



Report No.: BLC1806021E-C-R

LM-79-08 Test Report

For

Beyond LED Technology

(Brand Name: Beyond LED)

1939 Parker Ct Suite C, Stone Mountain, GA 30087

Titan Series Linear High Bay

Model name(s): BLT-PHB03-110WRAC1

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

Test & Report By:

Grace Li

Engineer: Grace Li

Date: June 27, 2018

Update: July 13, 2018(Updating the rated voltage from 100-277V to 120-277V)

Review By:

Tommy Liang

Manager: Tommy Liang

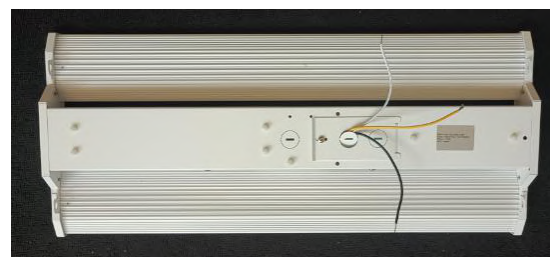
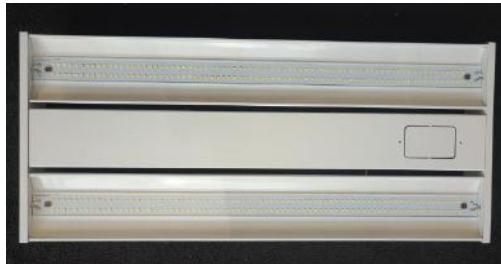


Report No.: BLC1806021E-C-R

1.1 Product Information:

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED	
Model Number	BLT-PHB03-110WRAC1	
SKU (if available)	150890	
Type of Luminaire (for integral lamps, list base type and lamp type)	High Bay Luminaires for Commercial and Industrial Buildings	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	110W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	Hongli Zhihui Group Co.,Ltd.	
LED Model	HL-AS-PU2835DW-S1-08-PCT-HR3	
Sample Number	BLC1806021E-C1(4000K),C2(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	June 20, 2018
Date of Test	June 25, 2018
Test item	<ol style="list-style-type: none">1. Total Luminous Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	BL-QP-033

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 BL-QP-033)*

Test date	2018-06-25	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-PHB03-110WRAC1		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180602	120.0	60	0.9075	108.23	0.9939	8.53
1E-C1	277.0	60	0.3955	105.85	0.9661	8.72
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

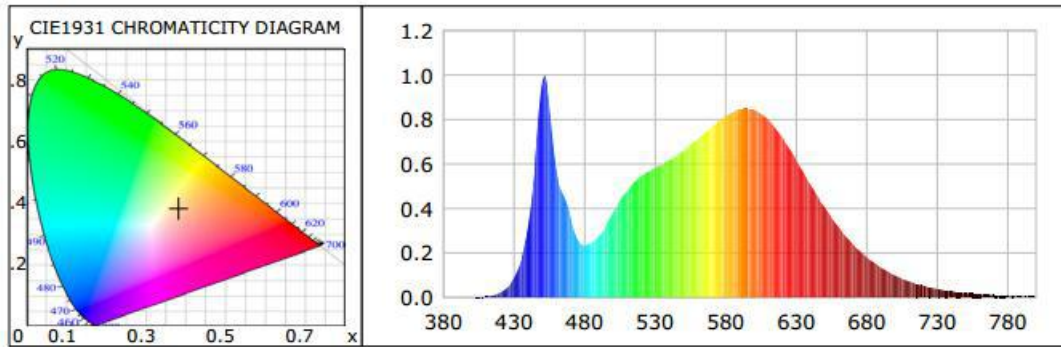
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	2
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	3958	R3	95	R11	79
Duv	0.00032	R4	80	R12	60
Chromaticity (x, y)	x=0.3825 y=0.3787	R5	80	R13	82
Chromaticity (u', v')	u(u')=0.2257 v'(v')=0.5028	R6	85	R14	98
Color Rendering Index (CRI)	81.9	R7	84	R15	74
R9	2	R8	61	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	15053.9	14830.0	>=10000(-10%)
Luminous Efficacy (lm/W)	139.09	140.10	Premium: >= 130(-3%)
Most worst Luminous/Highest Watts	137.02		
Zonal lumens in the 20-50° zone (%)	52.8	--	>=30(-10)
Beam Angle (°)	113.4	--	--
Center Beam Candle Power (cd)	5429	--	--



Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary

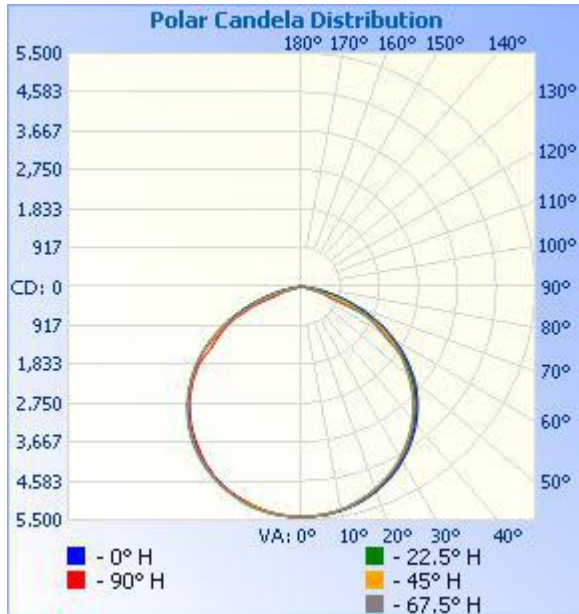
Zone	Lumens	% Lamp	% Luminaire
0-30	4,261.4	28.3%	28.3%
0-40	7,028.4	46.7%	46.7%
0-60	12,509.9	83.1%	83.1%
60-90	2,430.1	16.1%	16.1%
70-100	695.8	4.6%	4.6%
90-120	52.7	0.3%	0.3%
0-90	14,940.0	99.2%	99.3%
90-180	112.1	0.7%	0.7%
0-180	15,052.1	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	514.1	3.4%	90-100	19.5	0.1%
10-20	1,480.9	9.8%	100-110	17.4	0.1%
20-30	2,266.5	15.1%	110-120	15.8	0.1%
30-40	2,766.9	18.4%	120-130	15.3	0.1%
40-50	2,902.3	19.3%	130-140	14.3	0.1%
50-60	2,579.3	17.1%	140-150	12.1	0.1%
60-70	1,753.8	11.7%	150-160	9.6	0.1%
70-80	599.3	4.0%	160-170	6.0	0%
80-90	77.0	0.5%	170-180	2.1	0%



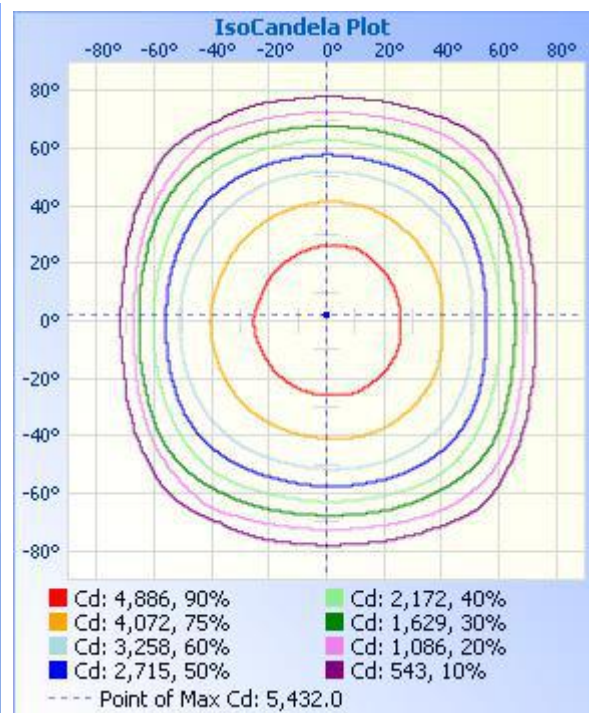
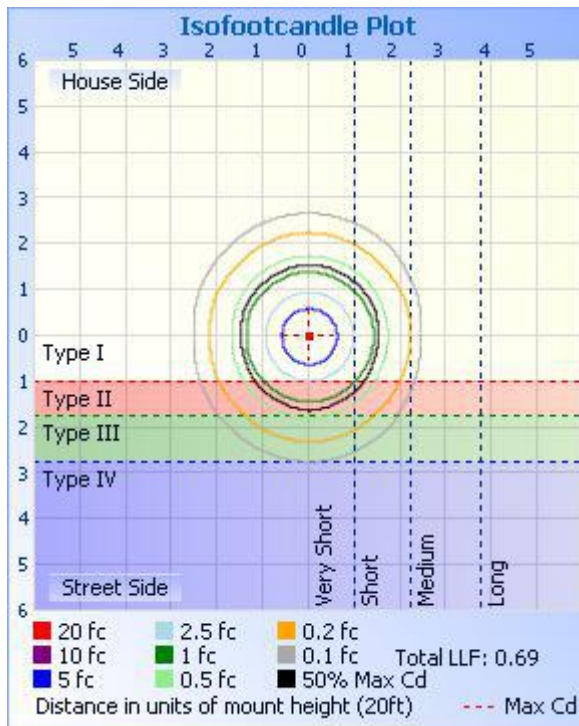
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	18.79 fc	53.9 ft	49.8 ft
34.0ft	4.70 fc	107.7 ft	99.6 ft
51.0ft	2.09 fc	161.6 ft	149.5 ft
68.0ft	1.17 fc	215.5 ft	199.3 ft
85.0ft	0.75 fc	269.3 ft	249.1 ft
102.0ft	0.52 fc	323.2 ft	298.9 ft

■ Vert. Spread: 115.5°
■ Horiz. Spread: 111.4°





Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429	5429
1	5432	5426	5429	5426	5423	5427	5422	5422	5426	5427	5425	5428	5431	5425	5428	5428	5432
2	5431	5423	5427	5422	5413	5419	5421	5417	5424	5423	5421	5425	5427	5421	5424	5425	5431
3	5428	5424	5419	5416	5412	5410	5414	5412	5415	5421	5413	5419	5424	5413	5419	5418	5428
4	5416	5409	5412	5405	5404	5406	5409	5407	5412	5416	5412	5416	5415	5412	5420	5411	5416
5	5417	5403	5401	5398	5396	5398	5403	5400	5405	5412	5403	5406	5401	5403	5412	5407	5417
6	5409	5394	5390	5390	5386	5389	5396	5388	5399	5405	5392	5403	5393	5401	5404	5400	5409
7	5400	5383	5382	5376	5380	5379	5386	5380	5389	5395	5385	5392	5376	5391	5391	5394	5400
8	5383	5375	5370	5366	5365	5367	5373	5362	5378	5385	5370	5387	5364	5383	5378	5382	5383
9	5371	5361	5353	5350	5354	5353	5357	5347	5361	5369	5358	5376	5347	5373	5369	5378	5371
10	5358	5352	5342	5330	5341	5335	5341	5330	5346	5345	5347	5367	5331	5360	5356	5358	5358
11	5345	5330	5320	5317	5325	5320	5326	5318	5328	5328	5331	5352	5311	5348	5343	5346	5345
12	5328	5309	5303	5287	5305	5295	5299	5295	5307	5311	5317	5342	5293	5324	5323	5334	5328
13	5306	5296	5280	5265	5294	5265	5278	5277	5287	5290	5295	5321	5274	5310	5305	5307	5306
14	5286	5263	5255	5240	5275	5245	5258	5253	5266	5267	5269	5299	5243	5287	5295	5289	5286
15	5264	5246	5228	5212	5259	5219	5234	5226	5243	5251	5247	5276	5220	5259	5271	5268	5264
16	5245	5222	5200	5189	5234	5191	5199	5202	5217	5225	5225	5251	5196	5225	5241	5246	5245
17	5216	5196	5170	5155	5206	5171	5166	5175	5189	5204	5201	5216	5174	5202	5217	5220	5216
18	5190	5167	5141	5123	5174	5136	5133	5147	5157	5181	5172	5184	5149	5171	5187	5194	5190
19	5166	5137	5111	5090	5142	5102	5101	5118	5127	5150	5137	5156	5114	5134	5155	5172	5166
20	5135	5106	5078	5061	5103	5070	5068	5087	5096	5118	5104	5119	5083	5110	5121	5142	5135
21	5099	5073	5043	5025	5068	5036	5037	5045	5069	5086	5076	5085	5054	5081	5088	5116	5099
22	5061	5041	5007	4991	5030	4998	4998	5015	5035	5054	5036	5050	5019	5037	5054	5084	5061
23	5034	5002	4966	4949	4993	4958	4960	4975	4990	5022	5005	5016	4976	5002	5017	5054	5034
24	4993	4960	4926	4916	4960	4920	4918	4931	4946	4982	4965	4977	4938	4963	4974	5015	4993
25	4962	4921	4889	4875	4924	4879	4878	4894	4910	4944	4918	4937	4903	4920	4931	4979	4962
26	4919	4875	4842	4835	4878	4843	4842	4856	4864	4903	4877	4902	4857	4880	4889	4942	4919
27	4876	4832	4800	4793	4834	4801	4791	4810	4817	4865	4839	4861	4805	4842	4850	4901	4876
28	4837	4783	4756	4741	4791	4758	4752	4755	4775	4821	4785	4812	4763	4799	4803	4860	4837
29	4788	4740	4709	4695	4744	4708	4697	4703	4725	4777	4743	4765	4710	4745	4758	4813	4788

Laboratory: Shenzhen Belling Test Laboratory A2LA Certificate# 4810.01
Building No3 3rd floor, room 303, No 2-10 south Jinlong avenue, Sand Lake community, Biling street, Pingshan district, Shenzhen, Guangdong,CN. Website: <http://www.blst.com>



Report No.: BLC1806021E-C-R

30	4734	4689	4665	4640	4695	4660	4654	4657	4680	4732	4696	4713	4654	4692	4709	4769	4734
31	4689	4641	4617	4594	4640	4614	4602	4608	4625	4679	4644	4664	4602	4645	4660	4724	4689
32	4641	4588	4563	4540	4576	4560	4554	4554	4578	4631	4594	4608	4542	4594	4605	4668	4641
33	4594	4539	4504	4483	4529	4508	4507	4493	4525	4576	4546	4560	4487	4544	4553	4617	4594
34	4537	4480	4447	4432	4473	4447	4440	4437	4469	4528	4496	4503	4433	4494	4500	4560	4537
35	4486	4427	4391	4373	4418	4397	4384	4383	4414	4471	4436	4444	4380	4437	4444	4504	4486
36	4433	4371	4330	4317	4371	4337	4320	4325	4354	4410	4374	4389	4326	4381	4385	4440	4433
37	4373	4314	4266	4254	4313	4279	4264	4259	4291	4348	4308	4333	4265	4321	4316	4388	4373
38	4317	4264	4210	4195	4252	4213	4194	4198	4228	4288	4252	4270	4207	4264	4254	4320	4317
39	4254	4196	4137	4134	4193	4149	4130	4137	4173	4226	4191	4208	4144	4200	4189	4260	4254
40	4189	4129	4073	4070	4129	4086	4068	4068	4105	4163	4125	4141	4079	4128	4122	4188	4189
41	4132	4067	4007	3995	4068	4024	4004	4002	4038	4090	4061	4070	4009	4065	4059	4119	4132
42	4062	4002	3936	3933	3999	3950	3938	3934	3969	4015	3985	4003	3947	3991	3986	4056	4062
43	3997	3935	3866	3858	3936	3877	3864	3860	3902	3944	3918	3931	3877	3925	3925	3977	3997
44	3934	3872	3800	3787	3867	3808	3795	3792	3836	3882	3846	3862	3809	3854	3850	3908	3934
45	3859	3798	3713	3717	3796	3737	3724	3714	3767	3796	3771	3789	3736	3788	3769	3835	3859
46	3787	3727	3638	3627	3724	3662	3639	3641	3689	3721	3696	3719	3647	3707	3698	3755	3787
47	3715	3656	3559	3548	3651	3585	3561	3558	3601	3643	3620	3639	3559	3629	3622	3675	3715
48	3636	3580	3477	3470	3568	3504	3479	3473	3525	3562	3542	3561	3477	3544	3540	3597	3636
49	3565	3503	3387	3387	3488	3428	3395	3390	3446	3474	3445	3477	3397	3461	3461	3517	3565
50	3477	3428	3314	3311	3401	3351	3312	3309	3365	3394	3368	3392	3307	3380	3369	3433	3477
51	3395	3337	3224	3214	3316	3266	3234	3222	3281	3303	3284	3303	3215	3293	3288	3351	3395
52	3296	3244	3137	3122	3214	3166	3142	3127	3196	3220	3198	3217	3116	3208	3200	3256	3296
53	3211	3154	3053	3034	3132	3081	3049	3041	3113	3126	3107	3132	3024	3116	3111	3154	3211
54	3123	3055	2960	2944	3036	3000	2956	2947	3026	3024	3012	3039	2888	3016	3022	3058	3123
55	3032	2965	2871	2860	2920	2911	2864	2855	2923	2924	2922	2943	2714	2927	2922	2957	3032
56	2934	2860	2767	2756	2766	2812	2761	2753	2833	2830	2814	2856	2557	2807	2827	2863	2934
57	2844	2767	2671	2608	2613	2705	2666	2655	2744	2727	2716	2730	2467	2615	2736	2755	2844
58	2746	2659	2571	2448	2466	2543	2560	2563	2637	2638	2615	2545	2379	2438	2629	2652	2746
59	2635	2562	2472	2303	2342	2396	2461	2463	2535	2534	2510	2365	2282	2318	2538	2552	2635
60	2524	2468	2372	2193	2252	2264	2362	2358	2416	2412	2403	2262	2188	2233	2426	2446	2524
61	2427	2353	2272	2093	2150	2144	2256	2250	2324	2299	2312	2172	2100	2129	2324	2341	2427

Laboratory: Shenzhen Belling Test Laboratory A2LA Certificate# 4810.01
Building No3 3rd floor, room 303, No 2-10 south Jinlong avenue, Sand Lake community, Biling street, Pingshan district, Shenzhen, Guangdong, CN. Website: <http://www.blst.com>

Report Format Number BL-FM-SA-012



Report No.: BLC1806021E-C-R

62	2320	2240	2154	1995	2066	2046	2153	2148	2227	2200	2193	2070	2007	2043	2211	2229	2320
63	2224	2130	2045	1900	1975	1959	2047	2043	2116	2098	2081	1979	1906	1948	2088	2115	2224
64	2118	2013	1903	1799	1883	1853	1913	1942	2002	1977	1929	1891	1803	1840	1916	2000	2118
65	2011	1909	1749	1702	1773	1759	1755	1830	1887	1871	1751	1786	1659	1743	1744	1892	2011
66	1887	1790	1608	1589	1606	1663	1598	1704	1776	1748	1632	1693	1475	1634	1638	1789	1887
67	1780	1690	1493	1436	1332	1520	1483	1603	1671	1645	1516	1587	1368	1498	1534	1672	1780
68	1675	1571	1389	1147	882	1325	1390	1494	1549	1522	1403	1407	1283	1320	1430	1570	1675
69	1555	1446	1285	747	726	921	1295	1383	1435	1410	1315	1271	1035	1225	1327	1459	1555
70	1437	1329	1189	633	663	661	1187	1257	1339	1305	1215	1179	682	1126	1227	1337	1437
71	1324	1217	1089	592	612	610	1078	1143	1230	1184	1111	1019	596	813	1126	1217	1324
72	1225	1112	967	544	570	555	960	1046	1121	1079	1003	654	558	579	1013	1124	1225
73	1101	1009	749	486	472	505	730	937	1004	973	850	551	504	526	857	1009	1101
74	1001	885	480	291	206	406	442	833	910	860	760	491	388	476	766	914	1001
75	893	790	400	143	133	166	389	713	795	764	627	441	146	416	653	800	893
76	779	671	351	122	101	125	342	596	704	625	403	330	142	169	393	652	779
77	672	561	300	111	107	113	295	503	616	522	336	152	135	135	331	561	672
78	595	466	179	103	92	93	145	432	518	442	285	147	109	135	290	486	595
79	495	397	97	100	80	95	92	356	441	377	191	134	107	97	219	411	495
80	411	332	87	94	69	80	86	281	360	305	98	115	91	98	111	350	411
81	337	199	77	75	72	68	75	146	272	225	102	107	82	90	102	258	337
82	256	131	70	74	55	69	72	105	216	140	91	79	67	84	67	197	256
83	202	97	62	59	48	57	56	81	154	103	80	96	72	75	73	115	202
84	143	56	57	55	25	52	54	57	106	53	58	74	58	63	62	98	143
85	100	47	47	45	35	35	40	53	80	35	57	68	45	54	54	59	100
86	61	43	46	35	32	36	42	40	50	45	53	58	33	51	52	32	61
87	41	27	37	34	22	32	40	38	33	43	42	52	35	44	45	43	41
88	34	35	36	31	15	22	33	27	36	35	40	48	28	37	32	34	34
89	24	29	24	32	0	19	25	28	27	26	37	36	20	32	27	27	24
90	20	21	25	28	11	17	23	22	24	21	25	34	0	15	26	28	20
91	17	22	29	24	0	19	23	30	19	22	21	25	0	20	27	17	17
92	17	20	25	27	0	18	26	26	20	28	22	12	16	19	26	17	17
93	19	20	23	22	0	14	23	30	23	20	21	24	0	14	22	24	19

Laboratory: Shenzhen Belling Test Laboratory A2LA Certificate# 4810.01
Building No3 3rd floor, room 303, No 2-10 south Jinlong avenue, Sand Lake community, Biling street, Pingshan district, Shenzhen, Guangdong,CN. Website: <http://www.blst.com>

Report Format Number BL-FM-SA-012



Report No.: BLC1806021E-C-R

94	12	20	21	26	0	14	16	24	15	19	23	15	0	15	20	23	12
95	13	17	24	27	0	0	22	25	12	21	19	19	11	17	21	21	13
96	15	15	22	25	0	14	15	21	21	21	25	24	0	12	20	29	15
97	19	20	25	20	0	17	17	21	13	22	19	23	0	16	16	22	19
98	15	19	24	29	0	13	19	20	17	20	19	15	0	14	18	23	15
99	19	19	23	23	0	11	23	21	22	20	22	15	0	16	15	19	19
100	14	15	20	25	0	11	21	23	22	20	21	22	12	13	20	15	14
101	17	14	18	23	0	17	12	25	18	19	17	25	0	14	18	24	17
102	16	16	16	26	0	16	17	19	13	23	26	20	0	17	13	20	16
103	18	16	0	27	0	16	20	20	13	18	20	20	0	17	17	21	18
104	13	20	20	26	0	21	21	20	23	20	22	18	0	13	18	24	13
105	17	14	19	26	0	16	20	23	20	18	23	18	0	15	20	22	17
106	13	17	22	25	0	0	14	13	20	19	23	21	0	18	19	28	13
107	16	21	19	24	0	16	22	20	21	20	22	21	0	18	19	20	16
108	15	16	23	21	0	11	21	23	22	20	22	17	0	15	14	25	15
109	17	20	15	24	0	17	16	20	23	22	23	20	0	14	15	20	17
110	19	20	21	23	0	14	0	19	17	23	22	20	0	11	13	15	19
111	17	18	22	21	0	11	20	26	15	23	21	22	0	18	22	25	17
112	0	16	26	19	0	21	19	16	20	21	20	24	0	0	0	23	0
113	15	21	23	23	0	0	16	21	16	19	19	16	0	0	23	22	15
114	15	13	17	19	0	15	18	21	22	25	20	18	0	12	18	22	15
115	14	16	20	22	0	16	19	21	19	22	16	24	0	19	18	21	14
116	20	19	21	21	0	19	15	20	23	13	22	24	0	14	19	21	20
117	13	19	22	24	0	20	23	25	16	24	17	19	0	16	19	25	13
118	14	11	20	17	0	19	21	21	12	16	18	22	0	18	12	23	14
119	20	21	19	21	0	0	13	18	18	20	20	22	0	0	18	21	20
120	13	14	27	24	0	15	23	26	22	22	23	17	0	13	17	23	13
121	15	18	20	20	0	0	18	23	18	23	26	15	0	14	20	24	15
122	17	16	25	18	0	14	21	23	18	24	20	19	0	16	23	26	17
123	15	17	22	33	0	17	16	21	19	18	23	19	0	0	24	18	15
124	23	16	20	25	0	19	20	25	21	24	19	24	12	16	19	22	23
125	15	19	23	23	0	0	24	22	19	23	22	22	11	16	21	0	15

Laboratory: Shenzhen Belling Test Laboratory A2LA Certificate# 4810.01
Building No3 3rd floor, room 303, No 2-10 south Jinlong avenue, Sand Lake community, Biling street, Pingshan district, Shenzhen, Guangdong,CN. Website: <http://www.blst.com>

Report Format Number BL-FM-SA-012



Report No.: BLC1806021E-C-R

126	16	0	21	28	0	17	21	25	20	22	19	22	0	13	20	23	16
127	14	0	27	24	0	18	21	27	18	18	25	21	0	0	18	26	14
128	18	25	24	19	0	0	13	19	15	19	26	25	0	12	18	27	18
129	13	18	24	24	0	18	22	22	21	19	26	21	0	14	22	25	13
130	23	18	27	24	0	22	21	23	17	27	17	21	0	12	21	23	23
131	22	18	24	22	0	15	16	25	19	21	23	17	0	20	14	23	22
132	15	21	25	19	0	13	22	21	20	21	22	21	0	17	23	23	15
133	17	19	24	28	0	18	20	22	25	27	22	21	0	12	17	25	17
134	20	21	25	29	0	15	23	29	14	25	24	22	0	18	23	23	20
135	16	21	25	21	0	16	18	20	20	25	25	19	15	18	23	21	16
136	19	17	17	25	0	13	20	25	23	21	22	21	15	15	19	27	19
137	22	19	25	24	0	18	23	25	20	14	21	29	14	16	18	26	22
138	19	23	13	18	0	16	21	28	19	22	22	31	12	17	24	23	19
139	20	22	30	24	0	20	24	22	17	18	22	22	0	0	20	18	20
140	13	0	19	27	0	14	23	30	25	23	22	21	0	12	22	29	13
141	21	23	27	23	0	24	18	26	21	23	17	20	0	14	24	22	21
142	26	16	24	21	0	14	24	21	23	19	23	22	13	19	24	23	26
143	23	23	25	21	0	13	21	27	11	25	25	19	0	17	23	26	23
144	25	14	20	30	0	19	15	24	23	22	25	21	0	22	23	21	25
145	19	21	18	26	0	19	23	24	22	19	23	22	0	16	18	24	19
146	16	17	22	28	0	19	22	28	23	28	27	29	0	15	26	23	16
147	25	15	19	31	0	14	23	25	26	21	20	26	0	18	23	26	25
148	21	20	26	25	0	22	19	26	21	26	23	23	0	15	29	21	21
149	23	21	19	25	0	16	23	26	18	29	27	24	15	15	21	24	23
150	21	22	25	22	0	19	23	23	23	19	25	31	0	19	25	25	21
151	17	25	28	30	0	15	19	31	25	24	25	24	0	21	26	27	17
152	21	24	27	25	0	16	25	29	20	29	30	19	18	20	17	27	21
153	23	24	24	27	0	18	27	27	23	25	24	28	14	17	25	27	23
154	18	17	28	29	0	17	20	29	23	30	25	23	16	14	21	27	18
155	22	19	28	20	0	15	27	24	23	28	20	28	0	16	25	26	22
156	23	21	22	29	0	18	18	25	20	22	15	27	0	15	23	24	23
157	12	20	29	29	0	19	29	25	21	27	20	24	14	13	26	20	12

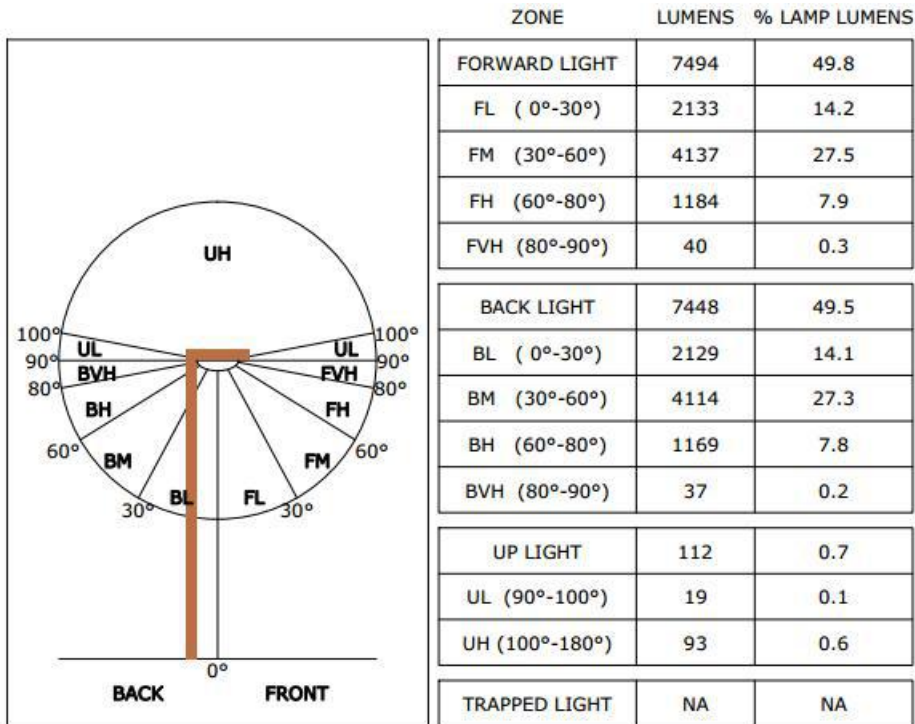
Laboratory: Shenzhen Belling Test Laboratory A2LA Certificate# 4810.01
Building No3 3rd floor, room 303, No 2-10 south Jinlong avenue, Sand Lake community, Biling street, Pingshan district, Shenzhen, Guangdong,CN. Website: <http://www.blst.com>

Report Format Number BL-FM-SA-012



Report No.: BLC1806021E-C-R

158	22	19	28	25	0	17	27	20	22	24	24	24	12	18	20	17	22
159	20	21	27	27	0	23	20	27	23	21	28	25	12	18	19	28	20
160	25	14	28	29	0	12	17	23	23	29	28	27	16	17	23	32	25
161	26	21	21	24	0	22	24	25	24	24	28	30	12	20	19	25	26
162	18	17	26	30	0	17	20	29	27	25	30	28	14	14	28	26	18
163	21	19	24	26	0	24	22	28	18	24	24	23	12	19	26	25	21
164	21	22	24	28	0	19	23	28	25	30	19	27	15	18	29	27	21
165	17	24	27	21	0	17	23	25	23	25	23	21	0	18	30	25	17
166	18	0	28	33	0	19	26	28	22	18	26	22	11	18	22	28	18
167	25	24	25	29	0	24	30	29	25	24	26	28	0	20	26	26	25
168	27	18	25	26	0	14	23	29	18	21	23	32	16	15	20	28	27
169	22	22	27	25	0	19	25	18	19	25	26	24	12	19	27	26	22
170	20	20	29	28	0	16	24	24	17	25	29	35	21	18	24	27	20
171	28	20	27	24	0	21	26	31	23	26	29	28	14	20	25	26	28
172	26	26	30	33	0	15	25	30	26	29	27	29	17	19	29	24	26
173	25	25	27	34	0	17	22	27	19	27	26	25	14	20	21	30	25
174	22	16	20	27	0	17	18	28	25	25	28	25	0	19	26	21	22
175	27	24	30	31	0	20	26	25	22	27	24	28	20	13	23	32	27
176	26	20	25	27	0	16	27	28	24	25	28	25	15	21	24	27	26
177	21	17	29	27	0	17	26	27	23	19	26	29	14	20	29	26	21
178	28	21	28	24	0	25	20	22	24	27	20	20	15	19	23	29	28
179	24	24	26	25	0	20	22	27	19	24	26	22	18	18	28	29	24
180	29	19	21	30	0	15	21	24	25	29	24	29	16	18	31	26	29



**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

Test date	2018-06-25	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-PHB03-110WRAC1		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC180602	120.0	60	0.9151	109.06	0.9931	8.82
1E-C2	277.0	60	0.3999	106.52	0.9615	8.95
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	82	R9	5
Frequency (Hz)	60	R2	89	R10	73
CCT (K)	5672	R3	92	R11	82
Duv	0.00013	R4	82	R12	58
Chromaticity (x, y)	x=0.3287 y=0.3380	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2055 v'(v')=0.4754	R6	83	R14	96
Color Rendering Index (CRI)	83.0	R7	86	R15	77
R9	5	R8	67	--	--

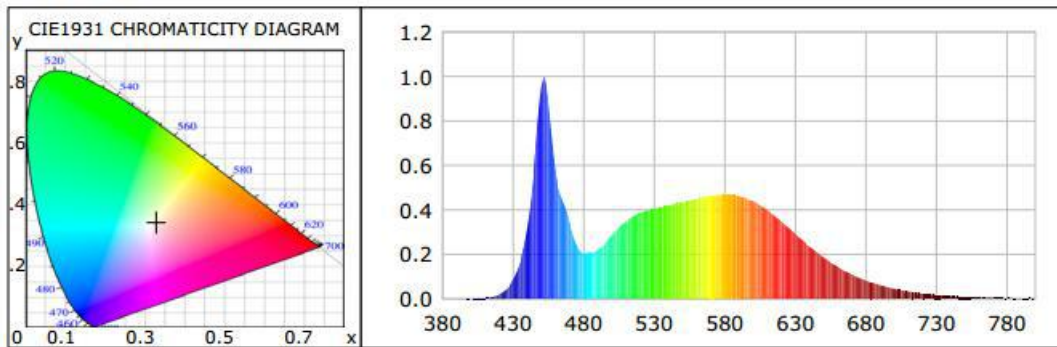
Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.3 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	15641.4	15412.4	>=10000(-10%)
Luminous Efficacy (lm/W)	143.42	144.69	Premium: >= 130(-3%)
Most worst Luminous/Highest Watts	141.32		



Report No.: BLC1806021E-C-R

Spectral Power Distribution & Chromaticity Diagram





Report No.: BLC1806021E-C-R

Calculated Efficacy Data for family models (5000K):

Model Number	Luminous Flux (lm)	Power (W)	Efficacy (lm/W)
BLT-PHB03-110WRAC1	15053.9	108.23	139.09
BLT-PHB03-110WRAC1	15200.1	108.65	139.90
BLT-PHB03-110WRAC1	15641.4	109.06	143.42



Report No.: BLC1806021E-C-R

3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2019-01-15
AC Power Source	CHP-500C	N/A	2019-01-14
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2019-01-22
Digital Power Meter	WT500	DYDWQ200006	2019-01-14
Integral Sphere (2M)	2M	DYJCE120067	2019-01-15
Digital Power Meter	WT500	DYDWQ200006	2019-01-14
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2019-01-15

Expand Uncertainty:
Photometric Measurement (Sphere): 2.04%, k=2
Chromaticity Measurement(Sphere):28.8K, k=2
Photometric Measurement(Goniophotometer):2.7%, k=2

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