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Test report of

## IES LM-79-08

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

Rendered to:

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For products:

LED STRIP LIGHT

Models No.:

BLU-FLEXI-14.4W-827-IP20-5M

**Test Date:** Jul.13, 2022 to Jul.15, 2022

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## 1. General

### 1.1 Product Information

Brand Name	BLUi
Product Type	LED STRIP LIGHT
Model Number	BLU-FLEXI-14.4W-827-IP20-5M
Rated Inputs	24VDC
Rated Power	14.4W
Rated Light output	1410lm
Declared CCT	2700K
Power Supply	Integrated in luminaire
LED Package, Array or Module	SAMSUNG
Receipt Samples	1 unit
Sample Code of lab.	220708112122
Date of Receipt Samples	Jul. 08, 2022
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	2019-01-08	2020-01-07
AC Power supply	LC-I-989	APW-120N	2019-01-08	2020-01-07
Power analyzer	LC-I-928	WT210	2019-01-02	2020-01-01
Power analyzer	LC-I-954	WT210	2019-01-08	2020-01-07
Multimeter	LC-I-972	Fluke 17B	2019-07-29	2020-07-28
Photometric colorimetric electric system* (2 meter sphere)	LC-I-956	HAAS-2000	Before use	Before use
Standard lamp**	LC-PL-I-011	D204C	2018-11-21	2019-11-20
Luminous Flux Standard Lamp***	LC-PL-I-003	24V100W	2018-11-21	2019-11-20
Goniophotometer(with mirror)	LC-I-902	GMS2000	2019-05-06	2020-05-05
Wireless temperature transmitter	LC-I-978	DWRF-B	2019-01-07	2020-01-06
Wireless temperature transmitter	LC-I-979	DWRF-B	2019-01-07	2020-01-06

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 voltage of DC power supply (instantaneous voltage) applied to the device under test was regulated to within  $\pm 0.2$  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 DC voltage and current were less than 0.1 percent.

### 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 of 5m

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Input Voltage	24.02 V	24.01 V
Input Current(A)	0.601	0.061
Total Power(W)	14.41	14.42
Power Factor	1.000	1.000
I-THD	-	-
Off-state Power(W)	-	-

#### 3.2 Photometric data of 5m

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Total Lumens(lm)	-	1486.59
Luminaire Efficacy(Lm/W)	-	103.23
Correlated Color Temperature (CCT)(K)	2707	-
Color Rendering Index (CRI)	83.1	-
R9	8	-
Chromaticity Coordinate (x,y)	x = 0.4599 y = 0.4116	-
Chromaticity Coordinate (u,v)	u = 0.2505 v = 0.3470	-
Chromaticity Coordinate (u',v')	u' = 0.2505 v' = 0.5205	-
Duv	-0.0005	-
Zone Lumens between 0-60 °	-	77.50%
Beam Angle(50%Imax)	-	C0/180=115.7° C90/270=116.5°

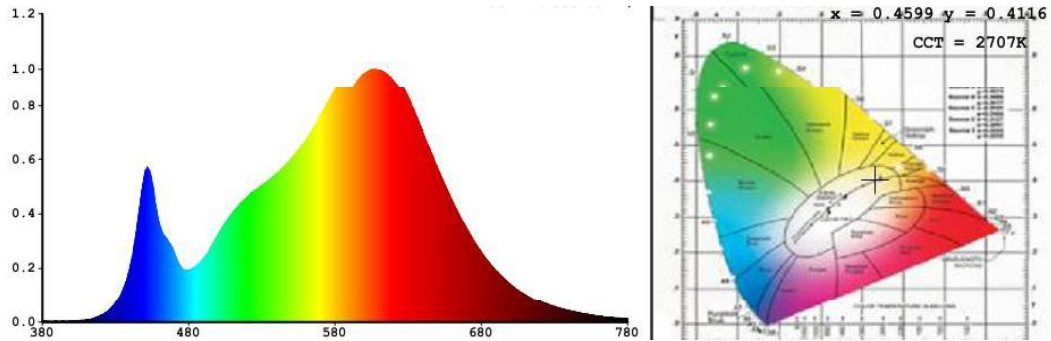
#### 3.3 Color Rendering Details of 5m

R1	R2	R3	R4	R5	R6	R7	R8
82	92	96	81	82	90	82	59
R9	R10	R11	R12	R13	R14	R15	-
8	81	81	72	84	99	74	-

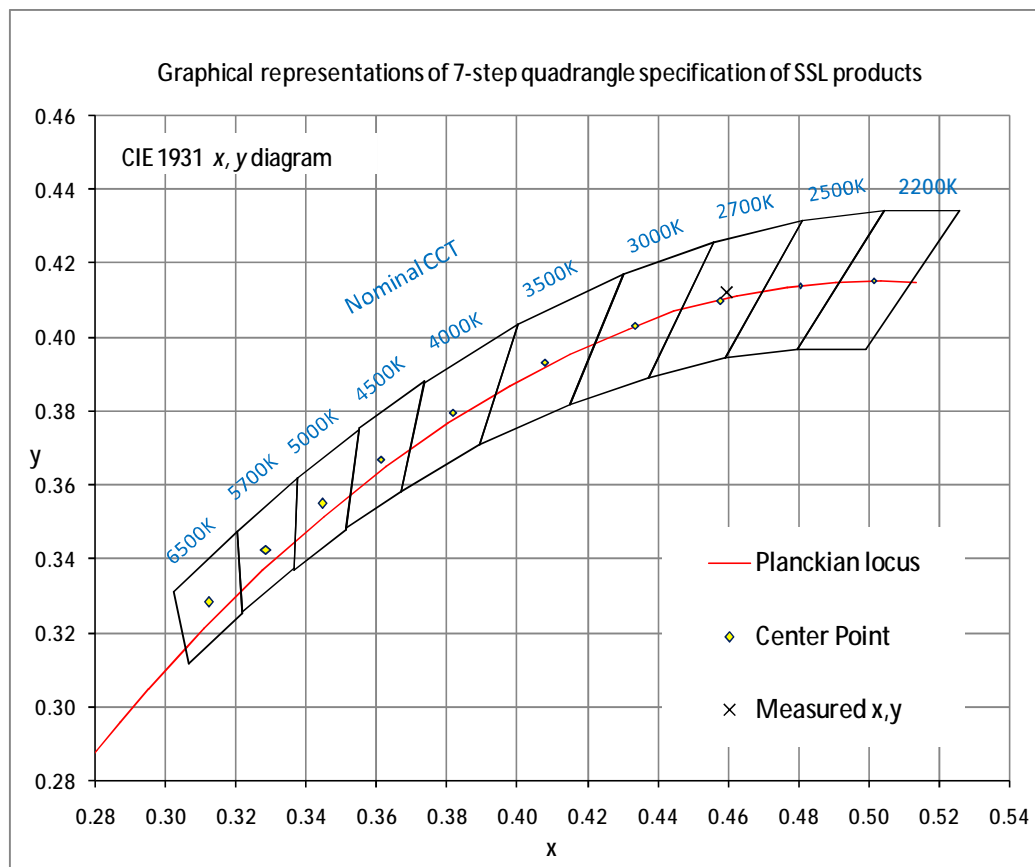
Note: N/A

## 4. Test Data

### 4.1 Spectral Distribution of 5m



### 4.2 ANSI Chromaticity Quadrangles Diagram of 5m



#### 4.3 Goniometry Test Data of 5m

CIE Type	Direct	Basic Luminous Shape	Rectangular
Spacing Criteria (0-180)	1.30	Luminous Length	1.00 m
Spacing Criteria (90-270)	1.28	Luminous Width	0.02 m
Spacing Criteria (Diagonal)	1.40	Luminous Height	0.00 m
Test Distance	30.00 m		

#### 4.4 Zonal Lumen Summary of 5m

Zone	Lumens	%Lamp	%Fixt
0-20	620.45	61.20	61.20
0-30	891.71	87.90	87.90
0-40	959.01	94.50	94.50
0-60	1000.41	98.60	98.60
0-80	1012.41	99.80	99.80
0-90	1013.04	99.90	99.90
10-90	817.96	80.60	80.60
20-40	338.56	33.40	33.40
20-50	364.78	36.00	36.00
40-70	49.72	4.90	4.90
60-80	11.99	1.20	1.20
70-80	3.68	0.40	0.40
80-90	0.64	0.10	0.10
90-110	0.00	0.00	0.00
90-120	0.00	0.00	0.00
90-130	0.00	0.00	0.00
90-150	0.11	0.00	0.00
90-180	1.46	0.10	0.10
110-180	1.46	0.10	0.10

Total Luminaire Efficiency = 100.00%

#### ZONAL LUMEN SUMMARY

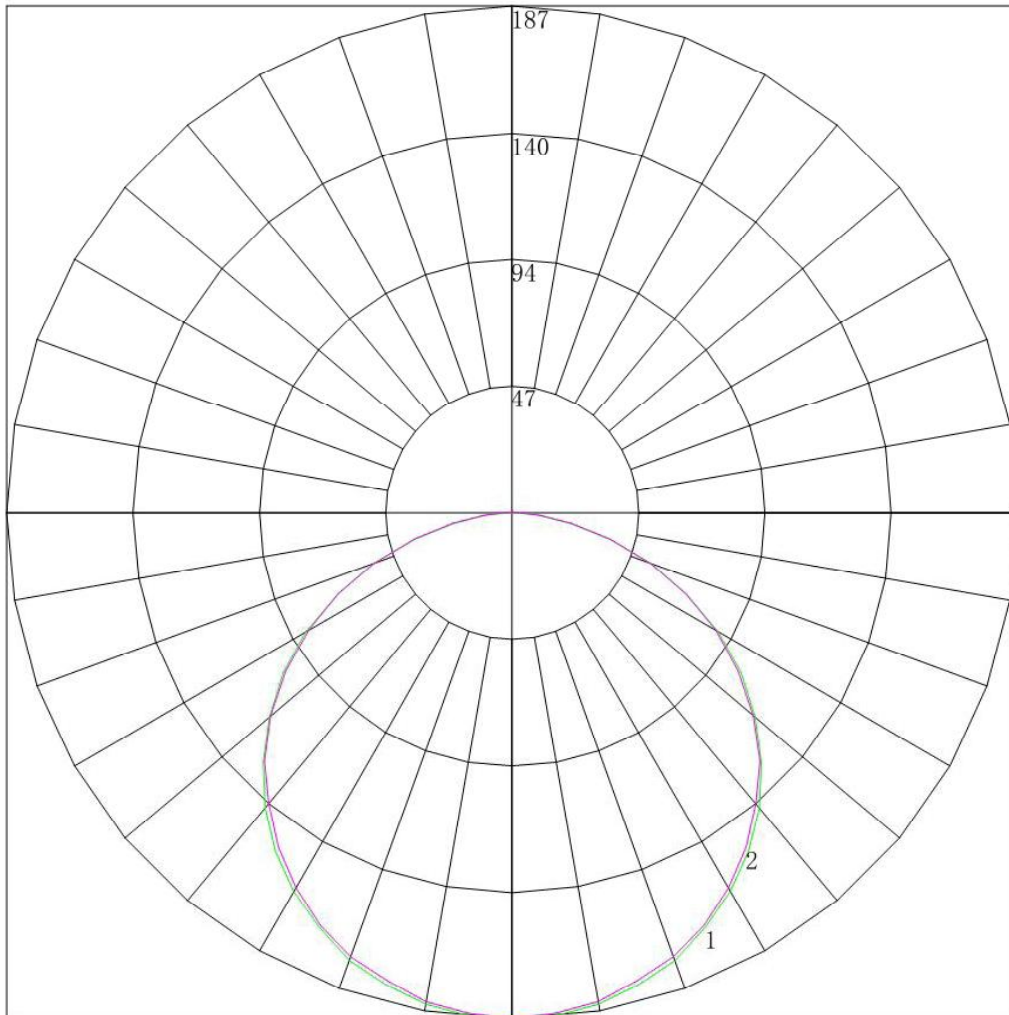
Zone	Lumens
0-10	195.08
10-20	425.37
20-30	271.26
30-40	67.30
40-50	26.23
50-60	15.18
60-70	8.31
70-80	3.68
80-90	0.64
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.11
150-160	0.44
160-170	0.63
170-180	0.28





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4.5 Polar Curves of 5m



Maximum Candela = 187.034 Located At Horizontal Angle = 0, Vertical Angle = 0

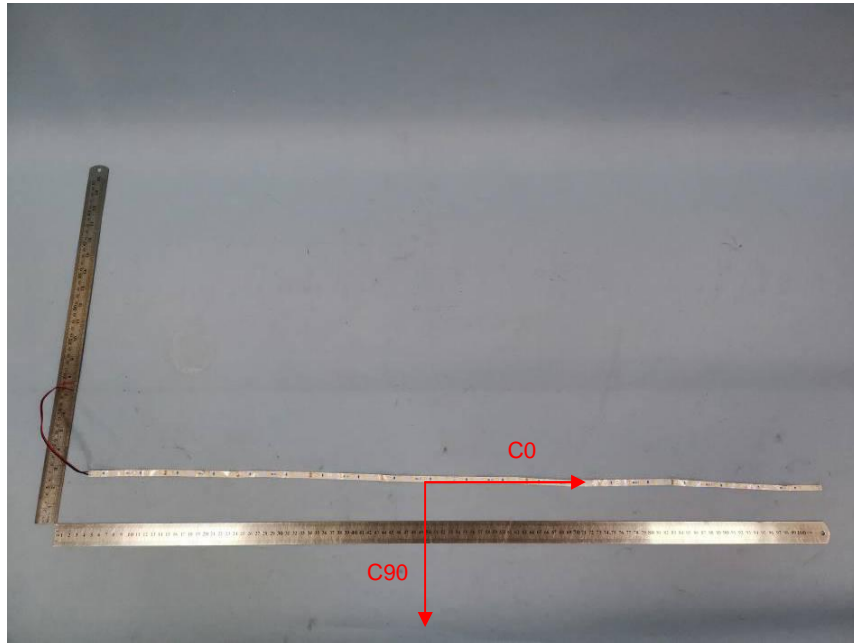
# 1 - Vertical Plane Through Horizontal Angles (0 - 180)

# 2 - Vertical Plane Through Horizontal Angles (90 - 270)

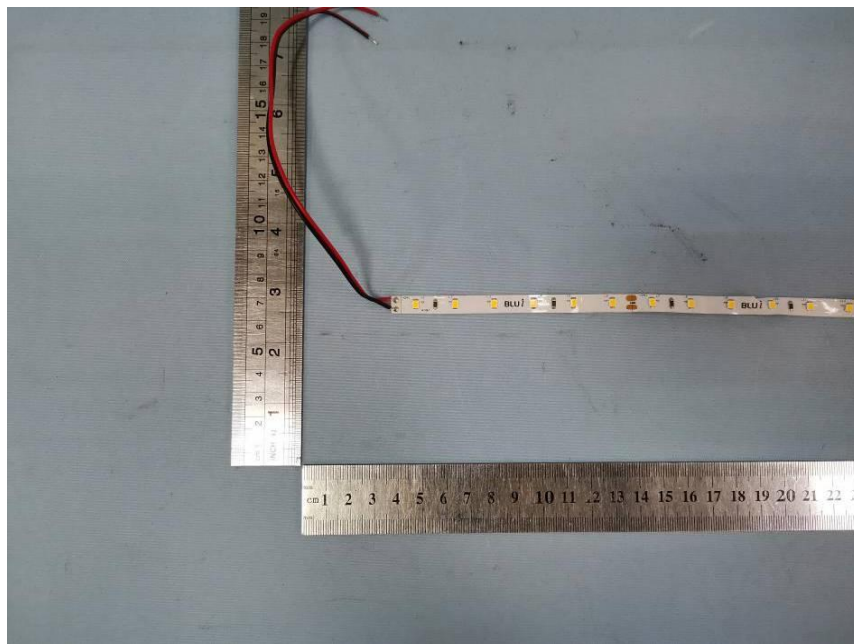
4.6 Candela Tabulation of 5m

	<u>0</u>	<u>15</u>	<u>30</u>	<u>45</u>	<u>60</u>	<u>75</u>	<u>90</u>
<b>0</b>	2168.839	2168.839	2168.839	2168.839	2168.839	2168.839	2168.839
<b>5</b>	2103.971	2100.702	2112.115	2115.536	2112.521	2113.627	2082.743
<b>10</b>	1906.234	1911.922	1931.788	1927.710	1920.357	1921.209	1859.862
<b>15</b>	1580.193	1571.939	1588.249	1582.102	1573.242	1577.886	1551.634
<b>20</b>	1082.183	1085.266	1082.596	1065.142	1059.211	1072.771	1039.531
<b>25</b>	622.110	608.537	591.107	561.138	539.635	535.230	520.215
<b>30</b>	241.042	236.254	225.934	216.136	206.134	199.585	201.134
<b>35</b>	95.424	92.871	90.252	85.255	82.603	80.941	80.852
<b>40</b>	49.747	49.641	49.302	47.686	47.306	47.154	46.463
<b>45</b>	32.658	32.751	32.801	32.323	32.753	32.672	32.058
<b>50</b>	23.129	22.989	23.098	23.033	23.225	23.305	23.111
<b>55</b>	16.553	16.555	16.569	16.600	16.624	16.630	16.436
<b>60</b>	11.676	11.751	11.729	11.786	11.691	11.879	11.669
<b>65</b>	8.187	8.132	8.172	8.187	8.199	8.236	8.176
<b>70</b>	5.503	5.473	5.516	5.533	5.541	5.498	5.450
<b>75</b>	3.355	3.373	3.377	3.352	3.424	3.371	3.453
<b>80</b>	1.655	1.676	1.711	1.664	1.734	1.651	1.637
<b>85</b>	0.358	0.402	0.338	0.337	0.293	0.294	0.275
<b>90</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>95</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>100</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>105</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>110</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>115</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>120</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>125</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>130</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>135</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>140</b>	0.000	0.045	0.000	0.000	0.000	0.000	0.000
<b>145</b>	0.179	0.223	0.180	0.180	0.135	0.135	0.068
<b>150</b>	0.403	0.402	0.383	0.405	0.360	0.340	0.364
<b>155</b>	0.984	0.938	0.968	0.945	0.924	0.950	0.955
<b>160</b>	1.655	1.653	1.688	1.665	1.667	1.629	1.591
<b>165</b>	2.326	2.346	2.386	2.362	2.365	2.376	2.226
<b>170</b>	2.774	2.793	2.814	2.812	2.748	2.783	2.724
<b>175</b>	2.953	2.971	3.017	2.947	2.996	3.009	2.905
<b>180</b>	3.157	3.157	3.157	3.157	3.157	3.157	3.157

**Appendix A Product Photo**



Picture 1



Picture 2

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