



Report No.:  
BLC1811028E-A-PL

## LM-79-08 Test Report

For

# Revolution Lighting Technologies, Inc.

(Brand Name: Revolution Lighting Technologies)

2280 Ward Ave. Simi Valley, CA. 93065

## Outdoor Full-Cutoff Wall-Mounted Area Luminaires

Model name(s): 282401-01X

Remark: The Suffix X represents for CCT, could be 3=4000K, 4=4500K, 5=5000K,  
6=5700K.

Representative (Tested) Model:

282401-013

282401-016

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

Test & Report By:

*Jason Luo*

Engineer: Jason Luo

Date: Dec 03, 2018

Review By:

*Grace Li*

Manager: Grace Li



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### 1.1 Product Information:

Organization Name	Revolution Lighting Technologies, Inc.	
Brand Name	Revolution Lighting Technologies	
Model Number	282401-01X	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Full-Cutoff Wall-Mounted Area Luminaires	
Rated Voltage / Frequency	100-277Vac, 50/60 Hz	
Nominal Power	25W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,4500K,5000K,5700K	
LED Manufacturer	Seoul Semiconductor Co., LTD	
LED Model	3030B	
Sample Number	BLC1811028E-A-PL1(4000K),A-PL2(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	Dec 30,2017
Date of Test	Jan 07,2018
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

<p><b>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</b> Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at <math>25^{\circ}\text{C} \pm 1^{\circ}\text{C}</math>, 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 <math>1^{\circ}</math> vertical intervals and <math>22.5^{\circ}</math> horizontal intervals.</p>
<p><b>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</b> Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at <math>25^{\circ}\text{C} \pm 1^{\circ}\text{C}</math>. 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.</p>
<p><b>3) Electrical Measurements:</b> Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at <math>25^{\circ}\text{C} \pm 1^{\circ}\text{C}</math>. 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.</p>



## 2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

<b>Test date</b>	2018-1-07	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	282401-013		

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC181102	120.0	60	0.2038	24.28	0.9926	6.86
8E-A-PL1	277.0	60	0.1000	25.17	0.9085	16.77
<b>DLC Pass Criteria</b>					<b>&gt;= 0.9(-3%)</b>	<b>&lt;= 20(+5)</b>

### Chromaticity Measurement - Sphere-Spectroradiometer Method:

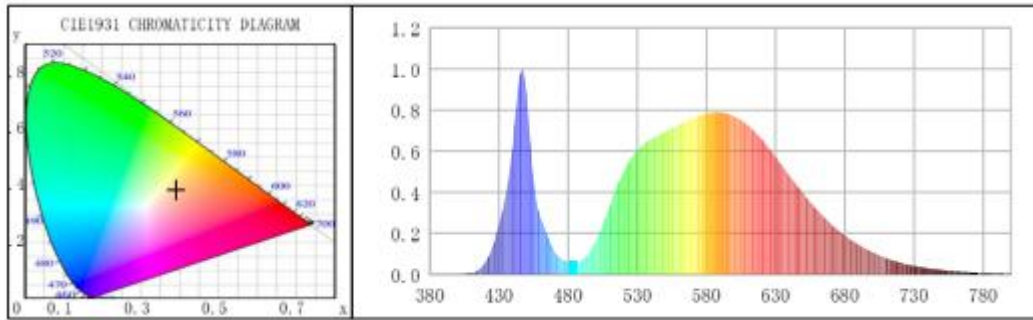
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	71	R9	0
Frequency (Hz)	60	R2	77	R10	45
CCT (K)	3807	R3	81	R11	69
Duv	0.0008	R4	73	R12	39
Chromaticity (x, y)	x=0.3900 y=0.3842	R5	70	R13	71
Chromaticity (u', v')	u(u')=0.2284 v'(v')=0.5063	R6	67	R14	89
Color Rendering Index (CRI)	72.4	R7	81	R15	67
R9	0	R8	58	--	--

### 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)	3126.5	3117	250-5000(-10%)
Luminous Efficacy (lm/W)	128.82	126.22	Premium: >= 110(-3%)
Most worst Luminous/Highest	124.22		
Zonal lumens in the 0-90° zone (%)	99.9	--	>=100(-3)
Zonal lumens in the 80-90° zone (%)	0.1	--	<=10(+3)
Beam Angle (°)	65.9	--	--
Center Beam Candle Power (cd)	2612	--	--



**Spectral Power Distribution & Chromaticity Diagram**

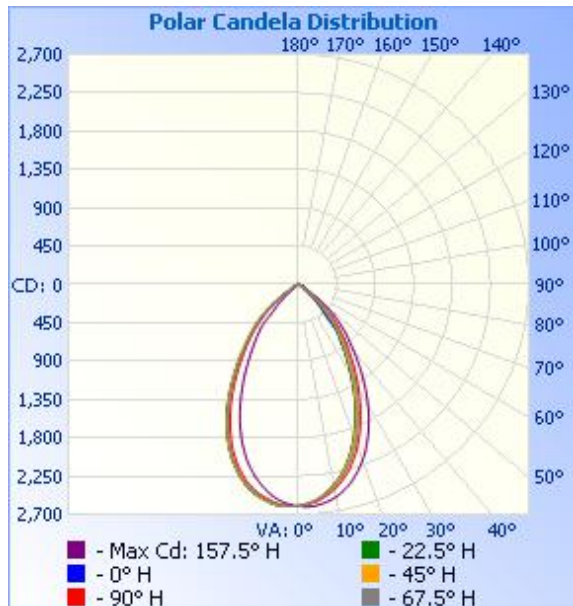


**Zonal Lumen Tabulation**

Zonal Lumen Summary				Lumens Per Zone					
Zone	Lumens	% Lamp	% Luminaire	Zone	Lumens	% Total	Zone	Lumens	% Total
0-30	1,704.7	54.5%	54.5%	0-10	242.2	7.7%	90-100	0.2	0%
0-40	2,423.9	77.5%	77.5%	10-20	645.4	20.6%	100-110	0.3	0%
0-60	3,053.4	97.6%	97.7%	20-30	817.2	26.1%	110-120	0.4	0%
60-90	70.0	2.2%	2.2%	30-40	719.1	23.0%	120-130	0.5	0%
70-100	23.2	0.7%	0.7%	40-50	469.5	15.0%	130-140	0.5	0%
90-120	0.9	0%	0%	50-60	160.1	5.1%	140-150	0.5	0%
0-90	3,123.4	99.9%	99.9%	60-70	47.0	1.5%	150-160	0.4	0%
90-180	3.1	0.1%	0.1%	70-80	19.6	0.6%	160-170	0.2	0%
0-180	3,126.5	100%	100%	80-90	3.4	0.1%	170-180	0.1	0%



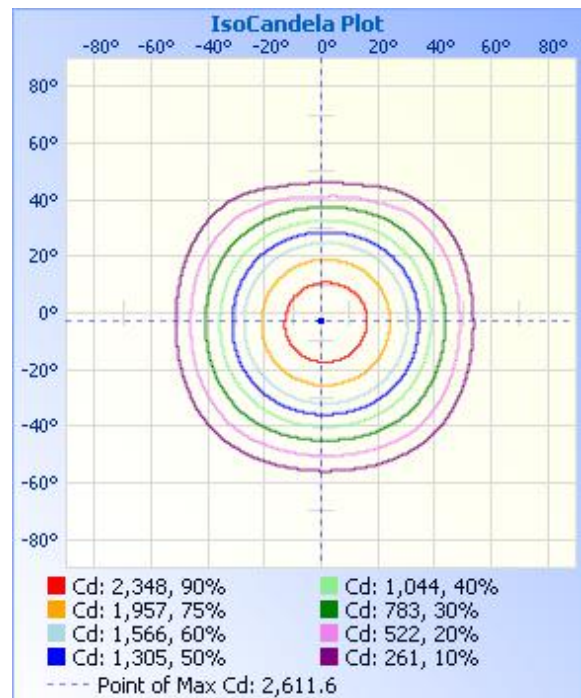
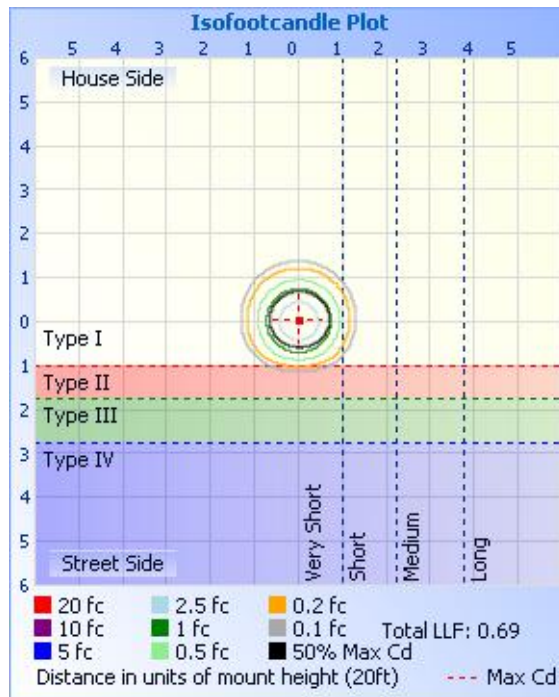
**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
17.0ft	9.00 fc	21.4 ft	22.1 ft
34.0ft	2.25 fc	42.9 ft	44.1 ft
51.0ft	1.00 fc	64.3 ft	66.2 ft
68.0ft	0.56 fc	85.8 ft	88.2 ft
85.0ft	0.36 fc	107.2 ft	110.3 ft
102.0ft	0.25 fc	128.7 ft	132.3 ft

■ Vert. Spread: 64.5°  
■ Horiz. Spread: 65.9°







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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	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
1	2592	2589	2590	2590	2593	2610	2609	2607	2607	2605	2600	2603	2602	2609	2602	2596	2592
2	2582	2577	2575	2581	2586	2605	2608	2612	2609	2609	2604	2604	2602	2605	2596	2588	2582
3	2568	2563	2562	2570	2576	2600	2604	2610	2610	2610	2605	2602	2598	2599	2586	2576	2568
4	2552	2547	2546	2553	2565	2588	2598	2607	2609	2609	2604	2597	2594	2590	2576	2561	2552
5	2533	2527	2528	2536	2552	2576	2591	2599	2606	2607	2602	2592	2586	2580	2561	2544	2533
6	2511	2505	2506	2518	2531	2564	2580	2589	2599	2601	2596	2585	2576	2567	2543	2523	2511
7	2482	2481	2482	2497	2511	2548	2564	2579	2589	2593	2587	2574	2563	2552	2525	2499	2482
8	2455	2447	2454	2473	2491	2530	2548	2566	2577	2576	2575	2561	2547	2533	2498	2473	2455
9	2424	2416	2423	2447	2465	2508	2529	2550	2559	2563	2559	2547	2530	2513	2473	2441	2424
10	2391	2383	2390	2417	2437	2485	2508	2531	2542	2546	2542	2530	2512	2489	2444	2410	2391
11	2356	2346	2356	2384	2408	2455	2486	2510	2524	2528	2522	2506	2490	2463	2414	2375	2356
12	2318	2307	2318	2344	2377	2427	2459	2485	2502	2508	2498	2485	2467	2429	2378	2339	2318
13	2278	2266	2277	2306	2340	2395	2430	2459	2478	2483	2474	2460	2440	2398	2342	2300	2278
14	2229	2222	2229	2267	2304	2362	2399	2429	2450	2457	2448	2431	2412	2365	2305	2257	2229
15	2183	2170	2183	2222	2264	2321	2360	2397	2422	2428	2418	2402	2381	2329	2260	2213	2183
16	2135	2121	2135	2177	2222	2282	2324	2357	2385	2391	2386	2369	2341	2290	2217	2167	2135
17	2084	2069	2083	2131	2171	2240	2286	2321	2349	2356	2351	2334	2304	2247	2171	2117	2084
18	2025	2009	2031	2076	2125	2194	2241	2282	2312	2315	2315	2293	2263	2204	2123	2057	2025
19	1968	1955	1976	2024	2075	2147	2198	2238	2269	2275	2270	2253	2220	2150	2067	2004	1968
20	1911	1896	1921	1970	2018	2097	2151	2194	2227	2233	2229	2210	2171	2099	2015	1949	1911
21	1847	1831	1854	1912	1963	2045	2101	2148	2182	2188	2184	2164	2120	2045	1957	1884	1847
22	1784	1769	1795	1846	1905	1983	2046	2099	2134	2138	2136	2108	2069	1983	1895	1824	1784
23	1720	1706	1732	1785	1846	1926	1993	2041	2081	2089	2083	2056	2014	1926	1834	1761	1720
24	1654	1641	1668	1723	1778	1868	1938	1988	2029	2037	2030	2002	1951	1865	1773	1697	1654
25	1580	1575	1598	1660	1717	1803	1873	1933	1975	1976	1975	1942	1892	1804	1709	1626	1580
26	1513	1502	1534	1592	1655	1741	1813	1871	1911	1920	1914	1883	1833	1738	1638	1561	1513
27	1446	1435	1464	1529	1593	1679	1753	1813	1854	1862	1854	1823	1765	1675	1572	1488	1446
28	1372	1368	1399	1466	1527	1618	1690	1753	1795	1803	1794	1763	1704	1610	1506	1420	1372
29	1304	1297	1334	1403	1466	1549	1624	1693	1730	1739	1726	1695	1641	1546	1439	1354	1304

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30	1236	1231	1269	1334	1405	1488	1561	1625	1666	1677	1664	1632	1577	1474	1367	1286	1236
31	1172	1168	1207	1273	1338	1420	1490	1562	1604	1614	1600	1562	1509	1409	1303	1221	1172
32	1101	1106	1138	1213	1279	1359	1426	1497	1538	1549	1535	1498	1445	1346	1240	1153	1101
33	1039	1039	1079	1148	1219	1299	1363	1433	1473	1477	1471	1434	1380	1277	1172	1090	1039
34	980	983	1018	1091	1161	1239	1302	1361	1401	1412	1402	1370	1310	1214	1111	1030	980
35	922	927	963	1035	1098	1181	1244	1298	1335	1348	1340	1308	1246	1153	1052	972	922
36	863	875	912	981	1043	1119	1180	1236	1272	1278	1278	1239	1184	1093	996	911	863
37	813	820	862	925	989	1063	1122	1172	1204	1216	1210	1178	1122	1029	937	859	813
38	766	774	811	877	933	1008	1066	1112	1141	1156	1151	1118	1059	975	886	812	766
39	718	729	765	828	885	949	1011	1055	1080	1096	1092	1053	1003	922	838	760	718
40	640	681	722	778	836	898	954	999	1022	1037	1035	997	952	868	788	716	640
41	514	637	677	732	789	851	905	939	961	977	977	945	896	819	743	671	514
42	451	589	633	686	739	805	859	889	907	924	926	896	847	773	699	602	451
43	412	492	585	640	693	755	809	841	856	870	878	844	799	727	654	474	412
44	372	391	540	591	646	709	764	795	803	822	827	797	752	678	604	408	372
45	327	348	493	543	600	663	719	745	759	776	782	751	700	631	558	370	327
46	284	311	442	495	551	616	673	699	714	731	738	705	653	580	511	326	284
47	249	263	393	439	496	563	622	653	666	681	692	653	604	532	458	280	249
48	174	223	346	389	442	511	573	601	620	635	641	606	553	483	408	241	174
49	136	189	299	341	388	459	523	553	576	588	594	557	497	433	357	205	136
50	111	154	251	294	336	401	466	505	528	541	545	501	444	382	283	142	111
51	87	99	199	246	284	350	414	454	479	487	494	448	389	324	207	103	87
52	66	82	150	210	241	300	361	404	424	438	436	395	327	272	160	83	66
53	50	68	122	177	201	253	311	349	377	389	383	341	271	220	127	65	50
54	34	55	104	151	169	209	260	302	326	336	332	281	220	175	99	50	34
55	29	45	89	129	142	175	217	252	278	287	275	229	175	136	80	41	29
56	25	37	78	116	123	149	181	210	233	241	226	183	137	112	67	31	25
57	17	29	70	103	107	128	152	173	193	198	182	145	113	96	59	27	17
58	12	25	60	95	95	112	129	144	157	159	146	116	98	86	50	21	12
59	10	18	50	87	88	102	114	122	124	127	118	98	88	80	45	16	10
60	6	14	45	80	81	94	104	105	98	108	102	88	82	75	39	12	6
61	3	10	38	73	75	86	95	94	86	95	92	81	77	71	33	9	3

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62	2	6	33	67	70	80	89	85	79	85	85	76	73	66	30	5	2
63	2	4	28	62	66	74	83	77	74	78	79	71	70	61	24	3	2
64	2	2	22	57	62	68	78	72	68	72	75	67	66	58	21	2	2
65	1	2	17	52	59	63	72	67	65	67	71	63	63	54	16	1	1
66	1	1	13	48	55	59	68	62	61	62	66	58	60	50	14	1	1
67	1	1	9	44	53	56	64	59	57	59	63	56	58	46	11	1	1
68	0	1	7	40	50	52	60	55	54	56	60	53	55	42	8	0	0
69	0	0	4	36	48	48	55	51	50	52	57	49	53	38	6	0	0
70	0	0	4	31	45	45	52	48	46	50	54	47	50	34	5	0	0
71	0	0	4	29	43	42	49	43	37	46	50	45	47	31	5	0	0
72	0	0	3	26	41	39	45	36	30	40	47	42	44	29	5	0	0
73	0	0	3	23	37	36	41	28	20	30	45	39	42	25	5	0	0
74	0	0	3	19	35	34	37	20	13	24	41	37	40	22	5	0	0
75	0	0	4	17	32	31	32	13	7	16	37	35	37	19	3	0	0
76	0	0	4	15	29	28	28	7	2	10	34	32	33	17	5	0	0
77	0	0	3	13	26	26	21	3	1	4	29	30	31	17	4	0	0
78	0	1	3	12	23	24	15	1	1	2	22	27	26	15	4	0	0
79	0	0	2	11	20	22	9	1	0	1	16	25	23	14	3	0	0
80	0	0	1	11	17	20	4	0	0	1	11	22	20	14	2	0	0
81	0	0	2	11	15	18	3	0	0	1	7	19	18	14	2	0	0
82	0	0	0	10	14	16	1	1	0	0	4	18	16	13	2	0	0
83	0	0	1	7	12	13	1	0	0	0	3	16	13	11	1	0	0
84	0	1	0	6	12	11	1	0	0	0	1	11	8	6	1	1	0
85	0	0	0	3	10	8	1	0	0	0	1	7	5	3	1	0	0
86	0	0	0	2	8	6	1	0	0	0	1	6	0	3	1	0	0
87	0	0	0	1	0	4	1	0	0	0	0	4	0	2	0	0	0
88	0	0	0	0	0	2	1	0	0	0	0	3	0	2	0	0	0
89	0	0	0	0	1	1	1	0	0	0	0	2	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

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94	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
95	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
96	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
100	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
101	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0
102	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0
103	0	0	0	1	0	1	1	0	0	0	0	0	1	1	0	0	0	0
104	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0
105	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0
106	0	0	0	0	1	1	1	0	0	0	0	0	0	2	0	0	0	0
107	0	0	0	1	0	1	1	0	0	0	0	0	0	2	0	0	0	0
108	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0
109	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0
110	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	0	0	0
111	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0
112	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
113	0	0	0	0	1	1	0	0	0	0	0	1	1	1	0	0	0	0
114	0	0	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	0
115	0	0	0	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0
116	0	0	0	0	1	1	0	0	1	1	0	0	1	1	1	0	0	0
117	0	0	0	0	1	1	0	0	1	1	0	1	0	0	0	0	0	0
118	0	0	1	0	1	1	0	0	1	1	0	1	0	0	1	0	0	0
119	0	0	0	0	2	2	0	0	1	0	0	1	0	1	1	0	0	0
120	0	0	1	0	1	1	0	1	1	0	0	1	0	1	0	0	0	0
121	0	0	1	0	2	1	1	1	1	1	0	1	0	0	0	0	0	0
122	0	0	0	0	2	1	0	1	1	1	0	1	0	1	1	0	0	0
123	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	0	0	0
124	0	0	0	1	2	1	1	1	0	1	0	1	0	1	0	0	0	0
125	0	0	1	0	1	1	1	0	1	0	1	1	0	0	1	0	0	0

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126	0	0	0	1	1	2	1	1	1	1	1	2	0	1	0	0	0
127	0	1	0	0	1	1	1	0	1	1	1	1	0	0	1	0	0
128	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0
129	1	0	1	0	2	1	1	0	1	1	1	1	0	0	1	1	1
130	0	0	0	0	2	1	0	1	1	1	1	1	0	0	0	0	0
131	0	0	0	0	2	2	1	1	1	1	1	0	0	0	0	1	0
132	0	1	0	0	1	2	1	0	1	1	1	1	0	0	1	1	0
133	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	1	0
134	1	1	0	0	2	1	1	1	1	1	1	1	1	1	0	1	1
135	1	0	0	0	1	2	1	1	1	1	1	2	0	0	0	1	1
136	1	0	0	0	2	2	1	1	1	1	1	1	1	0	0	1	1
137	1	0	0	0	2	1	1	1	1	1	1	1	1	1	0	0	1
138	1	0	0	0	1	2	1	1	1	1	1	1	0	0	0	1	1
139	1	0	0	1	2	2	1	0	1	1	1	2	1	1	0	0	1
140	1	0	0	0	2	2	1	1	1	1	1	1	1	0	0	0	1
141	0	1	0	0	2	2	1	1	1	2	1	1	0	0	0	0	0
142	0	0	0	0	2	2	1	1	1	1	1	1	1	0	0	0	0
143	0	0	0	0	2	1	1	1	1	1	1	1	0	1	0	0	0
144	0	0	0	0	2	1	1	1	1	1	1	1	0	1	0	0	0
145	0	0	0	0	2	1	1	1	1	1	1	1	1	1	0	0	0
146	0	0	0	0	2	1	1	1	1	1	1	1	1	0	0	0	0
147	0	0	0	0	2	1	1	1	1	1	1	1	1	1	0	0	0
148	0	0	0	0	2	1	1	1	1	1	1	1	1	0	0	0	0
149	1	0	0	0	2	1	1	1	1	1	1	2	1	0	0	0	1
150	0	1	0	0	2	1	1	2	1	1	1	1	0	0	1	0	0
151	0	0	0	0	2	2	1	1	1	2	1	1	1	0	0	0	0
152	0	0	0	1	2	1	1	1	1	2	2	1	1	1	0	0	0
153	0	0	0	0	2	2	1	1	1	1	1	1	1	0	0	0	0
154	0	0	0	0	2	1	2	1	1	1	1	2	1	1	0	0	0
155	0	0	0	0	2	1	1	1	1	1	1	1	1	0	0	0	0
156	0	0	0	1	1	2	1	1	1	1	1	2	0	0	0	0	0
157	0	0	0	0	2	1	1	1	2	1	1	2	1	0	0	0	0

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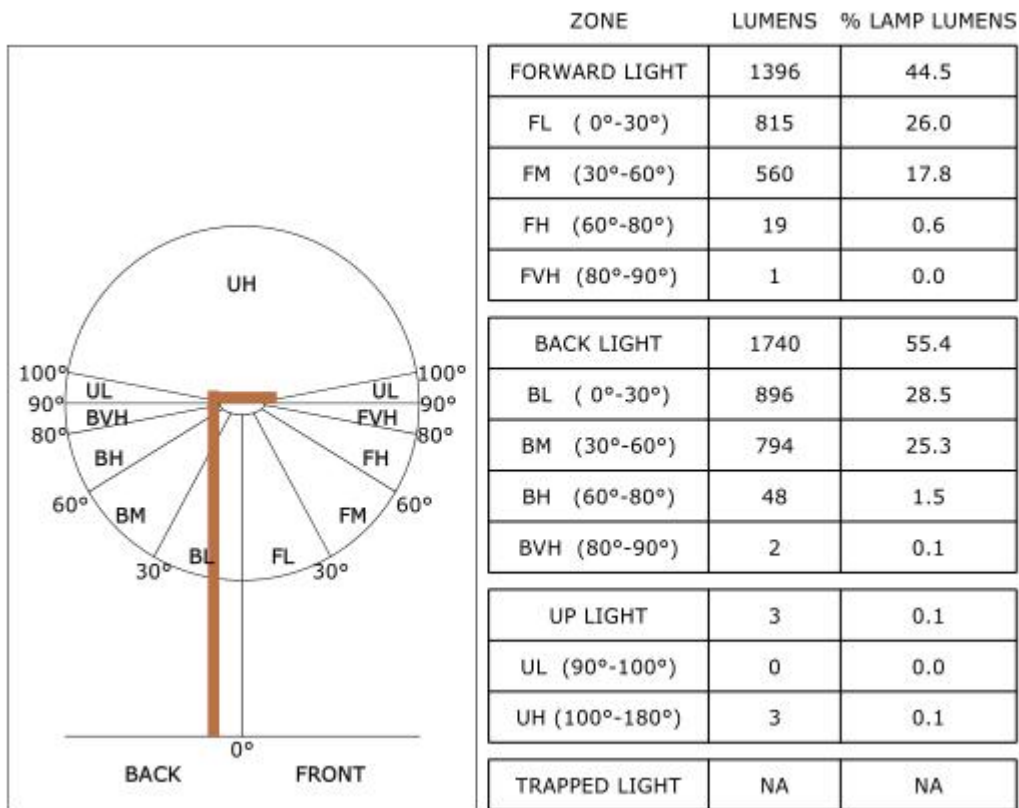
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158	1	1	0	0	2	2	1	1	1	1	1	1	1	1	0	0	1
159	1	0	0	0	1	2	1	1	1	2	1	1	1	1	0	1	1
160	0	0	0	0	2	1	1	1	1	1	1	1	0	1	0	0	0
161	0	0	0	0	2	1	1	1	1	1	1	1	1	1	0	0	0
162	1	0	0	0	2	1	1	1	1	1	1	1	1	0	1	0	1
163	0	0	0	0	2	1	1	1	1	1	1	1	1	1	0	0	0
164	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0
165	0	1	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0
166	0	1	0	0	2	1	0	1	1	1	1	1	1	1	1	0	0
167	1	1	1	1	1	2	1	0	1	1	1	2	1	0	0	0	1
168	1	1	0	0	2	1	1	1	1	1	1	1	1	0	0	0	1
169	0	0	0	1	2	1	1	1	1	1	1	1	1	1	0	0	0
170	0	0	0	0	2	1	1	1	1	1	1	1	1	1	1	1	0
171	1	1	0	1	1	1	1	1	1	1	0	1	1	1	0	0	1
172	0	1	0	0	2	1	1	1	1	1	0	1	1	1	0	0	0
173	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	1
174	0	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	0
175	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	0
176	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0
177	1	1	0	0	1	1	1	0	1	1	1	1	1	1	0	0	1
178	1	0	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1
179	0	1	0	0	1	1	0	0	1	1	0	1	1	1	0	0	0
180	0	0	0	1	1	1	1	1	1	1	0	1	0	1	1	0	0



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

<b>Test date</b>	2018-1-07	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	282401-016		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC181102	120.0	60	0.2018	24.11	0.9956	7.12
8E-A-PL2	277.0	60	0.0955	25.03	0.9079	16.58
<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	71	R9	0
Frequency (Hz)	60	R2	76	R10	40
CCT (K)	5458	R3	77	R11	70
Duv	0.0031	R4	73	R12	37
Chromaticity (x, y)	x=0.3335 y=0.3480	R5	71	R13	71
Chromaticity (u', v')	u(u')=0.2049 v'(v')=0.4812	R6	66	R14	87
Color Rendering Index (CRI)	72.2	R7	82	R15	68
R9	0	R8	63	--	--

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

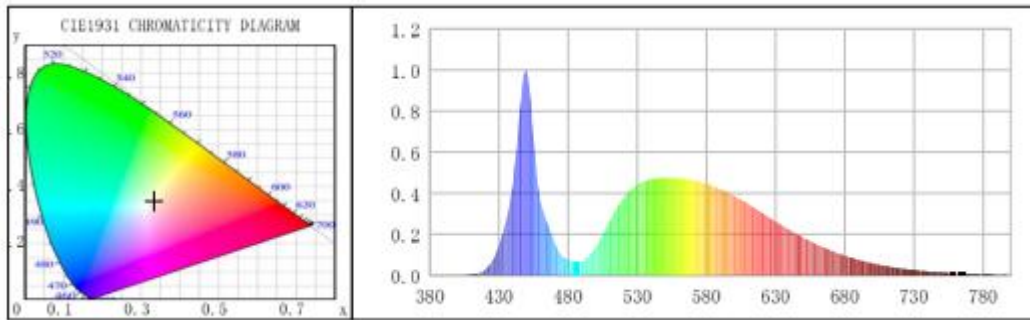
Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	3195	3245.14	250-5000(-10%)
Luminous Efficacy (lm/W)	132.52	129.65	Premium: >= 110(-3%)
Most worst Luminous/Highest Watts	127.65		





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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)
282401-013	3126.5	24.27	128.82
282401-014	3143.6	24.23	129.74
282401-015	3160.8	24.19	130.66
282401-016	3195	24.11	132.52

Remark: This is a multiple listing test report, and the tested data is referred to report No.BL18010003-1 issued by Shenzhen Belling Efficiency Testing Laboratory (NVLAP accreditation no. 600102-0). The test data and report were reviewed, confirmed and accepted.

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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 \*\*\*\*\*