



Ref. No.: LCZP20060382

Version: 1.0

Date of issue: Aug 8, 2020

Total pages: 11



Test report of

IES LM-79-08

Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Rendered to:

Imminent Teknologies Limited

Suite 5, Valley Towers, Valley Road, Birkirkara BKR9022, Malta

For products:

LED Canopy Light

Models No.:

BLU-LOCUS-50W-840-120

Test Date: Aug. 7, 2020

Test Lab.: **LCTECH Guangdong Testing Services Co., Ltd.**

2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China

Tel:+86-760-22833366 Fax:+86-760-22833399

E-mail:Service@lccert.com <http://www.lccert.com>

Test Sites: 1/F., Building I, Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China

Template No.: LC-RT-PL-001 Rev.1.4

Test Note: /

Complied by:

Kargel Yuan

Aug. 8, 2020

Reviewed by:

Lin Qiu

Aug. 8, 2020

The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of the examination of the product sample submitted by the applicant. A general statement concerning the quality of the products from the series manufacture cannot be derived therefore. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Table of Contents

1. General	3
1.1 Product Information	3
1.2 Standards or methods	4
1.3 Equipment list	4
2. Test conducted and method	5
2.1 Ambient Condition	5
2.2 Power Supply Characteristics	5
2.3 Seasoning and Stabilization	5
2.4 Electrical Instrumentation	5
2.5 Color Measurement Method	5
2.6 Total Luminous Flux Measurement Method	5
2.7 Luminous Intensity Distribution Measurement Method	5
2.8 Spatial Non-uniformity of Chromaticity	5
3. Test Result Summary	6
3.1 Electrical data	6
3.2 Photometric data	6
3.3 Color Rendering Details	6
4. Test Data	7
4.1 Spectral Distribution	7
4.2 ANSI Chromaticity Quadrangles Diagram	7
4.3 Goniometry Test Data	8
4.4 Zonal Lumen Summary	8
4.5 Polar Curves	9
4.6 Candela Tabulation	10
Appendix A Product Photo	11



LCTECH



1. General

1.1 Product Information

Brand Name	BLUi
Product Type	LED Canopy Light
Model Number	BLU-LOCUS-50W-840-120
Rated Inputs	100-277VAC, 50/60Hz
Rated Power	50W
Rated Light output	5100lm
Declared CCT	4000K
Power Supply	N/A
LED Package, Array or Module	Samsung
Receipt Samples	1 unit
Sample Code of lab.	200806104001
Date of Receipt Samples	Aug. 6, 2020
Note	-

1.2 Standards or methods

The following standards are partly or totally used or referenced for test:

No.	Name
ANSI/NEMA/ ANSLG C78.377-2011 or 2015 or 2017	Specifications for the Chromaticity of Solid State Lighting Products
ANSI C82.77-2002	Harmonic Emission Limits—Related Power Quality Requirements for Lighting Equipment
CIE Pub. No. 13.3-1995	Method of Measuring and Specifying Color Rendering of Light Sources
CIE Pub. No. 15:2004	Colorimetry
IES LM-79-08	Electrical and Photometric Measurements of Solid-State Lighting Products

1.3 Equipment list

Instrument	ID	Model name	Cal. date	Next cal. Date
AC Power supply	LC-I-987	APW-120N	2020-01-06	2021-01-05
AC Power supply	LC-I-989	APW-120N	2020-01-06	2021-01-05
Power analyzer	LC-I-928	WT210	2019-12-29	2020-12-28
Power analyzer	LC-I-954	WT210	2019-12-26	2020-12-25
Multimeter	LC-I-972	Fluke 17B	2020-07-20	2021-07-19
Photometric colorimetric electric system* (2 meter sphere)	LC-I-956	HAAS-2000	Before use	Before use
Standard lamp**	LC-PL-I-011	D204C	2020-07-14	2021-07-13
Luminous Flux Standard Lamp***	LC-PL-I-003	24V100W	2020-07-14	2021-07-13
Goniophotometer(with mirror)	LC-I-902	GMS2000	2020-04-23	2021-04-22
Wireless temperature transmitter	LC-I-PL-008	DWLR-DLR	2020-01-03	2021-01-02
Wireless temperature transmitter	LC-I-PL-009	DWLR-DLR	2020-01-03	2021-01-02

Note:

* Bandwidth of spectroradiometer is 1 nm.

** halogen lamp, 100W, omni-directional type, and its traceability to NIM.

*** halogen lamp, 100W, omni-directional type, and its traceability to NIM.

2. Test conducted and method

The luminaire was operated at least 2 hours to reach stabilization and temperature equilibrium before test.

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$; 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 (50 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 Electrical Instrumentation

The calibration uncertainties of the instruments for AC voltage and current were less than 0.2 percent, and the calibration uncertainty of the AC power meter was less than 0.5 percent (95 % confidence interval, $k=2$).

2.5 Color Measurement Method

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the color characteristics (Color rendering index, correlated color temperature, chromaticity coordinate) were calculated from these by software automatically.

2.6 Total Luminous Flux Measurement Method

Total luminous flux was measured by type C goniophotometer system.

Light intensity distribution was measured by a type C goniophotometer (with mirror) which can keep the sample in burn position when the tests conduct, and the total luminous flux was calculated from the intensity data by software automatically.

2.7 Luminous Intensity Distribution Measurement Method

Luminous intensity distribution was measured by a mirror-type goniophotometer (Type C) which can keep the sample in burn position when the tests conduct, and the kinds of graph were generated by software automatically.

2.8 Spatial Non-uniformity of Chromaticity

The customer did not require this measurement.

3. Test Result Summary

3.1 Electrical data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Input Voltage & Frequency	229.97 V~50Hz	229.98 V~50Hz
Input Current(A)	0.205	0.204
Total Power(W)	46.72	46.43
Power Factor	0.993	0.992
I-THD	-	-
Off-state Power(W)	-	-

3.2 Photometric data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Total Lumens(lm)	-	5678.77
Luminaire Efficacy(Lm/W)	-	122.31
Correlated Color Temperature (CCT)(K)	3973	-
Color Rendering Index (CRI)	83.1	-
R9	11	-
Chromaticity Coordinate (x,y)	x = 0.3835 y = 0.3841	-
Chromaticity Coordinate (u,v)	u = 0.2242 v = 0.3368	-
Chromaticity Coordinate (u',v')	u' = 0.2242 v' = 0.5052	-
Duv	0.0025	-
Zone Lumens between 0-60 °	-	71.40%
Beam Angle(50%Imax)	-	C0/180=113.8° C90/270=113.2°

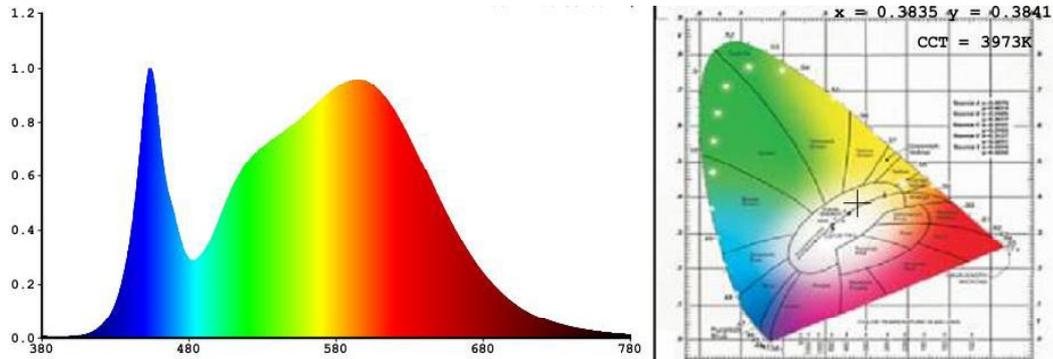
3.3 Color Rendering Details

R1	R2	R3	R4	R5	R6	R7	R8
81	89	95	81	81	85	87	65
R9	R10	R11	R12	R13	R14	R15	-
11	74	80	59	83	97	75	-

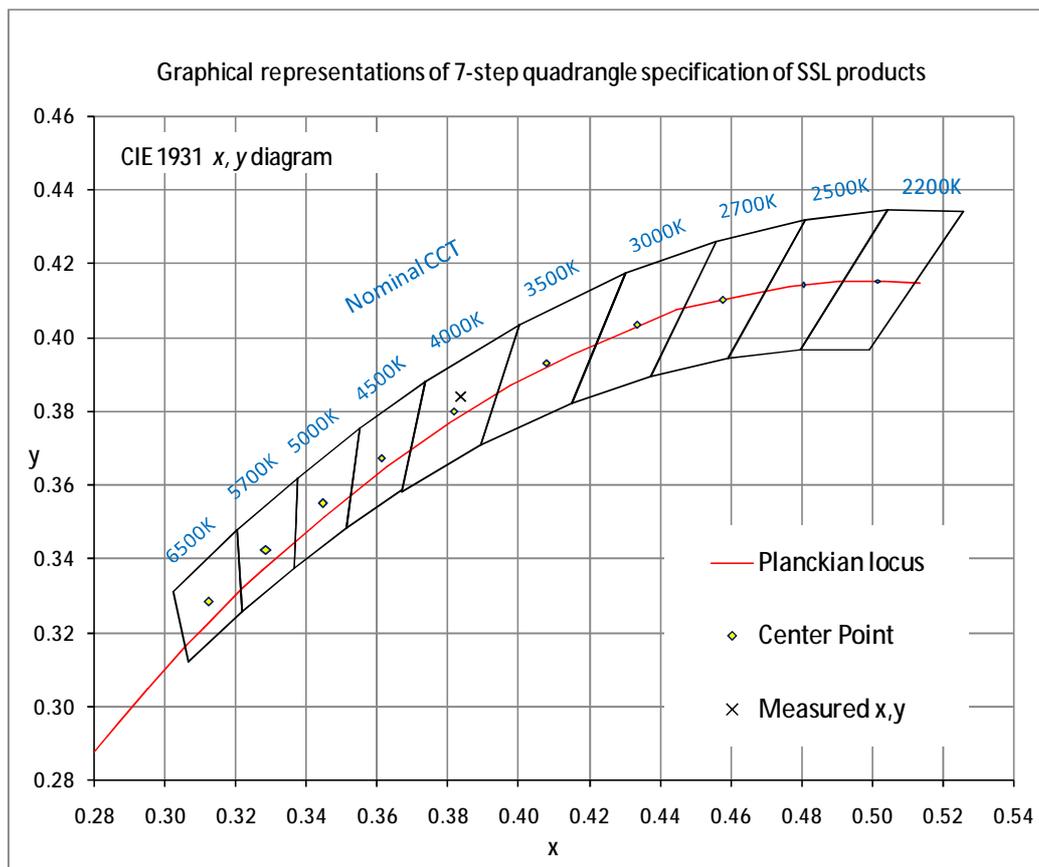
Note: N/A

4. Test Data

4.1 Spectral Distribution



4.2 ANSI Chromaticity Quadrangles Diagram



4.3 Goniometry Test Data

CIE Type	Direct	Basic Luminous Shape	Rectangular w/Sides
Spacing Criteria (0-180)	1.24	Luminous Length	0.23 m
Spacing Criteria (90-270)	1.24	Luminous Width	0.23 m
Spacing Criteria (Diagonal)	1.38	Luminous Height	0.03 m
Test Distance	30.02 m		

4.4 Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixt
0-20	676.40	11.90	11.90
0-30	1430.54	25.20	25.20
0-40	2336.8	41.10	41.10
0-60	4143.92	73.00	73.00
0-80	5267.53	92.80	92.80
0-90	5518.85	97.20	97.20
10-90	5342.93	94.10	94.10
20-40	1660.4	29.20	29.20
20-50	2600.63	45.80	45.80
40-70	2483.88	43.70	43.70
60-80	1123.61	19.80	19.80
70-80	446.86	7.90	7.90
80-90	251.32	4.40	4.40
90-110	120.40	2.10	2.10
90-120	144.30	2.50	2.50
90-130	151.15	2.70	2.70
90-150	155.09	2.70	2.70
90-180	159.92	2.80	2.80
110-180	39.52	0.70	0.70
0-180	5678.77	100.00	100.00

Total Luminaire Efficiency = 100.00%

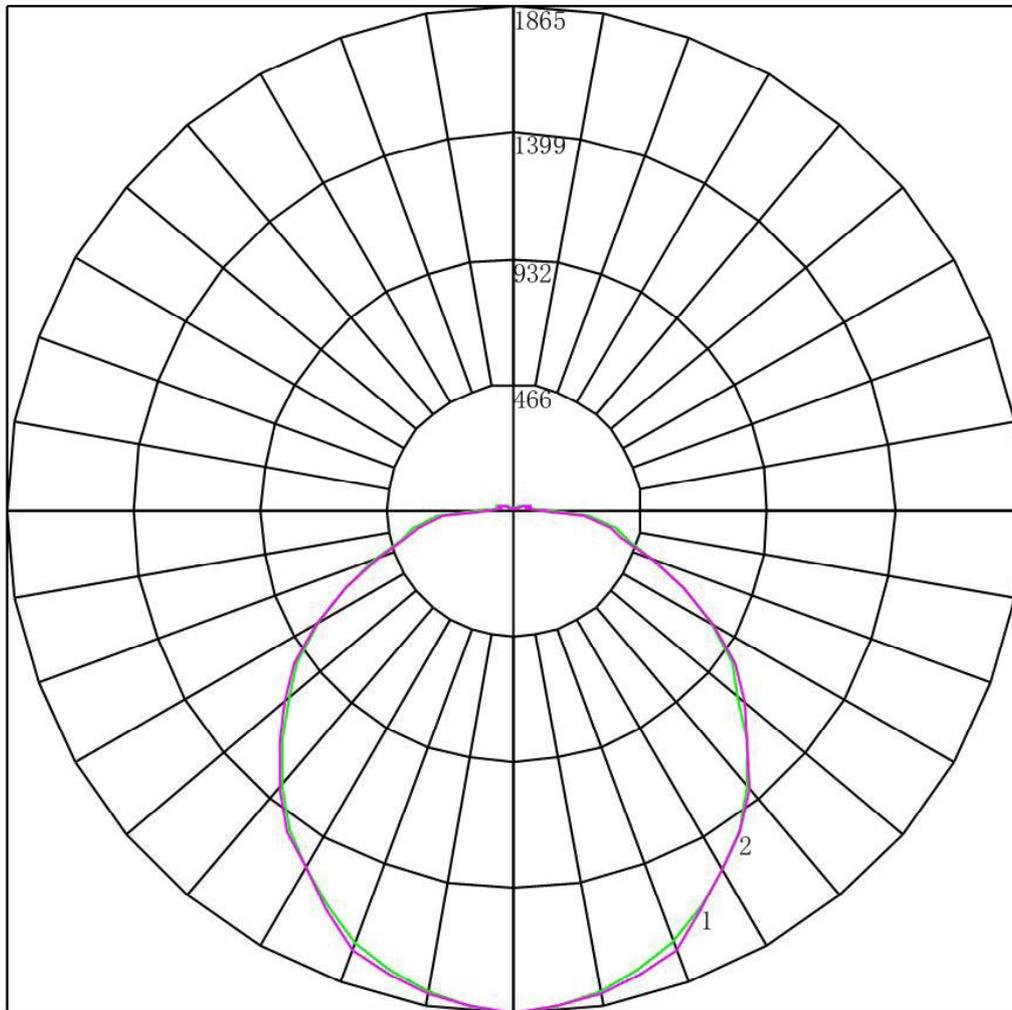
ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	175.92
10-20	500.48
20-30	754.14
30-40	906.26
40-50	940.23
50-60	866.90
60-70	676.76
70-80	446.86
80-90	251.32
90-100	69.61
100-110	50.79
110-120	23.90
120-130	6.85
130-140	2.00
140-150	1.94
150-160	2.18
160-170	1.92
170-180	0.73



LCTECH

4.5 Polar Curves



Maximum Candela = 1864.734 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180)
2 - Vertical Plane Through Horizontal Angles (90 - 270)



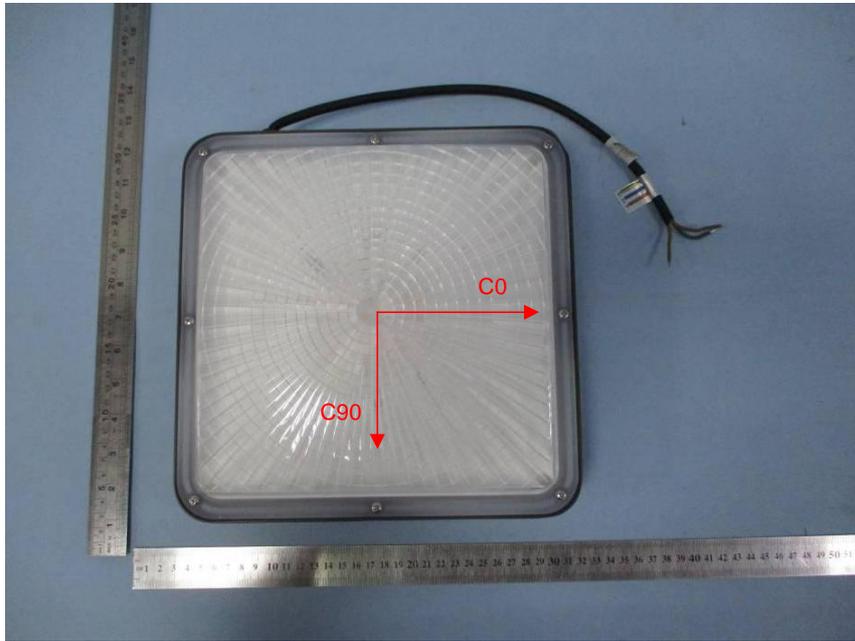
LCTECH



4.6 Candela Tabulation

	<u>0</u>	<u>15</u>	<u>30</u>	<u>45</u>	<u>60</u>	<u>75</u>	<u>90</u>
0	1864.734	1864.734	1864.734	1864.734	1864.734	1864.734	1864.734
5	1849.390	1852.981	1853.381	1855.722	1857.784	1859.866	1845.962
10	1813.287	1815.110	1809.010	1821.155	1827.384	1833.073	1818.250
15	1764.773	1769.851	1772.985	1763.064	1756.304	1787.174	1782.806
20	1705.383	1714.971	1728.239	1716.007	1698.091	1729.074	1733.371
25	1626.362	1623.495	1659.362	1632.670	1624.071	1643.133	1630.927
30	1535.202	1519.285	1553.644	1547.035	1554.459	1564.038	1530.763
35	1443.183	1420.142	1455.326	1446.118	1465.980	1468.555	1452.812
40	1331.624	1320.157	1338.595	1330.871	1346.278	1347.904	1343.440
45	1207.384	1201.759	1211.322	1229.136	1228.701	1228.801	1217.173
50	1073.441	1090.019	1087.027	1090.207	1102.451	1099.209	1101.141
55	981.152	969.214	972.907	965.586	974.713	978.147	989.176
60	831.729	828.301	852.543	817.962	823.136	832.919	839.667
65	685.827	686.626	687.697	671.178	678.738	682.850	688.101
70	541.685	543.917	537.874	532.524	530.558	537.089	535.016
75	428.095	437.097	405.378	401.315	402.337	416.672	408.078
80	375.880	357.770	316.075	288.418	301.191	338.910	359.404
85	278.356	268.613	235.156	211.528	221.995	251.007	261.340
90	139.810	108.097	110.817	107.066	103.315	99.910	95.740
95	48.694	49.159	48.164	46.337	45.968	45.552	43.981
100	61.872	58.325	50.708	45.615	49.305	55.462	59.178
105	64.580	59.247	46.647	39.709	44.440	54.520	60.653
110	48.649	43.104	30.857	25.872	29.344	40.290	45.903
115	33.711	29.556	18.810	12.913	17.403	27.611	31.556
120	21.120	17.815	11.228	5.093	9.469	16.510	19.488
125	11.327	9.347	4.938	2.322	4.645	8.626	10.638
130	4.919	3.793	2.301	2.344	2.456	3.649	4.604
135	2.211	2.258	2.256	2.299	2.253	2.319	2.280
140	2.527	2.552	2.549	2.547	2.568	2.589	2.503
145	3.024	3.071	3.091	3.065	3.087	3.107	2.995
150	3.701	3.748	3.745	3.764	3.696	3.760	3.754
155	4.648	4.719	4.693	4.755	4.732	4.706	4.693
160	5.822	5.871	5.865	5.860	5.836	5.809	5.766
165	6.905	6.865	6.926	6.942	6.895	6.756	6.883
170	7.807	7.791	7.760	7.753	7.796	7.746	7.688
175	8.439	8.468	8.415	8.452	8.428	8.466	8.314
180	4.385	4.385	4.385	4.385	4.385	4.385	4.385

Appendix A Product Photo



Picture 1



Picture 2

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