

FCC Test Report (SDoC)
Dongguan Olight E-Commerce Technology Co., Ltd.
Bicycle Light
Test Model .: BFL1800

Prepared for	: Dongguan Olight E-Commerce Technology Co., Ltd.
Address	: 4th Floor, Building 4, Kegu Industrial Park, No 6 Zhongnan Road, Changan Town, Dongguan City, Guangdong, P.R. China
Prepared by	: Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
Address	: 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China
Tel	: (+86)0755-29871520
Fax	: (+86)0755-29871521
Web	: www.LCS-cert.com
Mail	: webmaster@LCS-cert.com
Date of receipt of test sample	: October 26, 2021
Number of tested samples	: 1
Serial number	: Prototype
Date of Test	: October 26, 2021 ~ November 03, 2021
Date of Report	: November 03, 2021



FCC TEST REPORT(sDoC)
CFR47 FCC Part 15 Subpart B

Report Reference No. : LCS210108115BE

Date Of Issue..... : November 03, 2021

Testing Laboratory Name..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Address..... : 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China

**Testing Location/ Procedure.... : Full application of Harmonised standards ☒
 Partial application of Harmonised standards ☐
 Other standard testing method ☐**

Applicant's Name..... : Dongguan Olight E-Commerce Technology Co., Ltd.

Address..... : 4th Floor, Building 4, Kegou Industrial Park, No 6 Zhongnan Road, Changan Town, Dongguan City, Guangdong, P.R. China

Test Specification

Standard..... : CFR47 FCC Part 15 Subpart B, ANSI C63.4-2014

Test Report Form No..... : SLCSEMC-1.0

TRF Originator..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2016-08

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Test Item Description..... : Bicycle Light

Trade Mark..... : OLIGHT

Test Model : BFL1800

**Ratings..... : Input: DC 4.2V, 1A
 Capacity: 5000mAh, 3.6V, 18Wh**

Result : PASS

Compiled by:

Amy Liu

Amy Liu/ File administrators

Supervised by:

Dm Gu

Dm Gu/ Technique principal

Approved by:



Cherry Chen/ Manager

FCC -- TEST REPORT**Test Report No. : LCS210108115BE**November 03, 2021

Date of issue

Type / Model..... : BFL1800

EUT..... : Bicycle Light

Applicant..... : Dongguan Olight E-Commerce Technology Co., Ltd.

Address..... : 4th Floor, Building 4, Kegu Industrial Park, No 6 Zhongnan Road, Changan Town, Dongguan City, Guangdong, P.R. China

Telephone..... : /

Fax..... : /

Manufacturer..... : SHENZHEN MINJUN ELECTRONIC Technology CO., LTD

Address..... : Libang technology Park, 3rd Xitian Industrial Zone, Guangming New District, Shenzhen China

Telephone..... : /

Fax..... : /

Factory..... : SHENZHEN MINJUN ELECTRONIC Technology CO., LTD

Address..... : Libang technology Park, 3rd Xitian Industrial Zone, Guangming New District, Shenzhen China

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 6: PASS

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	November 03, 2021	Initial Issue	Cherry Chen

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance	CFR47 FCC Part 15 Subpart B	Class B	PASS
Radiated disturbance	CFR47 FCC Part 15 Subpart B	Class B	PASS
N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Bicycle Light

Trade Mark : OLIGHT

Test Model : BFL1800

Power Supply : Input: DC 4.2V, 1A
Capacity: 5000mAh, 3.6V, 18Wh

2.2. Description of Test Facility

EMC Lab. : TUV RH Registration Number. is UA 50362241 0001.
UL Registration Number. is 100571-492.
NVLAP Registration Number. is 600112-0.

Test Facilities : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
101-201, No.39 Building, Xialang Industrial Zone, Heshuikou
Community, Matian Street, Guangming District, Shenzhen, China

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4 Test Auxiliary Equipment

Configuration	Model	Rating	Manufacturer
AC adapter	STC-A520A USBA	Input:AC 100-240V, 50/60Hz Output: 5V/1A	/

2.5. Measurement Uncertainty

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cispr})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 1.40 dB ± 2.80 dB	± 4.0 dB ± 3.6 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.46 dB	N/A
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.12 dB	N/A
Radiated Emission	Level accuracy (30MHz to 200MHz)	± 4.66 dB	± 5.2 dB
Radiated Emission	Level accuracy (200MHz to 1000MHz)	± 4.64 dB	± 5.0 dB

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

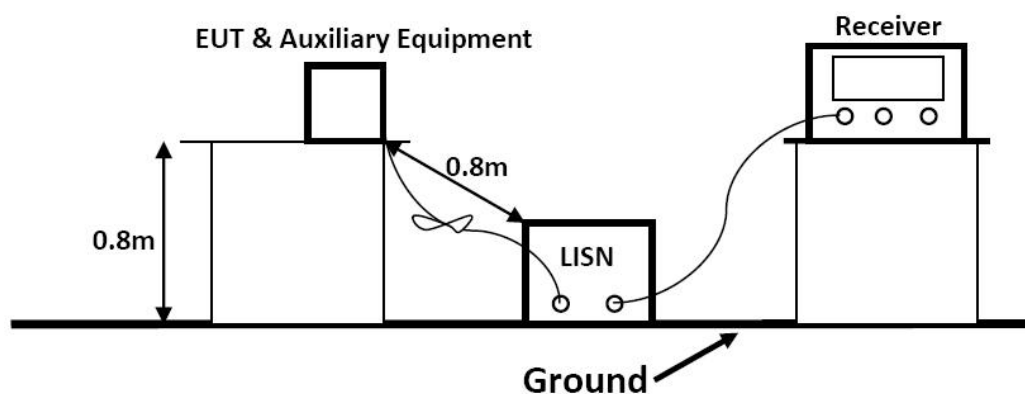
3. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	EMI Test Receiver	R&S	ESCI	101142	2022-06-08
2	10dB Attenuator	SCHWARZBECK	VTSD9561-F	9561-F159	2022-06-08
3	Artificial Mains Network	SCHWARZBECK	NSLK8127	8127716	2022-06-08
4	EMI Test Software	EZ	EZ EMC	N/A	/
5	Asymmetric Artificial Network	SCHWARZBECK	NTFM 8158	NTFM 8158#120	2022-06-08
6	Voltage Probe	SCHWARZBECK	KT 9420	9420401	2022-06-08
7	No. 2 shielded room	CHENGYU	843	/	2023-06-16

3.2. Block Diagram of Test Setup



3.3. Test Standard

Conducted Emission Limits (Class B)				
Frequency (MHz)			Limit (dBμV)	
			Quasi-peak	Average
0.15	~	0.5	66 ~ 56*	56 ~ 46*
0.5	~	5	56	46
5	~	30	60	50

* Decreases with the logarithm of the frequency

Conducted Emission Limits (Class A)				
Frequency (MHz)			Limit (dBμV)	
			Quasi-peak	Average
0.15	~	0.5	79	66
0.50	~	30	73	60

3.4. EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of the test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is investigated

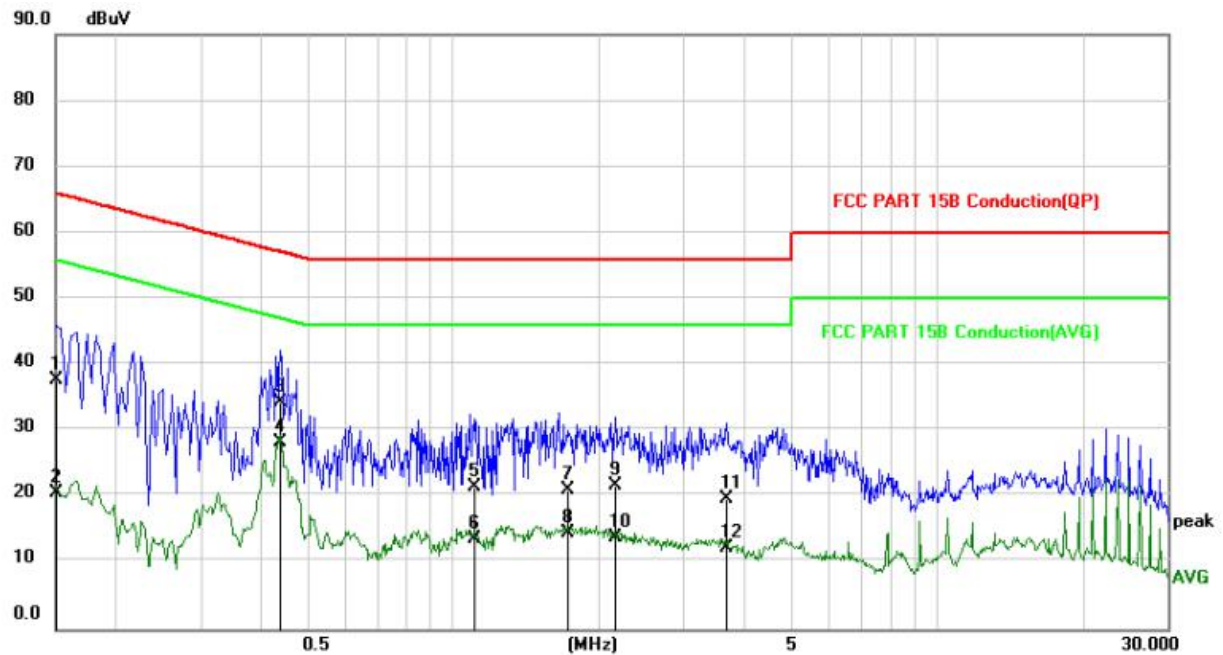
3.6. Test Results

PASS

The test result please refer to the next page.

Environmental Conditions:	23.3℃, 52% RH
Test Voltage:	AC120V, 60Hz
Test Model:	BFL1800
Test Mode:	Charging+Lighting
Test Engineer:	Sam Chen
Pol:	Line

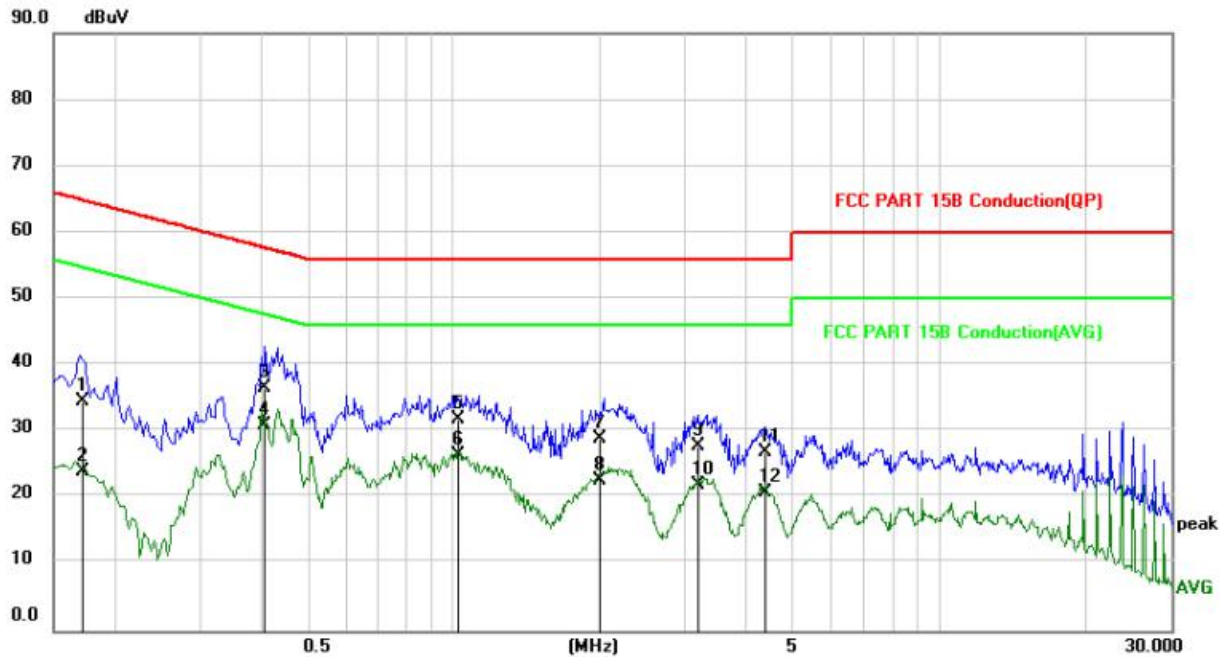
Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	27.36	10.24	37.60	66.00	-28.40	QP	
2		0.1500	10.26	10.24	20.50	56.00	-35.50	AVG	
3		0.4394	24.22	10.20	34.42	57.07	-22.65	QP	
4	*	0.4394	18.01	10.20	28.21	47.07	-18.86	AVG	
5		1.1026	11.23	10.20	21.43	56.00	-34.57	QP	
6		1.1026	3.32	10.20	13.52	46.00	-32.48	AVG	
7		1.7266	10.86	10.20	21.06	56.00	-34.94	QP	
8		1.7266	4.28	10.20	14.48	46.00	-31.52	AVG	
9		2.1610	11.48	10.20	21.68	56.00	-34.32	QP	
10		2.1610	3.59	10.20	13.79	46.00	-32.21	AVG	
11		3.6543	9.51	10.20	19.71	56.00	-36.29	QP	
12		3.6543	1.98	10.20	12.18	46.00	-33.82	AVG	

Environmental Conditions:	23.3°C, 52% RH
Test Voltage:	AC120V, 60Hz
Test Model:	BFL1800
Test Mode:	Charging+Lighting
Test Engineer:	Sam Chen
Pol:	Neutral

Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1727	24.20	10.23	34.43	64.83	-30.40	QP	
2		0.1727	13.66	10.23	23.89	54.83	-30.94	AVG	
3		0.4079	26.42	10.20	36.62	57.69	-21.07	QP	
4	*	0.4079	20.63	10.20	30.83	47.69	-16.86	AVG	
5		1.0291	21.66	10.20	31.86	56.00	-24.14	QP	
6		1.0291	16.30	10.20	26.50	46.00	-19.50	AVG	
7		2.0013	18.66	10.20	28.86	56.00	-27.14	QP	
8		2.0013	12.38	10.20	22.58	46.00	-23.42	AVG	
9		3.1987	17.53	10.20	27.73	56.00	-28.27	QP	
10		3.1987	11.63	10.20	21.83	46.00	-24.17	AVG	
11		4.3986	16.63	10.20	26.83	56.00	-29.17	QP	
12		4.3986	10.67	10.20	20.87	46.00	-25.13	AVG	

4. RADIATED EMISSION MEASUREMENT

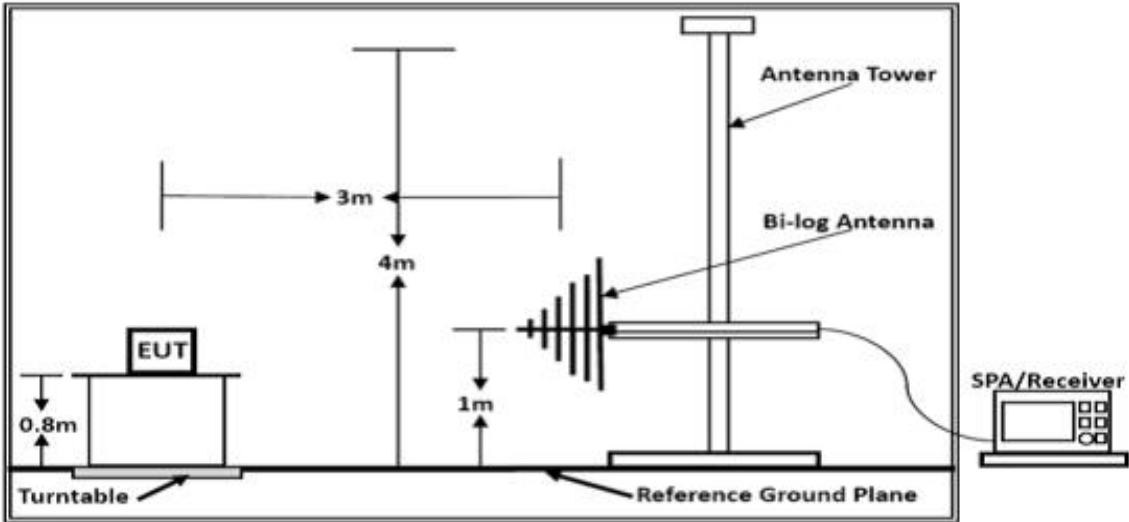
4.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2024-06-15
2	EMI Test Receiver	R&S	ESCI3	101010	2022-06-08
3	Spectrum analyzer	Agilent	N9020A	MY49100699	2022-06-08
4	Log per Antenna	SCHWARZBECK	VULB9163	5094	2022-06-23
5	Horn antenna	ETS-LINDGREN	3115	00034771	2022-06-23
6	EMI Test Software	EZ	EZ EMC	N/A	/
7	Positioning Controller	MF	BK8807-4A-2T	2016-0808-008	/

4.

2. Block Diagram of Test Setup



4.3. Radiated Emission Limit

Limits for Radiated Emission Limit (Class B)			
FREQUENCY MHz	DISTANCE Meters	Quasi-peak	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54

Limits for Radiated Emission Limit (Class A)			
FREQUENCY MHz	DISTANCE Meters	Quasi-peak	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	10	90	39
88 ~ 216	10	150	43.5
216 ~ 960	10	210	46.5
960 ~ 1000	10	300	50
Remark: (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$ (2) The smaller limit shall apply at the cross point between two frequency bands. (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.			

4.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.5. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the Receiver is set at 120kHz; The frequency range from 30MHz to 1000MHz is investigated.

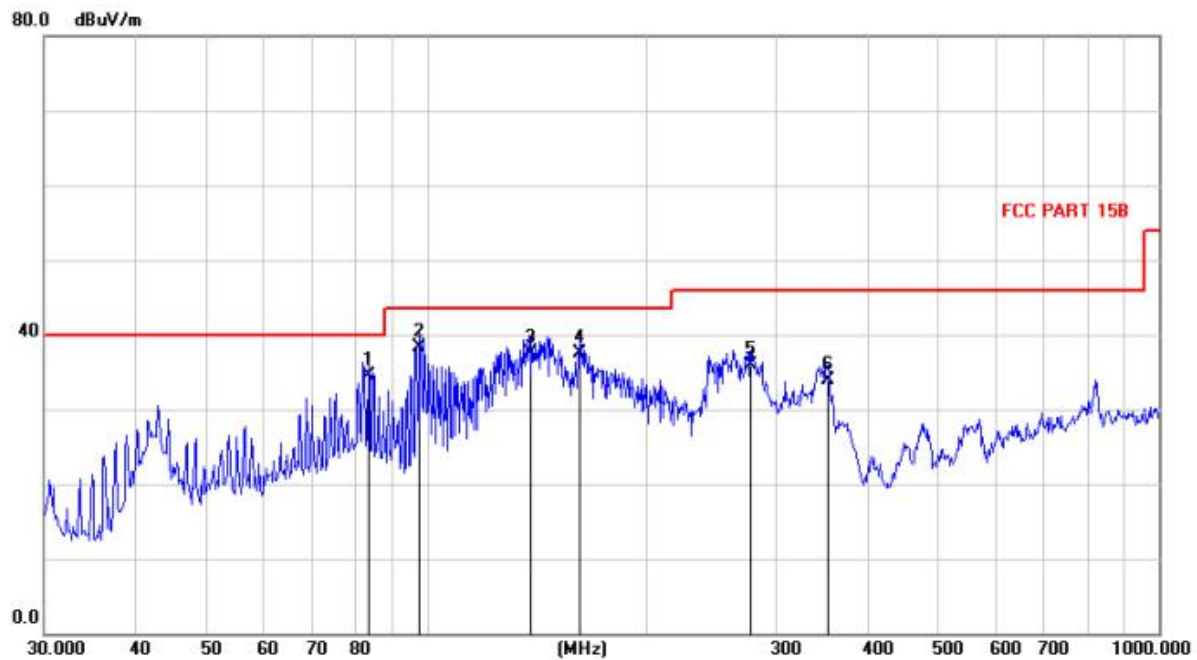
4.6. Test Results

PASS

The test result please refer to the next page.

Environmental Conditions:	23.3℃, 56% RH
Test Voltage:	AC120V, 60Hz
Test Model:	BFL1800
Test Mode:	Charging+Lighting
Test Engineer:	Sam Chen
Pol:	Vertical

Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		83.4488	24.97	9.48	34.45	40.00	-5.55	QP			
2	*	98.0127	27.77	10.47	38.24	43.50	-5.26	QP			
3		138.3873	23.99	13.46	37.45	43.50	-6.05	QP			
4		162.3968	24.69	12.77	37.46	43.50	-6.04	QP			
5		277.9449	23.75	12.15	35.90	46.00	-10.10	QP			
6		353.2527	19.57	14.34	33.91	46.00	-12.09	QP			

Environmental Conditions:	23.3°C, 56% RH
Test Voltage:	AC120V, 60Hz
Test Model:	BFL1800
Test Mode:	Charging+Lighting
Test Engineer:	Sam Chen
Pol:	Horizontal

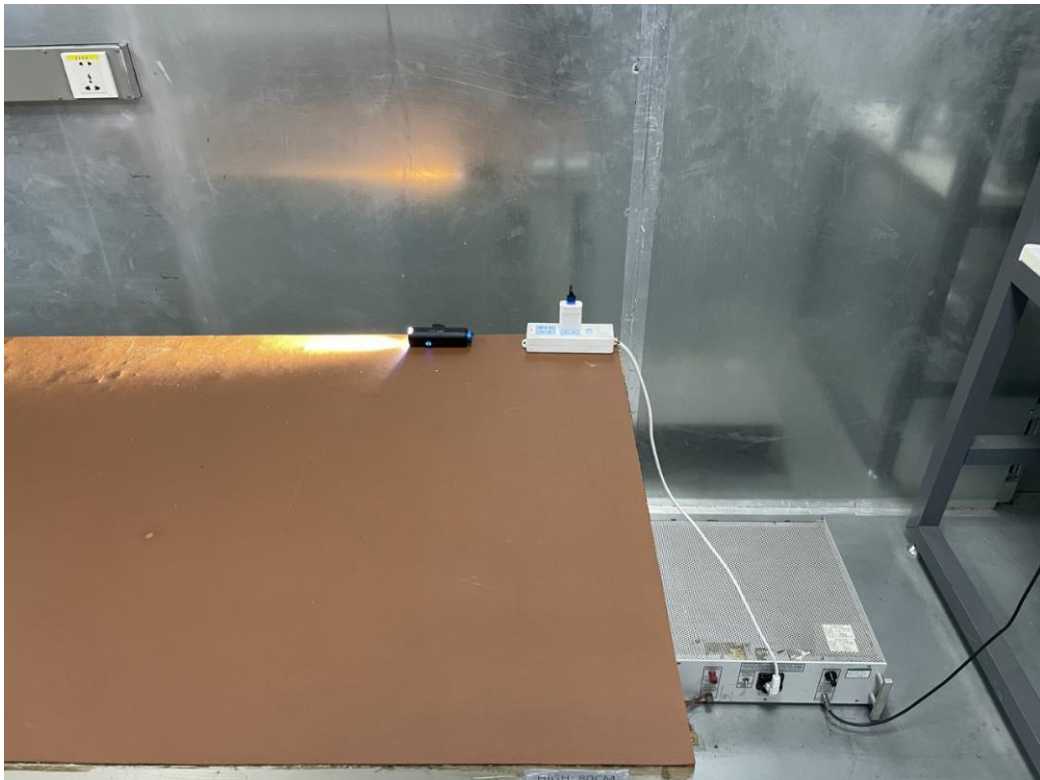
Detailed results are shown below



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Antenna Height cm	Table Degree degree	Comment
1		75.1822	17.14	9.98	27.12	40.00	-12.88	QP		
2	*	83.2663	25.49	9.84	35.33	40.00	-4.67	QP		
3		96.6477	20.49	12.57	33.06	43.50	-10.44	QP		
4		106.0126	19.36	13.01	32.37	43.50	-11.13	QP		
5		163.7549	27.03	10.09	37.12	43.50	-6.38	QP		
6		245.5201	21.62	12.64	34.26	46.00	-11.74	QP		

5. PHOTOGRAPH

5.1. Photo of Power Line Conducted Measurement



5.2. Photo of Radiated Measurement



6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

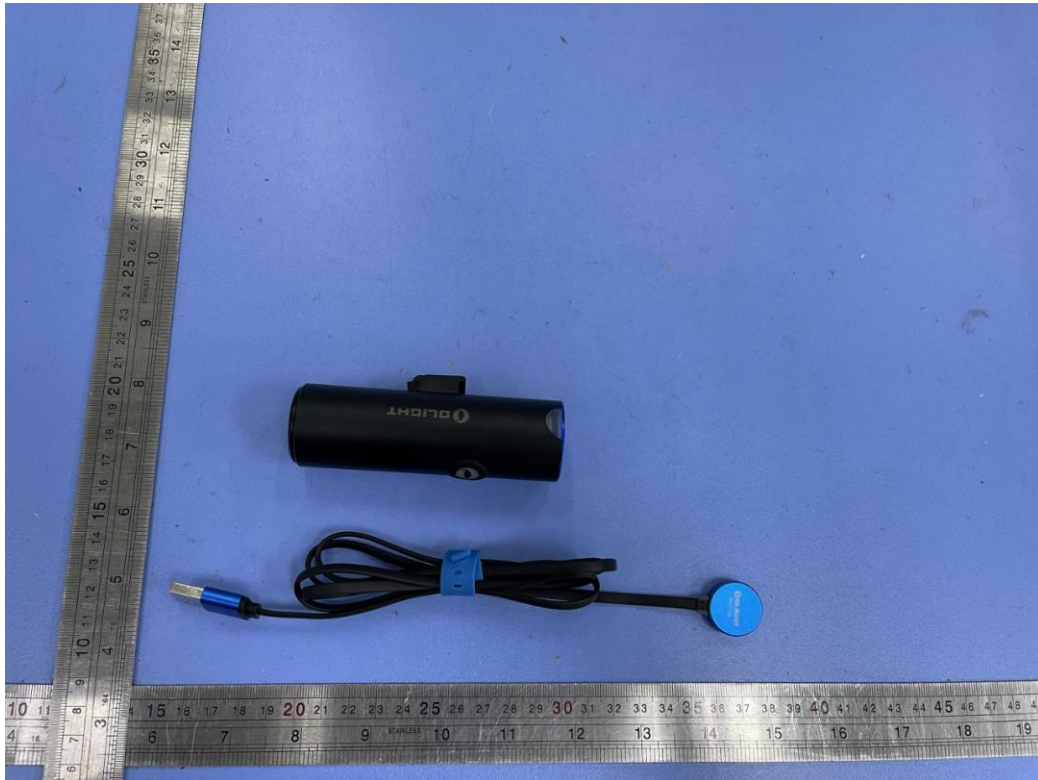


Figure. 1 (BFL1800)



Figure. 2



Figure. 3



Figure. 4





Figure. 5



Figure. 6



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