LCTECH

NVLAP LAB CODE 500080-0

IESNA SUSTAINING MEMBER

Ref. No.: LCGP150060074
Date of issue: June 10, 2015
Version 1.0
Total pages: 8

Test report of

IES LM-79-08

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

Rendered to:

Shenzhen Beson Technology Co.,Ltd

Beson Technology Park, No 22,Dongfang Avenue,Songgang Town,Bao`an District

For products:

2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces

Models:

P2240-50K-D,P2240-50K-N

(P2240-50K-D was selected as the representative model for all the measurements. P2240-50K-D and P2240-50K-N is all the same except from dimming. P2240-50K-D is the model of dimmable; P2240-50K-N is the model of non-dimmable.)

Test date:	June 09, 2015
Test laboratory:	LCTECH (Zhongshan) Testing Service Co.,Ltd 2/F.,Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China
Laboratory note:	N/A

Complied by:	**Reviewed by:**
Bowen Pang	**Richard Li**
Project Engineer	**Technical Manager**
June 10, 2015	**June 10, 2015**

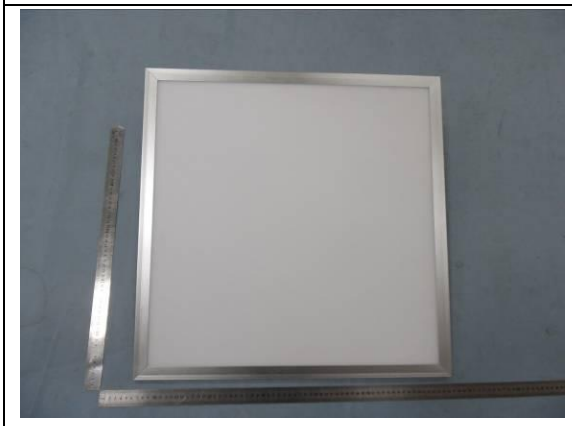
Table of Contents

1 General

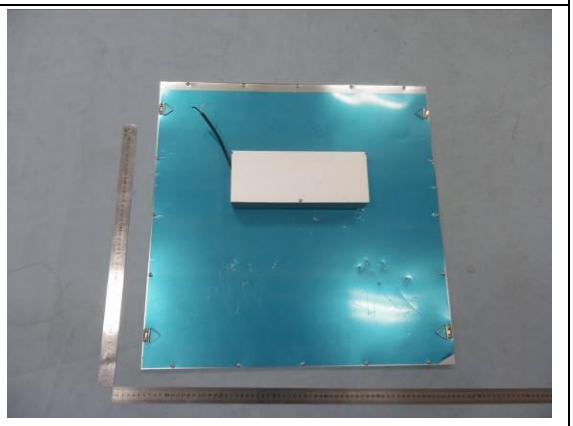
1.1 Product Information

Brand Name	Beson
Trade Mark	-
Luminaire Type	2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces
Model Number	P2240-50K-D,P2240-50K-N
Rated Inputs	AC 100-277V, 60Hz
Rated Power	40 W
Rated Initial Lamp Lumens	3800 lm
Declared CCT	5000 K
Power Supply	Not Provided
LED Package, Array or Module	Model: HL-A-2835DW-S1-08-HR3, manufactured by GuangZhou HongLi Opto-Electronic Co.,Ltd,
Date of Receipt Samples	June 08, 2015
Quantity of Receipt Samples	1 unit
Note	P2240-50K-D was selected as the representative model for all the measurements. P2240-50K-D and P2240-50K-N is all the same except from dimming. P2240-50K-D is the model of dimmable; P2240-50K-N is the model of non-dimmable.

Photo



Picture 2



Picture 2

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	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

ID	Instrument	Model name	Cal. date	Next cal. Date
AC Power supply	LC-I-923	CHP-500	2015-02-05	2016-02-04
AC Power supply	LC-I-953	APW-110N	2015-02-05	2016-02-04
Power analyzer	LC-I-928	WT210	2014-03-21	2015-03-20
Power analyzer	LC-I-954	WT210	2015-02-05	2016-02-04
Multimeter	LC-I-972	Fluke 17B	2014-08-15	2015-08-14
Photometric colorimetric electric system (2 meter sphere)	LC-I-900	SPR3000	Before use	Before use
Standard lamp	LC-I-946	110V/200W	2014-10-09	2015-10-09
Goniophotometer(with mirror)	LC-I-902	GMS2000	2015-04-11	2016-04-11
Wireless temperature transmitter	LC-I-958	DWRP-B(0)	2014-08-19	2015-08-18
Wireless temperature transmitter	LC-I-959	DWRP-B(0)	2014-08-19	2015-08-18

2 Test conducted and method

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at 25°C ± 1°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 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

The customer did not require this measurement.

2.7 Luminous Intensity Distribution Measurement Method

The customer did not require this measurement.

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	120.06 V~60Hz	-
Input Current	0.331 A	-
Total Power	39.44 W	-
Power Factor	0.994	-
I-THD	11.50%	-
Off-state Power	0.0 W	-

3.2 Photometric data

Criteria Item	Result (Sphere)	Result (Goniophotometer)
Total Lumens	-	-
Luminaire Efficacy	-	-
Correlated Color Temperature (CCT)	4948 K	-
Color Rendering Index (CRI)	81.8	-
R9	0	-
Chromaticity Coordinate (x,y)	x= 0.3475 y= 0.3619	-
Chromaticity Coordinate (u,v)	u= 0.2091 v= 0.3266	-
Chromaticity Coordinate (u',v')	u'= 0.2091 v'=0.4900	-
Duv	0.0042	-
Spacing Criteria (0-180)	-	-
Spacing Criteria (90-270)	-	-

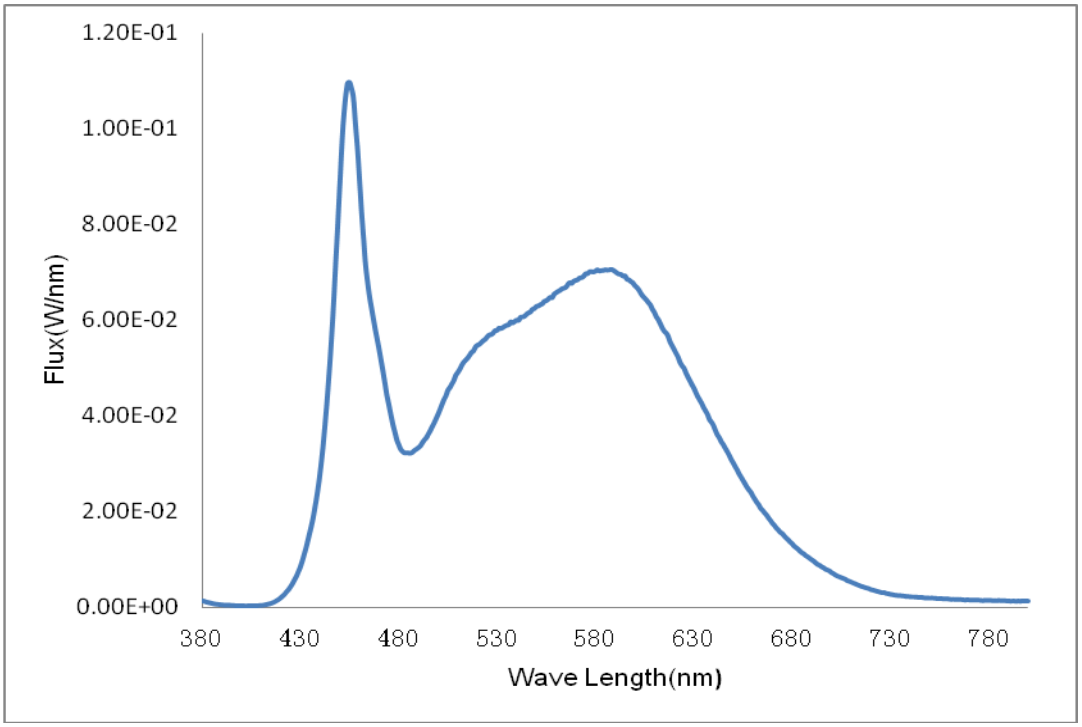
3.3 Additional test at 277V

Criteria Item	Result (Sphere)	Result (Goniophotometer)
Input Voltage	277.07 V~60Hz	-
Power Factor	0.892	-
I-THD	17.04%	-
Off-state Power	0.0 W	-

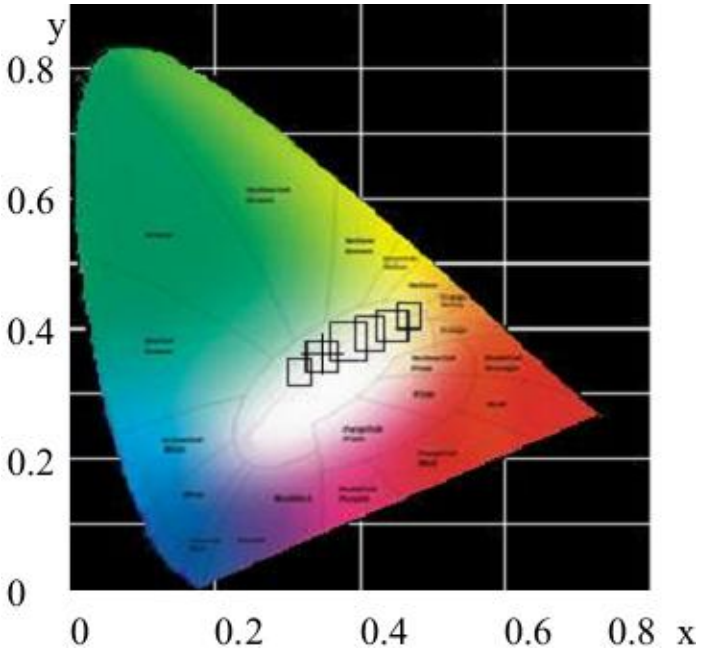
Note: N.A.

4 Test Data

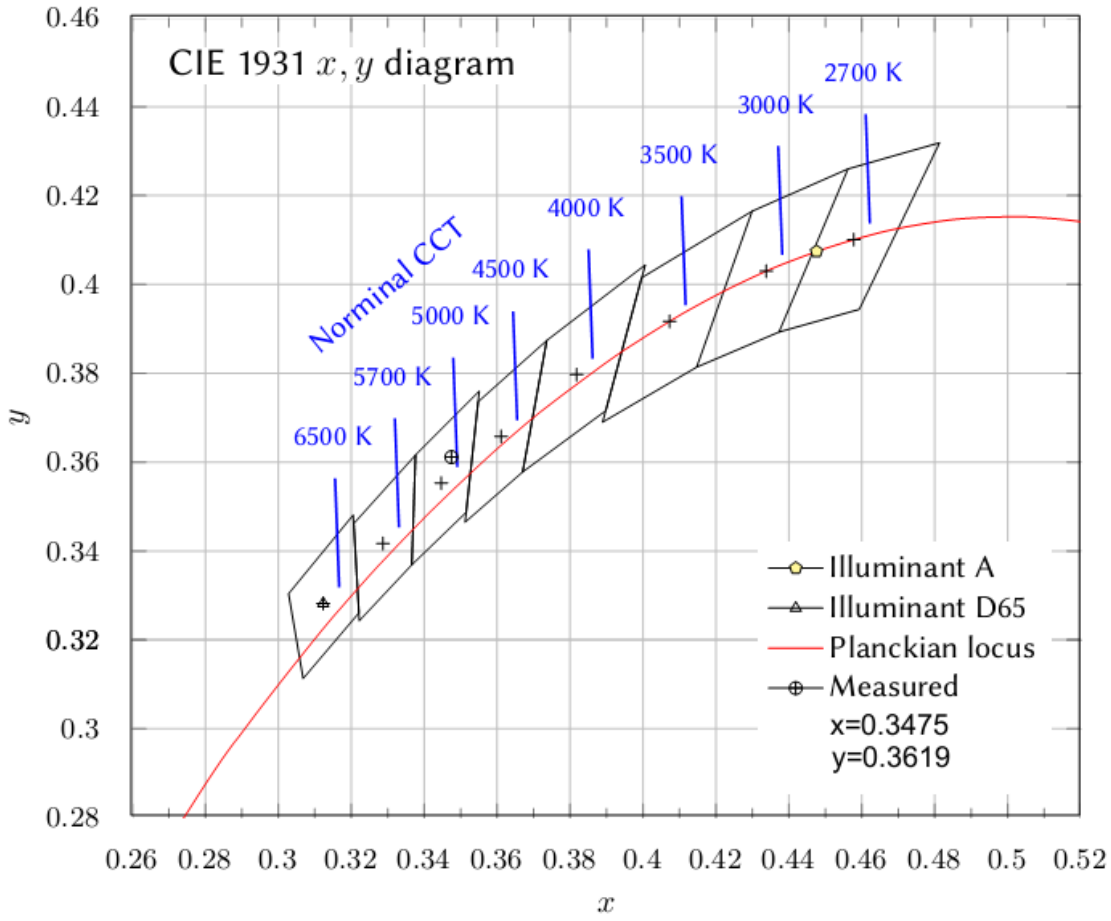
4.1 Spectral Distribution



4.2 Chromaticity Diagram (CIE 1931)



4.3 ANSI Chromaticity Quadrangles Diagram



4.4 Color Rendering Details

R1	R2	R3	R4	R5
80	90	95	77	79
R6	R7	R8	R9	R10
85	85	63	0	76
R11	R12	R13	R14	R15
76	54	84	97	73

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