

**LM-79-08 Test Report**

For

**DONGGUAN THAILIGHT  
SEMICONDUCTOR LIGHTING CO.,LTD****(Brand Name: THAILIGHT)**

Sanhui Ind. Area, Cunwei, Hengli, Dongguan, China.

**Fuel Pump Canopy Luminaires**

Model name(s): TLCLB80XYZZ

Remark: X=CCT(4=4000K,5=5000K)

YY=Mounting Option(PD=Pendant, CL=Ceiling)

ZZ=Housing Color (use 2 digits to indicate all of color)

Representative (Tested) Model: TLCLB804PDZZ  
TLCLB805PDZZ

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

Test &amp; Report By:

*Johnson Sun*

Engineer: Johnson Sun

Update: Nov.03, 2016

Review By:

*Tommy Liang*

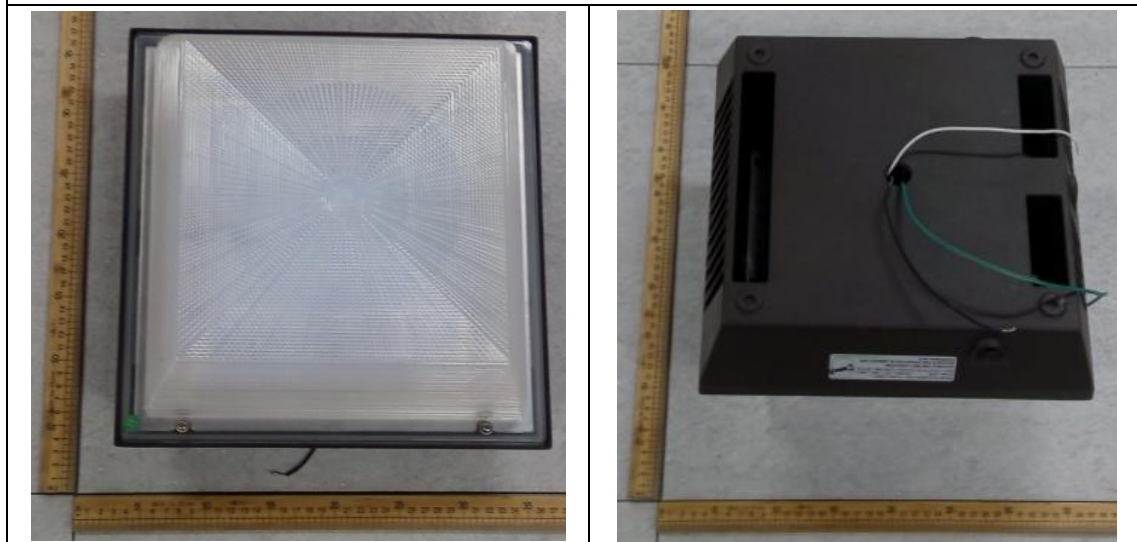
Manager: Tommy Liang

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

**1.1 Product Information:**

Organization Name	DONGGUAN THAILIGHT SEMICONDUCTOR LIGHTING CO.,LTD	
Brand Name	THAILIGHT	
Model Number	TLCLB80XYZZ	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Fuel Pump Canopy Luminaires	
Rated Voltage / Frequency	100 -277Vac, 50/60 Hz	
Nominal Power	80W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,5000K	
LED Manufacturer	Philips Lumileds	
LED Model	L130-2780003000W21	
Sample Number	GZE161105-I1(4000K),I2(5000K)	
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	: Oct.31,2016
Date of Test	: Nov.01,2016
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	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  $1\text{ }^{\circ}$  vertical intervals and  $22.5\text{ }^{\circ}$  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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ . 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.

Laboratory: Standard-Tech Co. Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

**2.1 Electrical, Photometric and Chromaticity Measurements**

(Refer to Work Instruction QD25)

<b>Test date</b>	2016-11-01	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	TLCLB804PDZZ		

**Electrical Measurement :**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161105-	120.0	60	0.6762	79.37	0.9782	11.53
I1	277.0	60	0.3068	80.25	0.9443	16.29
<b>DLC Pass Criteria</b>					$\geq 0.9(-3\%)$	$\leq 20(+5)$

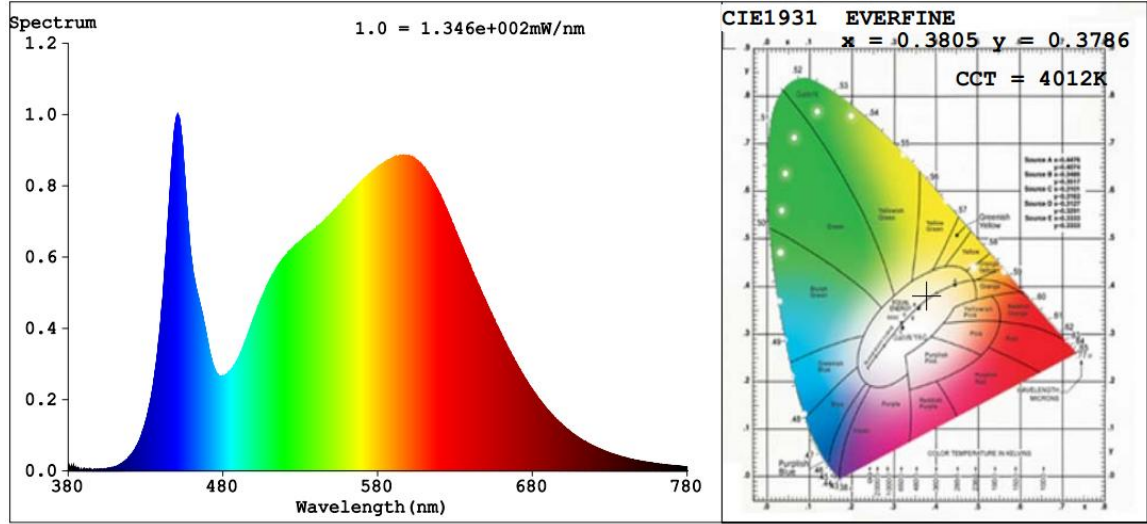
**Chromaticity Measurement - Sphere-Spectroradiometer Method :**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	13
Frequency (Hz)	60	R2	89	R10	75
CCT (K)	4012	R3	95	R11	82
Duv	0.0008	R4	83	R12	62
Chromaticity (x, y)	x=0.3805 y=0.3786	R5	82	R13	84
Chromaticity (u', v')	u'=0.2244 v'=0.5024	R6	85	R14	97
Color Rendering Index (CRI)	83.7	R7	87	R15	76
R9	13	R8	66	--	--

**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)	9288.9	9268.0	$\geq 2000 (-10\%)$	
Luminous Efficacy (lm/W)	117.03	115.49	Standard: $\geq 100(-3\%)$	Premium: $\geq 120(-3\%)$
Zonal lumens in the 0-40 °zone (%)	42.2	--	$\geq 40(-3)$	
Zonal lumens in the 40-70 °zone (%)	40.8	--	$\geq 40(-3)$	
Beam Angle (°)	106.7	--	--	
Center Beam Candle Power (cd)	2996	--	--	

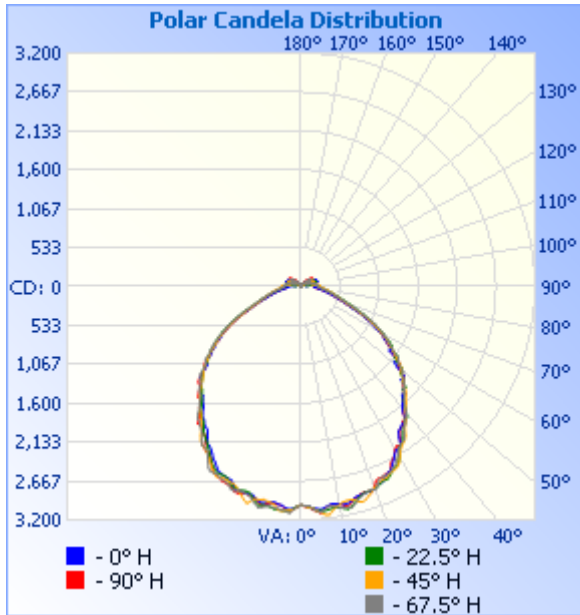
**Spectral Power Distribution & Chromaticity Diagram**



**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	2,421.5	26.1%
0-40	3,922.1	42.2%
0-60	6,784.8	73%
60-90	1,752.5	18.9%
70-100	1,040.7	11.2%
90-120	539.7	5.8%
0-90	8,537.3	91.9%
90-180	750.9	8.1%
0-180	9,288.2	100%

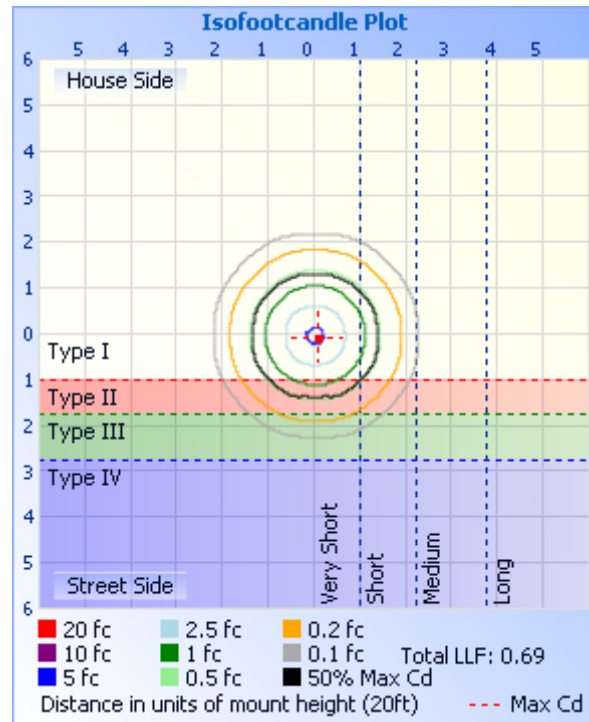
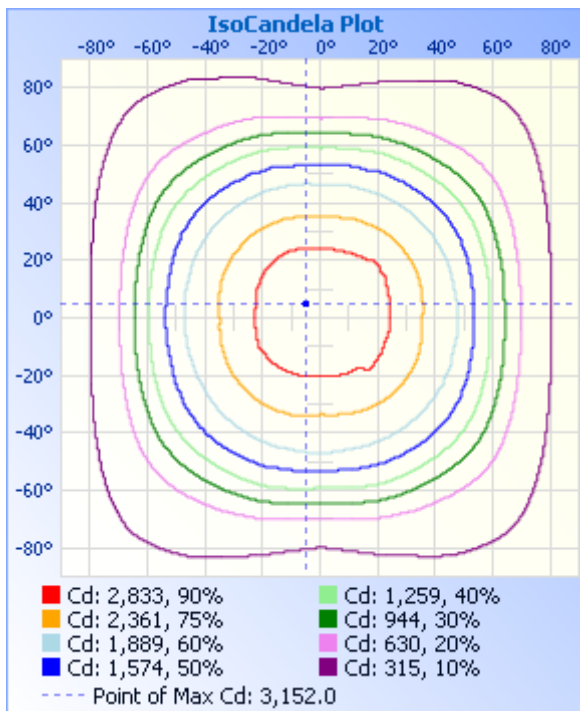
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	291.2	3.1%	90-100	213.6	2.3%
10-20	843.7	9.1%	100-110	172.1	1.9%
20-30	1,286.5	13.9%	110-120	154.1	1.7%
30-40	1,500.7	16.2%	120-130	122.9	1.3%
40-50	1,516.4	16.3%	130-140	59.7	0.6%
50-60	1,346.2	14.5%	140-150	21.0	0.2%
60-70	925.4	10.0%	150-160	5.3	0.1%
70-80	518.1	5.6%	160-170	1.6	0%
80-90	309.1	3.3%	170-180	0.7	0%



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
17.0ft	10.37 fc	45.5 ft	46.0 ft
34.0ft	2.59 fc	91.1 ft	92.0 ft
51.0ft	1.15 fc	136.6 ft	138.0 ft
68.0ft	0.65 fc	182.2 ft	184.0 ft
85.0ft	0.41 fc	227.7 ft	230.0 ft
102.0ft	0.29 fc	273.3 ft	276.0 ft

■ Vert. Spread: 106.5°  
■ Horiz. Spread: 107.1°



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C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996	2996
5	3019	3060	3101	3112	3067	3088	3104	3104	3118	3091	3107	3049	3008	3079	3085	3076
10	3044	3079	3009	3057	3018	3076	3032	3074	3024	3059	2989	3067	3012	3038	2961	3070
15	2930	2971	3067	2979	2972	3008	3051	3022	2980	2959	3014	2985	2933	2902	3026	2939
20	2891	2926	2888	2945	2945	2949	2928	2966	2923	2896	2881	2871	2815	2856	2849	2897
25	2819	2832	2855	2823	2813	2865	2846	2833	2812	2814	2759	2745	2732	2776	2818	2817
30	2605	2617	2655	2636	2590	2687	2697	2659	2569	2613	2609	2554	2515	2545	2597	2584
35	2365	2421	2443	2403	2374	2435	2488	2450	2366	2402	2391	2342	2309	2323	2378	2386
40	2167	2189	2201	2200	2149	2240	2226	2240	2162	2178	2161	2132	2089	2126	2162	2167
45	1959	2006	1987	2006	1980	1977	2020	1994	1985	1947	1943	1958	1939	1939	1944	1973
50	1713	1768	1786	1808	1717	1801	1786	1830	1743	1791	1747	1756	1683	1743	1734	1737
55	1477	1513	1501	1525	1495	1546	1538	1535	1530	1499	1521	1523	1445	1499	1474	1514
60	1182	1254	1205	1277	1235	1300	1261	1306	1255	1273	1236	1270	1189	1243	1199	1235
65	859	932	885	940	928	993	950	989	943	963	930	957	881	934	886	941
70	604	658	623	672	626	708	662	688	631	679	657	673	597	655	628	661
75	433	494	486	498	444	525	505	504	444	503	500	488	421	486	487	492
80	312	377	394	376	319	397	404	380	318	382	398	368	300	368	390	373
85	221	291	315	287	226	303	321	287	220	293	313	280	211	280	308	286
90	179	238	260	230	180	243	259	228	173	237	255	226	172	229	256	232
95	185	233	243	186	165	204	247	225	178	234	236	169	148	178	239	229
100	186	203	168	84.8	64.9	74.8	182	206	185	206	162	93.5	70.0	94.4	169	201
105	155	145	147	208	221	208	146	154	163	149	139	203	209	200	144	143
110	102	103	172	202	229	210	149	101	106	102	159	195	211	186	161	94.9
115	105	112	197	188	222	193	180	90.6	88.7	99.9	184	176	200	167	189	102
120	162	142	169	155	187	161	170	133	147	135	162	144	164	137	161	151
125	196	150	137	117	148	122	138	157	195	151	126	108	131	105	125	162
130	166	129	97.0	74.9	38.4	83.3	97.4	139	171	132	82.5	66.5	25.8	68.9	82.8	138
135	138	105	56.3	50.0	65.7	50.3	57.1	112	143	106	50.5	38.0	51.9	35.8	56.7	113
140	103	78.5	37.8	23.5	37.2	20.0	42.5	81.9	103	78.1	37.3	11.6	21.8	10.0	41.3	83.3
145	74.1	57.5	24.5	5.78	5.48	5.62	25.5	57.2	69.9	56.9	24.0	5.36	4.99	5.25	25.1	59.6
150	51.9	39.4	6.30	5.78	5.83	5.83	9.49	36.8	46.5	38.0	12.3	5.40	5.67	5.62	5.73	37.3
155	28.0	15.1	6.14	6.30	5.88	5.83	5.46	15.3	22.8	19.1	4.81	5.40	5.09	5.46	5.51	7.48
160	5.13	4.91	5.98	6.10	5.93	5.78	5.57	5.20	4.81	4.97	4.87	5.51	5.19	5.09	5.25	5.21
165	5.29	4.91	5.98	5.83	5.67	5.78	5.68	4.78	5.40	5.08	4.97	5.46	5.19	5.41	5.30	5.63
170	5.97	5.60	6.72	6.72	6.52	6.68	6.57	5.04	6.46	6.45	6.14	7.16	7.53	7.42	6.95	6.90
175	6.35	5.92	7.14	7.10	7.52	6.94	7.05	5.47	6.72	6.87	6.35	7.21	7.47	7.95	7.11	7.27
180	6.19	6.08	6.82	7.10	7.52	6.67	7.00	5.31	6.19	6.24	5.98	6.78	6.84	7.42	6.58	6.90

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**BUG Rating: B3-U4-G2**

**IESNA Luminaire Flux Distribution Table:**

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	1220.5	13.1
FM - Front-Medium(30-60)	2204.2	23.7
FH - Front-High(60-80)	726.15	7.8
FVH - Front-Very High(80-90)	156.48	1.7
<b>Total Forward Light</b>	<b>4691</b>	<b>50.5</b>

BL - Back-Low(0-30)	1201	12.9
BM - Back-Medium(30-60)	2160	23.3
BH - Back-High(60-80)	717.22	7.7
BVH - Back-Very High(80-90)	152.51	1.6
<b>Total Back Light</b>	<b>4598.1</b>	<b>49.5</b>

UL - Uplight-Low(90-100)	213.55	2.3
UH - Uplight-High(100-180)	537.48	5.8
<b>Total Up Light</b>	<b>751.02</b>	<b>8.1</b>

<b>BUG(Back,Up,Glare) Rating</b>	<b>B3-U4-G2</b>
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Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	4230.7	367.36	4598.1
Street Side	4307.3	383.66	4691



**2.2 Electrical, Photometric and Chromaticity Measurements**

(Refer to Work Instruction QD25)

<b>Test date</b>	2016-11-01	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	TLCLB805PDZZ		

**Electrical Measurement :**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE161105-	120.0	60	0.6755	79.25	0.9776	11.58
I2	277.0	60	0.3065	80.13	0.9437	16.34
<b>DLC Pass Criteria</b>					>= 0.9(-3%)	<= 20(+5)

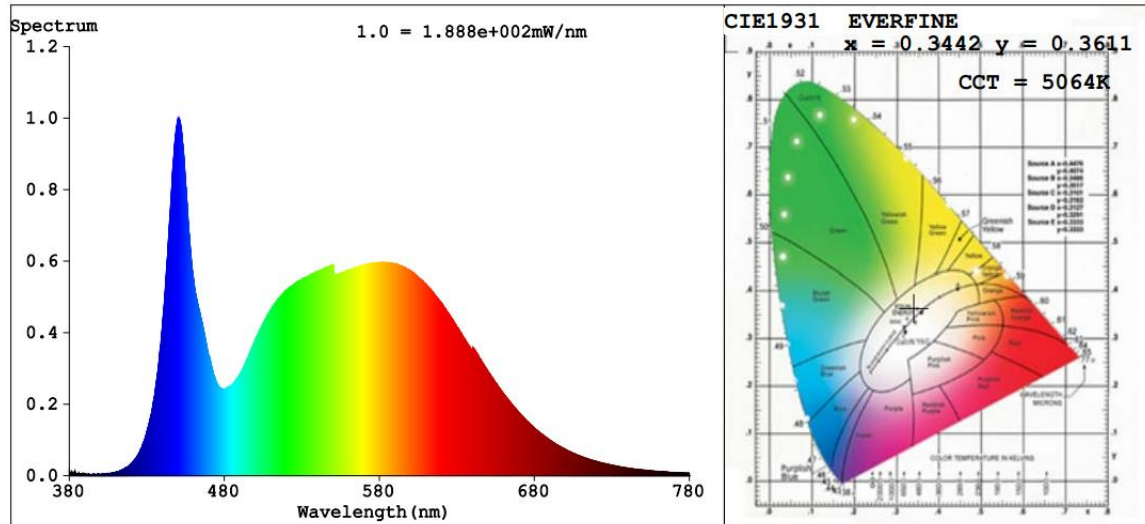
**Chromaticity Measurement - Sphere-Spectroradiometer Method :**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	8
Frequency (Hz)	60	R2	87	R10	70
CCT (K)	5064	R3	92	R11	83
Duv	0.0051	R4	83	R12	61
Chromaticity (x, y)	x=0.3442 y=0.3611	R5	82	R13	83
Chromaticity (u', v')	u'=0.2072 v'=0.4891	R6	83	R14	96
Color Rendering Index (CRI)	83.1	R7	88	R15	75
R9	8	R8	68	--	--

**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)	9413	9392	>=2000 (-10%)	
Luminous Efficacy (lm/W)	118.78	117.21	Standard: >= 100(-3%)	Premium: >= 120(-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 \*\*\*\*\***

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