



Report No.: STD160711NB-BA

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

CEA GROUP INTERNATIONAL CO.,LTD

(Brand Name: CEA/EAEC)

Sanjiali Industrial Zone Zhucheng Road Panshi North baixiang Yueqing Zhejiang China

Outdoor Full-Cutoff Wall-mounted Area Luminaires

Model name(s): LWP5-75

Representative (Tested) Model: LWP5-75(2700K)
LWP5-75(5700K)

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

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: Sept.08,2016

Review By:

Tommy Liang

Manager: Tommy Liang

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co. Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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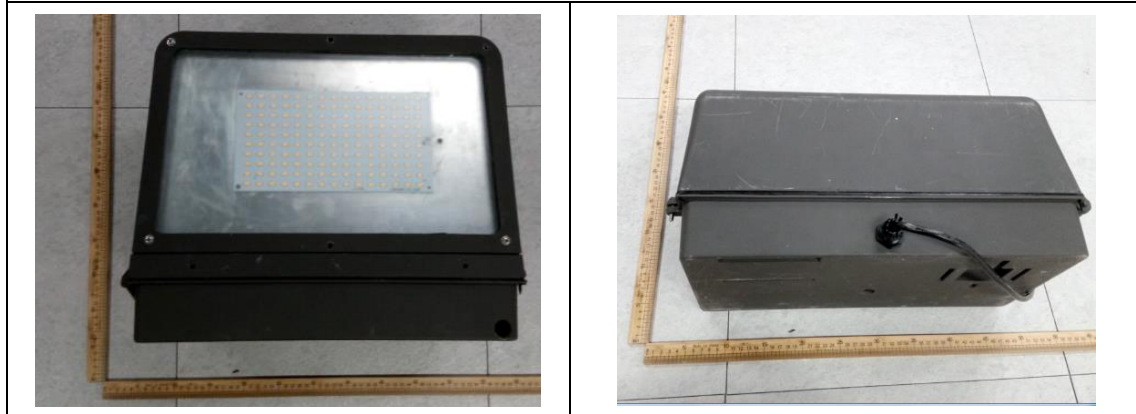
Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

1.1 Product Information:

Organization Name	CEA GROUP INTERNATIONAL CO.,LTD	
Brand Name	CEA/EAEC	
Model Number	LWP5-75	
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	75W	
Rated Initial Lamp Lumen	--	
Declared CCT	2700K,3000K,3500K,4000K,4500K,5000K, 5700K	
LED Manufacturer	Zhongshan Dongguan Star Photoelectric Techology Co.,Ltd	
LED Model	5730	
Sample Number	STD160711NB-BA1(2700K),BA2(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	Aug.20,2016
Date of Test	Aug.25,2016
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

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

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

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

3) Electrical Measurements:

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

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2016-08-25	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LWP5-75(2700K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD160711	120.0	60	0.6090	72.25	0.9886	10.69
NB-BA1	277.0	60	0.2820	69.49	0.8895	12.20
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

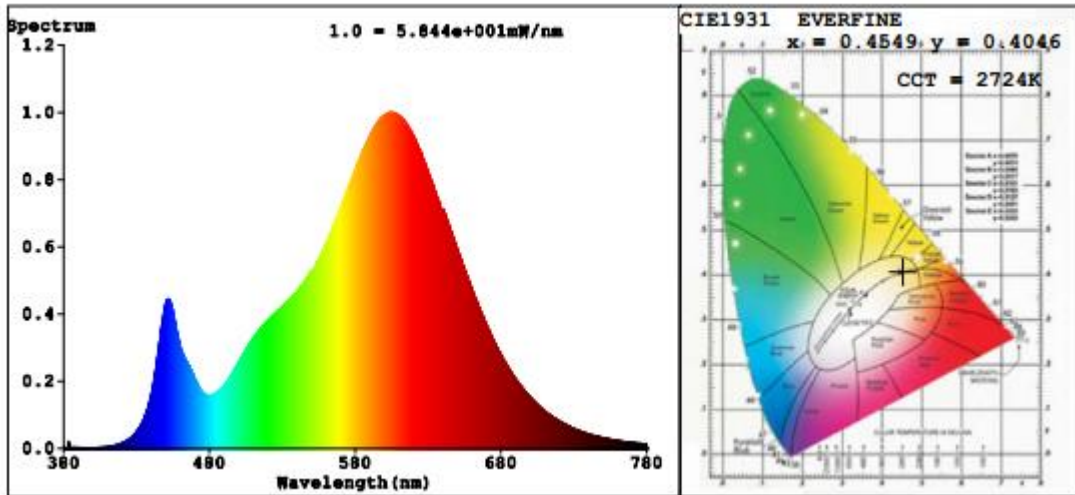
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	2
Frequency (Hz)	60	R2	92	R10	81
CCT (K)	2724	R3	94	R11	77
Duv	-0.0018	R4	78	R12	74
Chromaticity (x, y)	x=0.4549 y=0.4046	R5	80	R13	83
Chromaticity (u', v')	u'=0.2620 v'=0.5243	R6	91	R14	97
Color Rendering Index (CRI)	80.9	R7	79	R15	72
R9	2	R8	54	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V4.0 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	7271.4	7034.9	5000~10000(-10%)	
Luminous Efficacy (lm/W)	100.64	101.24	Standard: >= 95(-3%)	Premium: >= 115(-3%)
Zonal lumens in the 0-90 °zone (%)	99.9	--	>= 100(-3)	
Zonal lumens in the 80-90 °zone (%)	0.9	--	<=10(+3)	
Beam Angle (°)	104.5	--	--	
Center Beam Candle Power (cd)	2810	--	--	

Spectral Power Distribution & Chromaticity Diagram

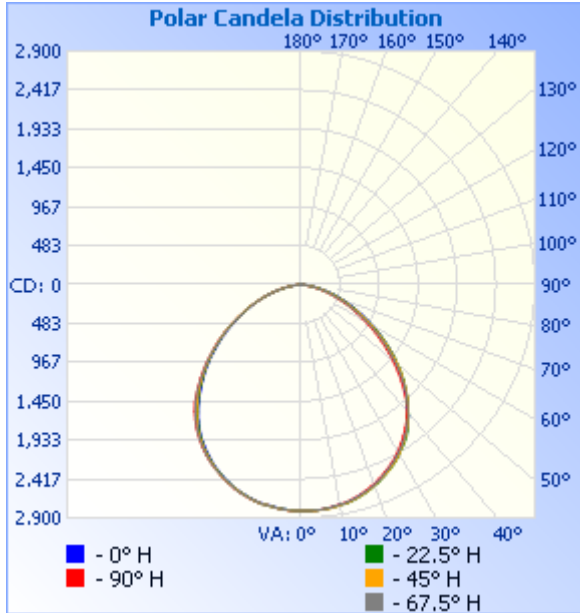


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	2,191.1	30.1%
0-40	3,582.8	49.3%
0-60	6,091.1	83.8%
60-90	1,172.1	16.1%
70-100	428.8	5.9%
90-120	3.5	0%
0-90	7,263.2	99.9%
90-180	7.8	0.1%
0-180	7,271.0	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	265.6	3.7%	90-100	1.5	0%
10-20	764.3	10.5%	100-110	1.0	0%
20-30	1,161.3	16.0%	110-120	1.0	0%
30-40	1,391.7	19.1%	120-130	0.9	0%
40-50	1,378.9	19.0%	130-140	0.9	0%
50-60	1,129.4	15.5%	140-150	0.9	0%
60-70	744.8	10.2%	150-160	0.8	0%
70-80	358.3	4.9%	160-170	0.5	0%
80-90	69.1	0.9%	170-180	0.2	0%

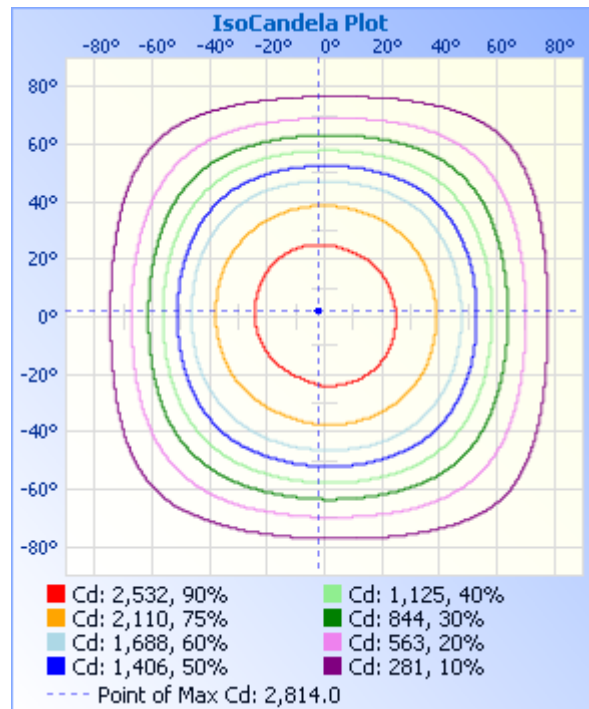
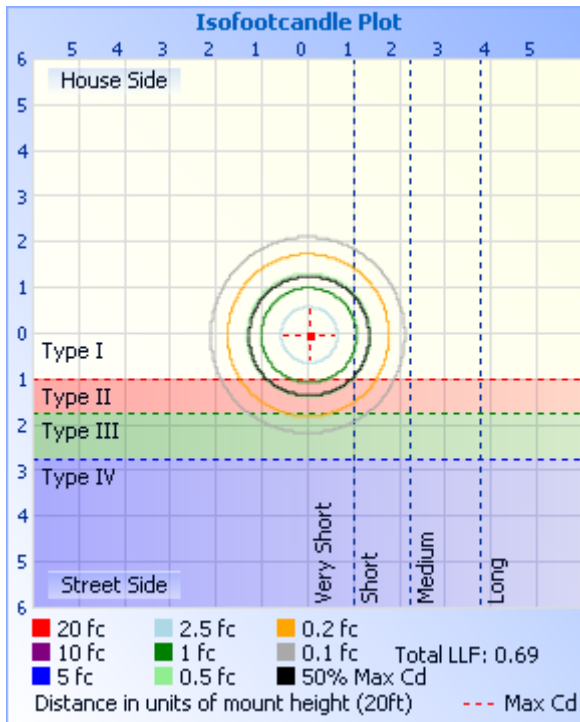
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	9.72 fc	44.0 ft	43.6 ft
34.0ft	2.43 fc	87.9 ft	87.2 ft
51.0ft	1.08 fc	131.9 ft	130.9 ft
68.0ft	0.61 fc	175.8 ft	174.5 ft
85.0ft	0.39 fc	219.8 ft	218.1 ft
102.0ft	0.27 fc	263.7 ft	261.7 ft

■ Vert. Spread: 104.6°
■ Horiz. Spread: 104.1°



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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	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810	2810
1	2812	2811	2813	2812	2811	2795	2781	2774	2808	2809	2813	2812	2811	2797	2783	2776	2812
2	2812	2812	2814	2812	2810	2793	2779	2772	2807	2808	2810	2810	2811	2796	2785	2775	2812
3	2810	2810	2814	2809	2808	2793	2774	2772	2804	2804	2808	2808	2808	2794	2783	2773	2810
4	2809	2809	2812	2808	2807	2788	2773	2769	2798	2799	2804	2805	2804	2792	2780	2773	2809
5	2807	2808	2808	2806	2804	2785	2775	2764	2794	2797	2799	2800	2800	2787	2776	2770	2807
6	2802	2804	2806	2802	2800	2782	2771	2759	2787	2792	2792	2795	2793	2783	2774	2774	2802
7	2797	2800	2803	2797	2793	2776	2765	2753	2781	2784	2787	2786	2785	2774	2768	2769	2797
8	2792	2795	2798	2791	2787	2775	2759	2745	2771	2778	2778	2779	2775	2768	2771	2763	2792
9	2784	2789	2791	2783	2778	2768	2751	2738	2772	2768	2767	2768	2769	2767	2763	2757	2784
10	2777	2781	2785	2774	2769	2757	2742	2728	2761	2768	2768	2769	2767	2760	2753	2749	2777
11	2774	2775	2774	2771	2765	2745	2733	2718	2752	2757	2757	2758	2759	2750	2745	2741	2774
12	2763	2773	2770	2762	2755	2735	2722	2708	2742	2746	2747	2748	2749	2741	2734	2730	2763
13	2754	2761	2760	2750	2742	2723	2711	2695	2728	2732	2736	2735	2740	2728	2724	2721	2754
14	2741	2752	2747	2740	2729	2708	2697	2683	2717	2717	2721	2725	2727	2717	2710	2708	2741
15	2730	2739	2737	2726	2717	2696	2681	2669	2702	2704	2709	2710	2712	2702	2695	2700	2730
16	2715	2727	2722	2711	2702	2680	2668	2652	2688	2691	2692	2698	2700	2693	2683	2685	2715
17	2703	2711	2706	2699	2685	2666	2650	2638	2670	2676	2675	2682	2682	2676	2667	2672	2703
18	2687	2693	2692	2681	2671	2648	2630	2620	2656	2657	2660	2664	2668	2658	2653	2655	2687
19	2668	2678	2675	2667	2652	2629	2614	2603	2636	2637	2641	2649	2647	2643	2635	2638	2668
20	2653	2659	2660	2648	2636	2614	2592	2582	2615	2619	2625	2627	2630	2623	2624	2622	2653
21	2633	2645	2640	2627	2614	2593	2575	2564	2597	2597	2604	2609	2609	2606	2605	2602	2633
22	2611	2623	2618	2610	2591	2574	2551	2542	2573	2578	2586	2586	2590	2584	2585	2586	2611
23	2593	2600	2600	2586	2571	2550	2532	2517	2554	2553	2563	2566	2567	2560	2568	2564	2593
24	2570	2582	2576	2561	2547	2525	2507	2498	2527	2533	2542	2547	2542	2542	2545	2546	2570
25	2545	2558	2558	2540	2527	2504	2481	2471	2505	2508	2516	2521	2523	2517	2526	2522	2545
26	2524	2540	2532	2514	2503	2477	2460	2449	2477	2486	2489	2501	2497	2496	2500	2502	2524
27	2497	2513	2508	2493	2477	2454	2432	2421	2453	2457	2466	2474	2476	2470	2478	2474	2497
28	2474	2491	2486	2467	2454	2426	2404	2391	2422	2428	2436	2446	2448	2448	2450	2446	2474
29	2445	2462	2455	2438	2424	2403	2381	2366	2390	2403	2411	2422	2424	2421	2420	2423	2445

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30	2420	2432	2431	2413	2394	2373	2350	2335	2364	2371	2379	2391	2393	2397	2396	2392	2420
31	2389	2401	2398	2382	2367	2348	2316	2302	2330	2345	2353	2365	2367	2366	2365	2367	2389
32	2364	2375	2365	2356	2328	2314	2287	2274	2302	2310	2319	2331	2334	2333	2339	2336	2364
33	2331	2348	2336	2323	2301	2279	2250	2238	2274	2280	2291	2303	2307	2306	2305	2309	2331
34	2296	2313	2300	2294	2265	2243	2220	2208	2236	2241	2254	2266	2271	2271	2277	2275	2296
35	2267	2284	2270	2257	2235	2213	2179	2167	2196	2210	2223	2236	2243	2242	2240	2247	2267
36	2229	2244	2230	2226	2196	2172	2146	2124	2162	2167	2182	2198	2206	2204	2210	2209	2229
37	2197	2201	2198	2186	2163	2130	2102	2087	2117	2123	2139	2158	2167	2172	2170	2177	2197
38	2155	2155	2147	2143	2121	2094	2055	2040	2078	2085	2102	2125	2134	2131	2129	2135	2155
39	2118	2118	2111	2106	2077	2047	2016	2002	2028	2036	2053	2082	2092	2096	2095	2091	2118
40	2069	2070	2064	2060	2040	2007	1967	1952	1987	1997	2013	2044	2056	2050	2050	2054	2069
41	2017	2030	2026	2012	1993	1956	1916	1912	1935	1946	1964	1996	2010	2002	2014	2005	2017
42	1975	1978	1976	1972	1951	1914	1875	1861	1893	1905	1923	1955	1971	1962	1967	1965	1975
43	1920	1937	1935	1921	1897	1861	1822	1809	1840	1853	1870	1902	1918	1911	1929	1914	1920
44	1876	1883	1883	1878	1839	1806	1780	1767	1788	1811	1828	1857	1861	1870	1878	1872	1876
45	1821	1839	1839	1820	1791	1761	1726	1714	1745	1758	1774	1801	1814	1817	1837	1818	1821
46	1777	1784	1784	1772	1728	1703	1683	1672	1691	1704	1720	1743	1754	1775	1784	1765	1777
47	1721	1739	1727	1708	1676	1656	1629	1618	1648	1661	1676	1697	1708	1719	1730	1722	1721
48	1665	1681	1680	1657	1611	1597	1575	1575	1594	1606	1620	1638	1649	1675	1687	1667	1665
49	1620	1635	1632	1594	1559	1549	1531	1522	1551	1562	1575	1591	1603	1619	1630	1623	1620
50	1563	1578	1571	1543	1496	1487	1476	1467	1496	1506	1518	1532	1544	1562	1585	1567	1563
51	1506	1520	1521	1479	1446	1426	1430	1423	1452	1462	1474	1486	1497	1516	1528	1521	1506
52	1459	1472	1459	1415	1384	1376	1373	1368	1395	1407	1418	1427	1439	1458	1482	1464	1459
53	1401	1411	1396	1364	1321	1314	1326	1324	1339	1351	1373	1380	1381	1412	1423	1418	1401
54	1354	1351	1346	1301	1271	1265	1269	1267	1294	1306	1316	1322	1334	1354	1377	1360	1354
55	1295	1303	1283	1251	1208	1205	1222	1223	1238	1251	1260	1264	1276	1308	1319	1302	1295
56	1247	1243	1233	1188	1158	1157	1163	1167	1193	1207	1214	1217	1229	1250	1261	1256	1247
57	1187	1194	1170	1138	1095	1098	1116	1122	1137	1151	1159	1160	1170	1191	1215	1198	1187
58	1138	1131	1120	1074	1045	1051	1058	1065	1092	1106	1114	1114	1123	1144	1157	1151	1138
59	1078	1082	1058	1024	983	992	1012	1021	1036	1051	1059	1058	1065	1086	1111	1093	1078
60	1031	1021	1010	962	935	945	955	966	981	1007	1016	1013	1018	1039	1054	1046	1031
61	974	961	950	912	877	887	900	912	939	952	962	957	961	982	1009	988	974

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62	929	913	904	851	832	842	856	869	888	897	909	912	906	937	952	943	929
63	873	855	846	793	777	786	802	818	847	855	867	857	864	882	896	888	873
64	828	810	801	748	733	742	759	777	796	804	815	805	812	837	852	834	828
65	775	756	747	695	680	688	707	727	757	764	773	764	771	783	798	792	775
66	722	714	693	653	638	647	665	688	708	715	723	716	722	729	755	740	722
67	681	663	652	603	588	596	615	640	670	677	683	678	684	688	703	699	681
68	632	624	602	564	539	548	575	601	623	630	635	630	636	639	662	650	632
69	593	576	563	518	502	510	526	554	577	593	588	593	589	601	613	611	593
70	546	539	515	482	457	465	489	517	541	548	551	548	553	554	564	564	546
71	509	493	478	438	422	430	444	473	497	503	505	504	508	518	527	518	509
72	465	458	434	404	380	387	409	438	461	469	470	470	474	474	481	482	465
73	430	415	399	363	348	354	366	395	419	427	427	428	432	440	446	439	430
74	388	374	357	332	309	314	326	354	385	394	394	396	400	399	403	405	388
75	356	342	325	293	279	283	294	322	345	354	354	357	361	359	371	365	356
76	317	302	286	264	243	246	257	283	313	323	323	327	323	328	331	333	317
77	286	272	256	229	209	218	228	254	276	285	287	290	294	291	301	295	286
78	250	236	220	195	182	184	194	218	239	249	258	262	259	263	265	259	250
79	215	208	186	169	151	152	167	191	212	222	224	229	232	229	230	231	215
80	188	175	161	138	126	128	137	159	178	189	192	196	199	203	204	198	188
81	156	144	131	115	97	99	108	129	153	163	167	172	175	172	172	172	156
82	132	120	108	86	75	77	87	106	123	133	137	142	146	143	148	142	132
83	104	93	81	60	51	52	62	80	95	105	115	121	118	121	121	114	104
84	78	73	57	42	30	32	44	61	75	85	90	95	97	95	95	93	78
85	60	50	40	23	17	18	25	40	52	61	66	71	73	76	76	69	60
86	39	31	21	11	5	6	13	22	36	45	49	52	53	54	54	52	39
87	25	18	11	3	2	2	3	10	18	26	30	31	32	33	39	33	25
88	10	5	3	2	2	2	2	3	7	11	17	15	16	20	21	20	10
89	2	2	2	2	1	2	2	2	3	4	6	6	7	8	8	7	2
90	2	2	2	1	1	1	1	2	2	2	2	3	3	3	3	3	2
91	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1
92	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1
93	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1

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94	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1
95	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	1
96	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1
97	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
98	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
99	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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126	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2016-08-25	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LWP5-75(5700K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD160711	120.0	60	0.6114	72.61	0.9897	10.22
NB-BA2	277.0	60	0.2853	69.97	0.8854	12.83
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

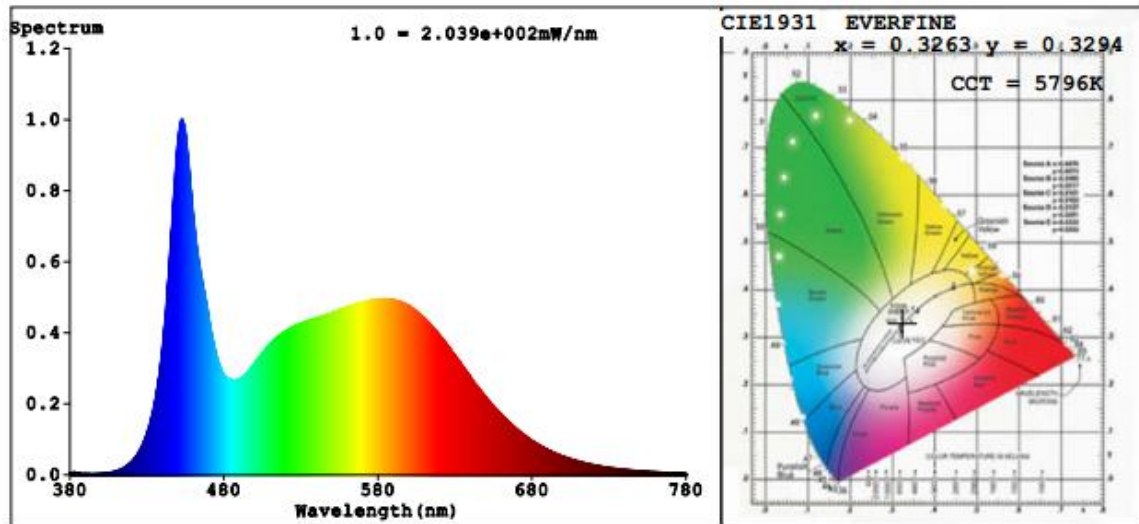
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	87	R9	26
Frequency (Hz)	60	R2	93	R10	82
CCT (K)	5796	R3	94	R11	85
Duv	-0.0032	R4	86	R12	65
Chromaticity (x, y)	x=0.3263 y=0.3294	R5	87	R13	89
Chromaticity (u', v')	u'=0.2071 v'=0.4706	R6	87	R14	97
Color Rendering Index (CRI)	86.9	R7	88	R15	84
R9	26	R8	73	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.0 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	7673	7430	5000~10000(-10%)	
Luminous Efficacy (lm/W)	105.67	106.19	Standard: >= 95(-3%)	Premium: >= 115(-3%)

Spectral Power Distribution & Chromaticity Diagram



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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-331	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-01	2017-06-30
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
EE-09	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-01	2017-06-30
PF210	Power Meter for Goniophotometer	2016-07-01	2017-06-30
ST-R-181A	Temperature Tester	2016-07-01	2017-06-30
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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