



Report No.: GZE160842-B

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 30078

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

Model name(s): BLTCLW40WE3957K

Representative (Tested) Model: SNC-CLW-40WB1E39

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.

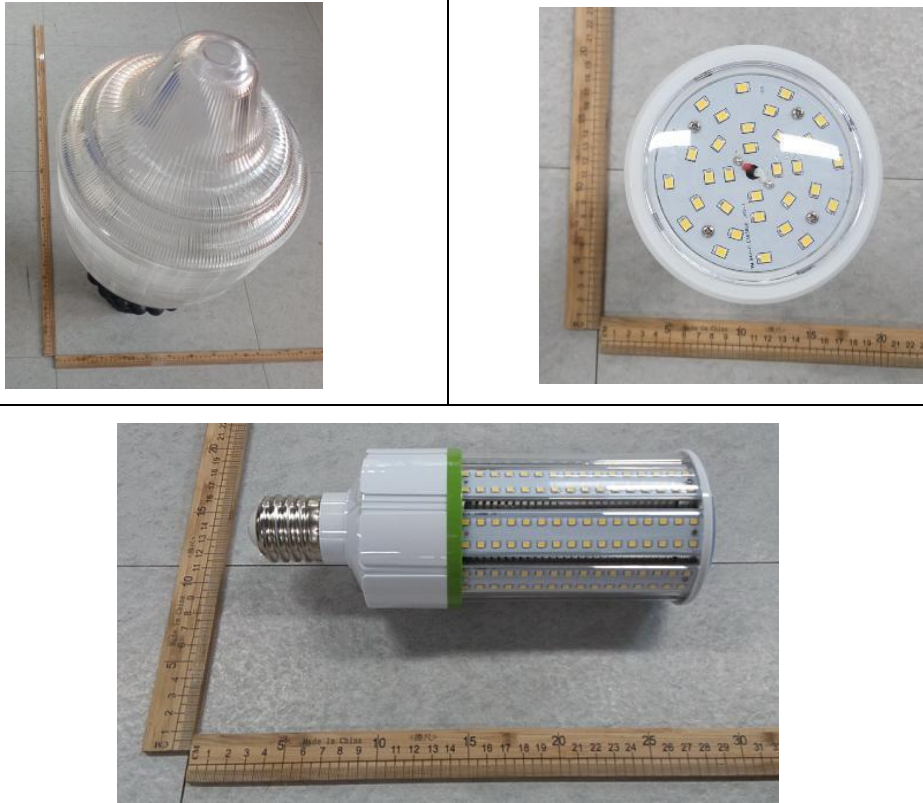
Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

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	BLTCLW40WE3957K	
SKU (if available)	108738	
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	40W	
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-B1(4000K),B2(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	BLTCLW40WE3957K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	0.3361	39.61	0.9820	6.45
B1	277.0	60	0.1535	38.34	0.9016	15.14
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

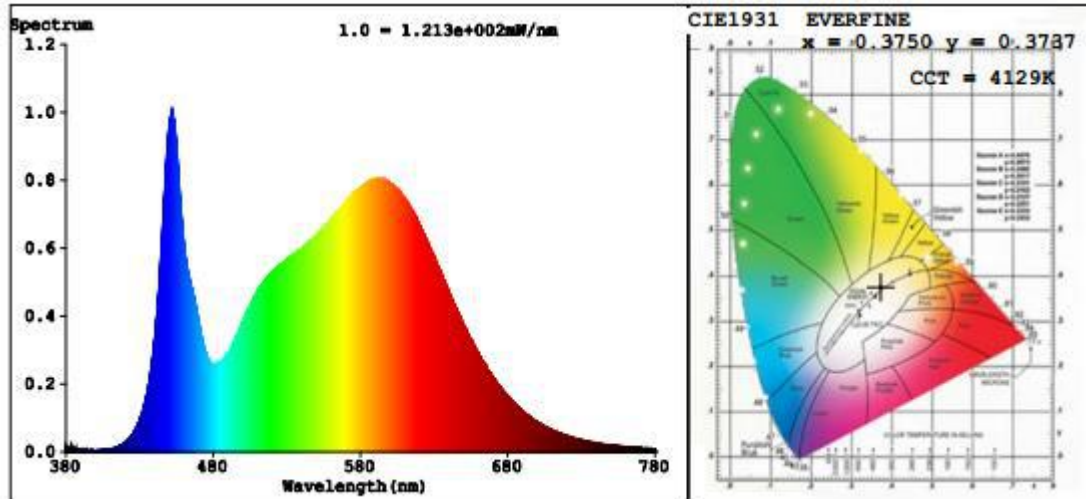
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	2
Frequency (Hz)	60	R2	90	R10	75
CCT (K)	4129	R3	95	R11	79
Duv	0.0002	R4	80	R12	60
Chromaticity (x, y)	x=0.3750 y=0.3737	R5	81	R13	83
Chromaticity (u', v')	u'=0.2227 v'=0.4994	R6	85	R14	98
Color Rendering Index (CRI)	82.3	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)	4524.7	4468.1	In luminaire: 5000-10000(±10%)
Luminous Efficacy (lm/W)	114.23	116.54	In luminaire:>=90(-3%)
Zonal lumens in the 0-90° zone (%)	86.6	--	>= 65(-3)
Beam Angle (°)	183.1	--	--
Center Beam Candle Power (cd)	221	--	--

Spectral Power Distribution & Chromaticity Diagram

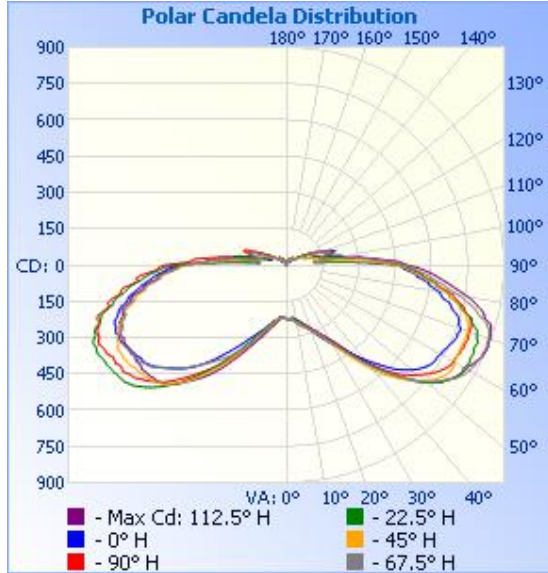


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	254.9	5.6%
0-40	554.6	12.3%
0-60	1,736.7	38.4%
60-90	2,180.5	48.2%
70-100	1,670.7	36.9%
90-120	513.4	11.3%
0-90	3,917.2	86.6%
90-180	607.8	13.4%
0-180	4,525.0	100%

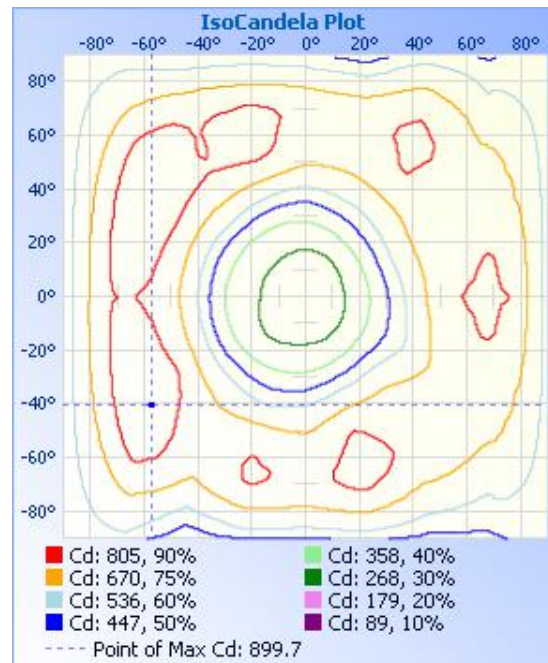
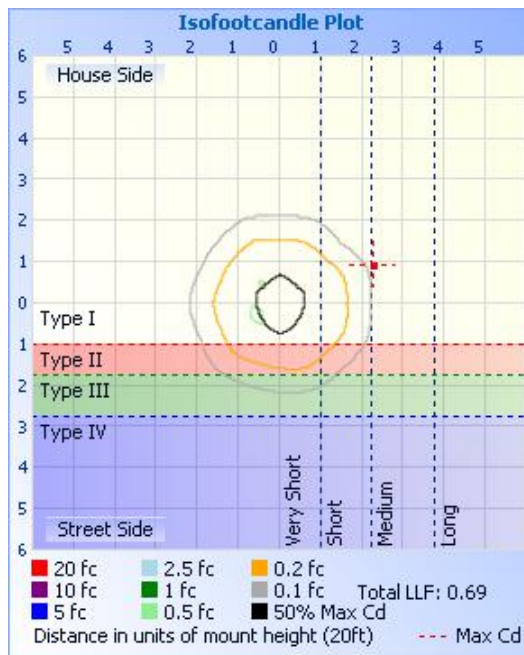
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	21.5	0.5%	90-100	281.2	6.2%
10-20	74.6	1.6%	100-110	141.2	3.1%
20-30	158.8	3.5%	110-120	91.0	2%
30-40	299.8	6.6%	120-130	44.2	1%
40-50	498.7	11.0%	130-140	26.8	0.6%
50-60	683.3	15.1%	140-150	15.2	0.3%
60-70	791.0	17.5%	150-160	6.1	0.1%
70-80	780.0	17.2%	160-170	1.7	0%
80-90	609.5	13.5%	170-180	0.3	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	0.77 fc	
34.0ft	0.19 fc	
51.0ft	0.09 fc	
68.0ft	0.05 fc	
85.0ft	0.03 fc	
102.0ft	0.02 fc	



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Table--1

UNIT: cd

γ (DEG)	C (DEG)															
	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221
5	218	219	218	219	220	225	223	225	225	225	221	217	216	220	219	220
10	244	241	235	227	229	233	239	243	240	235	225	227	229	232	233	238
15	275	274	265	253	250	254	260	263	258	246	242	247	252	256	261	269
20	319	322	313	295	285	284	285	283	284	273	266	276	286	294	305	311
25	375	385	372	346	324	320	317	315	313	305	303	316	326	348	368	366
30	441	463	444	405	375	372	375	365	353	353	359	368	383	422	445	421
35	516	552	521	479	436	445	462	441	426	428	438	430	453	515	532	477
40	592	626	590	561	512	543	568	543	528	535	530	497	534	611	623	535
45	679	696	665	631	600	652	663	647	630	647	609	581	605	706	695	602
50	745	724	741	687	675	756	745	749	705	750	670	677	660	782	733	663
55	787	732	801	702	721	825	798	821	767	822	712	755	708	827	754	711
60	813	737	821	726	737	849	804	873	797	858	717	801	727	844	774	737
65	827	740	847	747	757	856	798	891	809	894	709	824	752	862	767	744
70	827	728	822	734	767	838	797	888	805	896	693	816	748	837	732	721
75	806	702	784	675	711	768	761	832	769	849	638	752	716	790	679	691
80	697	612	705	593	645	683	680	729	697	766	564	667	636	688	594	596
85	622	533	598	492	543	570	561	600	576	639	473	568	550	589	515	525
90	503	433	485	400	455	476	451	482	458	498	361	433	433	469	411	421
95	331	279	244	108	117	131	217	314	319	340	162	118	109	124	217	270
100	188	152	140	171	226	220	116	156	172	169	123	169	201	203	103	141
105	146	134	134	95.1	131	140	115	176	172	188	102	93.5	113	119	112	131
110	180	153	126	73.6	79.6	85.8	88.0	158	155	166	82.6	73.3	63.8	78.6	101	152
115	120	106	93.5	78.8	86.2	89.2	74.3	115	110	124	66.7	74.8	68.4	78.0	80.7	98.5
120	81.7	74.6	71.3	64.5	72.5	75.0	53.3	75.4	72.6	78.8	53.2	64.4	61.4	71.1	60.2	68.2
125	49.6	47.0	53.3	47.2	45.7	49.7	43.9	43.3	48.8	43.6	44.4	42.5	44.7	46.4	44.0	40.8
130	39.1	37.4	42.7	36.4	41.5	40.6	40.8	35.9	39.2	36.2	40.0	35.4	38.6	36.6	37.8	37.2
135	41.4	39.5	36.9	32.3	25.1	33.2	35.0	37.9	40.0	40.0	34.9	31.1	22.9	29.6	32.5	40.5
140	41.4	38.5	30.5	25.2	24.1	25.6	28.3	38.3	40.0	39.1	29.2	24.5	21.7	22.1	25.7	38.5
145	34.1	33.2	23.2	16.7	15.5	15.5	22.4	33.0	34.0	33.8	24.5	15.5	11.5	12.4	19.6	32.0
150	25.7	25.0	17.2	11.8	7.19	13.0	18.5	25.3	26.2	26.3	20.3	12.9	6.12	8.62	14.6	23.4
155	17.3	16.4	12.4	9.15	7.11	9.71	14.2	18.2	19.1	19.1	15.3	10.8	6.61	5.92	9.80	14.9
160	10.6	9.93	8.18	6.52	6.61	7.13	10.4	12.2	12.9	12.9	10.3	7.83	5.29	4.97	5.56	7.67
165	6.19	6.27	5.29	5.12	4.98	5.98	7.00	8.27	8.46	8.30	6.25	4.60	3.13	2.74	2.97	3.42
170	4.69	4.63	4.13	3.71	4.38	4.65	5.41	6.68	5.92	5.75	4.47	2.88	1.73	1.00	1.51	1.90
175	2.39	3.14	3.06	3.05	3.31	3.65	4.32	4.09	3.88	3.13	2.64	2.72	2.57	2.08	2.00	1.75
180	2.54	2.25	2.57	3.06	3.55	3.65	2.45	3.17	3.12	2.72	2.64	2.80	3.22	3.32	3.41	2.76

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2.2 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	BLTCLW40WE3957K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	0.3416	40.18	0.9803	7.39
B2	277.0	60	0.1568	39.12	0.9007	15.91
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

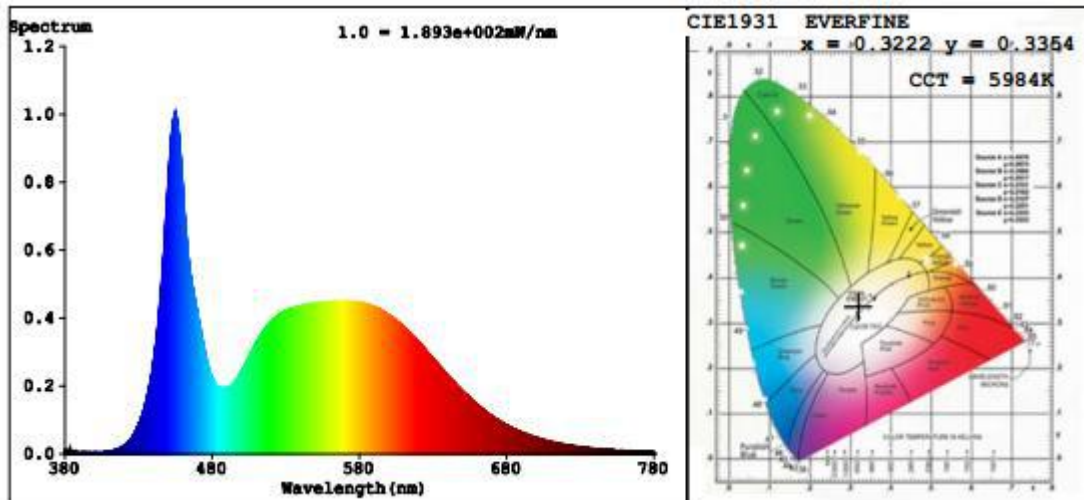
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	9
Frequency (Hz)	60	R2	89	R10	71
CCT (K)	5984	R3	91	R11	79
Duv	0.0018	R4	81	R12	53
Chromaticity (x, y)	x=0.3222 y=0.3354	R5	81	R13	84
Chromaticity (u', v')	u'=0.2020 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)	4785	4756	In luminaire: 1000-5000(±10%)
Luminous Efficacy (lm/W)	119.09	121.58	In luminaire:>=90(-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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