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

OF

Power Hub

Model No.: PWRHUB100W-T

FCC ID: 2AOAF-361

Report No.: E04A24030938F00201

Issue Date: April 20, 2024

Prepared for

TYLT, inc.

685 Cochran St. Suite 200 Simi Valley California 93065, United States

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

VERIFICATION OF COMPLIANCE

Applicant:	TYLT, inc. 685 Cochran St. Suite 200 Simi Valley California 93065, United States
Manufacturer:	Dongguan CE LINK LIMITED 22 Dongkang Road, Dalingshan Town, Dongguan City，Guangdong Province, China.
Product Description:	Power Hub
Trade Mark:	TYLT
Model Number:	PWRHUB100W-T

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).

Prepared By:

Poal Chen

Project Engineer

Checked By:

Alan He

Laboratory Leader

Approved By:

Shawn Wen

Laboratory Manager

Guangdong Global Testing Technology Co., Ltd. GTG ★ CERTIFICATE ★

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	E04A24030938F00201

Table of Contents

1 General Information

1.1 Product Description

Characteristics	Description
Product Name	Power Hub
Model number	PWRHUB100W-T
Operation Mode	Wireless Charging
Input Rating	100-240V~50/60HZ 2A Max
Power Supply	120V/60Hz
Operating Frequency	110-205KHz
Wireless Charging Power	15W(Max)
Modulation Technique	FSK
Antenna Type	Coil Antenna
Software version	V1.0
Hardware version	V1.0
Sample receipt date	April 11, 2024

1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: 2AOAF-361 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

2	Accreditation Certificate	**A2LA (Certificate No.: 6947.01)** Guangdong Global Testing Technology Co., Ltd. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1343)** Guangdong Global Testing Technology Co., Ltd. has been recognized to perform compliance testing on equipment subject to Supplier's Declaration of Conformity (SDoC) and Certification rules **ISED (Company No.: 30714)** Guangdong Global Testing Technology Co., Ltd. has been registered and fully described in a report filed with ISED. The Company Number is 30714 and the test lab Conformity Assessment Body Identifier (CABID) is CN0148.

Note: All tests measurement facilities use to collect the measurement data are located at Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

3 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

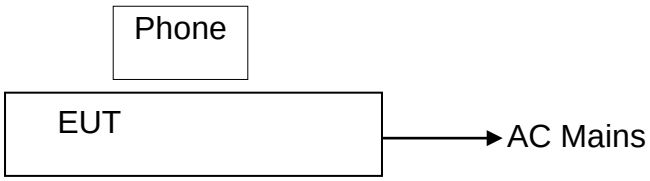


Table 2-1 Equipment Used in Tested System

Item	Equipment	Trade Mark	Model No.	FCC ID	Note
1.	Power Hub	/	PWRHUB100W-T	2AOAF-361	***EUT***
2.	phone	Apple	A2176	N/A	***Support Equipment***

Note:

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

4 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

5 TEST SYSTEM UNCERTAINTY

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

Parameter	Uncertainty
20dB Bandwidth	±9.2ppm
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Temperature	±0.5℃
Humidity	±3%

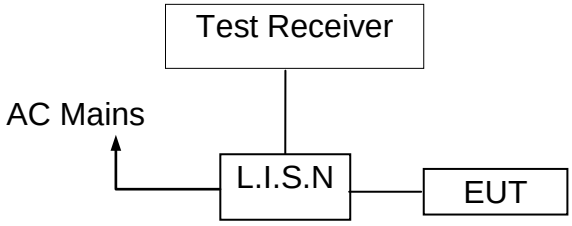
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%

6 Conducted Emissions Test

6.1 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. 3. Repeat above procedures until all frequency measured was complete.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 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	2023/09/18	2024/09/17
LISN/AMN	Rohde & Schwarz	ENV216	102843	2023/09/18	2024/09/17
NNLK 8129 RC	Schwarzbeck	NNLK 8129 RC	5046	2023/09/18	2024/09/17
Test Software	Farad	EZ-EMC (Ver. EMC-con-3A1 1+)	N/A	N/A	N/A

6.4 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies

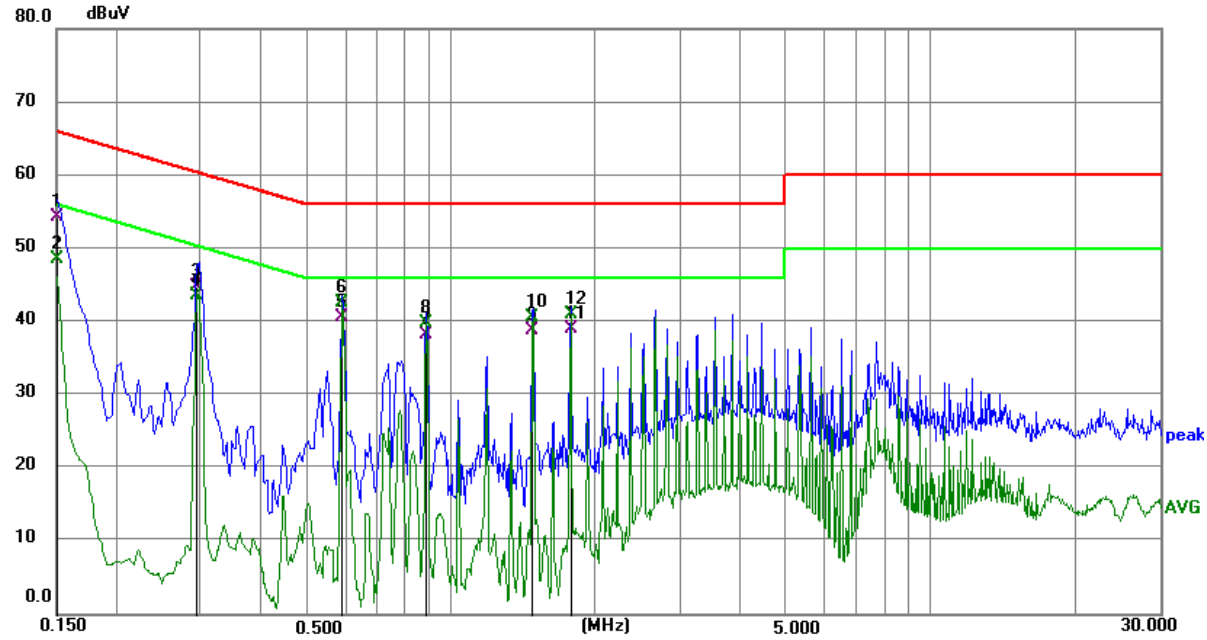
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

6.5 Measurement Result

Operation Mode:	TX	Test Date :	2024/4/16
Frequency Range:	0.15MHz~30MHz	Temperature :	25.5℃
Test Result:	PASS	Humidity :	54 %RH
Test By:	Fink		

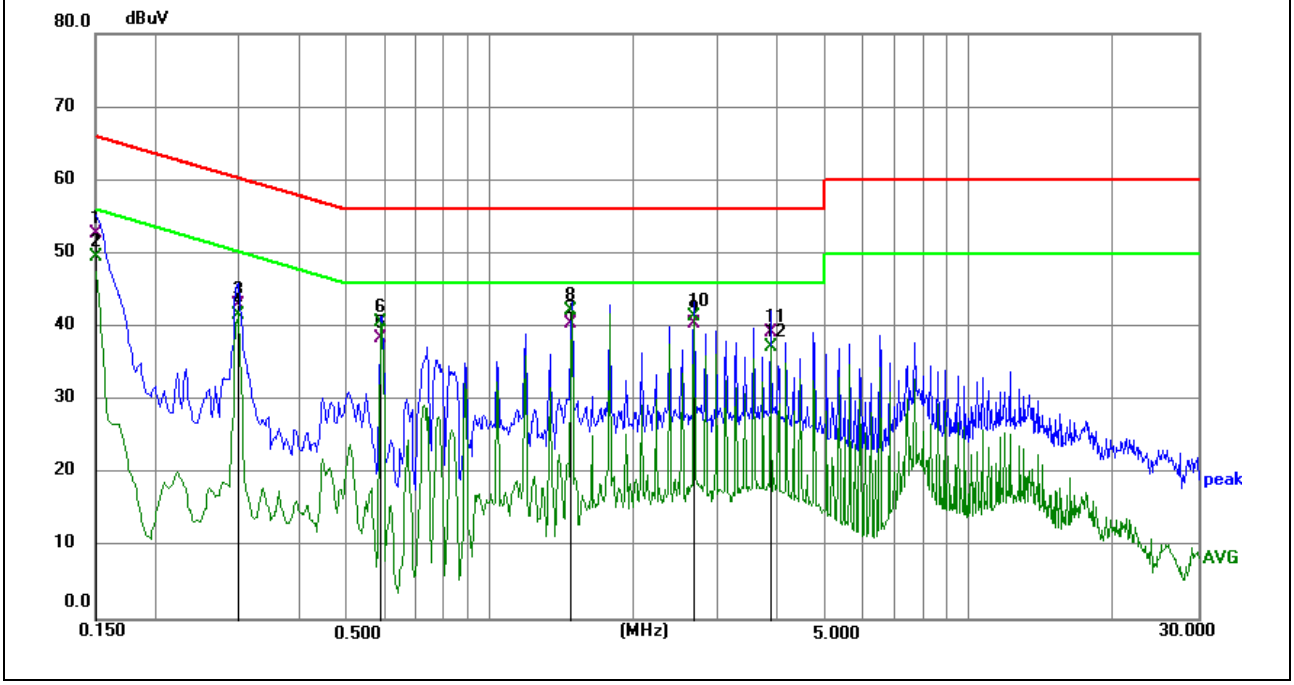
We pretested modes (Wireless Charging(15W), Wireless Charging (10W), Wireless Charging (7.5W) , Wireless Charging(5W)) for EUT. The worst test data see follow the table.

Test mode: Wireless Charging 15W



Limit:	**FCC Part 15 C Conduction**	**Phase:**	**L1**
EUT:	**Power Hub**	**Test Time:**	**2024/4/16**
M/N.:	**PWRHUB100W-T**	**Power Rating:**	**AC120V/60Hz**
Mode:	**Wireless Charging 15W**	**Test Engineer:**	**Fink**

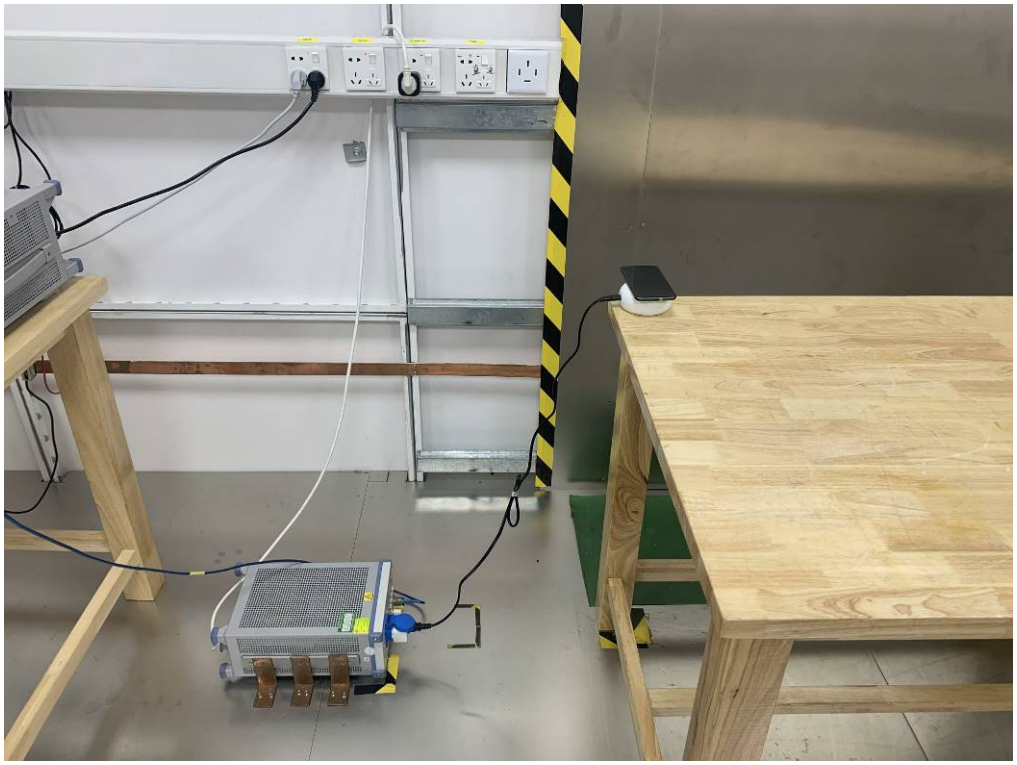
No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.1500	44.27	10.00	54.27	66.00	-11.73	QP	
2	0.1500	38.45	10.00	48.45	56.00	-7.55	AVG	
3	0.2940	34.89	9.88	44.77	60.41	-15.64	QP	
4	0.2940	33.71	9.88	43.59	50.41	-6.82	AVG	
5	0.5910	30.64	10.00	40.64	56.00	-15.36	QP	
6	0.5910	32.59	10.00	42.59	46.00	-3.41	AVG	
7	0.8880	28.15	10.05	38.20	56.00	-17.80	QP	
8	0.8880	29.68	10.05	39.73	46.00	-6.27	AVG	
9	1.4819	28.62	10.20	38.82	56.00	-17.18	QP	
10	1.4819	30.45	10.20	40.65	46.00	-5.35	AVG	
11	1.7744	28.76	10.16	38.92	56.00	-17.08	QP	
12	1.7744	30.77	10.16	40.93	46.00	-5.07	AVG	



Limit:	**FCC Part 15 C Conduction**	**Phase:**	**N**
EUT:	**Power Hub**	**Test Time:**	**2024/4/16**
M/N.:	**PWRHUB100W-T**	**Power Rating:**	**AC120V/60Hz**
Mode:	**Wireless Charging 15W**	**Test Engineer:**	**Fink**

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.1500	42.87	9.90	52.77	66.00	-13.23	QP	
2	0.1500	39.64	9.90	49.54	56.00	-6.46	AVG	
3	0.2985	33.18	9.85	43.03	60.28	-17.25	QP	
4	0.2985	31.81	9.85	41.66	50.28	-8.62	AVG	
5	0.5910	28.49	9.99	38.48	56.00	-17.52	QP	
6	0.5910	30.63	9.99	40.62	46.00	-5.38	AVG	
7	1.4819	30.20	10.27	40.47	56.00	-15.53	QP	
8	1.4819	32.01	10.27	42.28	46.00	-3.72	AVG	
9	2.6700	30.27	10.09	40.36	56.00	-15.64	QP	
10	2.6700	31.38	10.09	41.47	46.00	-4.53	AVG	
11	3.8490	29.05	10.19	39.24	56.00	-16.76	QP	
12	3.8490	26.95	10.19	37.14	46.00	-8.86	AVG	

6.6 Conducted Measurement Photo



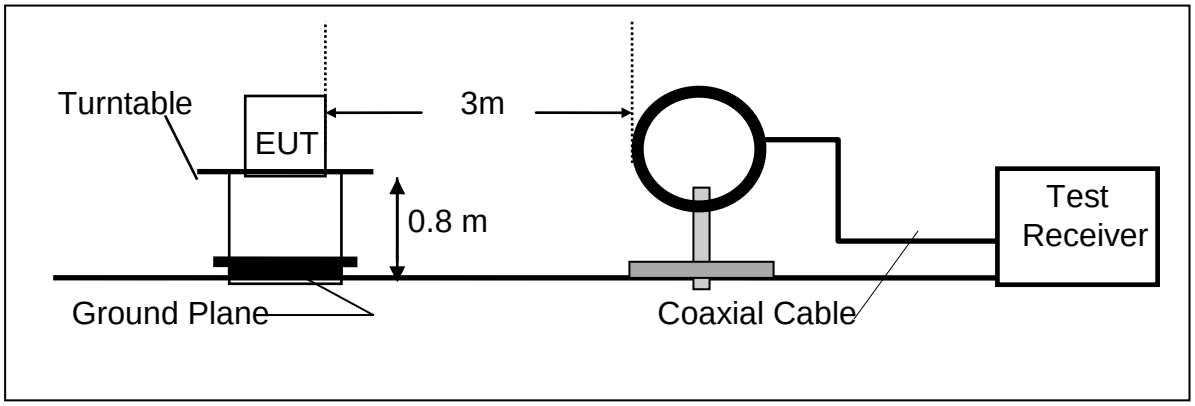
7 Radiated Emission Test

7.1 Measurement Procedure

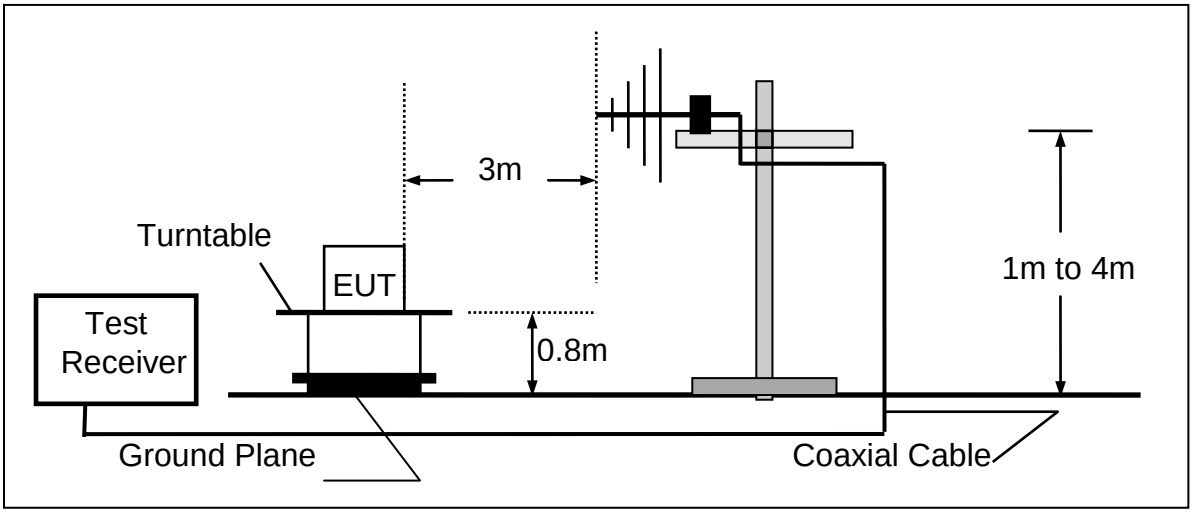
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above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

7.2 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



7.3 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

7.4 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

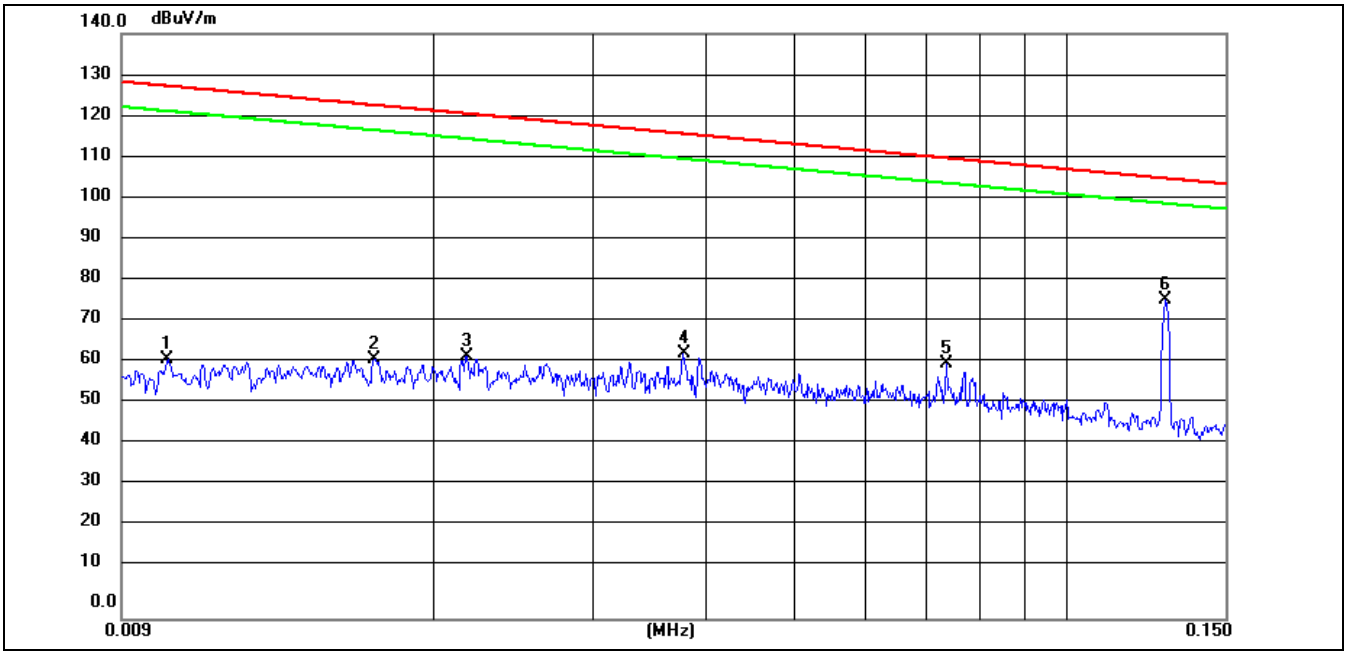
15.205 Restricted bands of operation

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.

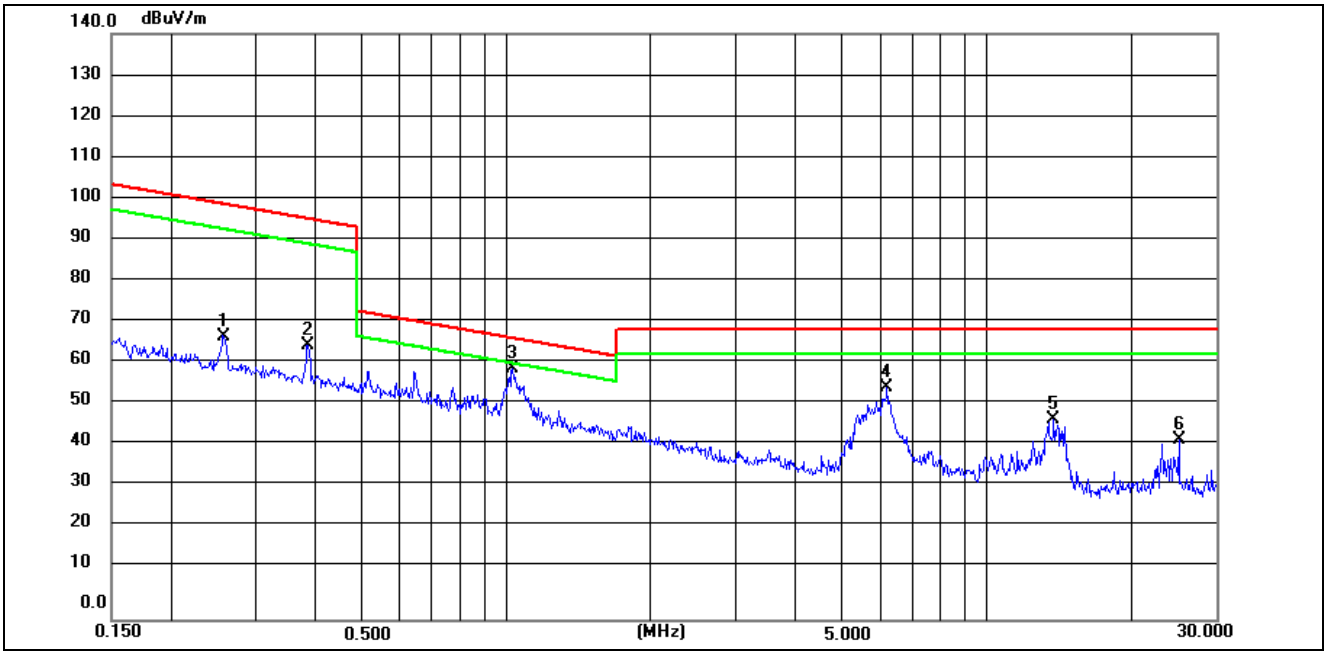
7.5 Measurement Result

We pretested modes (Wireless Charging(15W), Wireless Charging (10W), Wireless Charging (7.5W), Wireless Charging(5W)) for EUT. The worst mode (Wireless Charging (15W) test data see follow the table.



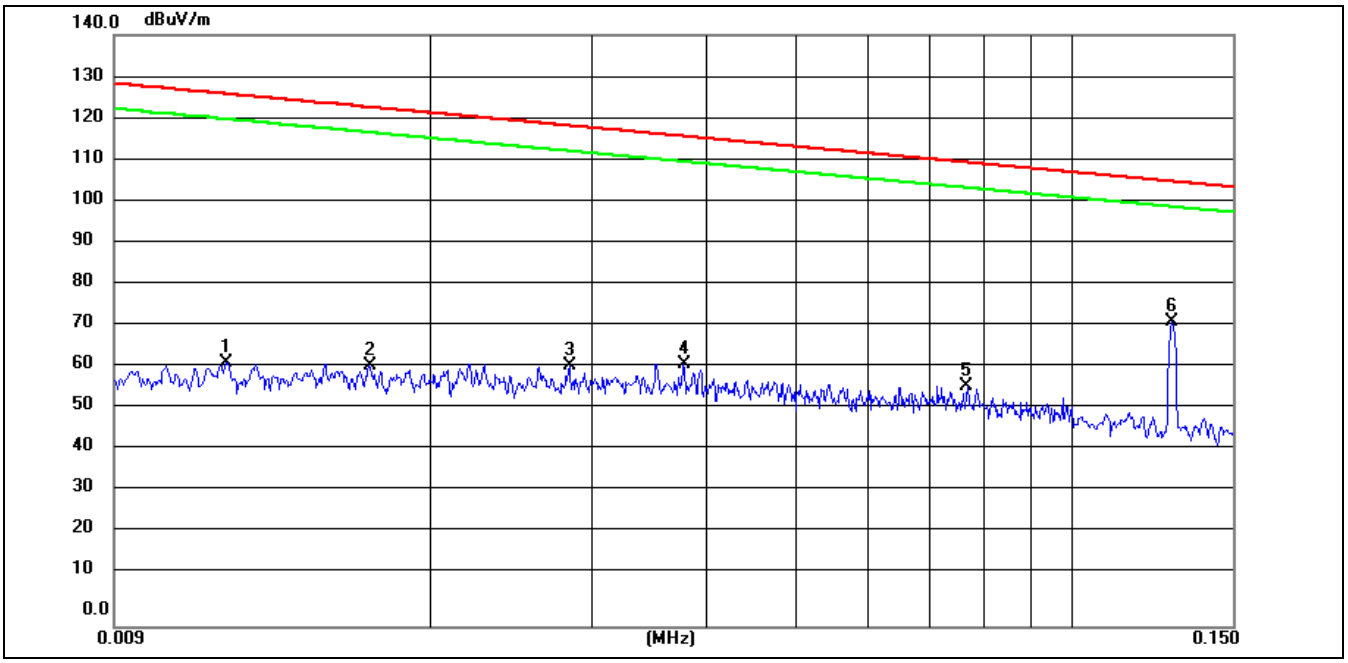
Limit:	**FCC Part 15C 3m Radiation**	**Antenna:**	**coaxial**
EUT:	**Power Hub**	**Temperature:**	**24.3℃**
M/N.:	**PWRHUB100W-T**	**Humidity:**	**53.2%RH**
Mode:	**Wireless Charging 15W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Vier**	**Test Time:**	**2024/4/16**

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	0.0101	41.64	20.43	62.07	127.50	-65.43	peak	
2	0.0171	41.92	20.33	62.25	122.93	-60.68	peak	
3	0.0217	42.65	20.27	62.92	120.86	-57.94	peak	
4	0.0377	43.57	20.06	63.63	116.06	-52.43	peak	
5	0.0738	41.48	19.66	61.14	110.23	-49.09	peak	
6	0.1289	56.80	19.63	76.43	105.39	-28.96	peak	



Limit:	**FCC Part 15C 3m Radiation**	**Antenna:**	**coaxial**
EUT:	**Power Hub**	**Temperature:**	**24.3℃**
M/N.:	**PWRHUB100W-T**	**Humidity:**	**53.2%RH**
Mode:	**Wireless Charging 15W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Vier**	**Test Time:**	**2024/4/16**

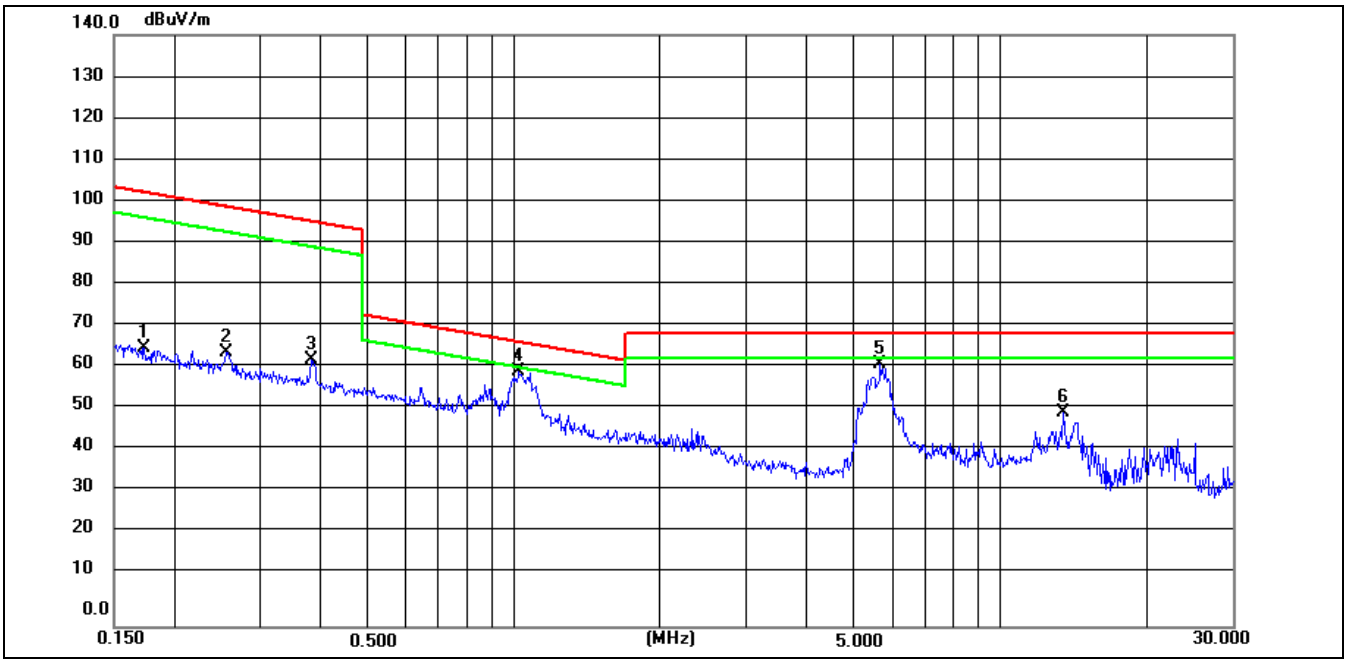
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	0.2575	48.28	19.63	67.91	99.39	-31.48	peak	
2	0.3852	46.07	19.60	65.67	95.89	-30.22	peak	
3	1.0265	40.70	19.44	60.14	67.39	-7.25	peak	
4	6.1860	35.92	19.69	55.61	69.50	-13.89	peak	
5	13.7680	27.66	20.32	47.98	69.50	-21.52	peak	
6	25.0545	22.46	20.65	43.11	69.50	-26.39	peak	



Limit:	**FCC Part 15C 3m Radiation**	**Antenna:**	**coplanar**
EUT:	**Power Hub**	**Temperature:**	**24.3℃**
M/N.:	**PWRHUB100W-T**	**Humidity:**	**53.2%RH**
Mode:	**Wireless Charging 15W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Vier**	**Test Time:**	**2024/4/16**

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	0.0120	42.15	20.40	62.55	126.00	-63.45	peak	
2	0.0171	41.37	20.33	61.70	122.93	-61.23	peak	
3	0.0283	41.53	20.17	61.70	118.55	-56.85	peak	
4	0.0377	42.03	20.06	62.09	116.06	-53.97	peak	
5	0.0769	37.38	19.67	57.05	109.88	-52.83	peak	
6	0.1289	52.68	19.63	72.31	105.39	-33.08	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.

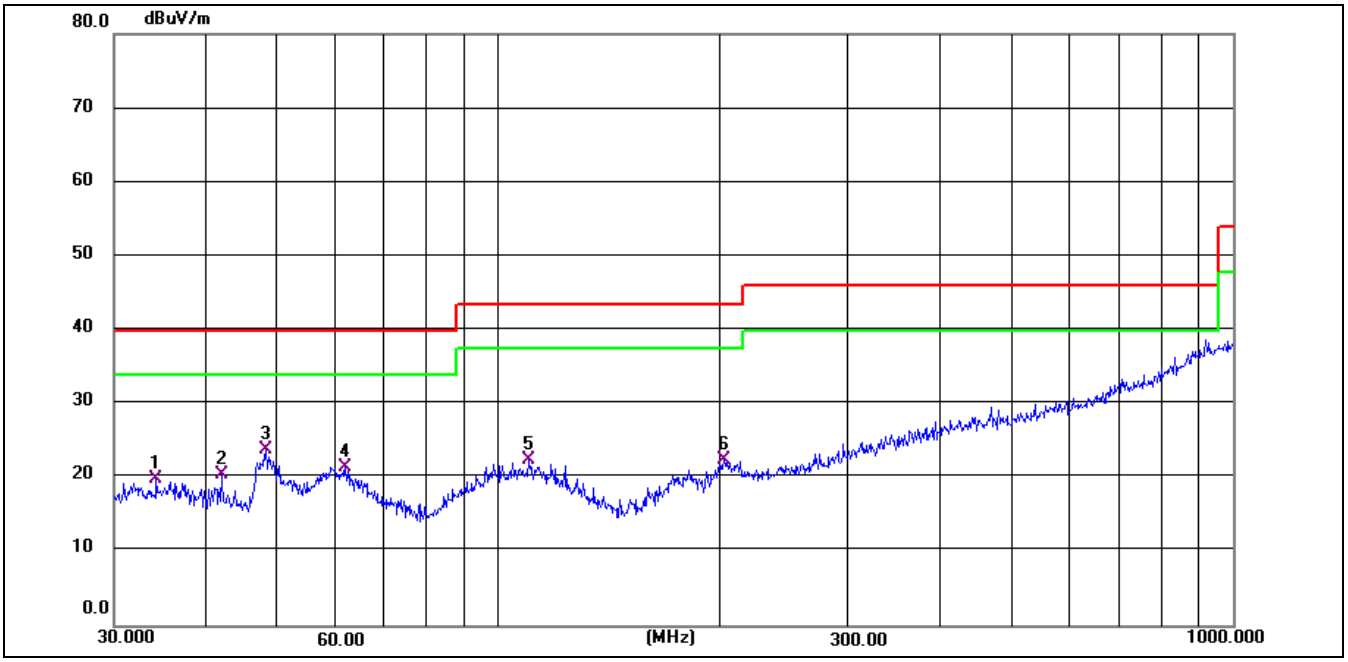


Limit:	**FCC Part 15C 3m Radiation**	**Antenna:**	**coplanar**
EUT:	**Power Hub**	**Temperature:**	**24.3℃**
M/N.:	**PWRHUB100W-T**	**Humidity:**	**53.2%RH**
Mode:	**Wireless Charging 15W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Vier**	**Test Time:**	**2024/4/16**

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	0.1731	46.47	19.64	66.11	102.83	-36.72	peak	
2	0.2562	45.40	19.63	65.03	99.43	-34.40	peak	
3	0.3811	43.73	19.60	63.33	95.98	-32.65	peak	
4	1.0211	41.17	19.44	60.61	67.44	-6.83	peak	
5	5.6531	42.57	19.75	62.32	69.50	-7.18	peak	
6	13.4080	30.50	20.29	50.79	69.50	-18.71	peak	

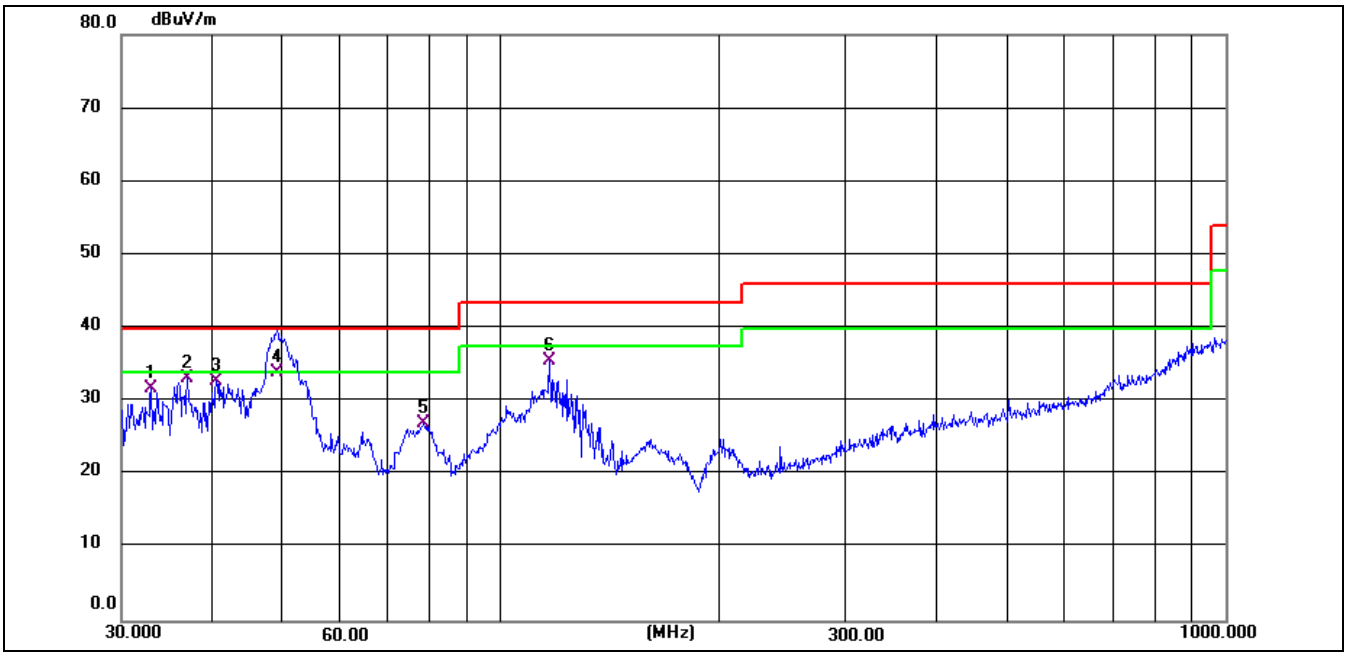
Note: (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) The average measurement was not performed when the peak measured data under the limit of average detection.
(4) EUT lying on the table position is the worst case result in the report.

We pretested modes (Wireless Charging(15W), Wireless Charging (10W), Wireless Charging (7.5W), Wireless Charging(5W)) for EUT. The worst test data (Wireless Charging(15W)) see follow the table.



Limit:	**FCC Part 15C 3m Radiation**	**Antenna:**	**Horizontal**
EUT:	**Power Hub**	**Temperature:**	**24.3℃**
M/N.:	**PWRHUB100W-T**	**Humidity:**	**54%RH**
Mode:	**Wireless Charging 15W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Vier**	**Test Time:**	**2024/4/16**

No.	Frequency (MHz)	Reading Level(dBuV)	Correct Factor(dB/m)	Measure-ment(dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector	Comment
1	34.2760	26.97	-7.15	19.82	40.00	-20.18	QP	
2	42.0065	29.95	-9.44	20.51	40.00	-19.49	QP	
3	48.3316	33.00	-9.22	23.78	40.00	-16.22	QP	
4	61.9950	27.10	-5.58	21.52	40.00	-18.48	QP	
5	110.1816	27.06	-4.51	22.55	43.50	-20.95	QP	
6	202.8103	27.49	-5.00	22.49	43.50	-21.01	QP	



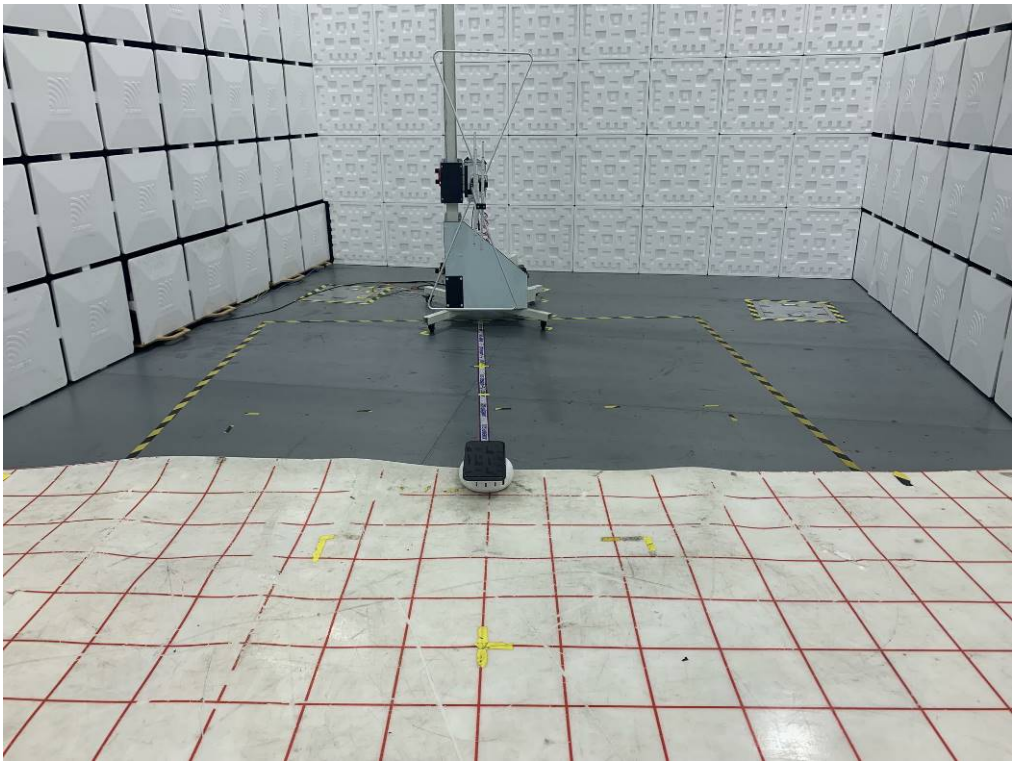
Limit:	**FCC Part 15C 3m Radiation**	**Antenna:**	**Vertical**
EUT:	**Power Hub**	**Temperature:**	**24.3℃**
M/N.:	**PWRHUB100W-T**	**Humidity:**	**54%RH**
Mode:	**Wireless Charging 15W**	**Power Rating:**	**AC 120V/60Hz**
Test Engineer:	**Vier**	**Test Time:**	**2024/4/16**

No.	Frequency (MHz)	Reading Level(dBuV)	Correct Factor(dB/m)	Measure-ment(dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector	Comment
1	32.9791	39.06	-7.29	31.77	40.00	-8.23	QP	
2	37.0250	41.21	-8.05	33.16	40.00	-6.84	QP	
3	40.5591	42.28	-9.48	32.80	40.00	-7.20	QP	
4	49.1865	43.20	-9.20	34.00	40.00	-6.00	QP	
5	78.4133	37.73	-10.68	27.05	40.00	-12.95	QP	
6	116.9494	40.76	-5.23	35.53	43.50	-7.97	QP	

7.6 Radiated Measurement Photos

9kHz-30MHz

30MHz-1GHz



8 20db Bandwidth

8.1 20dB Bandwidth Limit

None: for reporting purposed only.

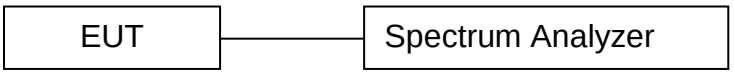
8.2 Test Instruments

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

8.3 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.

8.4 Test Setup



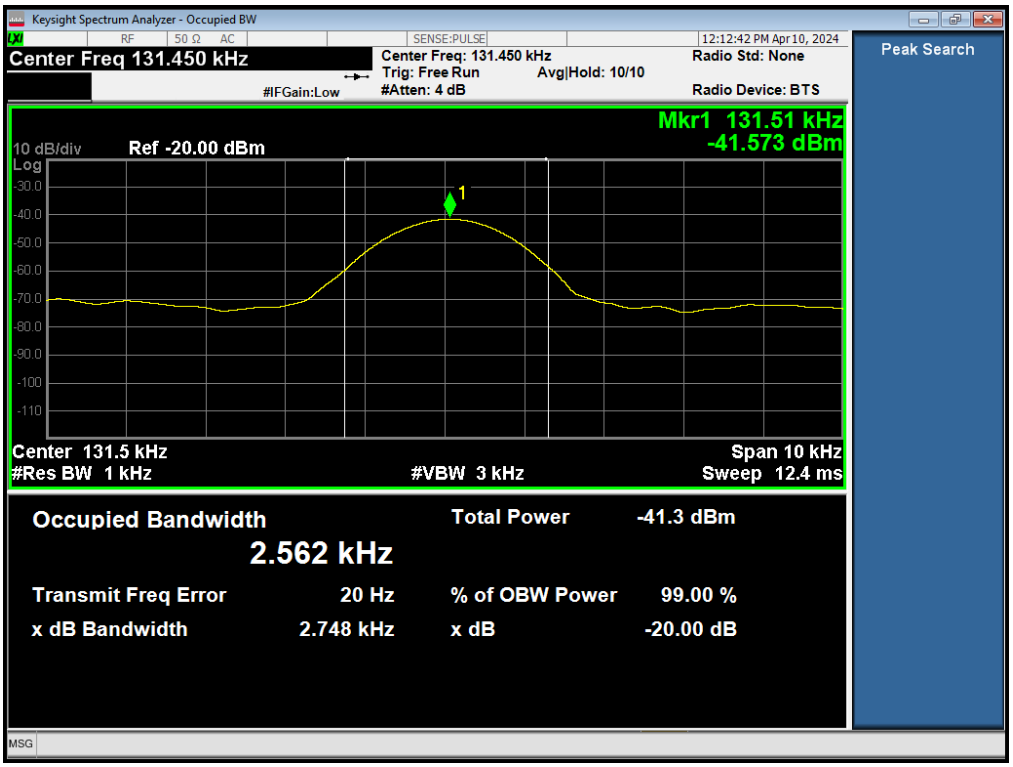
8.5 Test Result

phone charging

Frequency (KHz)	20dB Bandwidth (KHz)	Results
131.45	2.748	PASS

20 dB Bandwidth Test plot

phone charging



9 Antenna Application

9.1 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.

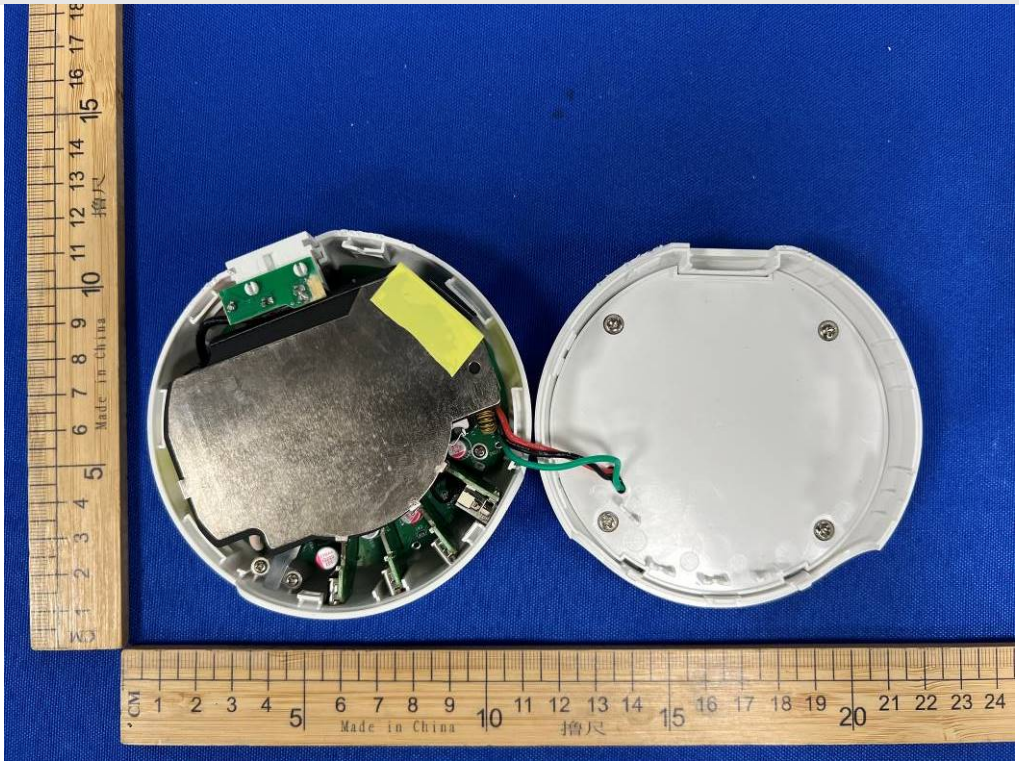
9.2 Result

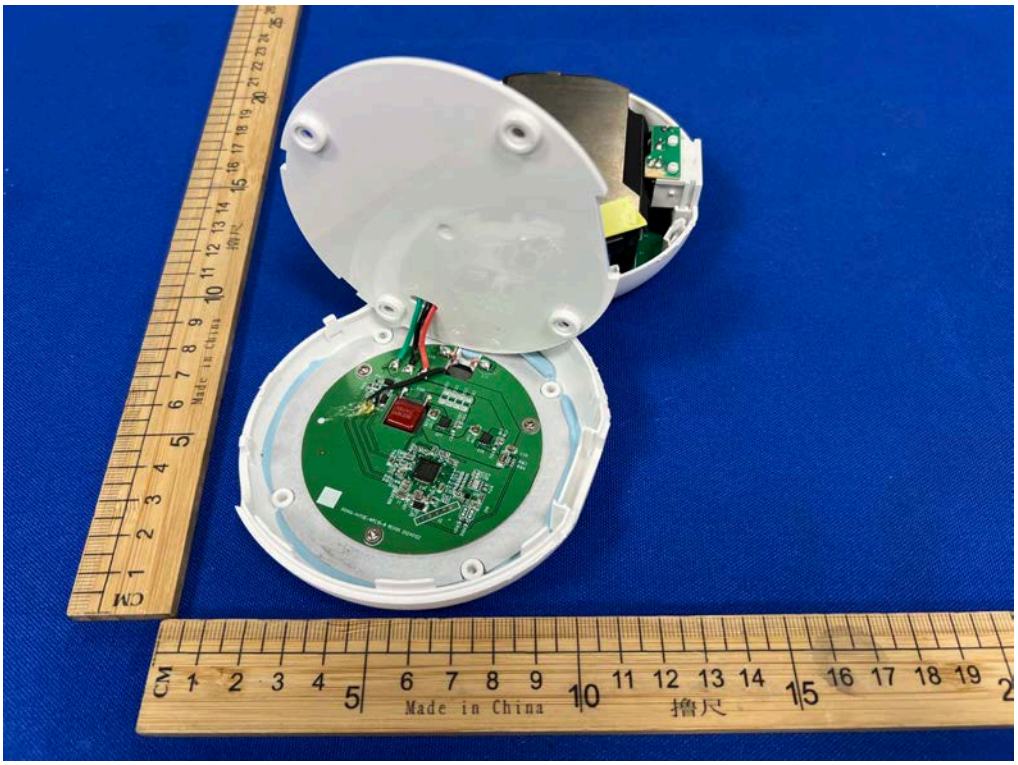
The EUT's antenna, permanent attached antenna, used an Induction coil and integrated on PCB, The antenna's gain meets the requirement.

APPENDIX
(Photos of EUT)

External

Internal

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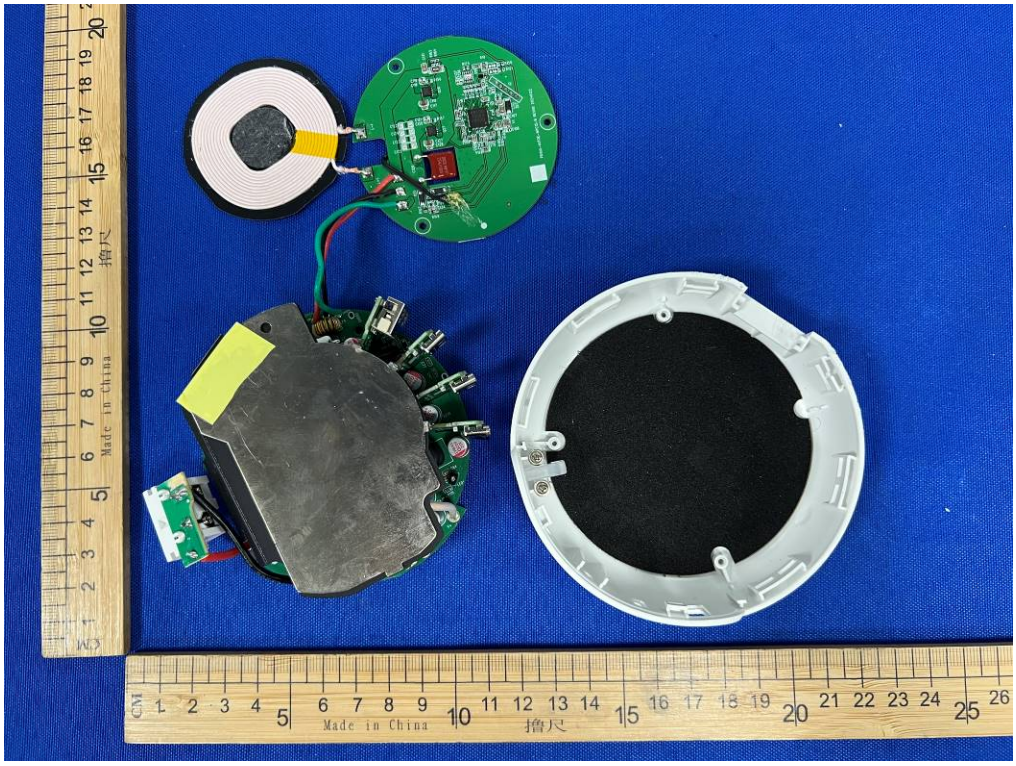
Made in China
撸尺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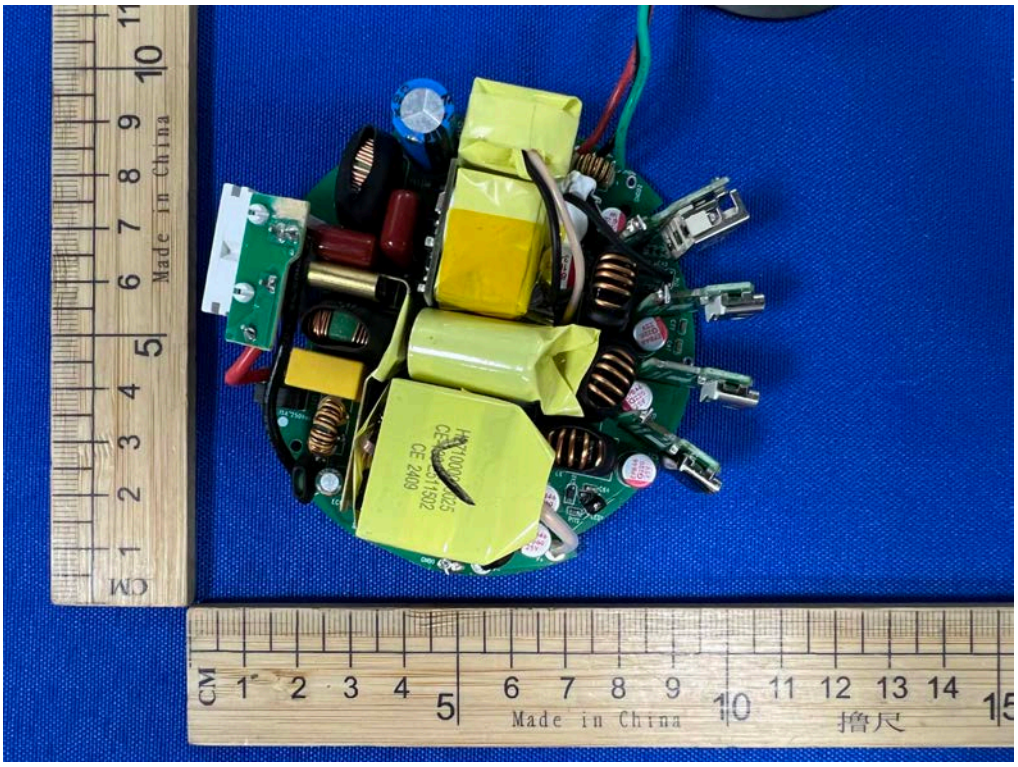
Made in China
撸尺


Made in China
CM
Made in China
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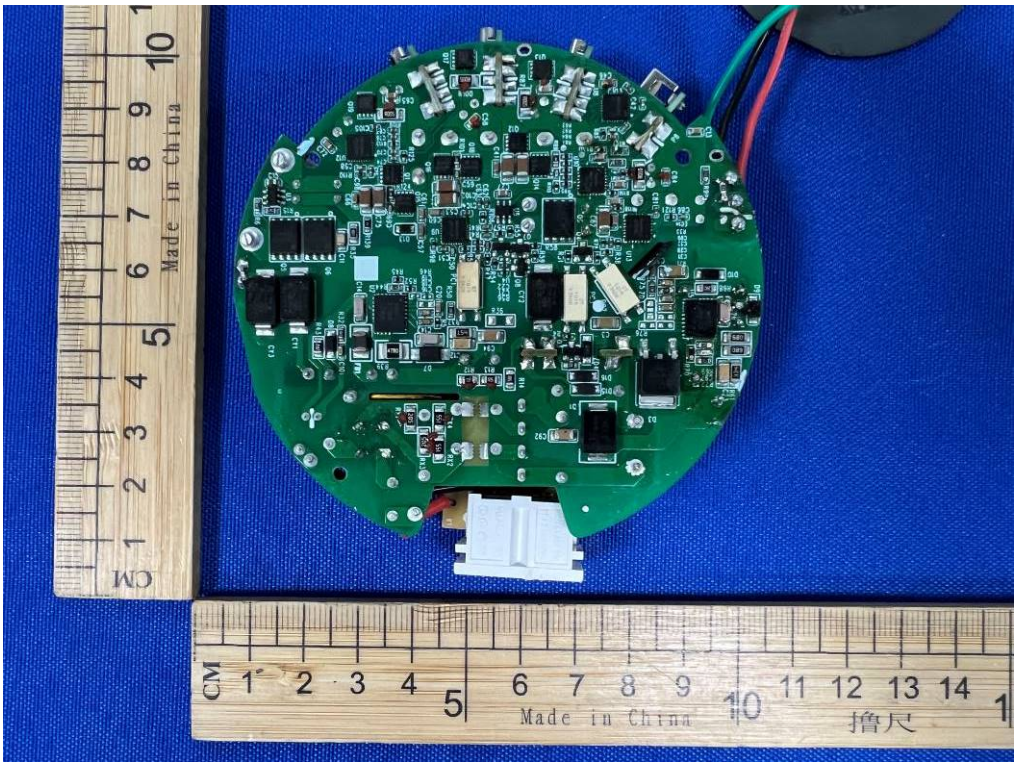
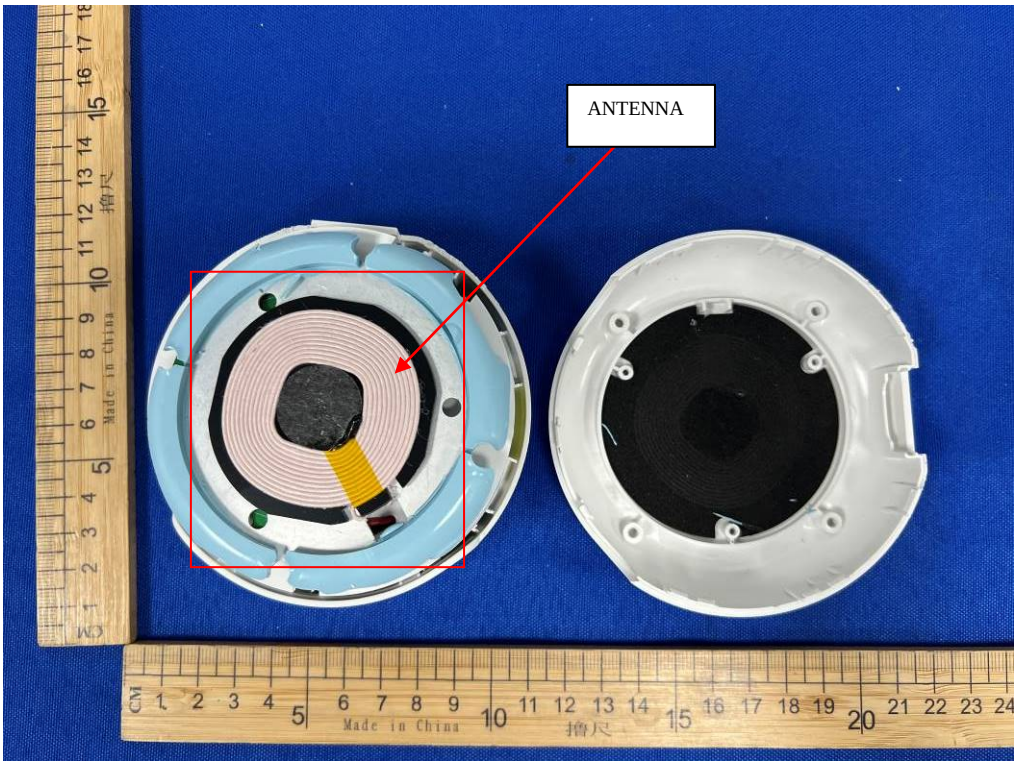
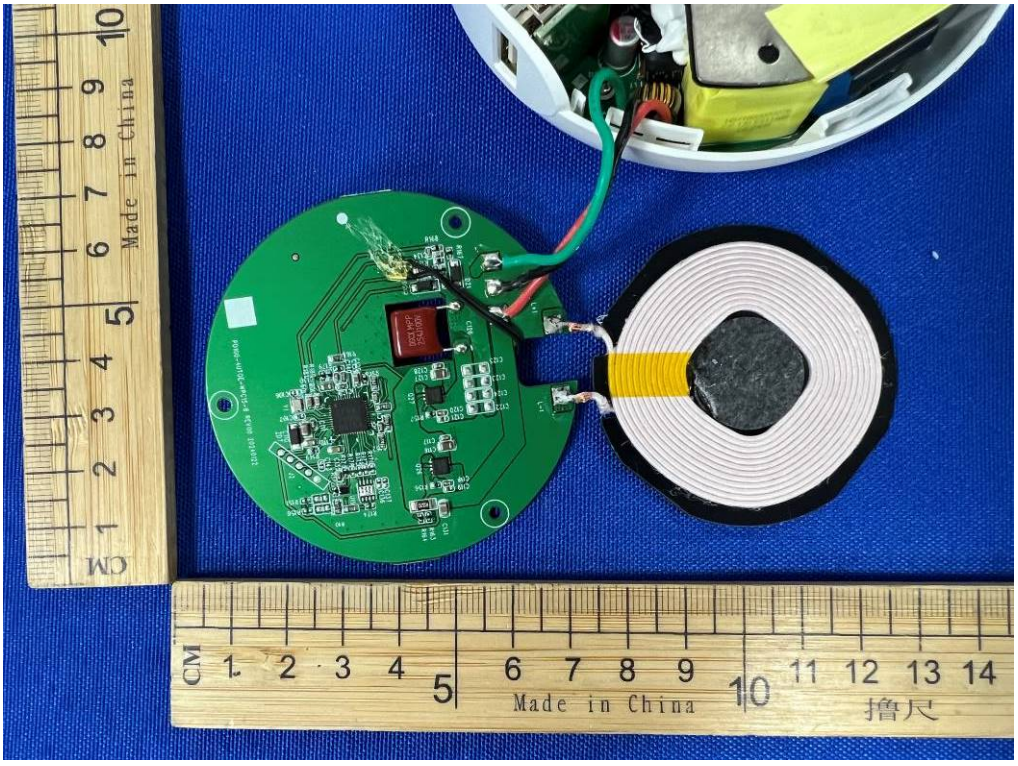
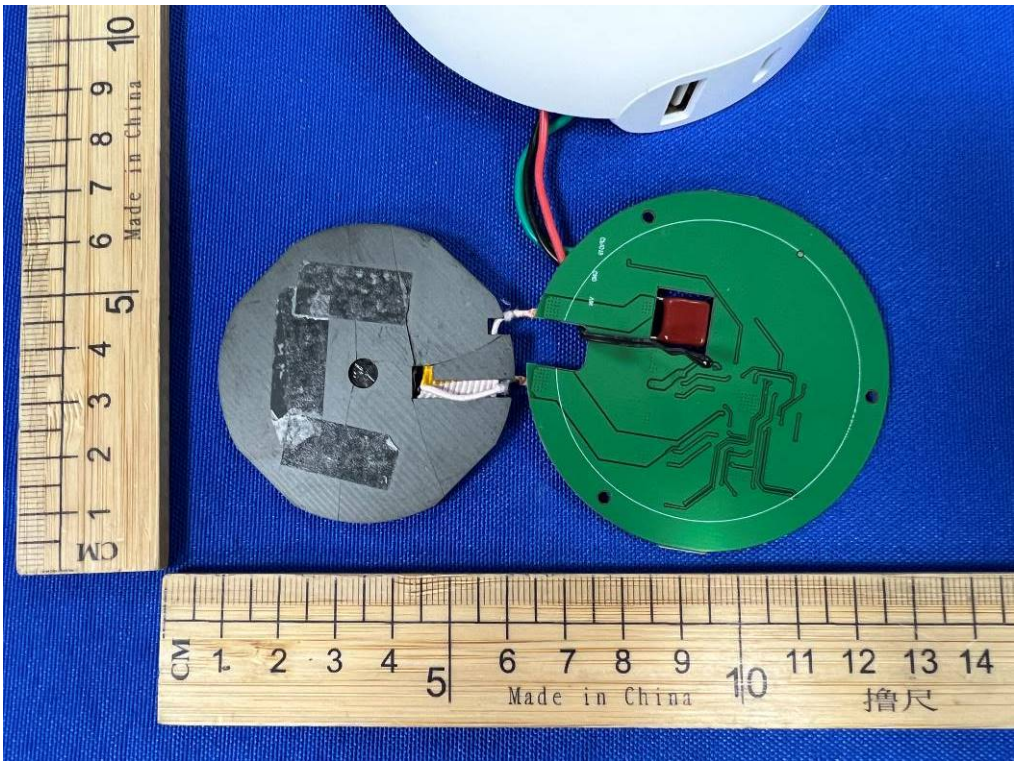

Made in China
CM
Made in China
撸尺


ANTENNA





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