



Ref. No.: LCZP20060377  
Version: 1.0  
Date of issue: Jun. 30, 2020  
Total pages: 12



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 WALLPACK LIGHT

Models No.:

BLU-SIENOS-25W-840

**Test Date:** Jun. 22, 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

Jun. 30, 2020

**Reviewed by:**

Lin Qiu

Jun. 30, 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

<b>1. General</b>	3
1.1 Product Information	3
1.2 Standards or methods	4
1.3 Equipment list	4
<b>2. Test conducted and method</b>	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
<b>3. Test Result Summary</b>	6
3.1 Electrical data	6
3.2 Photometric data	6
3.3 Color Rendering Details	6
<b>4. Test Data</b>	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
<b>Appendix A Product Photo</b>	12



LCTECH



## 1. General

### 1.1 Product Information

Brand Name	BLUi
Product Type	LED WALLPACK LIGHT
Model Number	BLU-SIENOS-25W-840
Rated Inputs	100-277VAC, 50/60Hz
Rated Power	25W
Rated Light output	2700-3000lm
Declared CCT	4000K
Power Supply	TRIDONIC
LED Package, Array or Module	SAMSUNG
Receipt Samples	1 unit
Sample Code of lab.	200618112001
Date of Receipt Samples	Jun. 18, 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	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	2019-08-01	2020-07-31
Luminous Flux Standard Lamp****	LC-PL-I-003	24V100W	2019-08-01	2020-07-31
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  $\pm 0.2$  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 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	229.94 V~50Hz	230.04 V~50Hz
Input Current(A)	0.111	0.111
Total Power(W)	24.43	24.30
Power Factor	0.959	0.952
I-THD	-	-
Off-state Power(W)	-	-

#### 3.2 Photometric data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Total Lumens(lm)	-	2841.13
Luminaire Efficacy(Lm/W)	-	116.92
Correlated Color Temperature (CCT)(K)	4055	-
Color Rendering Index (CRI)	82.4	-
R9	6	-
Chromaticity Coordinate (x,y)	x = 0.3804 y = 0.3845	-
Chromaticity Coordinate (u,v)	u = 0.2220 v = 0.3366	-
Chromaticity Coordinate (u',v')	u' = 0.2220 v' = 0.5049	-
Duv	0.0036	-
Zone Lumens between 0-60 °	-	46.50%
Beam Angle(50%Imax)	-	C0/180=92.0° C90/270=111.7°

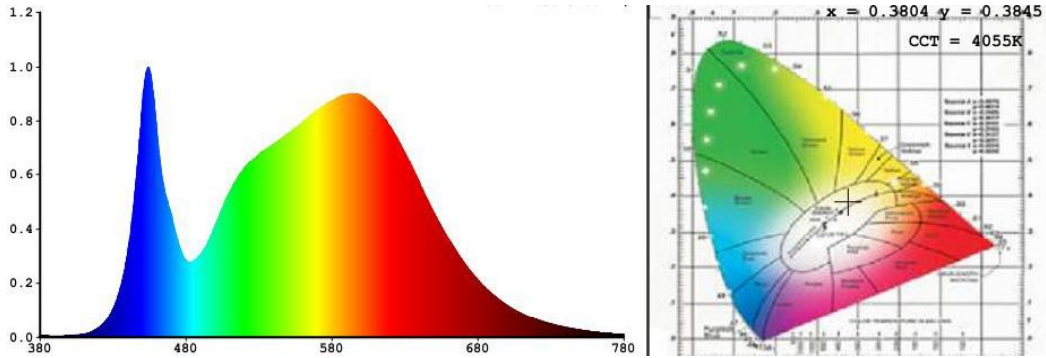
#### 3.3 Color Rendering Details

R1	R2	R3	R4	R5	R6	R7	R8
80	89	95	80	80	84	87	64
R9	R10	R11	R12	R13	R14	R15	-
6	73	78	57	82	97	74	-

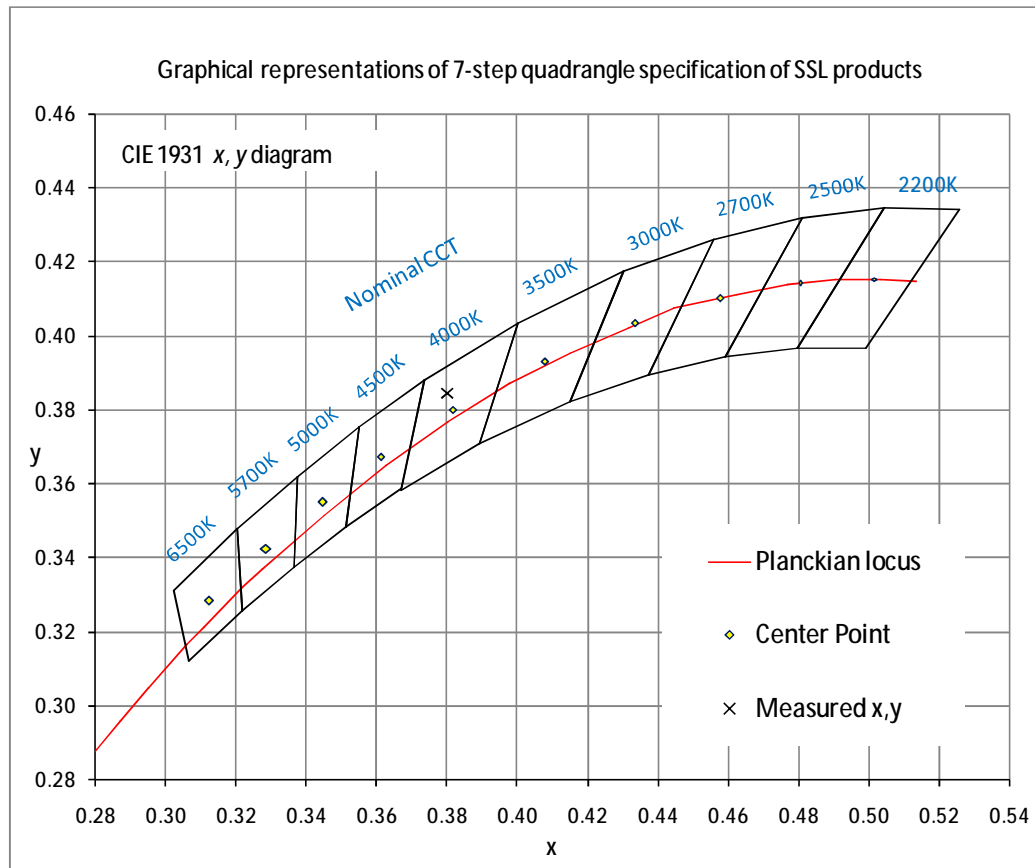
Note: N/A

## 4. Test Data

### 4.1 Spectral Distribution



### 4.2 ANSI Chromaticity Quadrangles Diagram



#### 4.3 Goniometry Test Data

CIE Type	Semi-Direct	Basic Luminous Shape	Rectangular w/Sides
Spacing Criteria (0-180)	1.76	Luminous Length	0.28 m
Spacing Criteria (90-270)	1.26	Luminous Width	0.05 m
Spacing Criteria (Diagonal)	1.14	Luminous Height	0.07 m
Test Distance	29.77 m		

#### 4.4 Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixt
0-20	216.03	7.60	7.60
0-30	440.93	15.50	15.50
0-40	706.39	24.90	24.90
0-60	1321.44	46.50	46.50
0-80	1987.77	70.00	70.00
0-90	2281.11	80.30	80.30
10-90	2222.49	78.20	78.20
20-40	490.35	17.30	17.30
20-50	784.81	27.60	27.60
40-70	953.60	33.60	33.60
60-80	666.33	23.50	23.50
70-80	327.79	11.50	11.50
80-90	293.33	10.30	10.30
90-110	387.30	13.60	13.60
90-120	482.67	17.00	17.00
90-130	528.90	18.60	18.60
90-150	556.54	19.60	19.60
90-180	560.02	19.70	19.70
110-180	172.72	6.10	6.10
0-180	2841.13	100.00	100.00

Total Luminaire Efficiency = 100.00%

#### ZONAL LUMEN SUMMARY

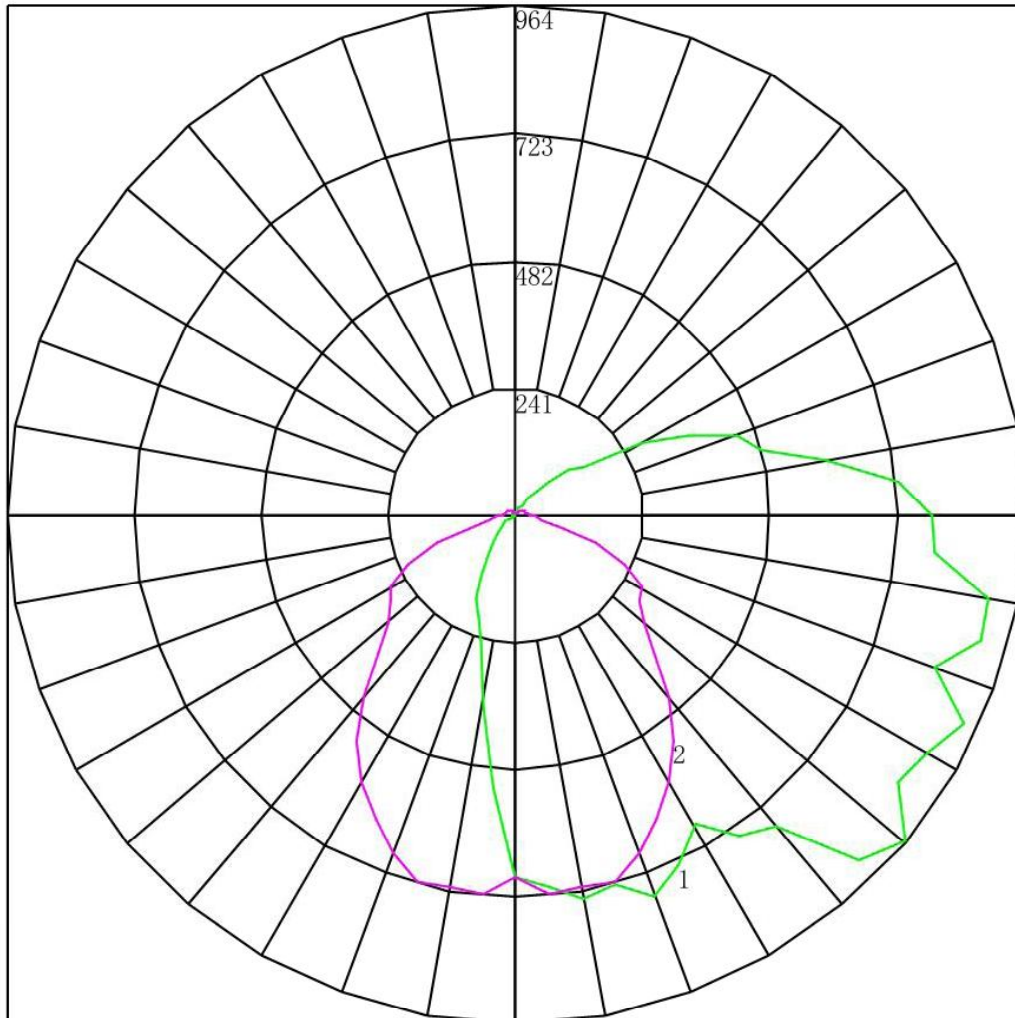
Zone	Lumens
0-10	58.62
10-20	157.41
20-30	224.90
30-40	265.46
40-50	294.46
50-60	320.60
60-70	338.55
70-80	327.79
80-90	293.33
90-100	228.91
100-110	158.39
110-120	95.37
120-130	46.24
130-140	20.21
140-150	7.42
150-160	2.38
160-170	0.86
170-180	0.24





LCTECH

4.5 Polar Curves



Maximum Candela = 964.394 Located At Horizontal Angle = 15, Vertical Angle = 65  
# 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>	<u>105</u>	<u>120</u>	<u>135</u>
0	685.768	685.768	685.768	685.768	685.768	685.768	685.768	685.768	685.768	685.768
5	708.877	672.969	670.226	686.800	662.105	628.686	721.437	664.310	573.954	515.543
10	740.867	709.307	706.675	711.187	672.007	670.592	716.562	589.075	496.622	450.842
15	726.726	736.007	777.910	708.061	725.841	714.584	722.354	553.664	438.071	342.182
20	768.201	730.805	705.800	758.755	718.662	681.055	681.858	482.958	343.957	261.217
25	733.883	692.824	663.103	723.832	713.242	662.589	633.158	408.670	291.449	215.885
30	677.835	687.138	702.300	664.397	663.438	653.262	582.044	355.018	250.829	182.348
35	739.746	743.537	664.463	648.655	609.386	630.573	524.220	298.722	187.431	146.268
40	767.770	718.963	670.414	579.816	603.991	599.961	450.421	241.010	139.079	111.030
45	923.928	824.403	700.519	629.799	558.059	523.802	371.892	171.390	105.595	87.830
50	962.041	915.266	774.837	583.975	525.804	464.563	317.641	122.678	83.650	59.390
55	885.816	847.328	885.575	658.267	474.270	410.364	287.426	94.273	72.033	40.372
60	904.182	896.557	825.015	650.632	473.485	401.936	274.877	83.123	60.806	27.583
65	936.949	964.394	879.007	630.170	405.538	408.829	225.886	78.051	45.914	16.926
70	847.272	916.319	915.720	621.959	384.886	373.997	159.182	73.166	32.302	9.424
75	912.719	883.241	873.591	641.613	345.936	320.676	88.858	61.053	21.950	8.284
80	911.943	933.098	803.958	628.122	314.990	250.200	51.066	45.645	17.634	7.408
85	797.088	862.001	801.264	606.129	289.815	185.649	35.524	32.671	14.609	6.664
90	792.173	802.124	695.153	536.227	242.457	125.466	26.402	24.346	12.209	6.136
95	728.623	675.717	626.056	463.614	213.935	81.494	22.347	20.270	10.124	5.829
100	593.159	607.816	600.858	391.905	164.088	51.741	20.127	17.443	8.122	5.522
105	484.513	491.856	491.313	329.440	132.038	38.327	19.307	15.620	6.566	5.126
110	447.866	432.637	348.887	217.334	110.644	30.050	18.389	13.153	5.234	4.513
115	358.879	343.768	276.016	189.287	78.771	25.647	16.121	9.956	4.302	3.898
120	274.204	276.097	223.765	140.594	65.334	20.739	13.032	7.352	3.415	3.240
125	157.969	160.532	137.425	90.274	54.847	14.961	9.653	5.202	2.572	2.452
130	131.152	125.583	97.040	63.254	44.712	11.579	6.902	3.605	1.906	1.751
135	92.177	88.771	69.628	48.256	28.032	8.978	4.875	2.419	1.285	1.316
140	60.790	58.918	46.152	31.424	25.052	5.697	3.523	1.644	1.153	1.139
145	36.216	35.879	28.143	22.912	15.010	3.692	2.703	1.415	1.153	1.270
150	21.212	20.225	16.924	15.058	7.393	2.600	2.172	1.413	1.285	1.490
155	12.675	12.969	12.134	8.711	3.986	2.145	1.979	1.551	1.640	1.752
160	9.313	8.905	7.264	4.598	2.836	2.145	2.124	2.007	2.083	2.060
165	4.915	4.625	3.959	3.022	2.304	2.327	2.510	2.233	2.304	2.366
170	3.018	2.940	2.740	2.453	2.438	2.601	2.703	2.553	2.572	2.541
175	2.501	2.507	2.568	2.629	2.572	2.737	2.896	2.737	2.749	2.716
180	1.409	1.409	1.409	1.409	1.409	1.409	1.409	1.409	1.409	1.409

**Vert. Angles Horizontal Angles**

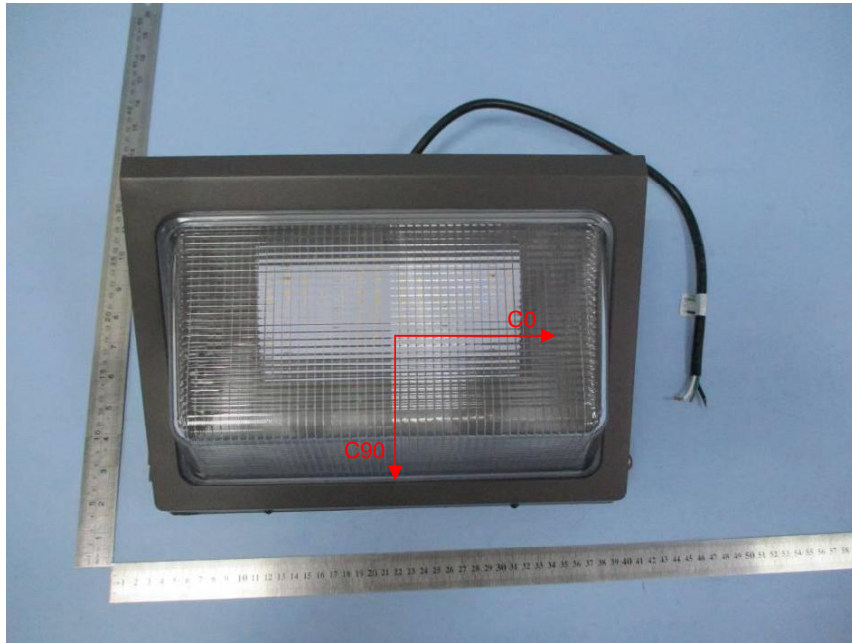
	<u>150</u>	<u>165</u>	<u>180</u>
0	685.768	685.768	685.768
5	507.534	479.709	515.210
10	406.472	364.120	367.674
15	276.531	245.158	247.559
20	219.988	206.852	202.721
25	192.596	181.809	174.525
30	160.254	146.960	136.153
35	121.364	101.650	93.643
40	85.288	71.927	68.982
45	59.258	53.813	50.874
50	41.500	36.873	34.232
55	28.977	23.344	22.333
60	19.804	12.238	9.657
65	5.978	4.021	4.225
70	4.613	4.972	5.174
75	5.091	5.624	6.122
80	5.657	6.572	6.812



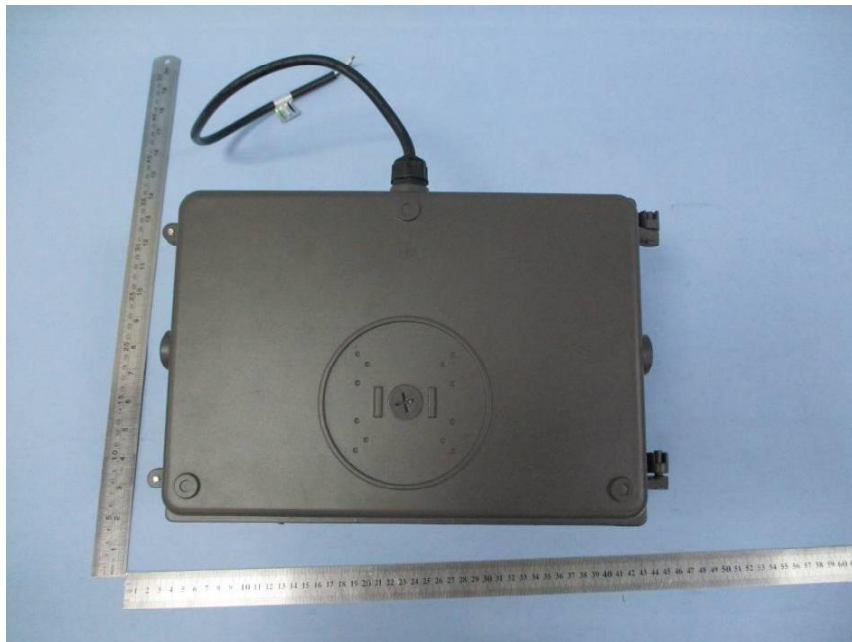
**CANDELA TABULATION - (Cont.)**

<b>85</b>	6.006	7.178	7.416
<b>90</b>	6.224	7.393	7.674
<b>95</b>	6.224	7.351	7.847
<b>100</b>	6.137	7.264	7.674
<b>105</b>	5.832	6.962	7.243
<b>110</b>	5.265	6.225	6.553
<b>115</b>	4.612	5.404	5.691
<b>120</b>	4.092	4.496	4.656
<b>125</b>	3.044	3.372	3.449
<b>130</b>	2.175	2.334	2.501
<b>135</b>	1.479	1.643	1.725
<b>140</b>	1.218	1.297	1.466
<b>145</b>	1.305	1.470	1.380
<b>150</b>	1.566	1.643	1.725
<b>155</b>	1.827	1.902	1.897
<b>160</b>	2.088	2.205	2.156
<b>165</b>	2.437	2.465	2.501
<b>170</b>	2.524	2.594	2.673
<b>175</b>	2.740	2.767	2.759
<b>180</b>	1.409	1.409	1.409

## Appendix A Product Photo



Picture 1



Picture 2

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