18	14	17	22	15	18	14	17	17	15	23
102	19	23	20	22	0	10	16	15	17	24	14	17	14	15	16	17	19
103	16	20	22	20	0	13	14	15	16	21	21	16	11	14	18	15	16
104	17	23	20	23	0	12	15	15	15	25	18	20	13	14	15	16	17
105	19	22	17	21	0	11	15	13	14	21	11	19	13	14	15	21	19
106	18	24	20	21	0	14	15	13	16	24	16	19	14	11	20	17	18
107	17	20	20	20	9	0	17	14	12	18	14	18	9	14	17	16	17
108	20	23	20	22	0	14	14	12	19	21	19	22	13	15	19	15	20
109	17	24	19	23	10	13	16	15	10	23	17	19	15	13	19	18	17
110	18	24	21	19	9	10	16	12	20	26	18	15	14	14	19	20	18
111	20	25	13	20	0	13	14	11	20	22	24	21	13	15	17	19	20
112	20	22	18	24	0	9	17	15	20	17	18	19	15	7	21	22	20
113	23	26	21	22	7	10	16	15	20	25	20	12	11	14	17	16	23
114	21	24	21	22	8	9	18	11	17	23	20	22	13	17	18	20	21
115	15	25	22	22	0	14	11	14	17	23	17	20	14	14	20	17	15
116	20	25	18	19	7	10	16	14	15	28	17	20	15	15	19	18	20
117	20	29	18	22	7	11	18	16	19	25	18	18	15	18	20	15	20
118	17	26	20	22	0	12	13	20	20	22	18	23	17	16	18	12	17
119	22	24	22	23	8	9	16	19	22	29	19	19	10	14	18	21	22
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121	20	27	22	23	10	13	20	19	20	25	22	18	15	17	22	18	20
122	21	26	20	23	10	12	20	20	20	24	21	23	11	13	19	23	21
123	24	23	18	22	7	13	18	21	20	28	25	20	15	14	24	23	24
124	16	26	21	21	9	12	19	18	17	25	21	23	16	18	22	13	16
125	23	27	19	25	0	12	20	16	19	25	22	22	16	14	20	24	23

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126	22	28	20	23	10	18	21	22	22	28	19	24	16	17	16	19	22
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128	20	27	23	23	7	12	20	22	22	27	23	22	14	17	21	23	20
129	20	28	26	24	8	14	21	20	20	24	19	23	11	18	22	16	20
130	19	26	22	24	0	16	20	22	28	27	17	24	17	14	24	24	19
131	26	31	26	22	9	15	23	18	22	32	16	27	20	20	23	24	26
132	25	29	26	25	9	13	22	26	23	30	22	20	17	17	24	26	25
133	25	32	28	23	12	15	22	26	22	24	24	24	18	16	23	28	25
134	23	32	23	24	11	15	23	23	23	31	23	27	17	19	27	24	23
135	25	32	21	27	15	16	26	21	28	31	24	26	19	21	23	24	25
136	26	35	28	26	12	17	27	25	22	32	19	21	20	23	25	26	26
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138	20	32	29	26	12	20	24	20	29	30	23	26	20	19	28	25	20
139	24	26	28	27	16	18	20	14	31	31	28	18	22	21	28	25	24
140	17	27	29	27	13	17	29	27	26	32	27	24	21	23	22	25	17
141	28	33	28	34	18	19	28	28	32	38	29	26	23	23	27	28	28
142	28	36	29	27	16	19	26	27	30	34	24	31	18	24	29	27	28
143	28	26	33	30	17	20	28	26	26	31	22	27	24	18	27	28	28
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145	27	34	32	30	15	22	28	18	32	33	29	33	19	25	30	29	27
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147	29	34	28	29	14	13	30	29	33	29	27	32	23	20	31	30	29
148	22	32	32	31	15	17	31	26	16	38	34	35	25	28	31	28	22
149	25	34	26	32	16	19	26	29	34	33	31	28	21	29	30	31	25
150	29	38	33	30	19	23	31	27	34	31	25	31	27	28	25	32	29
151	32	38	32	34	17	23	32	29	20	39	31	35	24	25	21	32	32
152	31	36	32	31	20	24	33	33	36	35	31	36	27	29	25	27	31
153	24	36	35	32	20	21	35	32	31	39	32	30	27	18	28	32	24
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155	29	33	31	28	21	19	37	29	35	34	26	30	26	27	28	35	29
156	29	28	34	33	17	15	35	31	31	32	36	38	29	26	31	32	29
157	30	33	28	35	16	25	32	33	26	35	26	31	22	26	28	32	30

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158	24	34	22	33	18	20	31	33	33	37	33	35	24	26	32	28	24
159	32	35	29	29	21	23	31	35	32	35	32	34	23	28	31	31	32
160	28	39	32	31	18	25	24	31	33	38	36	36	25	25	32	31	28
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164	32	40	35	32	19	25	26	34	34	36	34	36	26	26	30	32	32
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166	32	33	39	30	19	27	39	35	35	40	32	35	27	20	36	34	32
167	32	39	29	36	25	23	38	32	35	35	35	35	28	28	36	31	32
168	33	35	27	36	20	24	24	36	40	39	34	36	24	30	33	34	33
169	31	33	41	36	22	27	30	35	34	41	31	35	32	28	29	36	31
170	33	41	35	33	24	25	30	35	39	40	23	32	28	32	36	35	33
171	35	38	35	30	23	31	37	26	40	39	34	37	29	32	32	37	35
172	36	29	36	34	25	29	39	29	36	42	39	37	26	25	33	35	36
173	34	39	33	35	29	20	34	31	38	39	32	35	31	25	32	36	34
174	30	43	38	34	24	28	39	34	39	40	33	40	31	27	35	31	30
175	31	32	37	32	25	23	36	35	32	39	32	40	31	29	34	24	31
176	32	39	35	22	24	29	34	32	34	40	32	40	21	33	29	23	32
177	26	41	25	38	22	30	38	31	38	37	34	35	28	31	30	30	26
178	37	34	34	33	26	26	34	30	37	38	30	34	28	32	31	34	37
179	27	36	35	40	27	30	33	32	33	36	33	36	34	21	32	32	27
180	33	38	36	37	26	28	35	29	35	37	31	36	26	27	34	30	33

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

<b>Test date</b>	2019-09-09	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	XSY-LHB4P300-57K-HL-HB-AF		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC190900 6E-L2	120.0	60	2.4650	294.62	0.996	10.15
	277.0	60	1.1002	292.25	0.959	9.34
	347.0	60	0.8840	290.17	0.946	8.18
<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	83	R9	13
Frequency (Hz)	60	R2	90	R10	75
CCT (K)	5596	R3	93	R11	83
Duv	0.00164	R4	84	R12	59
Chromaticity (x, y)	x=0.3303 y=0.3424	R5	83	R13	85
Chromaticity (u', v')	u(u')=0.2049 v'=0.4779	R6	85	R14	96
Color Rendering Index (CRI)	84.3	R7	87	R15	79
R9	13	R8	70	--	--

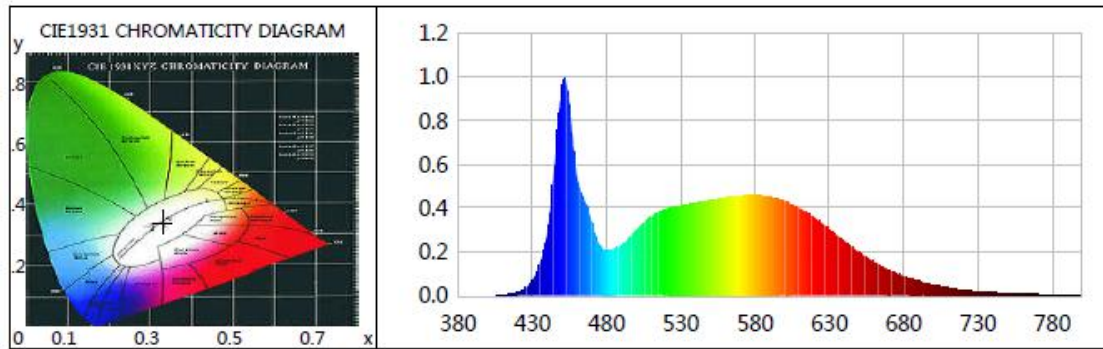
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result			DLC V4.4 Pass Criteria
Test Voltage (V)	120.0	277.0	347.0	--
Frequency (Hz)	60	60	60	
Total Luminous (lm)	42508.5	42316.6	42165.9	>=10000 lm (-10%)
Luminous Efficacy (lm/W)	144.28	144.80	145.31	Premium: >= 130(-3%)
Most worst Luminous/Highest Watts	143.12			



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## Spectral Power Distribution & Chromaticity Diagram





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

<b>Model Number</b>	<b>Luminous Flux (lm)</b>	<b>Power (W)</b>	<b>Efficacy (lm/W)</b>
XSY-LHB4P300-40K-HL-HB-AF	41884.7	298.7	140.22
XSY-LHB4P300-50K-HL-HB-AF	42398.6	298.83	141.88
XSY-LHB4P300-57K-HL-HB-AF	43426.4	298.96	145.26





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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 \*\*\*\*\*