



Report No.: GZE160842-F

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

BEYOND LED TECHNOLOGY

(Brand Name: Beyond LED)

1939 Parker Ct Suite C
Stone Mountain, GA 30087

HD FPB Series - High Definition Outdoor Corn Bulb Decorative Luminaires (Type B)

Model name(s): BLTCLW120W57K

Representative (Tested) Model: SNC-CLW-120WB1

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

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Sept.01,2016

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

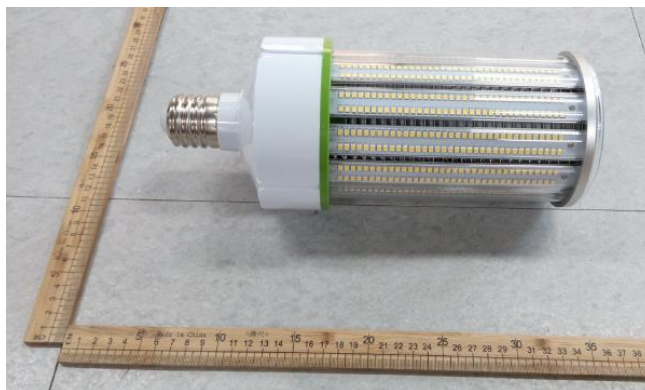
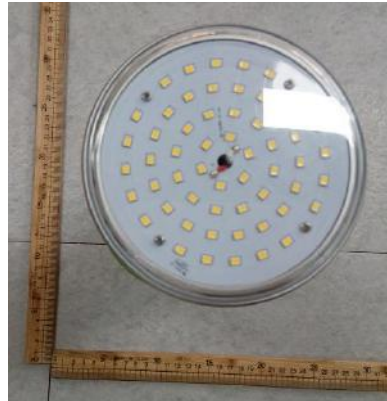
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Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

1.1 Product Information:

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED	
Model Number	BLTCLW120W57K	
SKU (if available)	106542	
Type of Luminaire (for integral lamps, list base type and lamp type)	HD FPB Series - High Definition Outdoor Corn Bulb Decorative Luminaires (Type B)	
Rated Voltage / Frequency	100-277Vac,60 Hz	
Nominal Power	120W	
Rated Initial Lamp Lumen	--	
Declared CCT	5700K	
LED Manufacturer	Shenzhen WeiXingXin Electronics Technology Co.,Ltd.	
LED Model	2835 0.5W White SMD LED	
Sample Number	GZE160842-F2(5700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo



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1.2 Test Specifications:

Date of Receipt	Aug.26,2016
Date of Test	Aug.28,2016
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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° 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 <i>(Refer to Work Instruction QD25)</i>

Test date	2016-08-28	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLTCLW120W57K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	0.9724	116.1	0.9950	4.07
F1	277.0	60	0.4542	113.6	0.9030	18.96
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

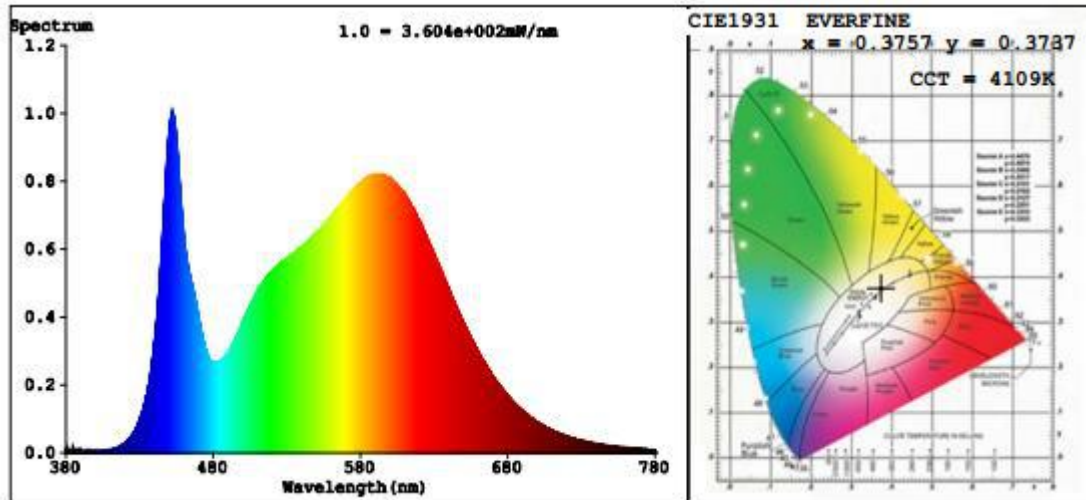
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	3
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	4109	R3	95	R11	78
Duv	0.0000	R4	80	R12	60
Chromaticity (x, y)	x=0.3757 y=0.3737	R5	81	R13	83
Chromaticity (u', v')	u'=0.2232 v'=0.4995	R6	85	R14	98
Color Rendering Index (CRI)	82.3	R7	85	R15	74
R9	3	R8	62	--	--

Photometric Measurement – Goniophotometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result		DLC V4.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	13305	12985	In luminaire: >=10000(±10%)
Luminous Efficacy (lm/W)	114.60	114.30	In luminaire:>=95(-3%)
Zonal lumens in the 0-90° zone (%)	88.1	--	>= 65(-3)
Beam Angle (°)	176.1	--	--
Center Beam Candle Power (cd)	718	--	--

Spectral Power Distribution & Chromaticity Diagram

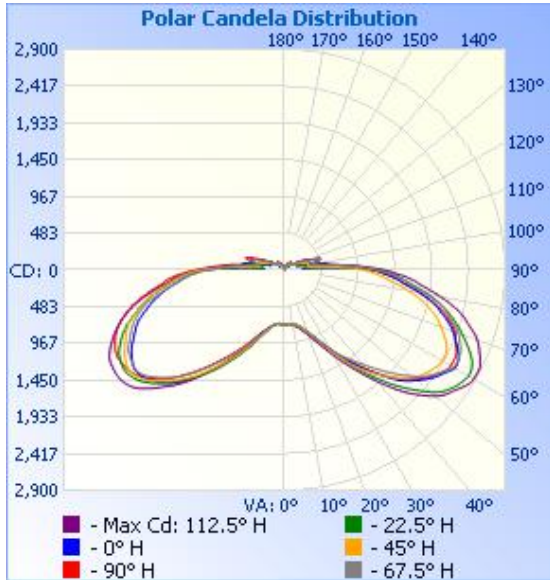


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	796.7	6%
0-40	1,756.1	13.2%
0-60	5,530.1	41.6%
60-90	6,197.4	46.6%
70-100	4,465.6	33.6%
90-120	1,281.9	9.6%
0-90	11,727.5	88.1%
90-180	1,577.3	11.9%
0-180	13,304.7	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	68.6	0.5%	90-100	681.7	5.1%
10-20	229.1	1.7%	100-110	360.7	2.7%
20-30	499.1	3.8%	110-120	239.5	1.8%
30-40	959.4	7.2%	120-130	129.5	1%
40-50	1,588.8	11.9%	130-140	85.8	0.6%
50-60	2,185.2	16.4%	140-150	50.3	0.4%
60-70	2,413.6	18.1%	150-160	21.7	0.2%
70-80	2,181.6	16.4%	160-170	6.6	0%
80-90	1,602.2	12.0%	170-180	1.4	0%

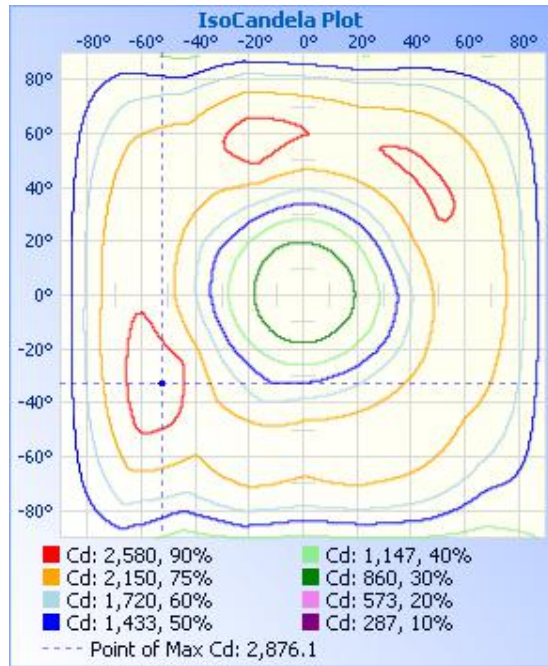
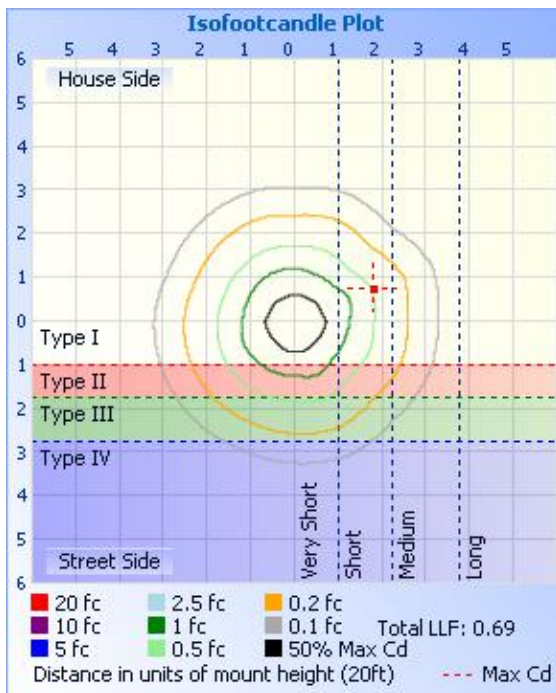
Photometric Data



Illuminance at a Distance

Height (ft)	Center Beam fc	Beam Width
17.0ft	2.49 fc	259.7 ft - 484.0 ft
34.0ft	0.62 fc	519.5 ft - 967.9 ft
51.0ft	0.28 fc	779.2 ft - 1,451.9 ft
68.0ft	0.16 fc	1,038.9 ft - 1,935.9 ft
85.0ft	0.10 fc	1,298.7 ft - 2,419.9 ft
102.0ft	0.07 fc	1,558.4 ft - 2,903.8 ft

Vert. Spread: 165.1°
Horiz. Spread: 172.0°



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Table--1 UNIT: cd

C (DEG) T (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	718	718	718	718	718	718	718	718	718	718	718	718	718	718	718	718	
5	710	714	715	711	709	706	715	712	714	716	713	705	705	709	704	708	
10	728	733	726	727	730	730	732	731	737	744	738	737	734	734	735	731	
15	790	787	783	774	772	764	774	787	794	801	807	804	806	808	809	791	
20	888	881	886	870	866	852	861	879	890	907	926	931	941	940	932	900	
25	1036	1053	1050	1014	1000	993	1011	1019	1033	1069	1109	1107	1128	1132	1108	1060	
30	1223	1291	1278	1231	1202	1215	1235	1206	1223	1300	1337	1296	1340	1361	1328	1251	
35	1443	1574	1540	1497	1454	1519	1499	1409	1447	1584	1565	1466	1571	1604	1557	1473	
40	1708	1877	1811	1786	1733	1845	1756	1628	1715	1925	1791	1648	1851	1843	1820	1728	
45	1985	2161	2095	2066	2029	2178	1998	1893	1995	2280	2013	1878	2104	2086	2054	1988	
50	2226	2421	2355	2309	2259	2495	2199	2171	2236	2581	2185	2153	2265	2310	2261	2193	
55	2394	2577	2531	2484	2444	2703	2324	2397	2411	2748	2273	2354	2355	2449	2409	2345	
60	2464	2597	2616	2551	2584	2796	2396	2562	2525	2870	2255	2448	2315	2472	2408	2337	
65	2453	2535	2537	2427	2522	2712	2355	2552	2498	2838	2193	2402	2196	2392	2313	2254	
70	2344	2366	2344	2227	2357	2492	2192	2434	2388	2700	2040	2249	2055	2219	2193	2119	
75	2155	2135	2111	1973	2123	2247	1980	2217	2165	2454	1837	2017	1850	1986	1988	1934	
80	1846	1812	1838	1697	1840	1944	1691	1918	1843	2105	1586	1750	1608	1718	1730	1628	
85	1563	1489	1504	1396	1510	1598	1355	1585	1520	1736	1301	1469	1352	1436	1437	1344	
90	1170	1122	1152	1096	1218	1280	1059	1218	1158	1312	1005	1108	1060	1118	1112	1018	
95	764	677	529	267	238	289	511	747	738	785	428	298	267	285	501	648	
100	396	343	335	395	509	434	318	362	386	365	337	438	519	465	364	341	
105	470	418	369	205	249	242	322	453	430	439	289	234	286	286	336	417	
110	473	417	315	188	180	202	266	396	421	433	233	194	187	227	269	389	
115	310	289	218	200	212	199	205	269	288	301	200	204	204	224	213	271	
120	222	202	170	165	176	162	160	184	206	209	169	184	194	201	183	197	
125	147	130	144	131	138	131	142	127	145	132	144	140	138	147	146	133	
130	127	112	133	112	122	112	131	115	126	115	127	113	116	116	129	121	
135	136	124	117	97.8	74.1	97.8	115	128	135	127	109	96.9	72.3	96.5	111	133	
140	136	122	95.6	77.3	73.5	79.2	96.5	125	133	124	90.2	74.9	70.3	76.5	92.3	127	
145	117	108	74.4	55.2	50.6	57.1	75.1	109	116	111	76.9	45.0	35.4	47.3	71.5	110	
150	94.4	87.4	58.4	37.3	19.7	41.0	62.2	87.5	93.8	91.0	66.4	40.1	21.9	38.3	54.5	84.6	
155	68.1	63.4	43.4	25.0	18.7	33.2	48.4	65.6	69.0	67.8	52.6	34.1	20.0	24.5	40.0	58.3	
160	41.8	38.9	28.5	18.9	18.9	26.2	35.5	44.9	43.9	44.6	36.2	26.1	20.1	17.6	26.0	35.7	
165	24.8	23.6	19.6	20.4	18.1	20.6	24.1	28.3	24.8	24.2	23.6	18.2	20.3	15.7	16.4	20.4	
170	14.5	19.7	17.6	17.8	14.5	16.9	18.0	19.6	14.8	14.5	18.8	17.4	16.2	12.7	14.6	16.0	
175	14.4	17.8	16.5	15.9	16.1	17.2	17.4	17.4	13.6	13.5	13.2	14.7	14.6	14.0	13.8	12.7	
180	12.7	10.6	11.1	12.7	13.4	14.1	12.1	8.90	13.1	13.1	11.6	12.0	12.5	12.8	13.1	12.6	

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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2016-08-28	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLTCLW120W57K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	0.9875	117.5	0.9916	5.01
F2	277.0	60	0.4600	114.8	0.9010	19.97
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

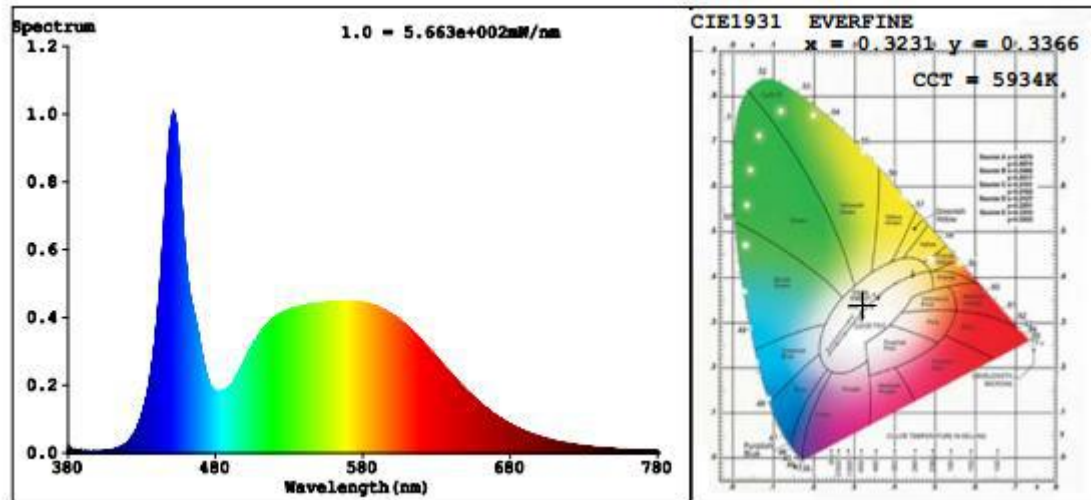
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	87	R10	67
CCT (K)	5934	R3	89	R11	81
Duv	0.0020	R4	83	R12	55
Chromaticity (x, y)	x=0.3231 y=0.3366	R5	81	R13	82
Chromaticity (u', v')	u'=0.2022 v'=0.4739	R6	81	R14	94
Color Rendering Index (CRI)	82.2	R7	88	R15	77
R9	7	R8	69	--	--

Photometric Measurement – Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result		DLC V4.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	13675	13336	In luminaire: >=10000(±10%)
Luminous Efficacy (lm/W)	116.38	116.17	In luminaire:>=95(-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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