



Shenzhen Belling Efficiency Testing Lab Co.,Ltd



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Total pages 10

Test report of Horticultural Lighting

Applicant:

Beyond LED Technology

Address:

1939 Parker Ct, Stone Mountain, GA 30087

Model No.:

LPC7-SV

Test laboratory: Shenzhen Belling Efficiency Testing Lab Co.,Ltd, 1Floor, No.1 Building, Meibaohe Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong Prov.518101 China.

Jaky Li

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Project Engineer

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Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Belling Efficiency Testing Lab Co.,Ltd. This report must not be used by the customer to claim product certification, approval, or endorsement By NVLAP, NIST, or any agency of the U.S. Government.



1 General

1.1 Product Information

Manufacturer	Beyond LED Technology
Manufacturer Address	1939 Parker Ct, Stone Mountain, GA 30087
Brand Name	Beyond
Model Number	LPC7-SV
Rated Inputs	AC 100-277V 50/60Hz
Rated Power	720 W
Dimming Capability	Yes
Date of Receipt Samples	2021-07-22
Date of test	2021-08-01 to 2021-08-06
Burning Time Before Test	0hour(For New Products)

1.2 Standards or methods

- ANSI C78.377-2017: Specifications for the Chromaticity of Solid State Lighting Products
- ANSI C82.77-10:2014: Harmonic Emission Limits - Related Power Quality Requirements for Lighting Equipment - Solid State
- CIE Publication No.13.3-1995: Method of Measuring and Specifying Color Rendering of Light Sources
- IESNA LM-79-08 Approved Method: Electric & Photometric Measurement of Solid-state Lighting Products



1.3 Equipment list

Device	Manufacture	Model No.	Serial No.	Calibration due date
Goniophotometric System	SENSING	GMS-3000	N.A	2022-03-31
AC Power Source	ALL POWER	APW-110N	992257	2022-03-31
Total Luminous Flux Standard Lamp	SENSING	110V/100W	S1510065	2022-04-07
Total Spectral Radiant Flux Standard Lamp	SENSING	12V/20W	LSD12201731	2022-04-07
Digital Power Meter	YOKOGAWA	WT310	C2QM02030V	2022-03-31
Integral Sphere	SENSING	SPR-600M	N.A	2022-03-31
Digital Power Meter	YOKOGAWA	WT210	91L929742	2022-03-31
Optical Color and Electrical Measurement System	SENSING	SPR-3000	S1101108	2022-03-31
Environment Measurer	XUYAO	HS-1	N/A	2022-04-03
Environment Measurer	XUYAO	HS-1	N/A	2022-04-03
Stop watch	KISLO	K610	N/A	2022-04-22
Digital Anemometer	TECMAN	TD8901	026141	2021-09-09

Statement of Traceability: Shenzhen Belling Efficiency Testing Lab Co.,Ltd attests that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit (SI).



2 Test conducted and method

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, the air flow around the sample(s) being tested did not affect the performance.

2.2 Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within ± 0.2 percent under load.

2.3 Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

2.4 Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The integrating sphere system is calibrated by standard light source before measurement. The system and standard light source has been calibrated regularly and traceable to the National Primary Standards. 4π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

Integrating Sphere Uncertainty: The uncertainty of the light output (luminous flux) measurements is $U=1.8\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=20\text{K}$ ($K=2$), at the 95% confidence level. The uncertainty of the CRI is $U=1.8(K=2)$, at the 95% confidence level. The uncertainty of power meter AC current $U=0.18\%$ of rdg, AC Voltage $U=0.16\%$ of rdg, Power $U=0.20\%$ ($K=2$), at the 95% confidence level.



2.5 Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement. The standard light source has been calibrated regularly and traceable to the National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. The method according to IESNA LM-79-08 following chapter.

Goniophotometer Uncertainty :The uncertainty of the luminous intensity is $U=1.6\%$ ($K=2$), at the 95% confidence level.



3 Test Result Summary

3.1 Integrating Sphere System (Total operating time for integrating sphere test: 1.0 hour)

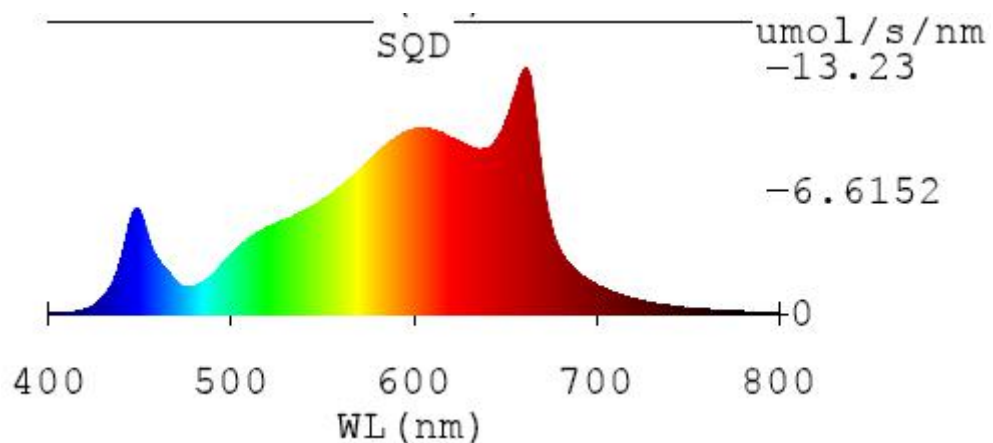
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.11	60	5.860	702.9	0.9986

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
98265	139.8	3125	88.8	48.9

Duv	x	y	u'	v'
-0.0038	0.4233	0.3900	0.2478	0.5136

PPF (400-700nm) ($\mu\text{mol/s}$)	PPF Efficacy ($\mu\text{mol/J}$)	PPF (400-500nm) ($\mu\text{mol/s}$)	PPF (500-600nm) ($\mu\text{mol/s}$)	PPF (600-700nm) ($\mu\text{mol/s}$)	PP _{FR} (700-800nm) ($\mu\text{mol/s}$)
1645	2.34	195.7	649.3	801.6	46.49

Spectral Quantum Distribution (SQD)



**Photo Flux Summary vs Wavelength Bands**

Wavelength [nm]	SPF (umol/s/nm)	Wavelength [nm]	SPF (umol/s/nm)	Wavelength [nm]	SPF (umol/s/nm)	Wavelength [nm]	SPF (umol/s/nm)
400	0.0114441	500	3.21201	600	9.94498	700	1.56369
405	0.0209414	505	3.69121	605	9.98635	705	1.33028
410	0.0471616	510	4.08198	610	9.92516	710	1.13227
415	0.104044	515	4.41348	615	9.76406	715	0.970017
420	0.229334	520	4.65927	620	9.51236	720	0.824514
425	0.465766	525	4.87225	625	9.26489	725	0.703638
430	0.911808	530	5.09216	630	9.04049	730	0.595654
435	1.67283	535	5.3171	635	8.85648	735	0.50963
440	3.05483	540	5.5378	640	8.91729	740	0.436544
445	5.1098	545	5.82713	645	9.34492	745	0.365479
450	5.49976	550	6.10184	650	10.2833	750	0.310767
455	3.96758	555	6.46048	655	11.7186	755	0.265267
460	2.88374	560	6.86078	660	13.1059	760	0.223128
465	2.30524	565	7.27824	665	12.0427	765	0.189624
470	1.73813	570	7.72091	670	7.72324	770	0.157706
475	1.43924	575	8.20267	675	4.80914	775	0.133963
480	1.50231	580	8.6734	680	3.44515	780	0.115158
485	1.73819	585	9.12566	685	2.68926	785	0.0942841
490	2.136	590	9.45044	690	2.21256	790	0.0736167
495	2.67307	595	9.78199	695	1.85646	795	0.0654243
500	3.21201	600	9.94498	700	1.56369	800	0.0469213

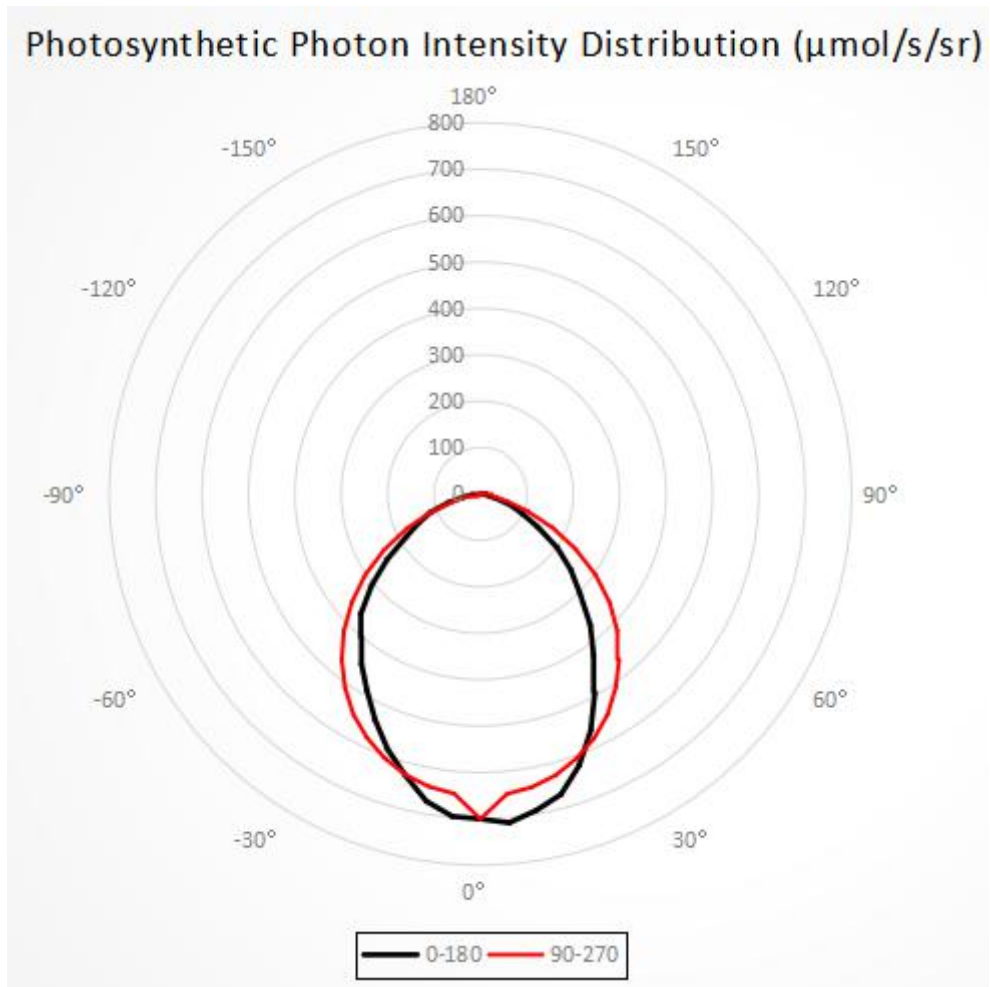


3.2 Goniophotometer System (Total operating time for luminous intensity distribution: 1.0 hour)

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.090	60	5.860	702.40	0.998

Luminous Flux (lm)	Efficacy (lm/W)
98528.92	140.27

Photosynthetic Photon Intensity Distribution (PPID)



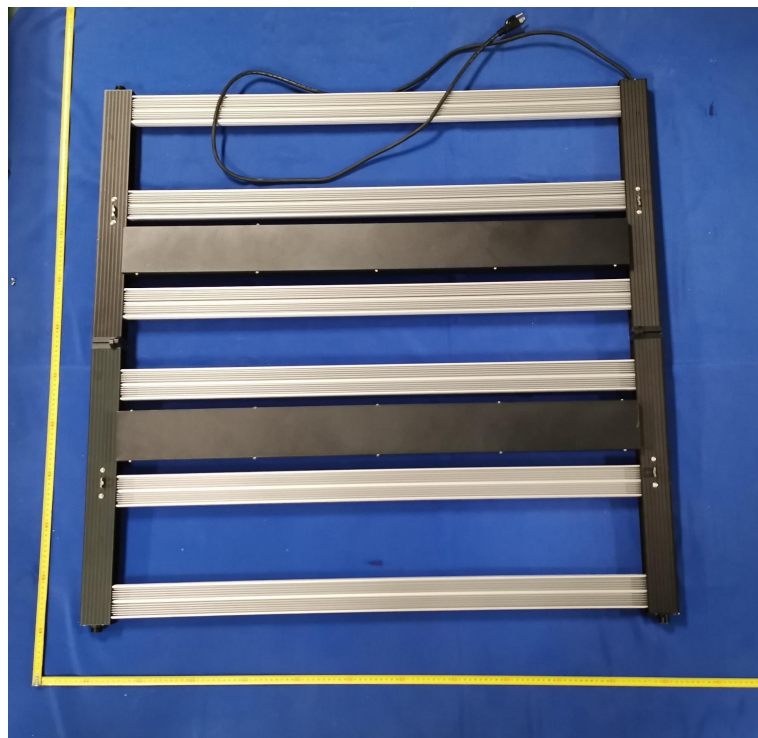
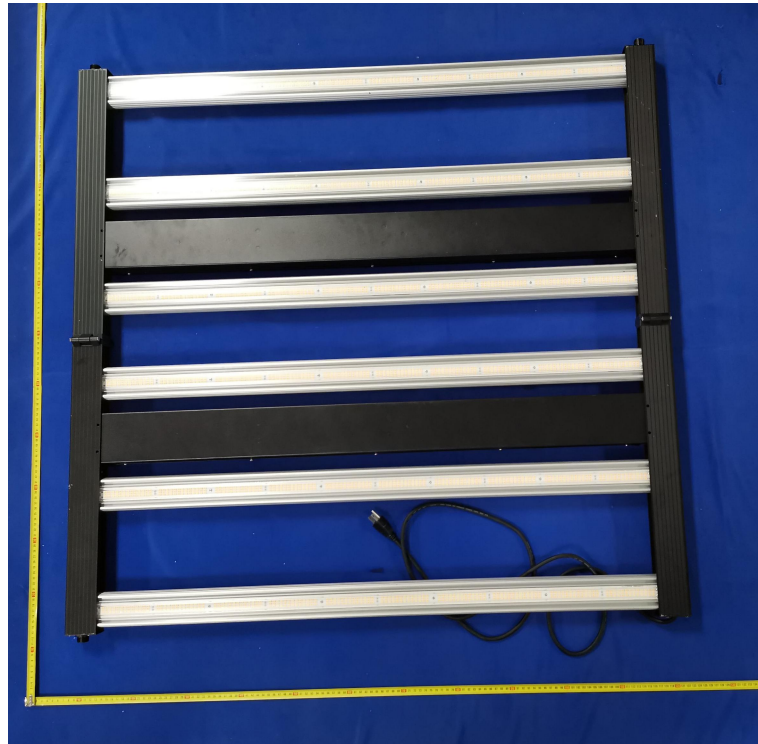


3.3 Additional Test

Model Number	Test Voltage (V)	Frequency(Hz)	Power Factor	THD
LPC7-SV	100	60	0.991	6.2%
	120	60	0.993	5.8%
	277	60	0.937	9.9%



Photo Document



****End of test report****