

LM-79-08 Test Report

For

Beyond LED Technology

(Brand Name: Beyond LED)

1939 Parker Court Suite C
Stone Mountain, GA 30087

LED Low Bay Light

Model name(s): BLT-PG02-75WAANA1-57K

Representative (Tested) Model: BLT-PG02-75WAANA1-57K

Test & Report By:

Bill Luo

Engineer: Bill Luo

Date: Dec.08,2017

Review By:

Tommy Liang

Manager: Tommy Liang

Note: 1.The results contained in this report pertain only to the tested samples.

2.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	BLT-PG02-75WAANA1-57K	
SKU (if available)	150563	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Low Bay Light	
Rated Voltage / Frequency	100-277Vac, 50/60Hz	
Nominal Power	75W	
Rated Initial Lamp Lumen	--	
Declared CCT	5700K	
LED Manufacturer	Hongli Zhihui Group Co.,Ltd.	
LED Model	HL-AS-PU2835DW-S1-08-PCT-HR3	
Sample Number	GZE1712003-D1(4000K), D2(5700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo



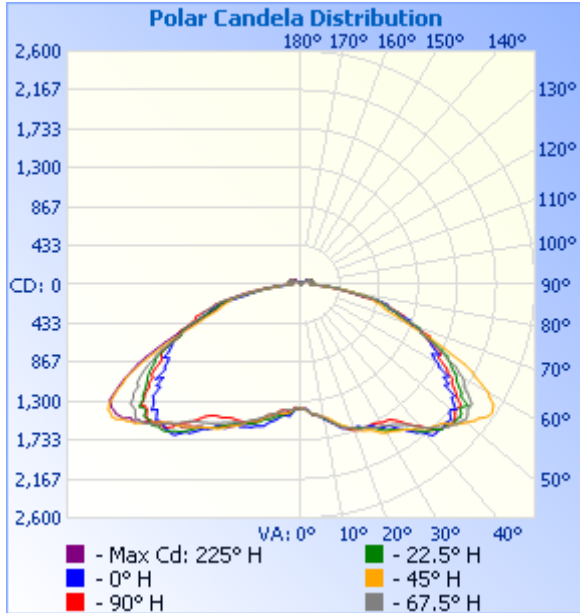
1.2 Test Specifications:

Date of Receipt	Dec.01,2017
Date of Test	Dec.03,2017
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

<p>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 °C ± 1 °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.</p>
<p>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 °C ± 1 °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.</p>
<p>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 °C ± 1 °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.</p>

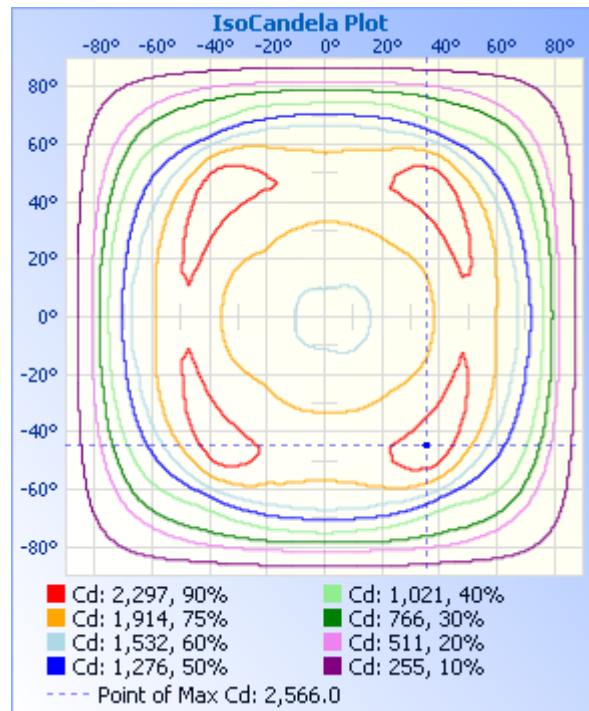
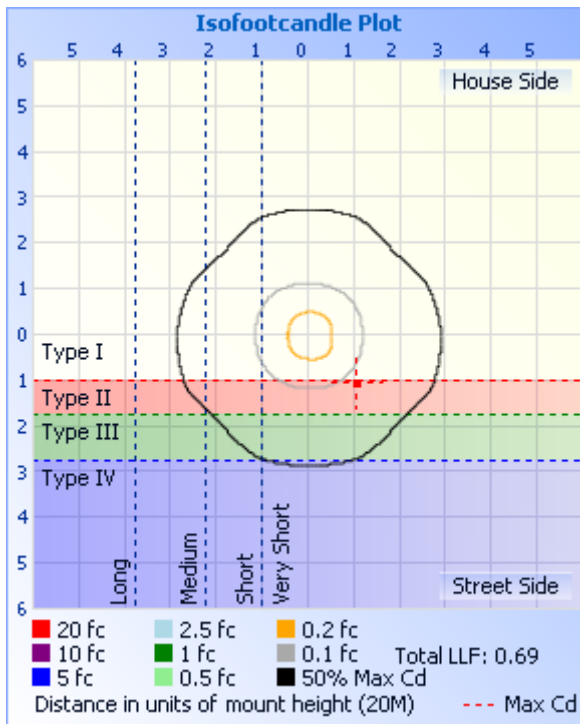
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
3.33M	11.6 fc	14.43 M	12.41 M
6.67M	2.90 fc	28.84 M	24.82 M
10.00M	1.29 fc	43.26 M	37.23 M
13.33M	0.73 fc	57.68 M	49.63 M
16.67M	0.46 fc	72.10 M	62.05 M
20.00M	0.32 fc	86.53 M	74.46 M

■ Vert. Spread: 130.4°
■ Horiz. Spread: 123.5°



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>

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	1388	
5	1414	1408	1424	1430	1447	1445	1442	1447	1456	1429	1445	1444	1472	1440	1425	1402	
10	1436	1444	1455	1503	1524	1514	1498	1508	1519	1505	1496	1511	1516	1489	1447	1444	
15	1518	1514	1534	1580	1637	1614	1609	1632	1631	1604	1599	1588	1634	1553	1528	1516	
20	1634	1603	1635	1669	1697	1702	1706	1700	1726	1684	1686	1675	1686	1648	1615	1607	
25	1669	1697	1735	1718	1750	1763	1787	1751	1747	1764	1791	1745	1720	1718	1734	1687	
30	1708	1763	1832	1827	1838	1878	1903	1817	1776	1836	1894	1854	1820	1832	1852	1778	
35	1783	1865	1932	1942	1966	1970	1975	1904	1849	1918	1978	1959	1981	1942	1936	1877	
40	2007	1976	2070	2112	2165	2135	2091	2072	2056	2051	2081	2131	2183	2133	2059	1997	
45	2218	2184	2179	2241	2240	2253	2188	2245	2241	2233	2205	2244	2183	2236	2163	2199	
50	2246	2347	2346	2283	2165	2303	2390	2354	2232	2349	2403	2234	2173	2280	2406	2352	
55	2119	2321	2511	2176	1948	2170	2550	2318	2104	2321	2526	2125	1963	2151	2566	2317	
60	1879	2106	2387	1927	1760	1980	2401	2076	1869	2062	2310	1862	1709	1950	2370	2075	
65	1656	1771	1903	1692	1600	1726	1860	1678	1649	1714	1780	1578	1581	1642	1798	1702	
70	1338	1339	1265	1363	1312	1396	1246	1366	1318	1317	1195	1271	1293	1308	1191	1322	
75	1060	1063	950	1043	1004	1014	943	1040	1057	1005	900	972	1020	964	920	1072	
80	637	740	711	728	640	728	708	664	625	627	640	576	583	610	663	663	
85	332	356	328	367	331	368	317	334	328	336	295	301	298	306	292	332	
90	120	129	139	132	127	129	131	120	116	119	116	114	111	115	117	121	
95	94.8	95.4	93.5	98.9	98.4	99.0	93.5	94.1	94.4	99.7	98.7	100	96.3	99.1	95.9	98.5	
100	121	121	122	124	118	124	125	123	122	127	134	134	126	132	131	129	
105	132	129	138	136	129	131	136	129	129	131	132	130	122	131	131	130	
110	130	124	110	128	126	125	110	126	131	121	110	121	129	119	108	125	
115	110	102	106	104	110	104	108	103	110	103	106	105	107	103	105	103	
120	87.5	80.4	86.7	83.1	91.0	82.3	87.5	82.7	86.5	79.5	83.2	79.8	83.9	78.6	82.9	78.8	
125	78.3	66.3	56.9	71.9	79.0	69.7	57.5	69.7	77.0	64.1	52.7	69.1	80.8	65.9	52.8	67.2	
130	65.3	49.9	36.4	54.9	65.3	51.8	33.7	53.6	61.1	47.6	31.0	51.8	59.7	48.5	29.8	50.9	
135	38.6	29.7	14.9	32.9	39.4	32.6	13.8	29.8	38.4	27.3	11.9	30.2	38.5	29.6	10.6	29.6	
140	21.1	15.5	14.3	20.0	25.8	18.8	14.1	15.9	20.3	13.8	12.4	18.8	23.0	18.1	12.2	14.3	
145	9.67	10.4	13.7	15.8	17.1	16.2	13.5	9.99	8.80	9.20	11.5	15.4	17.4	15.9	12.0	9.17	
150	9.66	9.56	11.1	17.3	21.2	17.0	10.4	9.33	8.59	8.59	8.86	14.1	17.5	16.1	10.1	8.91	
155	8.80	8.40	8.63	13.9	17.1	13.2	8.21	8.11	7.74	7.74	7.35	10.1	13.8	13.2	8.76	7.44	
160	8.19	7.74	7.45	9.51	11.2	9.43	7.28	7.44	7.99	7.94	7.71	7.82	9.65	9.66	8.09	7.69	
165	8.09	7.84	7.45	7.77	8.10	7.79	7.33	7.44	8.35	8.35	8.47	8.38	8.49	8.35	8.30	8.25	
170	8.35	7.99	7.65	7.87	8.13	7.84	7.89	8.05	8.65	8.75	8.72	8.73	8.59	8.45	8.40	8.46	
175	8.80	8.34	8.21	8.23	8.54	8.49	8.30	8.36	8.70	8.70	8.67	8.74	9.16	8.87	8.81	8.66	
180	8.75	8.50	8.47	9.34	9.66	9.27	8.96	8.76	8.70	8.75	8.62	8.63	9.30	9.67	9.52	8.97	

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>

BUG Rating: B3-U3-G2**IESNA Luminaire Flux Distribution Table:**

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	697.5	7.0
FM - Front-Medium(30-60)	2468.6	24.9
FH - Front-High(60-80)	1386.7	14.0
FVH - Front-Very High(80-90)	199.38	2.0
Total Forward Light	4982.2	50.4

BL - Back-Low(0-30)	699.37	7.1
BM - Back-Medium(30-60)	2462.3	24.9
BH - Back-High(60-80)	1343.5	13.6
BVH - Back-Very High(80-90)	179.8	1.8
Total Back Light	4912	49.6

UL - Uplight-Low(90-100)	116.57	1.2
UH - Uplight-High(100-180)	340.58	3.4
Total Up Light	457.15	4.6

BUG(Back,Up,Glare) Rating	B3-U3-G2
----------------------------------	-----------------

Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	4685	227.06	4912
Street Side	4752.1	230.09	4982.2

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2017-12-03	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-PG02-75WAANA1-57K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171200	120.0	60	0.6272	74.83	0.9943	4.63
3-D2	277.0	60	0.2858	74.09	0.9358	13.75
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

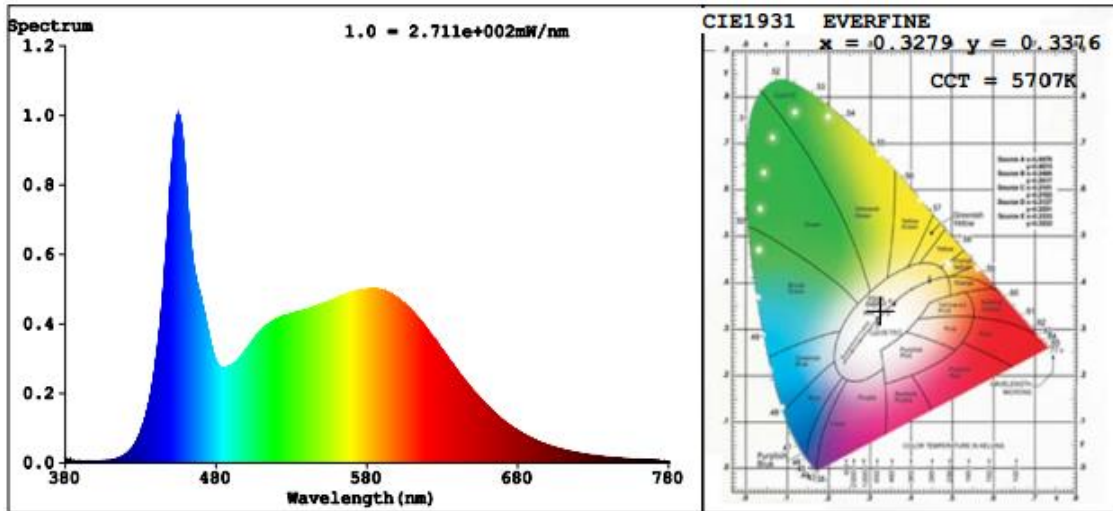
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	85	R9	15
Frequency (Hz)	60	R2	93	R10	83
CCT (K)	5707	R3	95	R11	82
Duv	0.0003	R4	83	R12	63
Chromaticity (x, y)	x=0.3279 y=0.3376	R5	85	R13	88
Chromaticity (u', v')	u'=0.2051 v'=0.4751	R6	88	R14	98
Color Rendering Index (CRI)	85.3	R7	86	R15	80
R9	15	R8	69	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	9995	9953	5000-10000(-10%)	
Luminous Efficacy (lm/W)	133.57	134.34	Standard: >=	Premium: >=
Most Worst Luminous/Highest Watts	133.01		95(-3%)	115(-3%)

Spectral Power Distribution & Chromaticity Diagram



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>

2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
BLT-PG02-75WAANA1-57K	5700K	9995	74.83	133.57

*1: This value is calculated and the calculation formula is as below:

$$9928=(9995-9894.2)/3+9894.2$$

$$9962=(9995-9894.2)/3+9928$$

*2: This value is calculated and the calculation formula is as below:

$$75.01=(75.18+74.83)/2$$

*3: This value is calculated and the calculation formula is as below:

$$132.36=9928/75.01$$

$$132.81=9962/75.01$$

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-327	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-12	2018-07-11
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
GO-R5000	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-12	2018-07-11
PF210	Power Meter for Goniophotometer	2017-07-07	2018-07-06

Expand Uncertainty:
Photometric Measurement (Sphere):2.04%, k=2
Chromaticity Measurement(Sphere):28.8K, k=2
Photometric Measurement(Goniophotometer):2.36%, k=2

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