



Report No.: GZE160842-D

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): BLTCLW80W57K

Representative (Tested) Model: SNC-CLW-80WB1

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

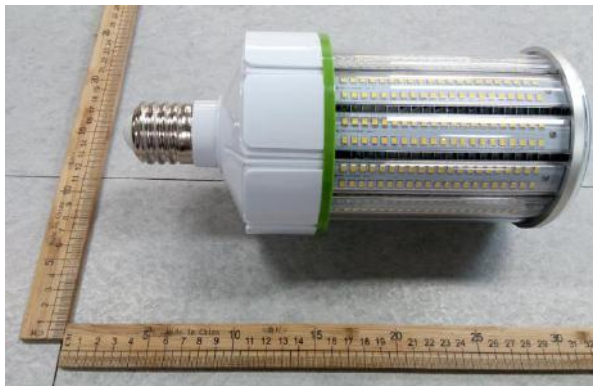
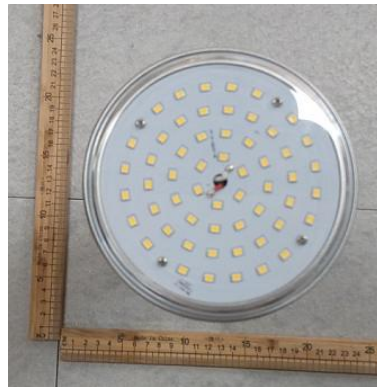
Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

1.1 Product Information:

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED	
Model Number	BLTCLW80W57K	
SKU (if available)	106567	
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	80W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,4500K,5000K,5700K	
LED Manufacturer	Shenzhen WeiXingXin Electronics Technology Co.,Ltd.	
LED Model	2835 0.5W White SMD LED	
Sample Number	GZE160842-D1(4000K),D2(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
(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	BLTCLW80W57K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	0.6797	80.22	0.9835	2.06
D1	277.0	60	0.3173	79.66	0.9063	14.56
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

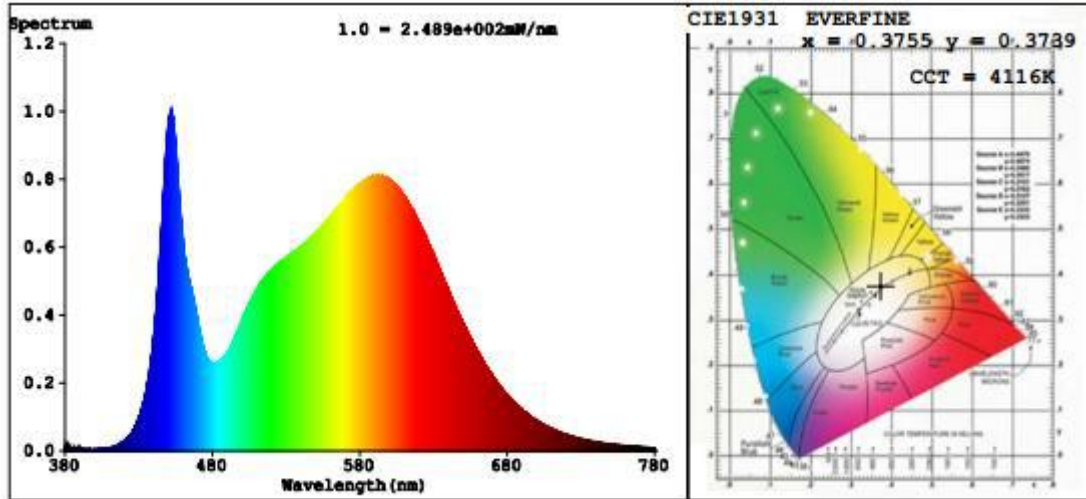
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	2
Frequency (Hz)	60	R2	90	R10	75
CCT (K)	4116	R3	95	R11	79
Duv	0.0001	R4	80	R12	60
Chromaticity (x, y)	x=0.3755 y=0.3739	R5	80	R13	83
Chromaticity (u', v')	u'=0.2230 v'=0.4996	R6	85	R14	98
Color Rendering Index (CRI)	82.2	R7	85	R15	74
R9	2	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)	9298.2	9177.6	In luminaire: >=10000(±10%)
Luminous Efficacy (lm/W)	115.91	115.21	In luminaire:>=95(-3%)
Zonal lumens in the 0-90° zone (%)	87.5	--	>= 65(-3)
Beam Angle (°)	181.8	--	--
Center Beam Candle Power (cd)	453	--	--

Spectral Power Distribution & Chromaticity Diagram

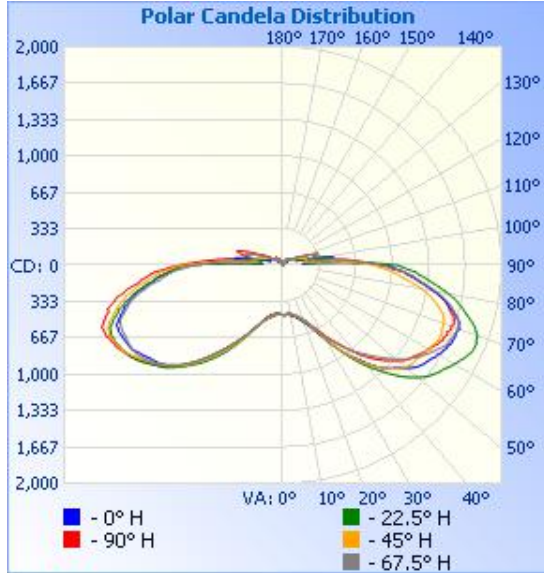


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	490.4	5.3%
0-40	1,099.9	11.8%
0-60	3,512.0	37.8%
60-90	4,623.2	49.7%
70-100	3,484.0	37.5%
90-120	973.4	10.5%
0-90	8,135.2	87.5%
90-180	1,163.2	12.5%
0-180	9,298.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	43.4	0.5%	90-100	530.0	5.7%
10-20	141.6	1.5%	100-110	271.5	2.9%
20-30	305.4	3.3%	110-120	171.9	1.8%
30-40	609.5	6.6%	120-130	85.1	0.9%
40-50	1,015.3	10.9%	130-140	54.7	0.6%
50-60	1,396.8	15.0%	140-150	31.7	0.3%
60-70	1,669.2	18.0%	150-160	13.5	0.1%
70-80	1,674.6	18.0%	160-170	4.0	0%
80-90	1,279.4	13.8%	170-180	0.8	0%

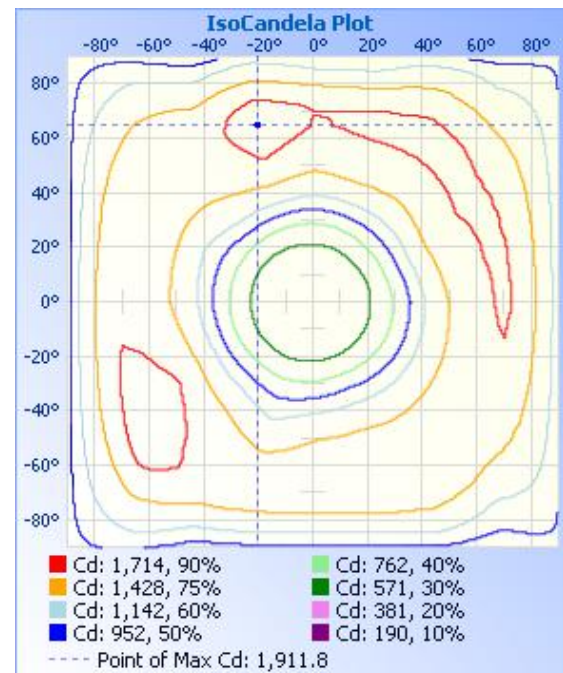
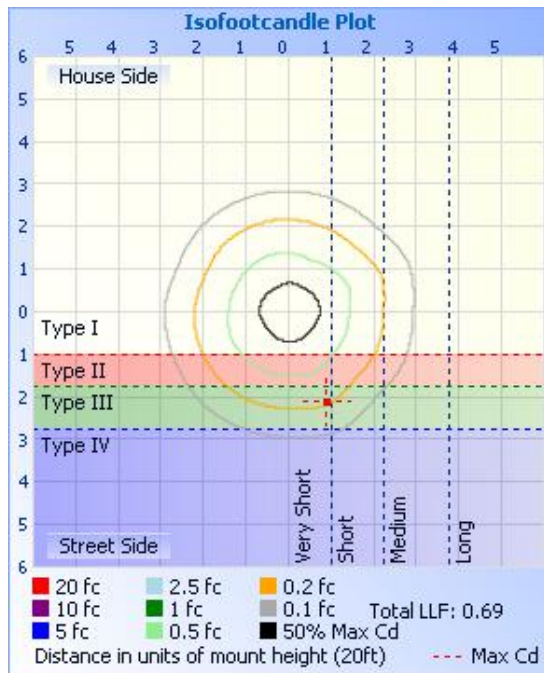
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	1.57 fc	20.5 ft
34.0ft	0.39 fc	41.0 ft
51.0ft	0.17 fc	61.5 ft
68.0ft	0.10 fc	82.0 ft
85.0ft	0.06 fc	102.5 ft
102.0ft	0.04 fc	123.0 ft

■ Beam Spread: 62.2°



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Table--1 UNIT: cd

C (DEG) \ y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	453	453	453	453	453	453	453	453	453	453	453	453	453	453	453	453	
5	455	453	457	458	454	451	452	448	446	448	446	445	445	451	451	451	
10	474	471	471	468	466	465	459	457	453	456	453	453	454	456	460	462	
15	502	506	506	504	498	492	484	479	483	480	481	480	483	486	494	494	
20	559	559	567	556	552	541	532	524	529	527	535	536	546	554	558	555	
25	655	675	680	655	640	629	621	609	604	615	632	633	653	671	669	655	
30	789	845	845	815	791	782	778	744	729	758	786	768	793	832	814	788	
35	941	1032	1023	1008	974	992	975	889	876	936	965	900	950	1007	973	944	
40	1116	1235	1202	1202	1160	1208	1171	1035	1052	1146	1145	1019	1122	1168	1136	1114	
45	1288	1435	1367	1391	1335	1416	1336	1182	1220	1361	1312	1145	1293	1314	1296	1281	
50	1441	1594	1520	1551	1465	1598	1455	1337	1361	1568	1454	1278	1419	1448	1423	1419	
55	1545	1684	1618	1653	1576	1722	1496	1475	1462	1713	1529	1387	1486	1551	1526	1516	
60	1638	1724	1695	1688	1637	1811	1543	1582	1540	1807	1586	1487	1568	1636	1625	1571	
65	1701	1745	1763	1742	1701	1898	1582	1679	1619	1874	1595	1576	1605	1684	1690	1579	
70	1744	1705	1775	1734	1718	1896	1564	1699	1639	1892	1609	1638	1621	1685	1705	1581	
75	1649	1568	1675	1614	1607	1740	1474	1618	1580	1797	1528	1529	1505	1550	1579	1470	
80	1484	1391	1521	1405	1414	1549	1303	1437	1423	1584	1358	1346	1332	1351	1409	1287	
85	1256	1160	1271	1161	1181	1306	1068	1202	1204	1321	1118	1129	1114	1129	1189	1072	
90	943	876	968	914	963	1053	844	921	909	989	844	847	860	876	914	816	
95	603	534	419	195	183	219	407	573	585	594	349	204	185	193	363	486	
100	277	252	266	346	433	407	210	261	294	276	255	298	385	324	276	233	
105	389	352	289	166	209	213	216	306	289	320	235	148	180	188	250	329	
110	360	333	251	137	128	145	184	291	302	327	185	129	120	161	200	282	
115	229	229	173	141	147	142	146	189	194	215	140	132	136	150	150	193	
120	157	153	129	123	130	124	113	128	138	138	112	113	119	131	121	134	
125	98.3	91.2	101	88.7	91.7	89.5	90.0	83.3	93.4	84.1	85.8	86.4	83.3	90.4	95.8	86.5	
130	86.5	80.2	88.7	72.5	80.1	75.5	82.6	70.3	77.2	69.9	77.7	71.1	71.6	70.2	82.5	82.8	
135	93.7	85.5	76.3	64.5	48.3	65.0	72.3	75.3	79.0	75.7	67.6	59.4	44.8	60.6	70.3	87.6	
140	89.7	81.0	63.1	51.3	47.7	51.7	60.1	76.0	80.6	75.6	56.2	46.4	41.6	47.1	57.8	80.3	
145	76.0	70.9	48.3	35.7	33.0	35.7	47.1	68.1	72.6	68.5	48.2	28.3	21.6	28.2	44.4	68.8	
150	60.6	55.8	37.6	24.8	12.7	25.2	38.6	55.2	59.4	56.2	41.4	25.0	13.1	22.1	33.9	52.8	
155	41.3	39.3	28.7	17.0	12.5	19.6	29.9	40.8	43.4	41.7	32.0	20.4	12.1	13.8	23.9	36.3	
160	26.2	23.2	20.0	13.4	12.5	14.5	21.9	27.5	27.7	27.9	22.6	16.5	12.1	11.0	14.1	21.9	
165	15.8	15.8	13.3	11.9	12.6	12.5	13.5	16.3	14.4	14.3	14.2	11.0	11.6	10.0	9.66	12.1	
170	8.63	11.0	9.81	10.1	9.92	9.78	10.9	11.0	8.03	8.11	11.2	11.1	9.97	7.67	6.49	7.33	
175	7.44	9.04	8.46	7.89	8.89	8.67	9.65	9.92	7.95	7.80	7.80	8.56	8.66	8.85	7.34	6.08	
180	7.70	7.13	6.95	8.81	9.11	8.41	7.40	7.00	8.36	8.05	7.81	8.07	8.41	8.35	8.51	8.18	

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	BLTCLW80W57K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	0.6857	80.67	0.9804	4.29
D2	277.0	60	0.3198	80.05	0.9036	17.47
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

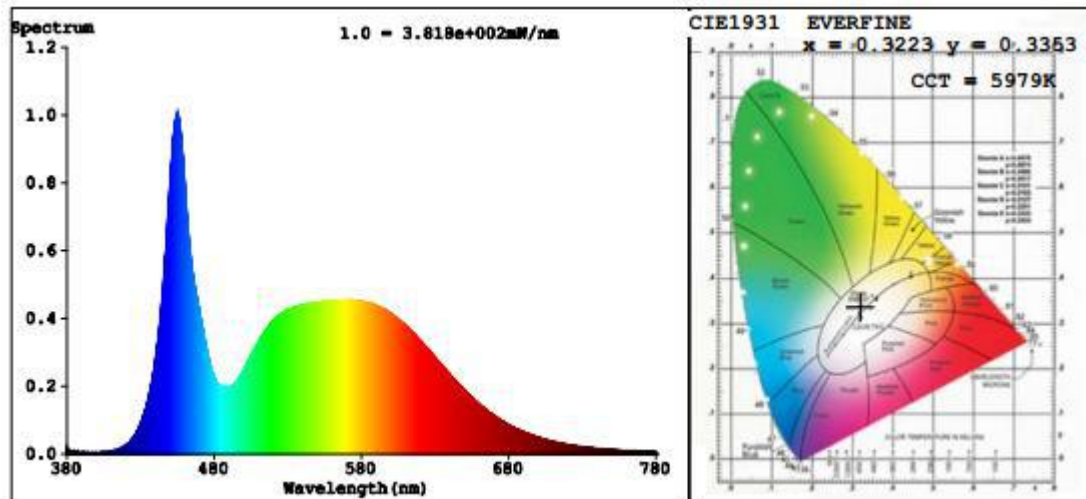
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	9
Frequency (Hz)	60	R2	89	R10	71
CCT (K)	5979	R3	91	R11	79
Duv	0.0017	R4	81	R12	53
Chromaticity (x, y)	x=0.3223 y=0.3353	R5	81	R13	84
Chromaticity (u', v')	u'=0.2021 v'=0.4731	R6	82	R14	95
Color Rendering Index (CRI)	82.7	R7	87	R15	78
R9	9	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)	9512	9422	In luminaire: >=10000(±10%)
Luminous Efficacy (lm/W)	117.91	117.70	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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