ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT

OF

LED Desk Lamp With Wireless Charger

Model No.: TZ-021W, TS-7009

FCC ID: 2BDGHTS-7009

Report No.: E04A23100622F00102

Issue Date: November 28, 2023

Prepared for

LAMPLUX CO. LIMITED

The 3rd floor,Yitai Building,Lianfeng industrial zone,39 Liguang Road, lishui, Nanhai district, Foshan City, Guangdong province, P.R.C.

Prepared by

Guangdong Global Testing Technology Co., Ltd.

Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People’s Republic of China, 523808

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VERIFICATION OF COMPLIANCE

Applicant:	LAMPLUX CO. LIMITED The 3rd floor,Yitai Building,Lianfeng industrial zone,39 Liguang Road, lishui, Nanhai district, Foshan City, Guangdong province, P.R.C.
Manufacturer:	LAMPLUX CO. LIMITED The 3rd floor,Yitai Building,Lianfeng industrial zone,39 Liguang Road, lishui, Nanhai district, Foshan City, Guangdong province, P.R.C.
Factory:	LAMPLUX CO. LIMITED The 3rd floor,Yitai Building,Lianfeng industrial zone,39 Liguang Road, lishui, Nanhai district, Foshan City, Guangdong province, P.R.C.
Product Description:	LED Desk Lamp With Wireless Charger
Trade Mark:	TZ, AETEE
Model:	TZ-021W
Series Model:	TS-7009 (Note: All models have the same PCB layout, schematics and component, except the model number, So all the test were performed on the model TZ-021W)

We hereby certify that:

The above equipment was tested by Guangdong Global Testing Technology Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10-2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.209(2022).

Date of Test : November 1, 2023 to November 3, 2023

Prepared by : Joson Peng / Project Engineer

Reviewer & Authorized Signer : Shawn Wen / General Manager

Guangdong Global Testing Technology Co., Ltd. GTG CERTIFICATE

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	E04A23100622F00102

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1 General Information

1.1 Product Description

Characteristics	Description
Product Name	LED Desk Lamp With Wireless Charger
Test Model Number	TZ-021W
Operation Mode	Wireless Charging
Input Rating	100-240Vac 50/60Hz
Test Power Supply	120Vac 60Hz
Operating Frequency	110-205KHz
Wireless Charging Power	10W
Modulation Technique	FSK
Antenna Type	Coil Antenna
Sample receipt date	October 31, 2023

1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: 2BDGHTS-7009 filing to comply with the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description

Name of Firm	:	Guangdong Global Testing Technology Co., Ltd.
Site Location	:	Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People’s Republic of China, 523808

2 System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the fixed in a particular direction according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

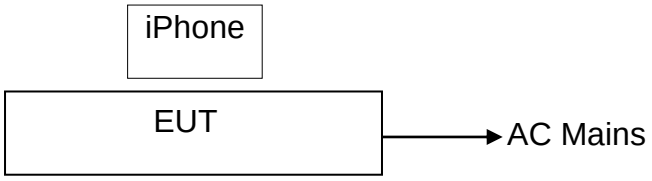


Table 2-1 Equipment Used in Tested System

Item	Equipment	Trade Mark	Model No.	FCC ID	Note
1.	LED Desk Lamp With Wireless Charger	TZ, AETEE	TZ-021W	2BDGHTS-7009	***EUT***
2.	Mobile Phone	SAMSUNG	Galaxy S20	N/A	***Support Equipment***
3.	Mobile Phone	Apple	iPhone 12	N/A	***Support Equipment***

Note:

(1) Unless otherwise denoted as EUT in『Remark』column, device(s) used in tested system is a support equipment.

3 Summary of Test Results

FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	Compliant
§15.209	Radiated Emission	Compliant
§2.1049	20dB Bandwidth	Compliant
§15.203	Antenna Requirement	Compliant

4 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Temperature	±0.5℃
Humidity	±3%

Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%

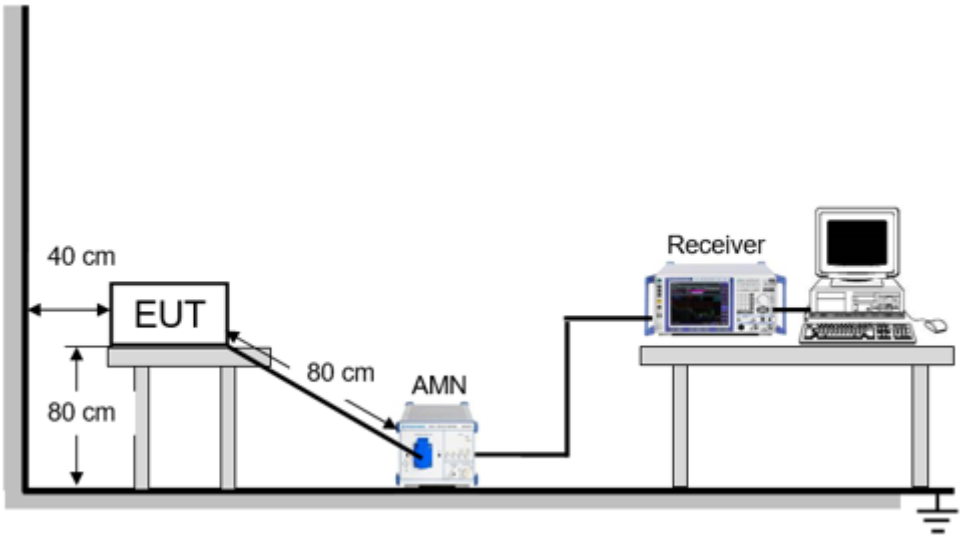
5 Conducted Emissions Test

5.1 Measurement Procedure

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.2 Test SET-UP (Block Diagram of Configuration)



5.3 Measurement Equipment Used

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Shielded Room	CHENG YU	8m*5m*4m	N/A	2022/10/29	2025/10/28
EMI Test Receiver	Rohde & Schwarz	ESR3	102647	2022/12/03	2023/12/02
LISN/AMN	Rohde & Schwarz	ENV216	102843	2023/09/18	2024/09/17
NNLK 8129 RC	Schwarzbeck	NNLK 8129 RC	5046	2023/03/30	2024/03/29
Test Software	Farad	EZ-EMC (Ver. EMC-con-3A1 1+)	N/A	N/A	N/A

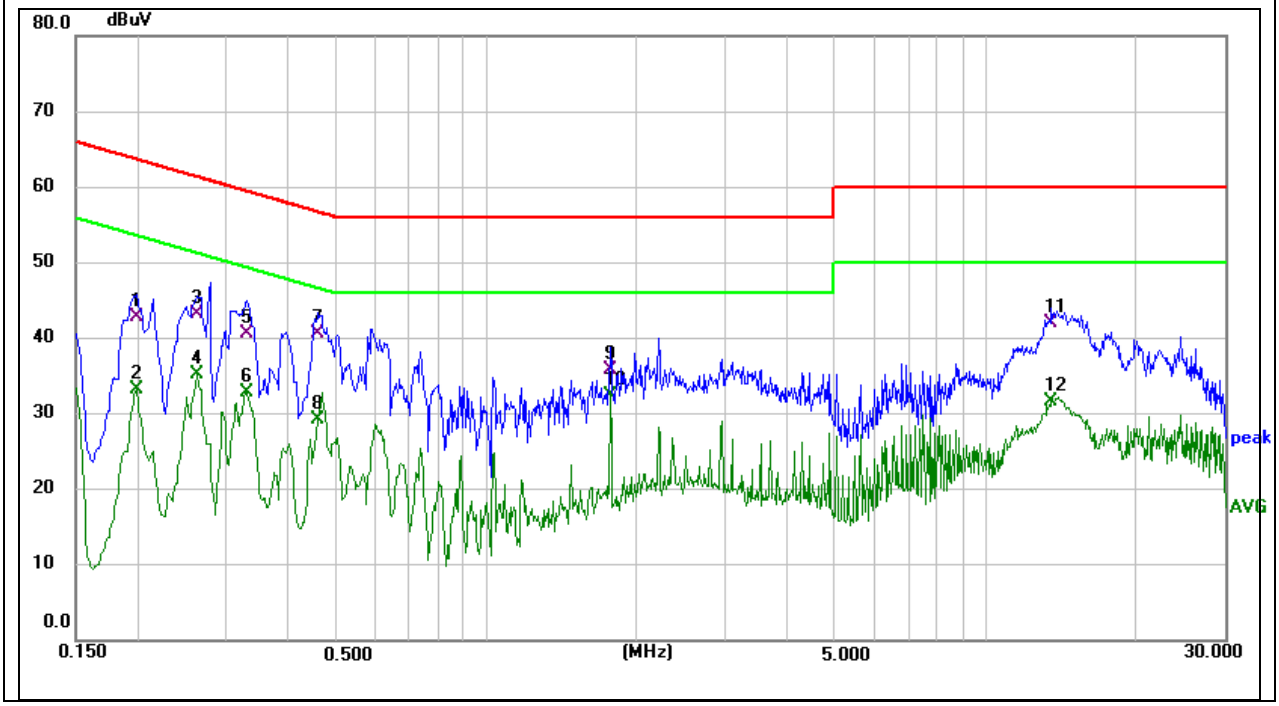
5.4 Conducted Emission Limit

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

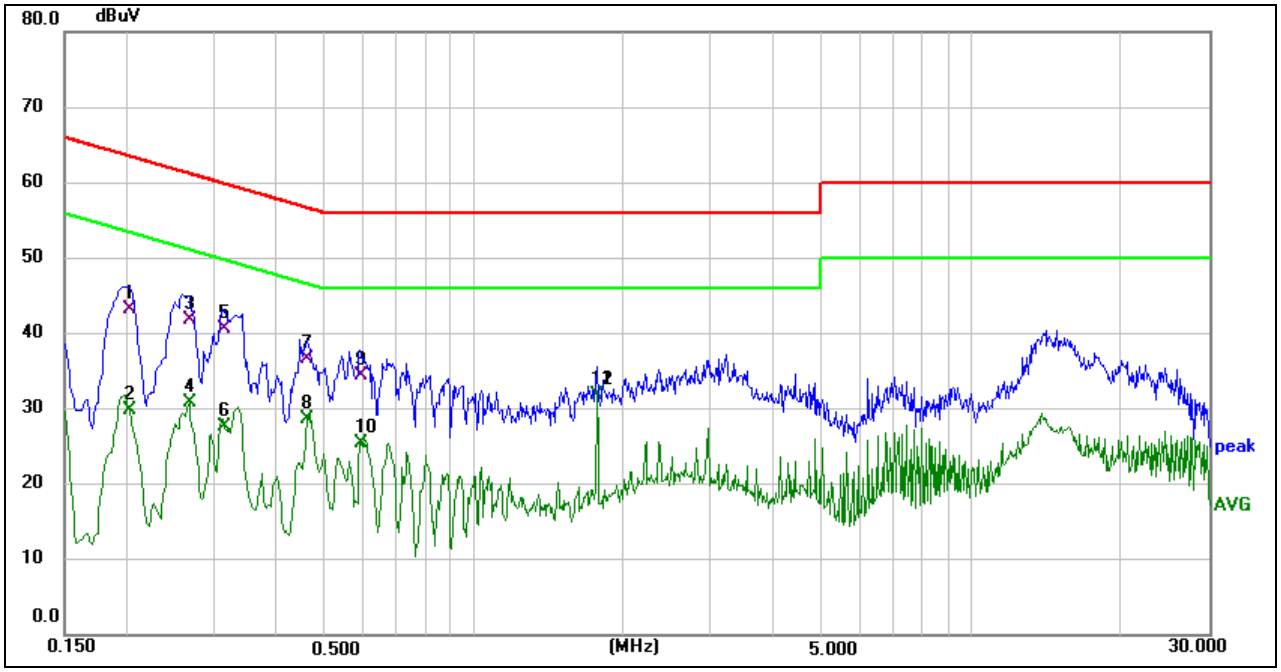
5.5 Measurement Result

Temperature	23℃	Relative Humidity	52%
Atmosphere Pressure	101kPa		



Limit:	**FCC Part 15 C Conduction(QP)**	**Phase:**	**L1**
EUT:	**LED Desk Lamp With Wireless Charger**	**Test Time:**	**2023/11/01**
M/N.:	**TZ-021W**	**Power Rating:**	**AC120V/60Hz**
Mode:	**Wireless Charging 10W**	**Test Engineer:**	**Fink**

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.1980	32.79	10.01	42.80	63.69	-20.89	QP	
2	0.1980	23.23	10.01	33.24	53.69	-20.45	AVG	
3	0.2620	32.97	10.13	43.10	61.37	-18.27	QP	
4	0.2620	25.17	10.13	35.30	51.37	-16.07	AVG	
5	0.3300	30.23	10.27	40.50	59.45	-18.95	QP	
6	0.3300	22.53	10.27	32.80	49.45	-16.65	AVG	
7	0.4580	30.06	10.54	40.60	56.73	-16.13	QP	
8	0.4580	18.64	10.54	29.18	46.73	-17.55	AVG	
9	1.7700	26.15	9.65	35.80	56.00	-20.20	QP	
10	1.7700	22.80	9.65	32.45	46.00	-13.55	AVG	
11	13.4860	31.86	10.04	41.90	60.00	-18.10	QP	
12	13.4860	21.59	10.04	31.63	50.00	-18.37	AVG	



Limit:	**FCC Part 15 C Conduction(QP)**	**Phase:**	**N**
EUT:	**LED Desk Lamp With Wireless Charger**	**Test Time:**	**2023/11/01**
M/N.:	**TZ-021W**	**Power Rating:**	**AC120V/60Hz**
Mode:	**Wireless Charging 10W**	**Test Engineer:**	**Fink**

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.2020	33.18	10.02	43.20	63.53	-20.33	QP	
2	0.2020	19.86	10.02	29.88	53.53	-23.65	AVG	
3	0.2660	31.55	10.15	41.70	61.24	-19.54	QP	
4	0.2660	20.60	10.15	30.75	51.24	-20.49	AVG	
5	0.3140	30.27	10.23	40.50	59.86	-19.36	QP	
6	0.3140	17.31	10.23	27.54	49.86	-22.32	AVG	
7	0.4620	26.06	10.54	36.60	56.66	-20.06	QP	
8	0.4620	18.07	10.54	28.61	46.66	-18.05	AVG	
9	0.5916	23.70	10.80	34.50	56.00	-21.50	QP	
10	0.5916	14.62	10.80	25.42	46.00	-20.58	AVG	
11	1.7700	22.15	9.65	31.80	56.00	-24.20	QP	
12	1.7700	22.08	9.65	31.73	46.00	-14.27	AVG	

5.6 Conducted Measurement Photo

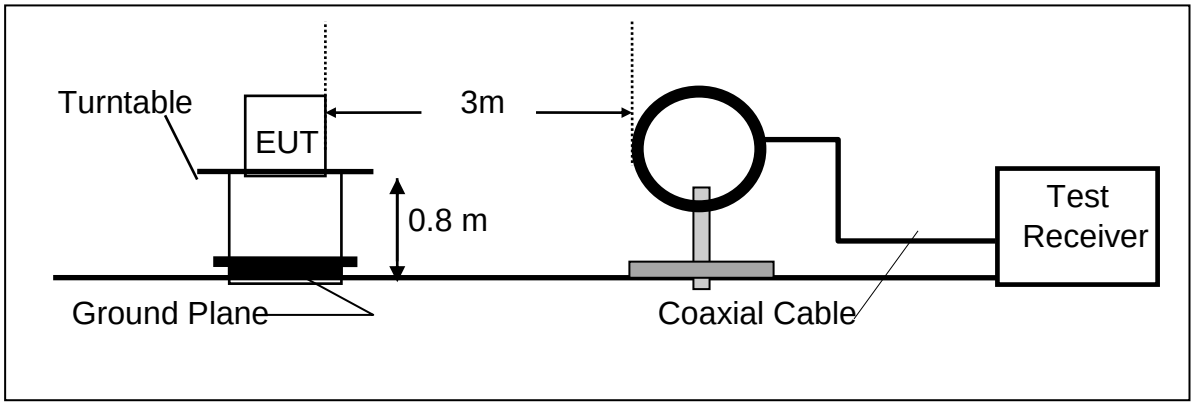
6 Radiated Emission Test

6.1 Measurement Procedure

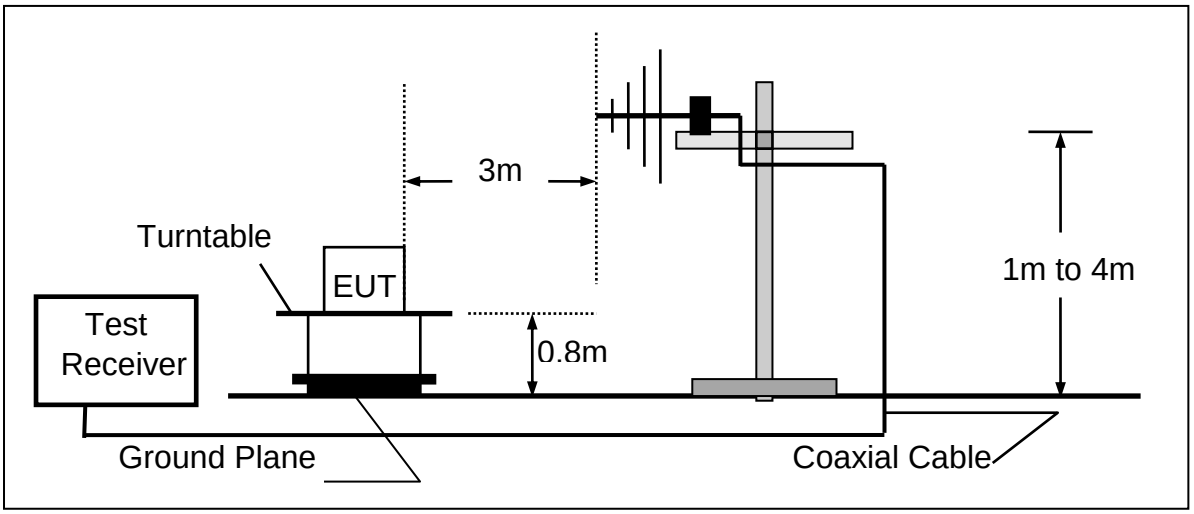
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

6.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



6.3 Measurement Equipment Used

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2146	2022/08/30	2025/08/29
EMI Test Receiver	Rohde & Schwarz	ESCI3	101409	2023/09/18	2024/09/17
Spectrum Analyzer	KEYSIGHT	N9020A	MY51283932	2023/09/18	2024/09/17
Pre-Amplifier	HzEMC	HPA-9K0130	HYPA21001	2023/09/18	2024/09/17
Biconilog Antenna	Schwarzbeck	VULB 9168	01315	2022/10/10	2025/10/09
Biconilog Antenna	ETS	3142E	00243646	2022/03/23	2025/03/22
Loop Antenna	ETS	6502	243668	2022/03/30	2025/03/29
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A	N/A

6.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

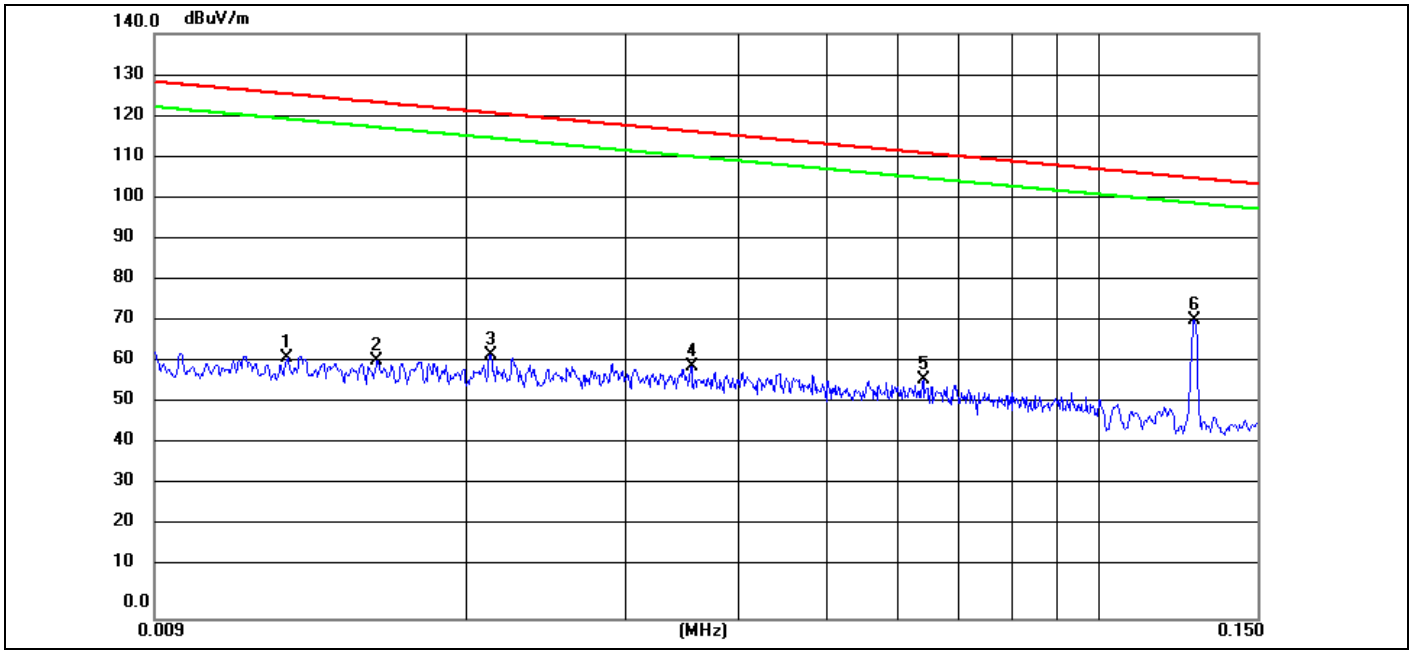
15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

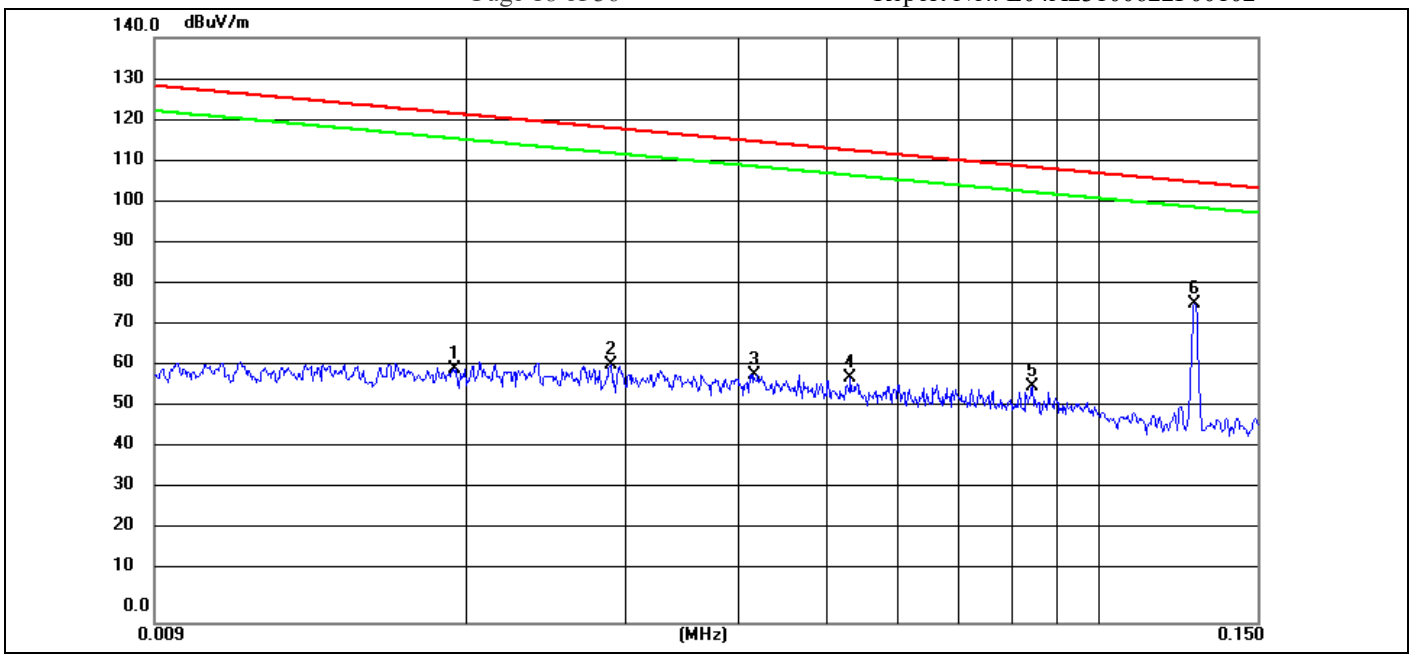
6.5 Measurement Result

The test data see follow the table：



Limit:	**FCC Part 15C 3m Radiation(QP)**	**Antenna:**	**Horizontal**
EUT:	**LED Desk Lamp With Wireless Charger**	**Temperature:**	**24℃**
M/N.:	**TZ-021W**	**Humidity:**	**52%RH**
Mode:	**Wireless Charging 10W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Fink**	**Test Time:**	**2023/11/03**

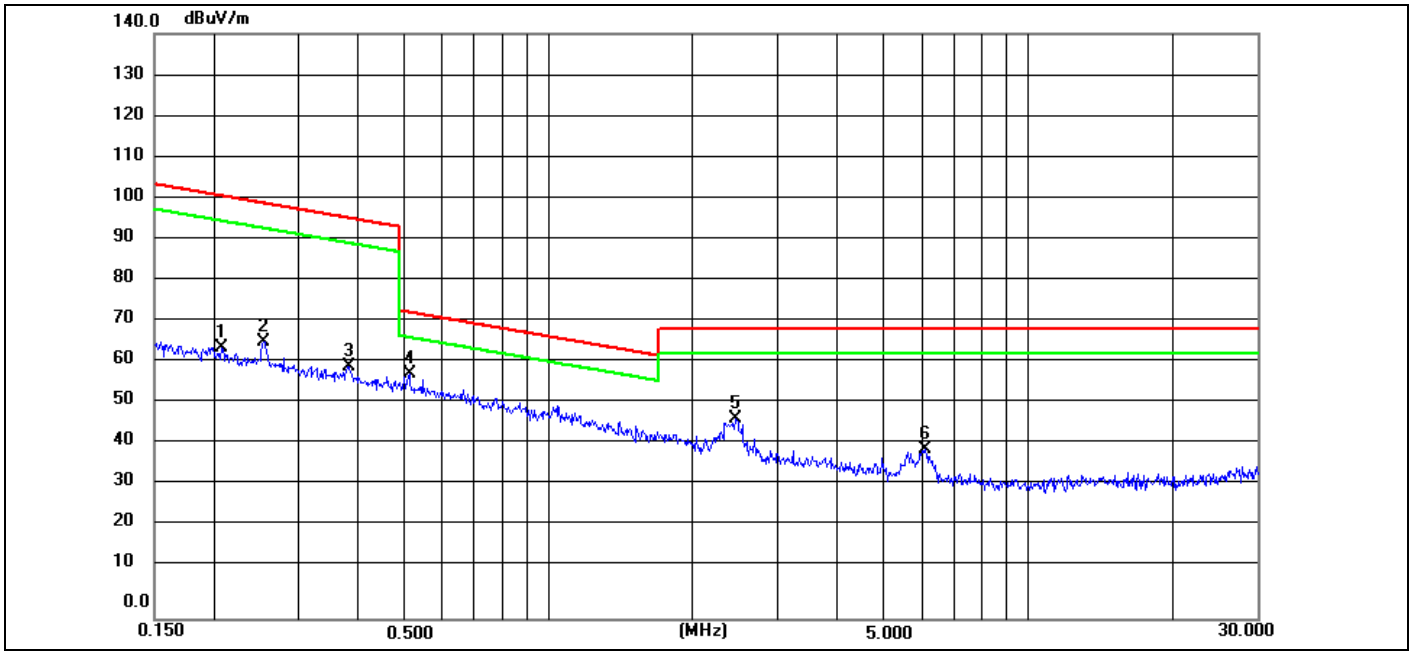
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	0.0126	41.98	20.40	62.38	125.58	-63.20	peak			
2	0.0159	41.48	20.35	61.83	123.56	-61.73	peak			
3	0.0212	42.85	20.27	63.12	121.06	-57.94	peak			
4	0.0354	40.41	20.09	60.50	116.61	-56.11	peak			
5	0.0640	37.79	19.73	57.52	111.47	-53.95	peak			
6 *	0.1278	51.89	19.63	71.52	105.47	-33.95	peak			



Limit:	**FCC Part 15C 3m Radiation(QP)**	**Antenna:**	**Vertical**
EUT:	**LED Desk Lamp With Wireless Charger**	**Temperature:**	**24°C**
M/N.:	**TZ-021W**	**Humidity:**	**52%RH**
Mode:	**Wireless Charging 10W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Fink**	**Test Time:**	**2023/11/03**

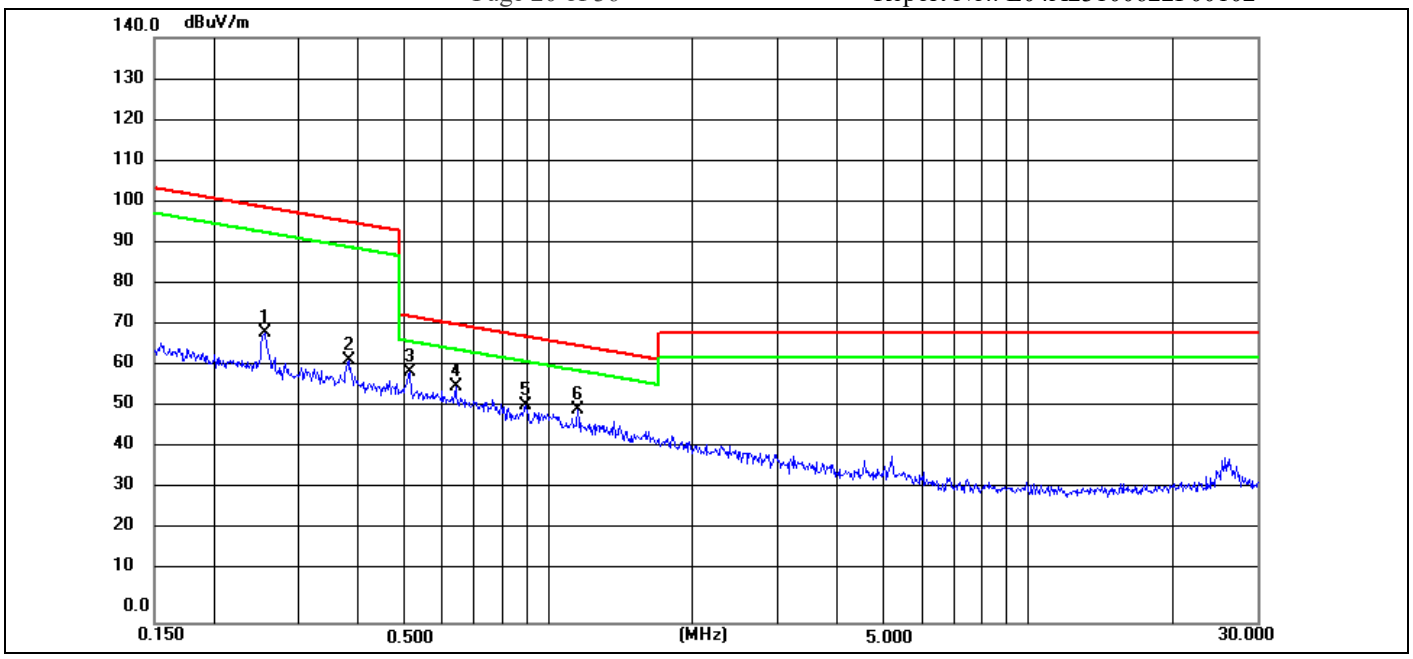
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	0.0193	40.52	20.30	60.82	121.88	-61.06	peak			
2	0.0288	41.79	20.17	61.96	118.40	-56.44	peak			
3	0.0415	39.40	20.02	59.42	115.23	-55.81	peak			
4	0.0531	38.75	19.89	58.64	113.09	-54.45	peak			
5	0.0844	36.97	19.71	56.68	109.07	-52.39	peak			
6 *	0.1278	56.72	19.63	76.35	105.47	-29.12	peak			

Note: (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) The average measurement was not performed when the peak measured data under the limit of average detection.
(4) EUT lying on the table position is the worst case result in the report.



Limit:	**FCC Part 15C 3m Radiation(QP)**	**Antenna:**	**Horizontal**
EUT:	**LED Desk Lamp With Wireless Charger**	**Temperature:**	**24℃**
M/N.:	**TZ-021W**	**Humidity:**	**52%RH**
Mode:	**Wireless Charging 10W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Fink**	**Test Time:**	**2023/11/03**

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	0.2072	45.34	19.63	64.97	101.27	-36.30	peak			
2	0.2535	46.89	19.63	66.52	99.52	-33.00	peak			
3	0.3811	41.01	19.60	60.61	95.98	-35.37	peak			
4 *	0.5101	39.30	19.59	58.89	73.45	-14.56	peak			
5	2.4476	28.34	19.58	47.92	69.50	-21.58	peak			
6	6.0885	21.06	19.71	40.77	69.50	-28.73	peak			

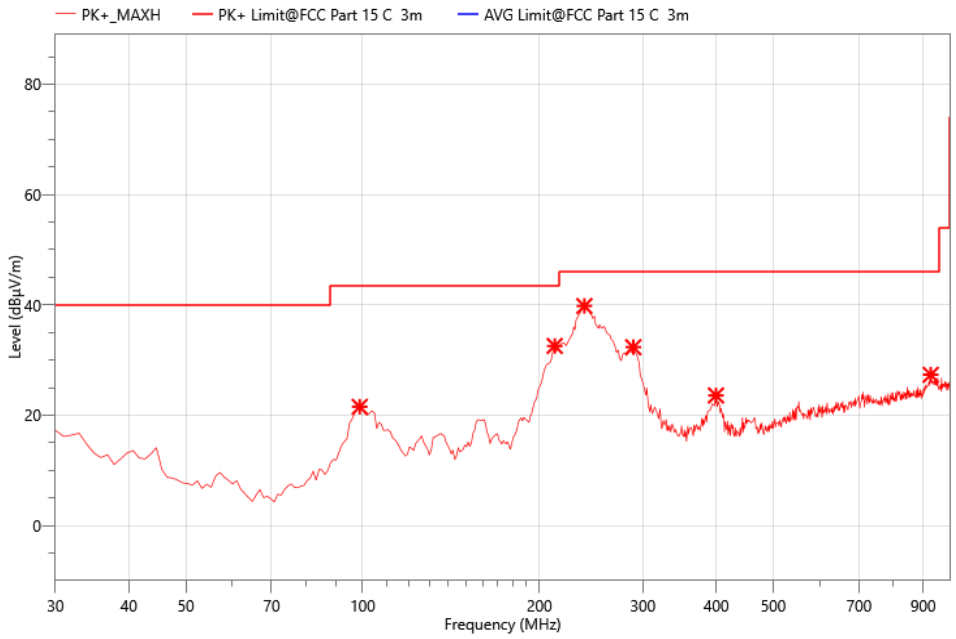


Limit:	**FCC Part 15C 3m Radiation(QP)**	**Antenna:**	**Vertical**
EUT:	**LED Desk Lamp With Wireless Charger**	**Temperature:**	**24℃**
M/N.:	**TZ-021W**	**Humidity:**	**52%RH**
Mode:	**Wireless Charging 10W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Fink**	**Test Time:**	**2023/11/03**

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	0.2548	49.92	19.63	69.55	99.48	-29.93	peak			
2	0.3811	43.18	19.60	62.78	95.98	-33.20	peak			
3 *	0.5101	40.41	19.59	60.00	73.45	-13.45	peak			
4	0.6372	37.05	19.55	56.60	71.52	-14.92	peak			
5	0.8897	32.66	19.47	52.13	68.63	-16.50	peak			
6	1.1473	31.67	19.46	51.13	66.43	-15.30	peak			

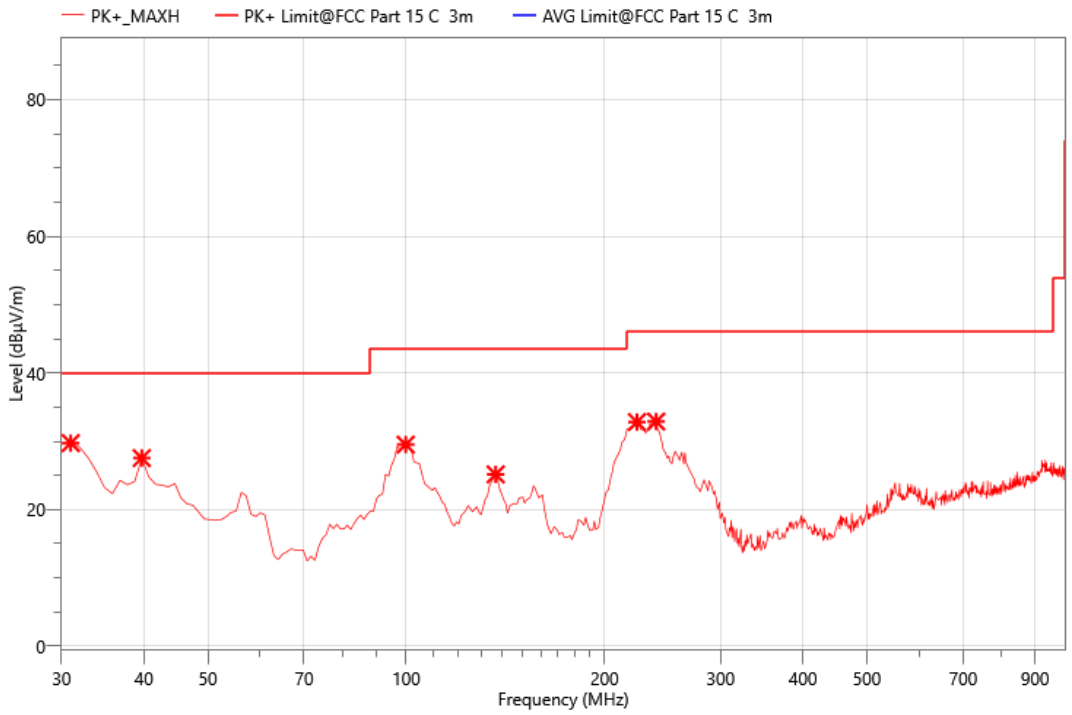
Note: (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) The average measurement was not performed when the peak measured data under the limit of average detection.
(4) EUT lying on the table position is the worst case result in the report.

The test data see follow the table：



Limit:	**FCC Part 15C 3m Radiation(QP)**	**Antenna:**	**Horizontal**
EUT:	**LED Desk Lamp With Wireless Charger**	**Temperature:**	**24℃**
M/N.:	**TZ-021W**	**Humidity:**	**52%RH**
Mode:	**Wireless Charging 10W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Fink**	**Test Time:**	**2023/11/03**

No.	Freq. (MHz)	Reading (dBµV)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Det.	Pol.	Corr. (dB)
1	98.870	45.62	21.53	43.50	21.97	PK+	H	-24.09
2	212.360	53.72	32.56	43.50	10.94	PK+	H	-21.16
3	238.550	59.52	39.80	46.00	6.20	PK+	H	-19.72
4	288.990	51.78	32.33	46.00	13.67	PK+	H	-19.45
5	399.570	37.56	23.59	46.00	22.41	PK+	H	-13.97
6	927.250	30.46	27.34	46.00	18.66	PK+	H	-3.12



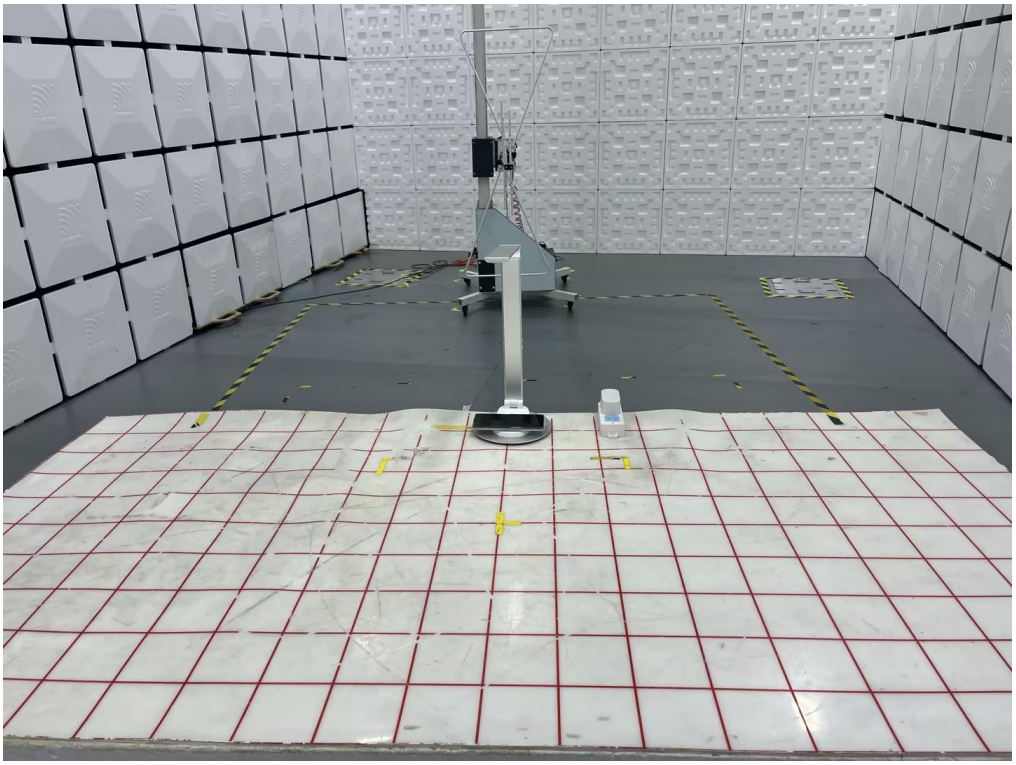
Limit:	**FCC Part 15C 3m Radiation(QP)**	**Antenna:**	**Vertical**
EUT:	**LED Desk Lamp With Wireless Charger**	**Temperature:**	**24℃**
M/N.:	**TZ-021W**	**Humidity:**	**52%RH**
Mode:	**Wireless Charging 10W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Fink**	**Test Time:**	**2023/11/03**

No.	Freq. (MHz)	Reading (dBµV)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Det.	Pol.	Corr. (dB)
1	30.970	44.53	29.73	40.00	10.27	PK+	V	-14.8
2	39.700	47.40	27.54	40.00	12.46	PK+	V	-19.86
3	99.840	53.48	29.51	43.50	13.99	PK+	V	-23.97
4	136.700	49.01	25.15	43.50	18.35	PK+	V	-23.86
5	224.000	53.42	32.82	46.00	13.18	PK+	V	-20.6
6	239.520	52.55	32.89	46.00	13.11	PK+	V	-19.66

6.6 Radiated Measurement Photos

9kHz-30MHz

30MHz-1GHz



7 20db Bandwidth

7.1 20dB Bandwidth Limit

None: for reporting purposed only.

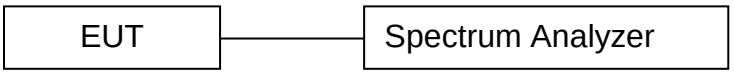
7.2 Test Instruments

Refer a test equipment and calibration data table in this test report.

7.3 Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 1KHz RBW and 3KHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

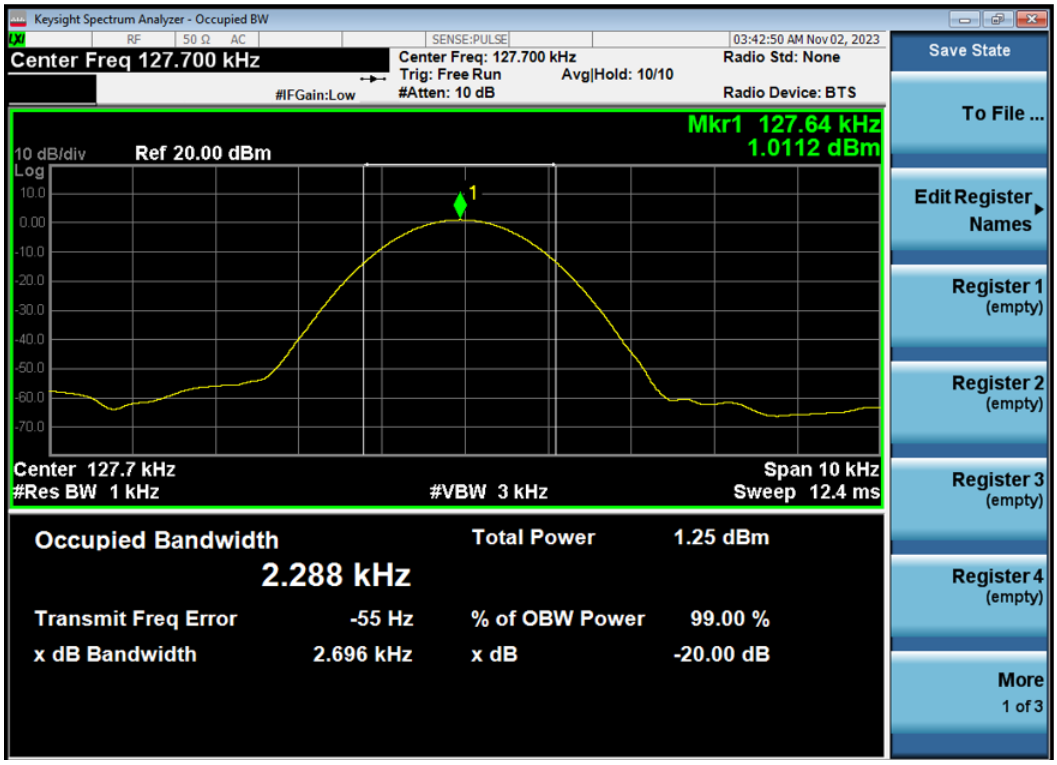
7.4 Test Setup



7.5 Test Result

Frequency (KHz)	20dB Bandwidth (KHz)	Results
127.7	2.696	PASS

20 dB Bandwidth Test plot



8 Antenna Application

8.1 Antenna requirement

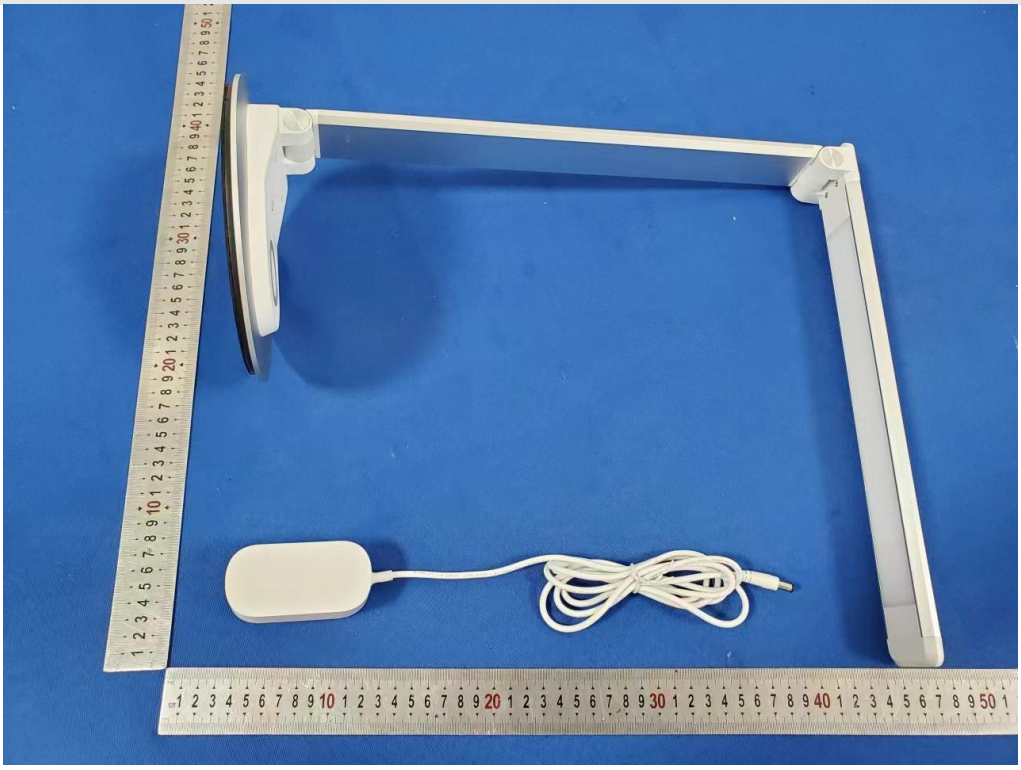
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

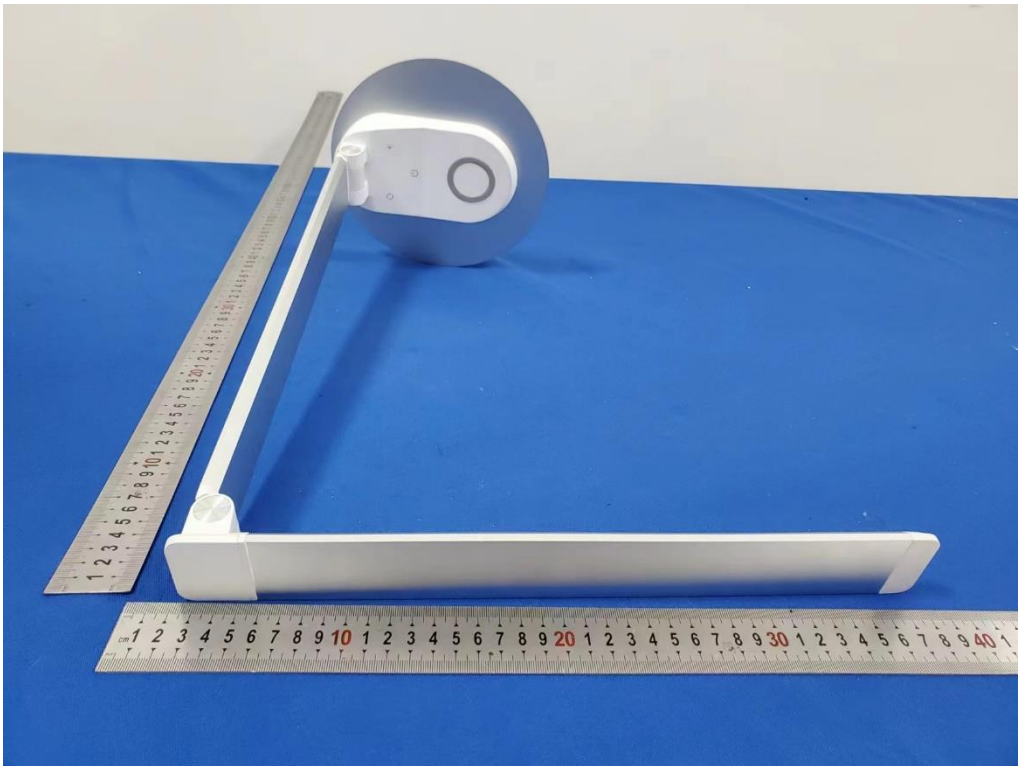
8.2 Result

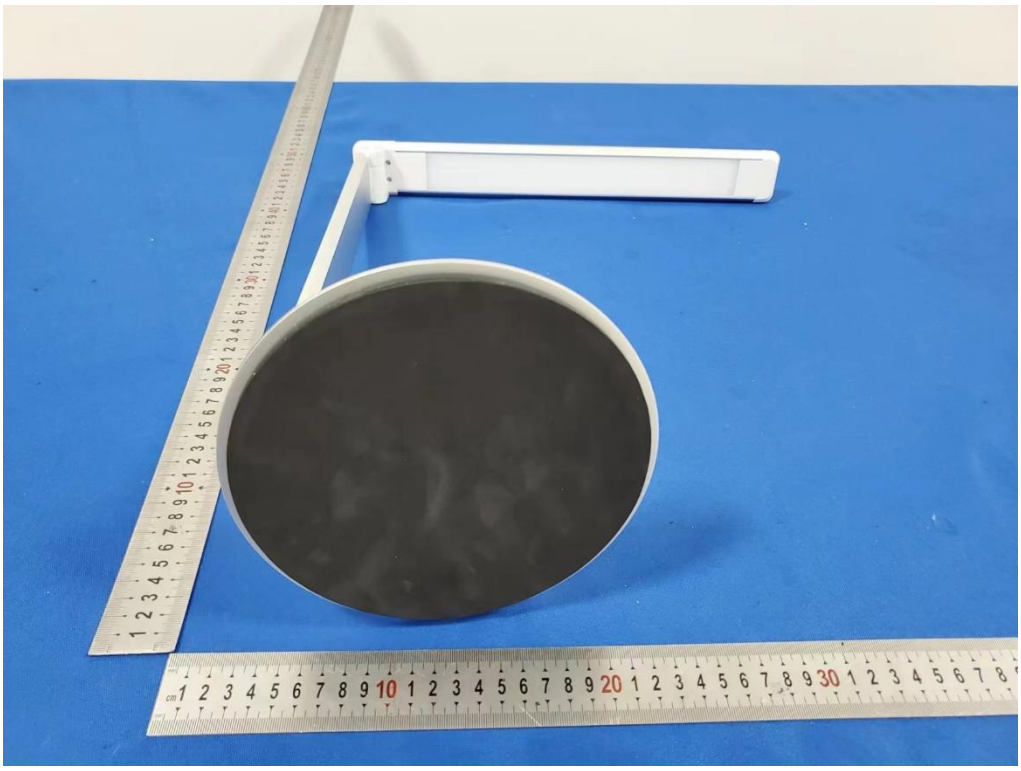
The EUT's antenna, permanent attached antenna, used an Induction coil and integrated on PCB, The antenna's gain meets the requirement.

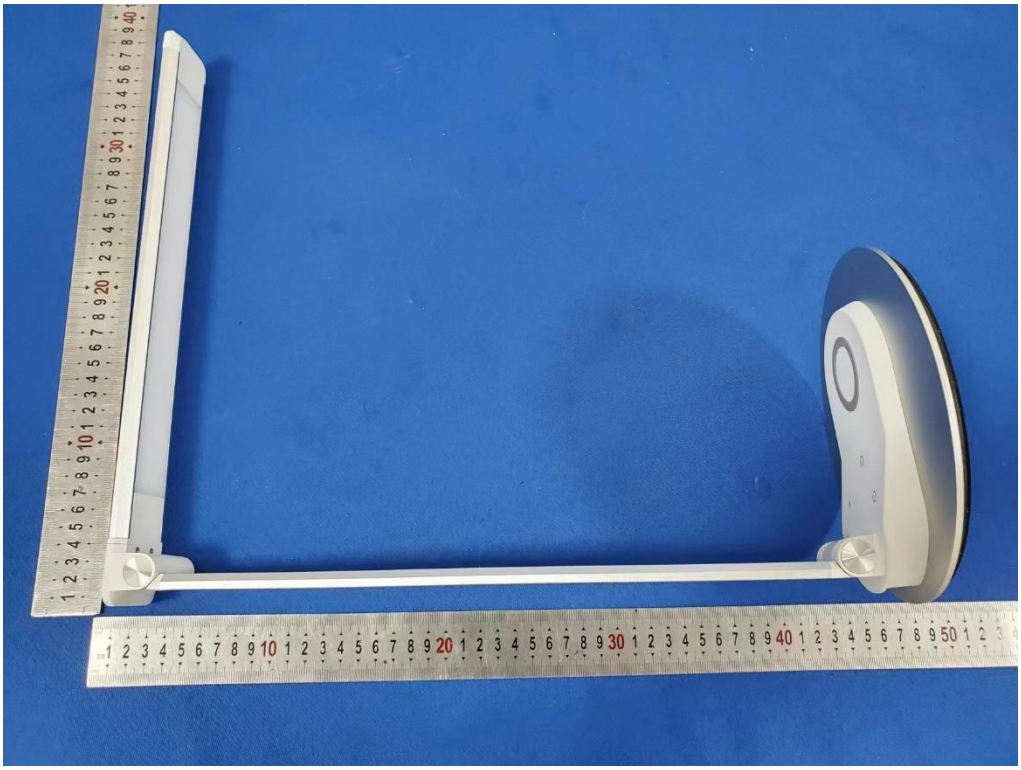
9 APPENDIX(Photos of EUT)

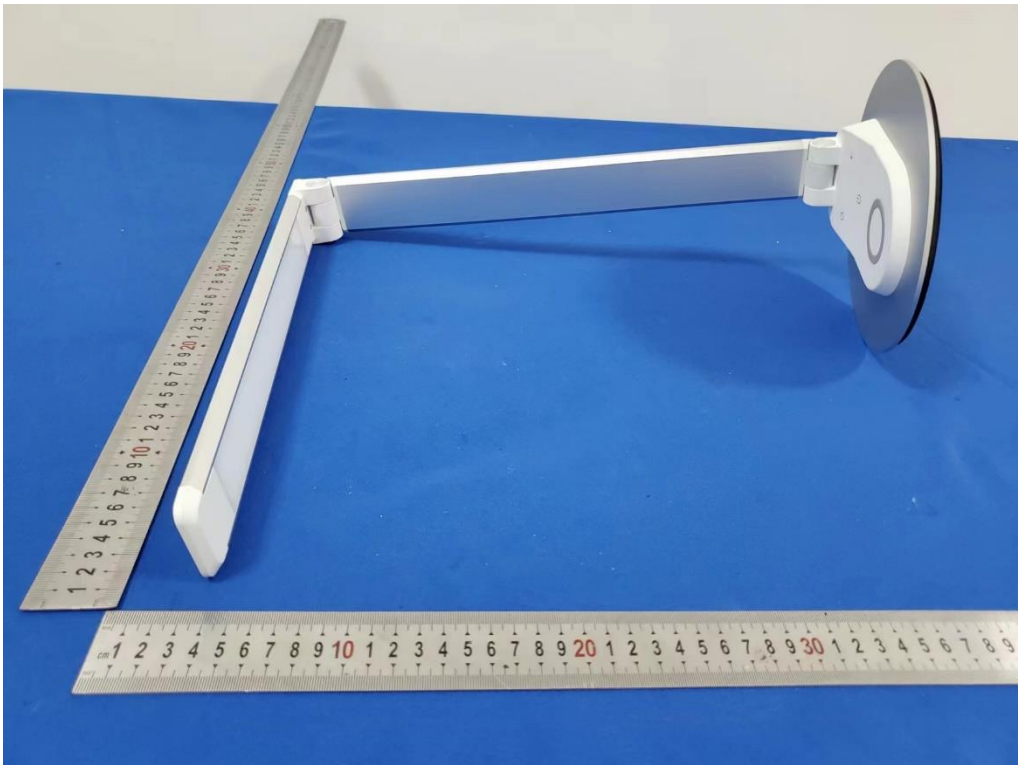
External

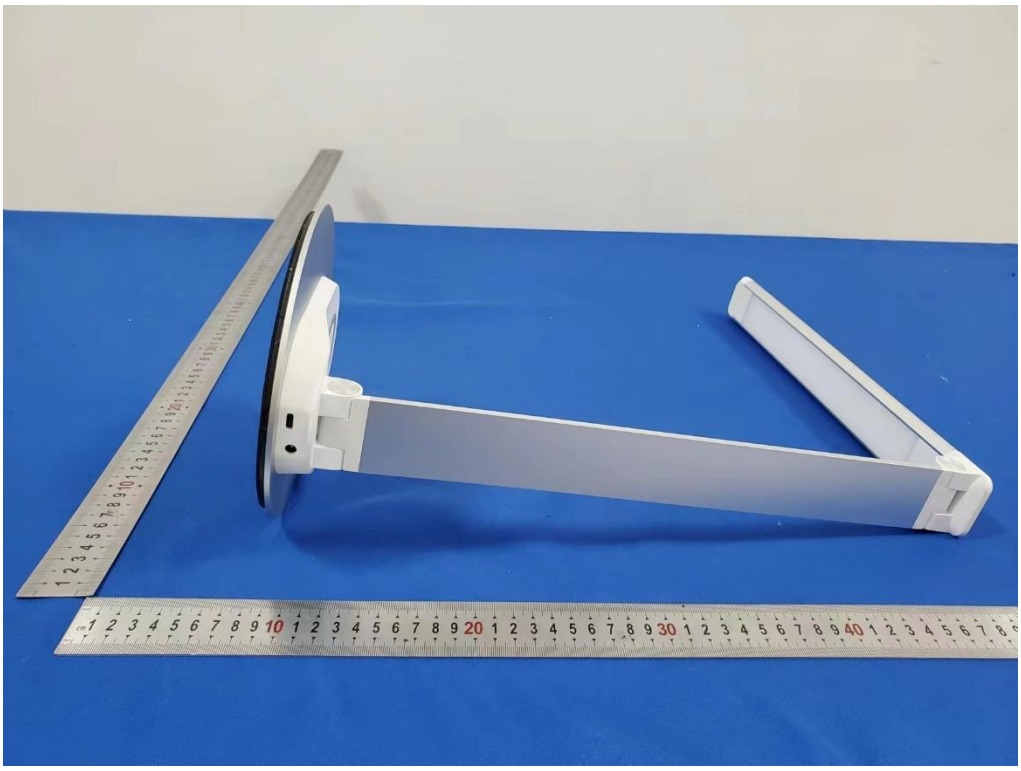






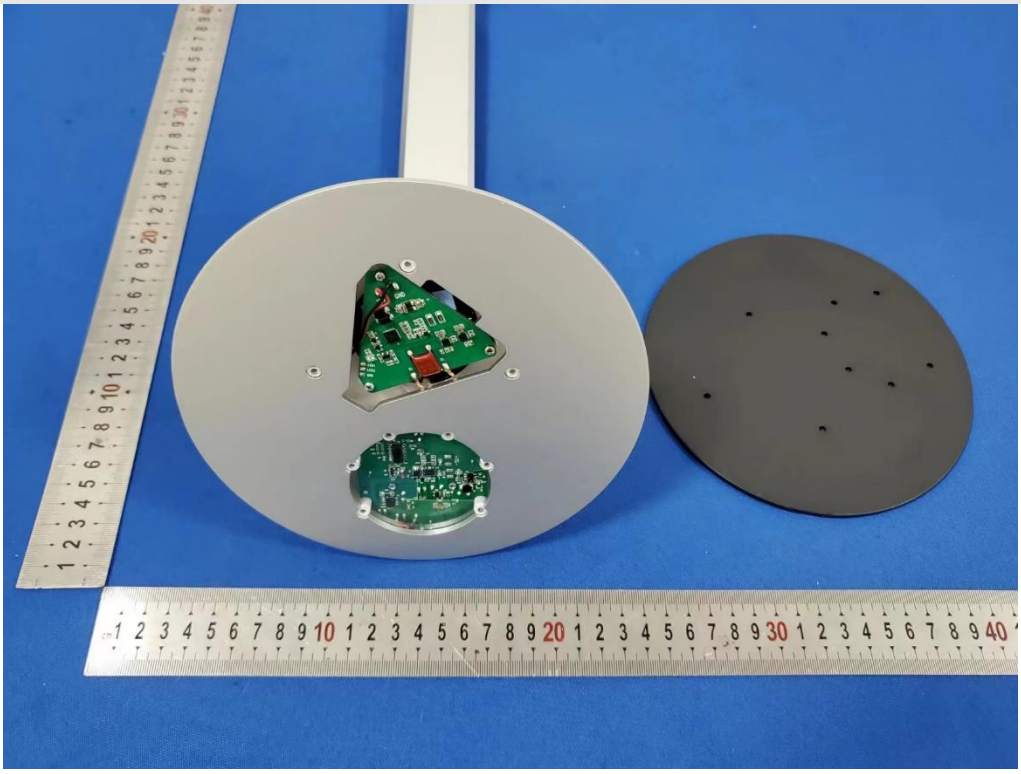


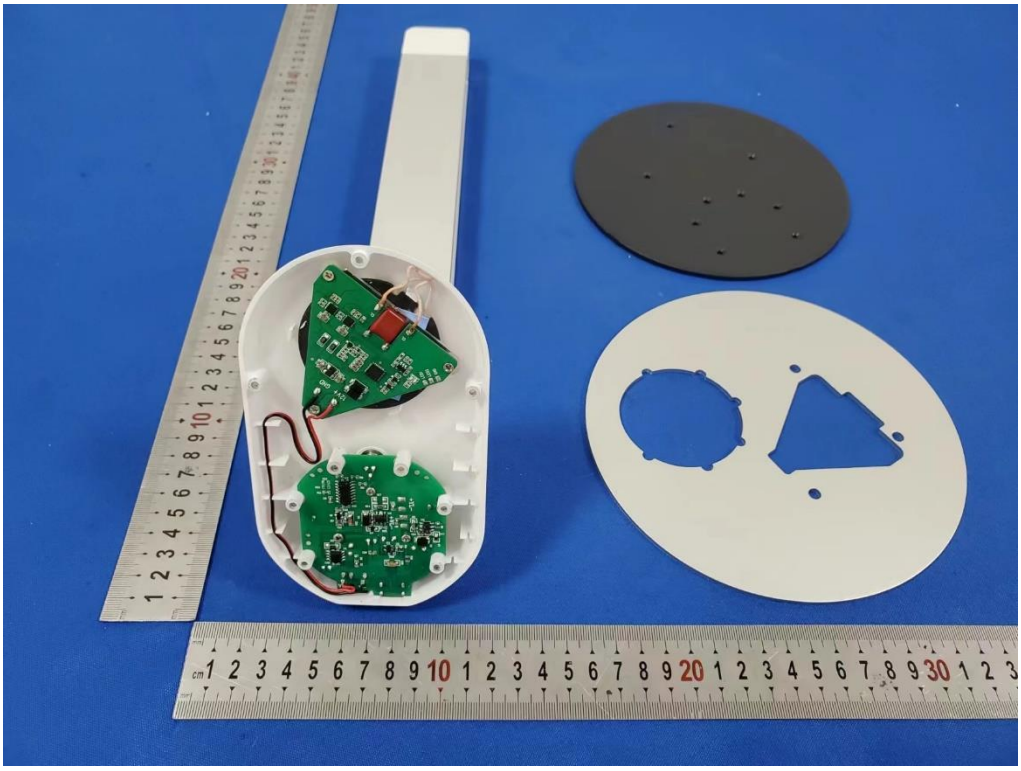


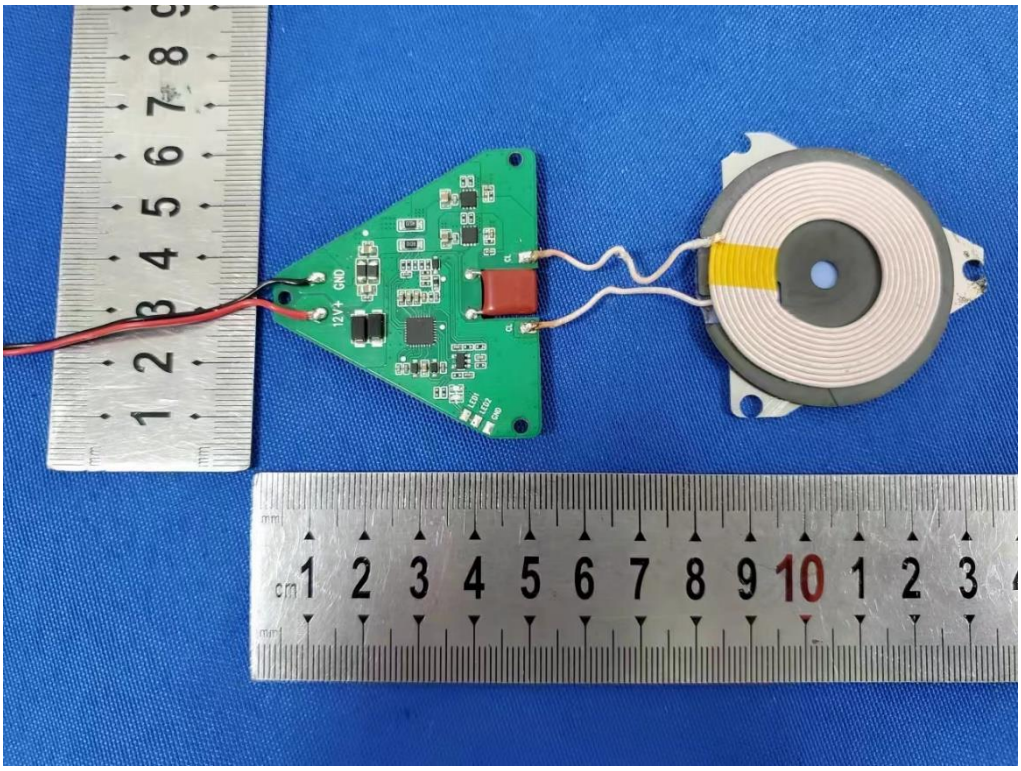


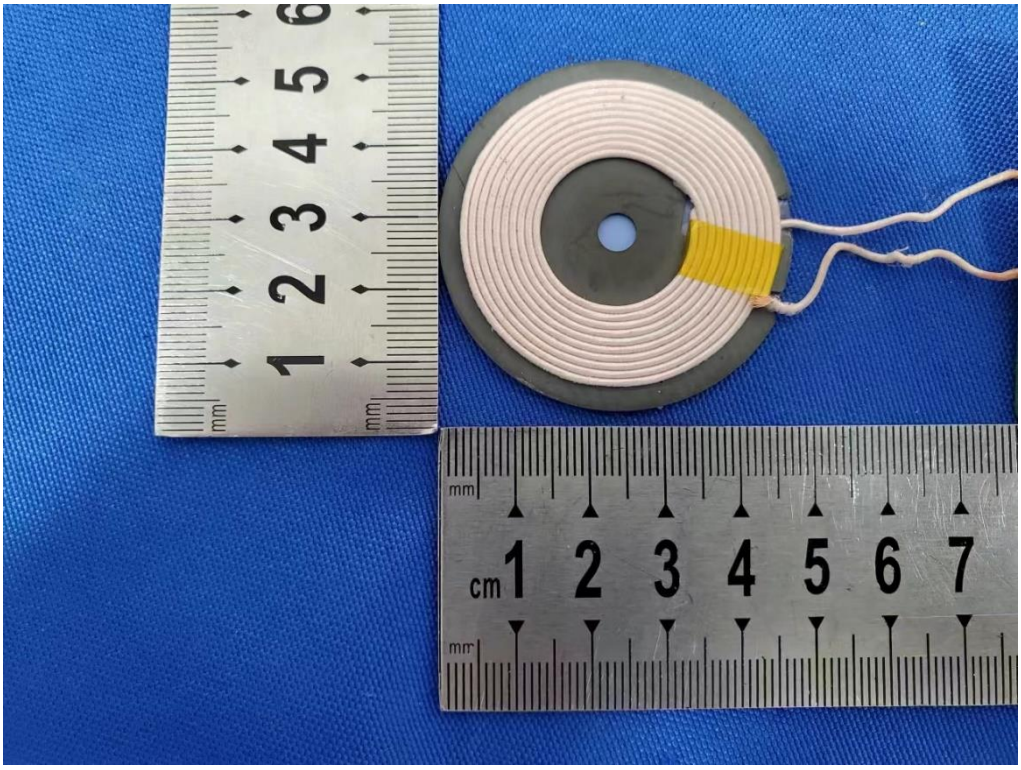
CAUTION
ATTENTION

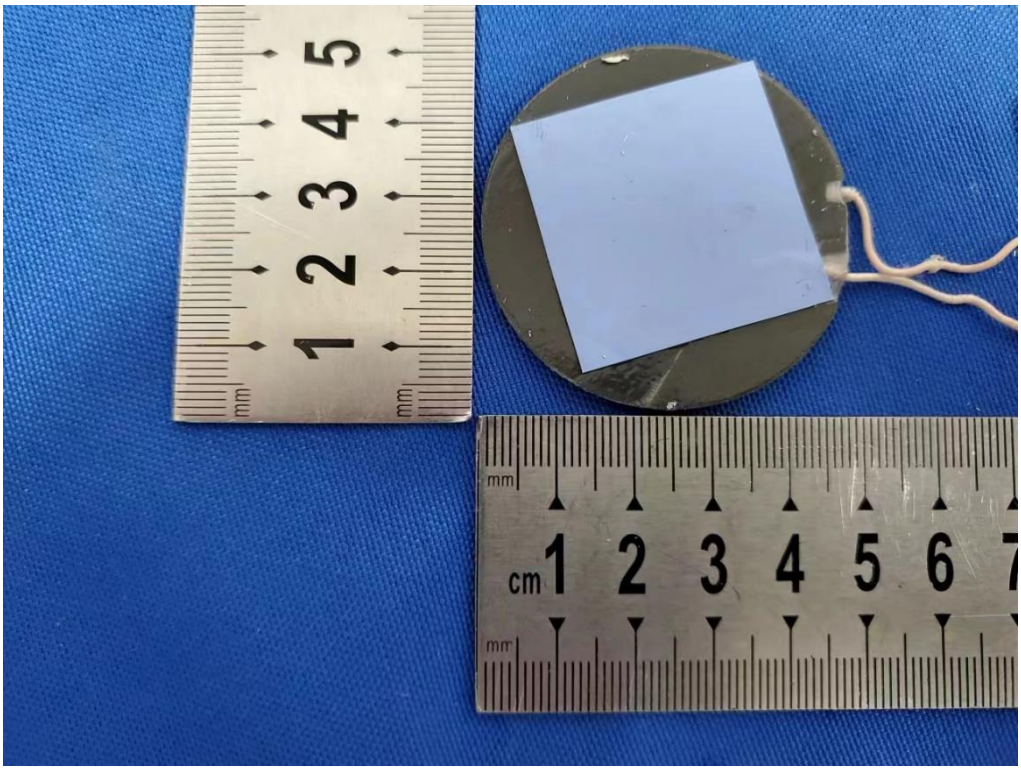
Internal

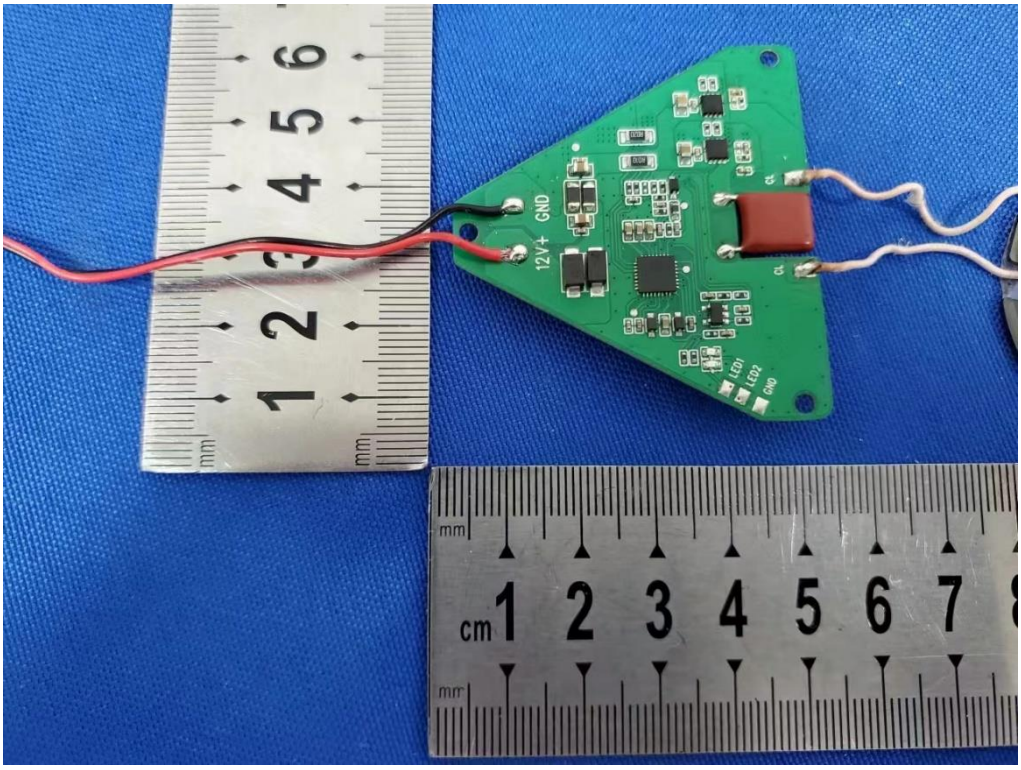


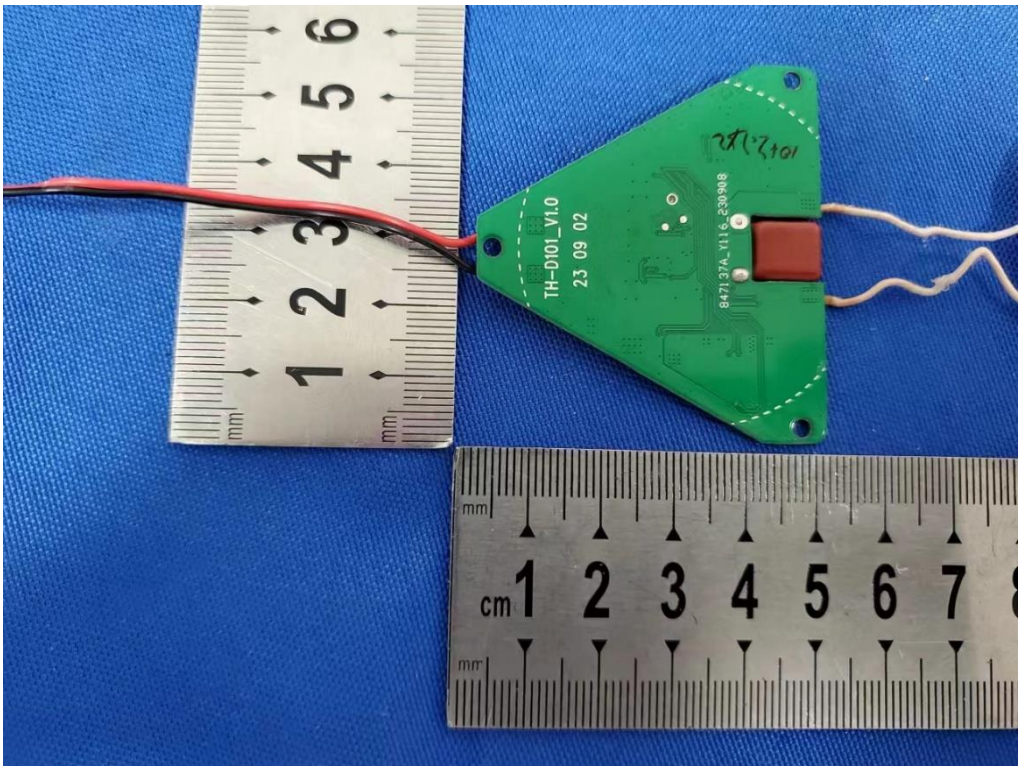


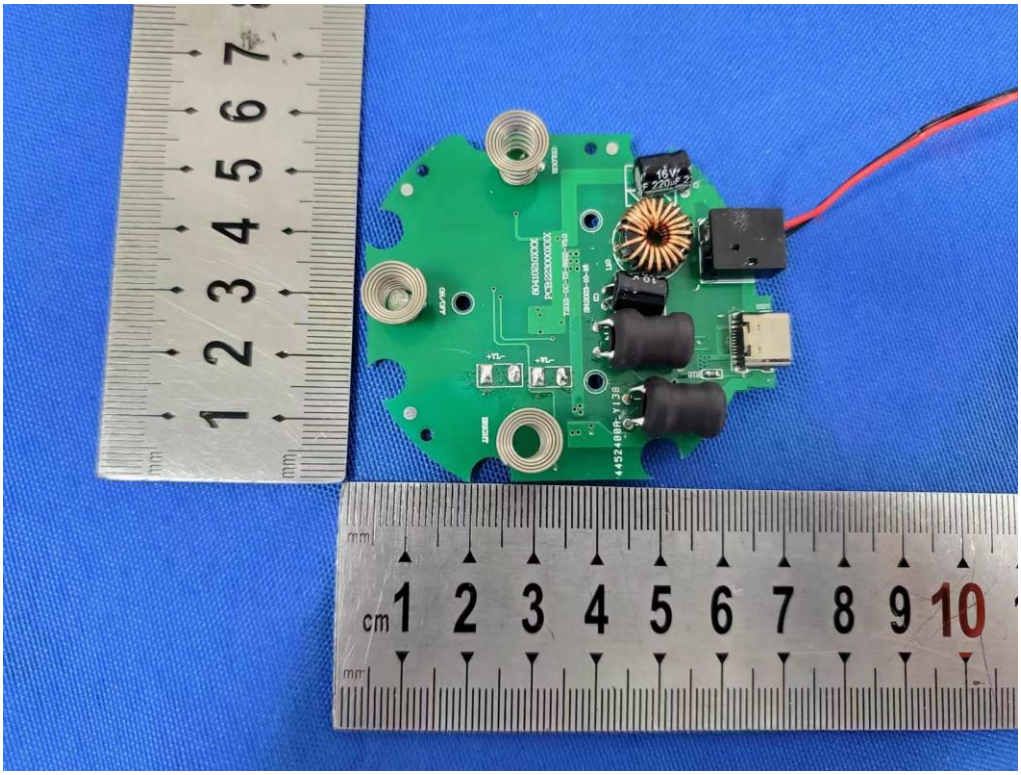

12V+
GND

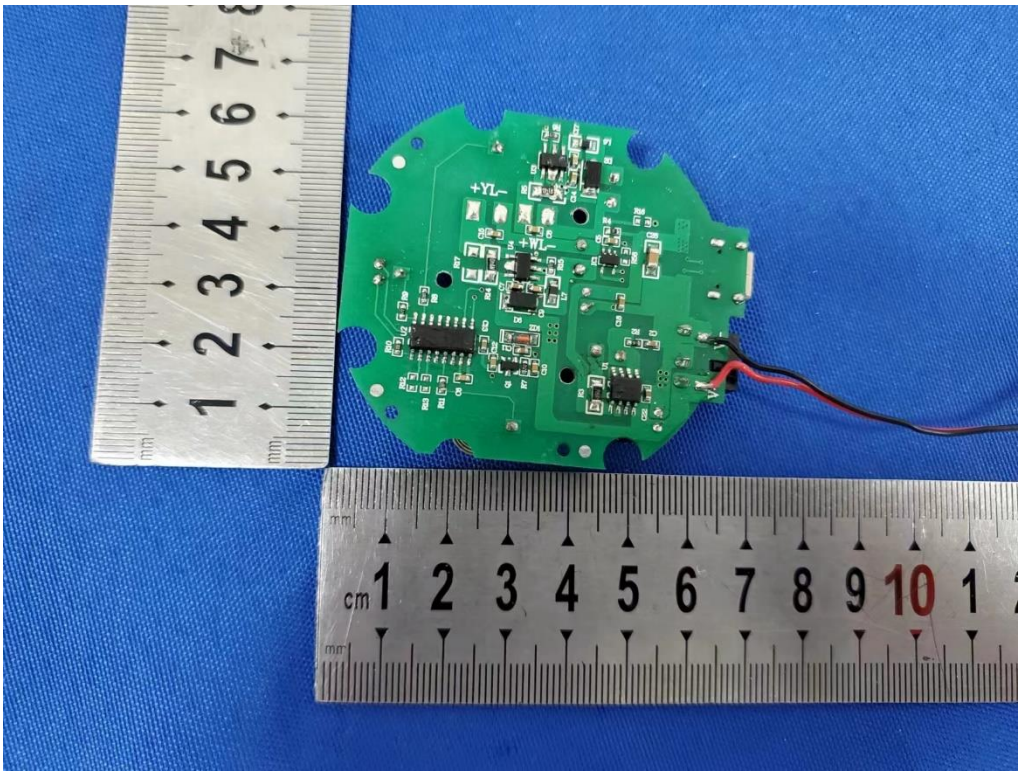


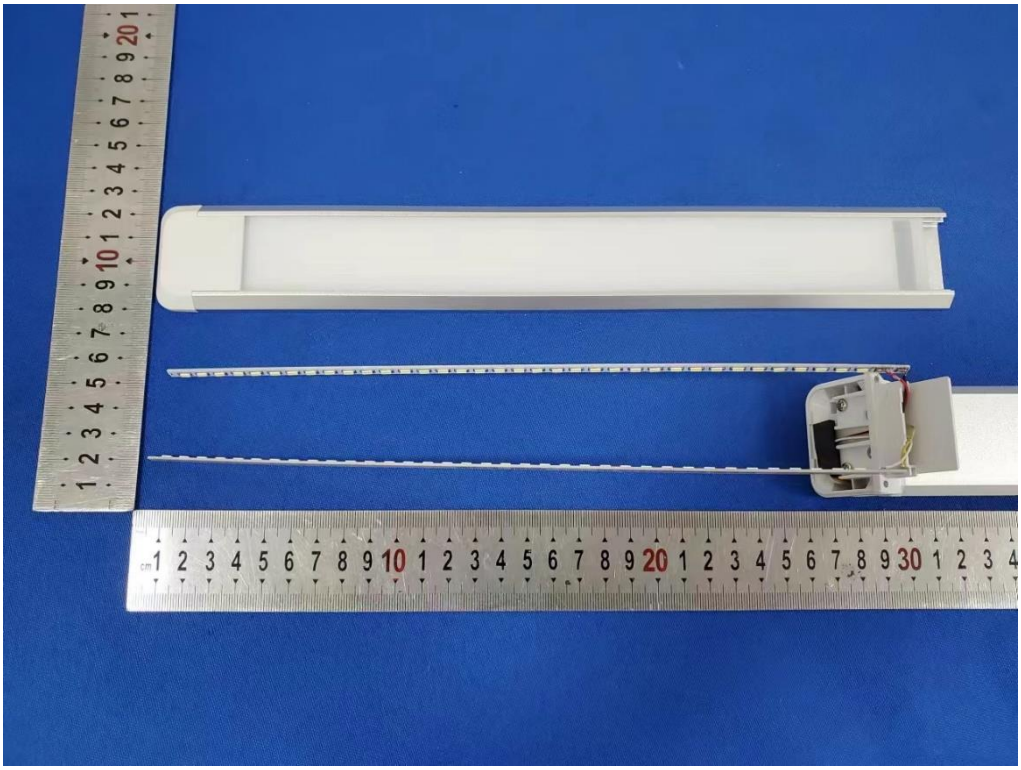



12V+
GND
LED1
LED2
GND


TH-D101_V1.0
23 09 02
847137A_V116_230908







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