TEST REPORT

Report No.:	TWN2410698E
Applicant:	Leader Lao Co., Ltd
Product:	Quake 2.0 15W Wireless Charging Pad/Sphere2.0 15W Wireless Charging Pad
Model No.:	AB0183
Trademark:	N/A
Test Standards:	FCC Part 15 Subpart C
Test Result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, for the evaluation of electromagnetic compatibility

Approved By

Terry Tang

Terry Tang

Manager

Dated: November 06, 2024

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Special Statement:

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

Test Report Conclusion

Content

1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Telephone: +86 755 83448688

Fax: +86 755 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Leader Lao Co., Ltd

Address: Lot333, Savan Park,Nongdeun , Kaysone Phomvihane, Savannakhet ,Laos.

1.3 Description of EUT

Product:	Quake 2.0 15W Wireless Charging Pad/Sphere2.0 15W Wireless Charging Pad
Manufacturer:	Leader Lao Co., Ltd
Address:	Lot333, Savan Park,Nongdeun , Kaysone Phomvihane, Savannakhet ,Laos.
Trademark:	N/A
Additional Trade Name:	N/A
Model Number:	AB0183
Additional Model Name:	N/A
Rating:	Input Power: DC5V/2A; 9V/2.2A; Output Power: 5W/7.5W/10W/15W

(Note: Wireless Output: 5W, 7.5W, 10W and 15W all have been tested, only worse case 15W is reported)

Hardware Version:	wirelesscharging-AB0183
Software Version:	leader.2021.11
Serial No.:	N/A
Operation Frequency:	111.5kHz-205kHz
Test Frequency:	175kHz
Modulation Type:	MSK
Antenna Designation	Inductive Loop Antenna with gain 0dBi Max (Declared by the applicant)

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2024-10-31 to 2024-11-06

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 9kHz-30MHz Uncertainty =4.3dB

Radiated Emissions below 30MHz-1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

1.7 Test Engineer

The sample tested by Andy Xing

Print Name: Andy Xing

2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2025-07-17
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic	--	--	N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2024-07-12	2025-07-11
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	--	2024-07-12	2025-07-11
RF Cable	Zhengdi	7m	--	2024-07-12	2025-07-11
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna requirements	**Pass**	Compliant
FCC Part 15, Paragraph 15.207	Conducted Emission Test	**Pass**	Compliant
FCC Part 15, Paragraph 15.209 (a) (f)	General Requirement	**Pass**	Compliant
FCC Part 15, Paragraph 15.215	20dB Bandwidth Testing	**Pass**	Compliant

3.2 Test Standards

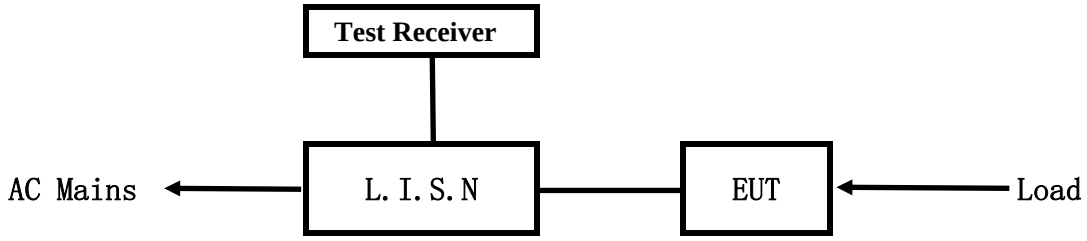
FCC Part 15 Subpart C , ANSI C63.4 :2014 and ANSI C63.10 :2013

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

5.0 Power Line Conducted Emission Test

5.1 Schematics of the test



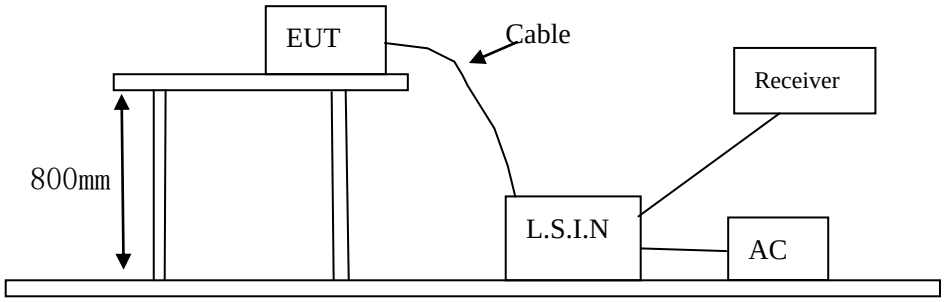
EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013.The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Quake 2.0 15W Wireless Charging Pad/Sphere2.0 15W Wireless Charging Pad	Leader Lao Co., Ltd	AB0183	2BAUN-AB0183

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	Infinix	XC1165US	Input: 100-240V~, 50-60Hz, 1.5A; Output: DC5V/3A or DC9V, 3A or DC15V, 3A or DC20V, 3.25A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB μ V)	
	Quas-peak Level	Average Level
0.15 ～ 0.50	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	56.0	46.0
5.00 ～ 30.00	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz. (The average detector is necessary when the Quasi-peak emission level beyond the average Limit.)

A: Conducted Emission on Live Terminal (150kHz to 30MHz)

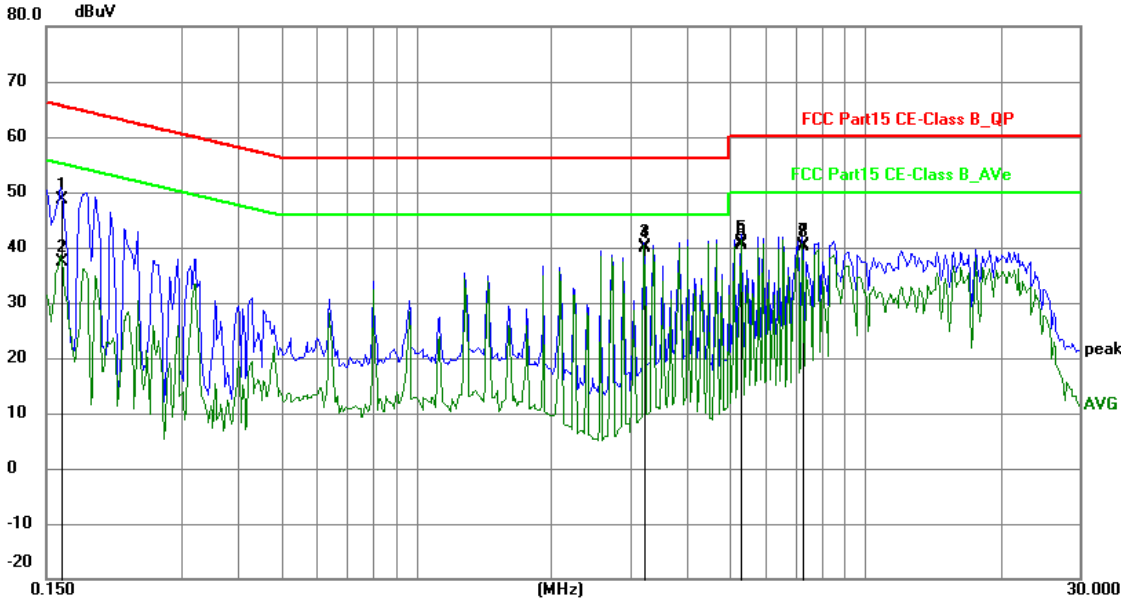
EUT Operating Environment

Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1617	38.95	9.78	48.73	65.38	-16.65	QP	P
2	0.1617	27.65	9.78	37.43	55.38	-17.95	AVG	P
3	3.2106	30.30	9.85	40.15	56.00	-15.85	QP	P
4	3.2106	29.91	9.85	39.76	46.00	-6.24	AVG	P
5	5.2971	31.01	9.94	40.95	60.00	-19.05	QP	P
6	5.2971	30.47	9.94	40.41	50.00	-9.59	AVG	P
7	7.2237	30.34	10.02	40.36	60.00	-19.64	QP	P
8	7.2237	30.20	10.02	40.22	50.00	-9.78	AVG	P

B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

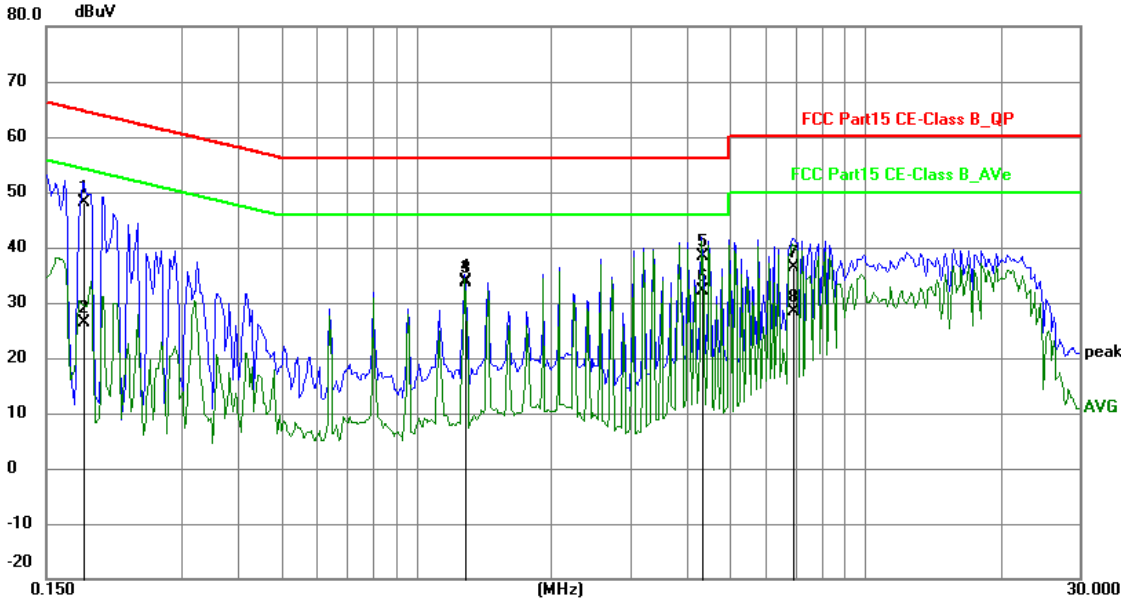
EUT Operating Environment

Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1812	38.33	9.76	48.09	64.43	-16.34	QP	P
2	0.1812	16.67	9.76	26.43	54.43	-28.00	AVG	P
3	1.2849	23.95	9.79	33.74	56.00	-22.26	QP	P
4	1.2849	23.98	9.79	33.77	46.00	-12.23	AVG	P
5	4.3338	28.47	9.90	38.37	56.00	-17.63	QP	P
6	4.3338	22.29	9.90	32.19	46.00	-13.81	AVG	P
7	6.9000	26.45	10.01	36.46	60.00	-23.54	QP	P
8	6.9000	18.32	10.01	28.33	50.00	-21.67	AVG	P

6.0 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at TIMEWAY EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.

(3) The frequency spectrum from 9 kHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with RBW=120 kHz/VBW=300 kHz; All readings from 9 kHz to 30 MHz are quasi-peak values with RBW=10 kHz/VBW=30 kHz. For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission test in these three bands are based on measurements employing an average detector. Measurements were made at 3 meters.

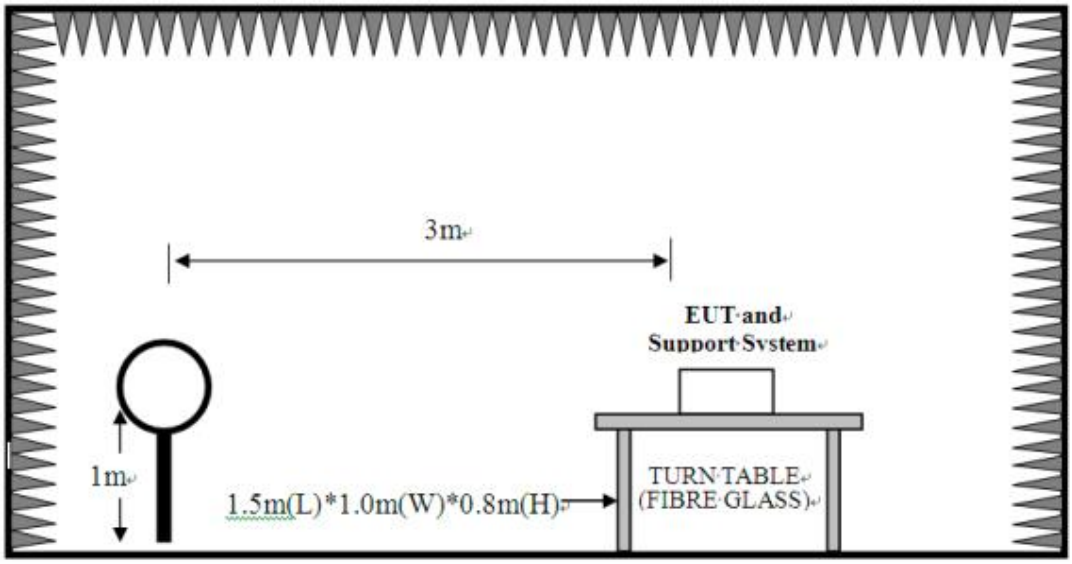
(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

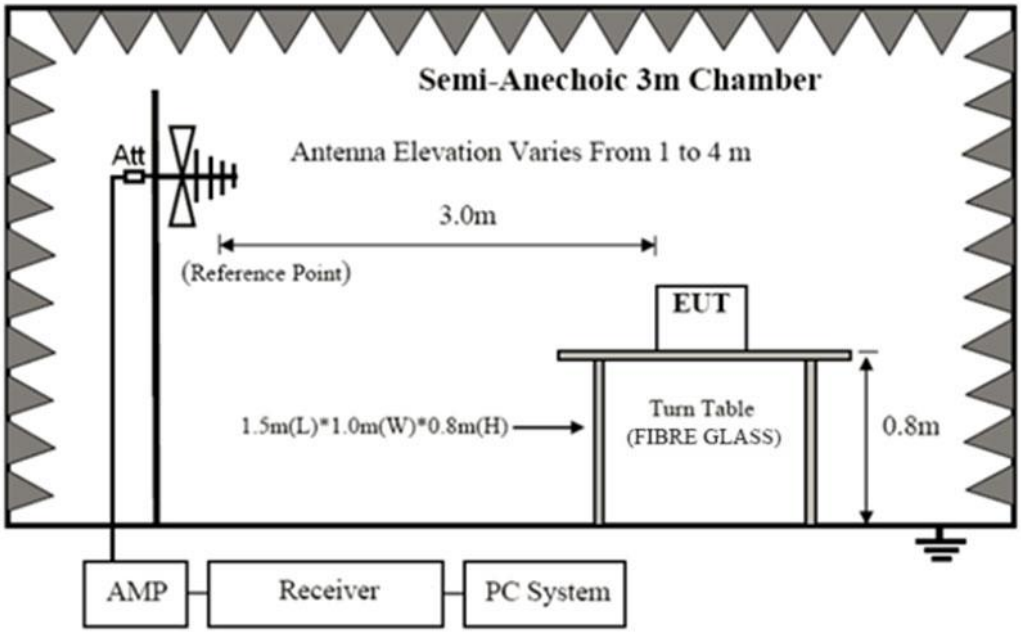
(6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

9kHz-30MHz



30MHz-1000MHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

B. Frequencies in restricted band are compiled to limit on Paragraph 15.209.

Limits for frequency below 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (V/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30	30	30

Limits for frequency above 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

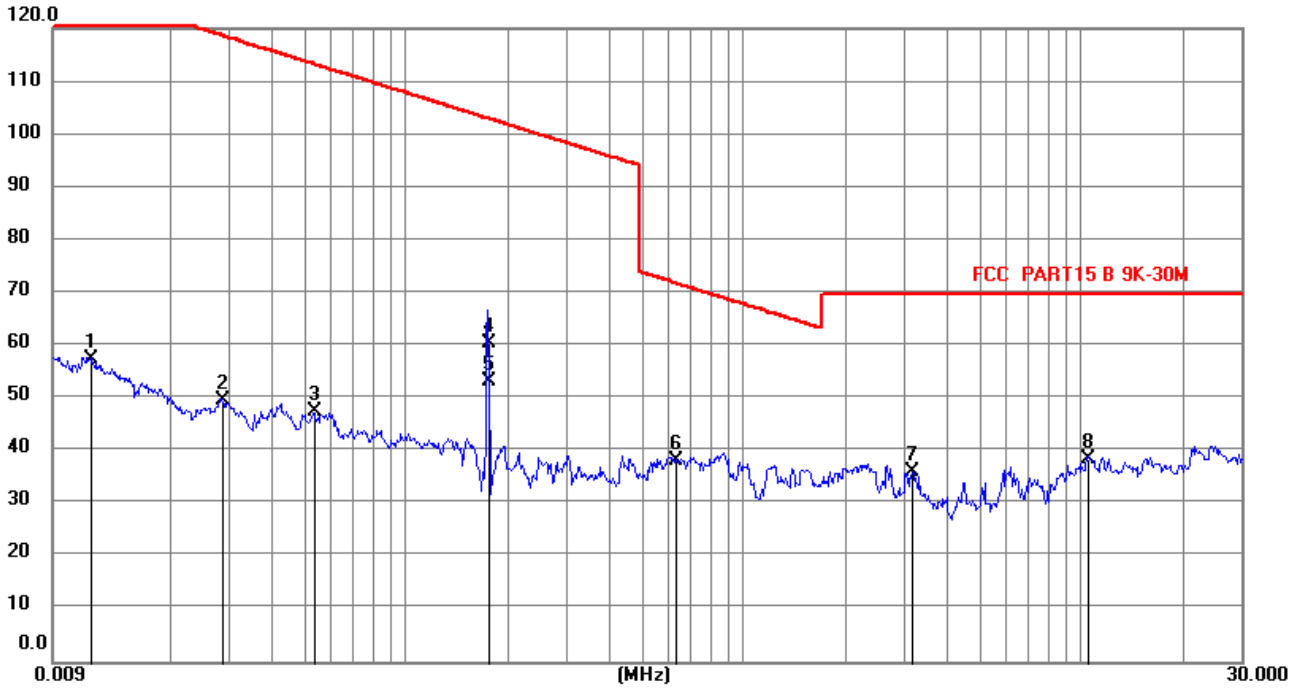
6.5 Test result

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	0.0117	47.34	10.06	57.40	126.06	-68.66	peak	P
2	0.0286	39.57	10.20	49.77	118.34	-68.57	peak	P
3	0.0534	37.72	9.79	47.51	112.95	-65.44	peak	P
4	0.1753	50.72	9.77	60.49	102.68	-42.19	peak	P
5	0.1753	43.39	9.77	53.16	102.68	-49.52	AVG	P
6	0.6350	28.40	9.78	38.18	71.55	-33.37	peak	P
7	3.1549	26.29	9.85	36.14	69.52	-33.38	peak	P
8	10.5000	28.25	10.18	38.43	69.56	-31.13	peak	P

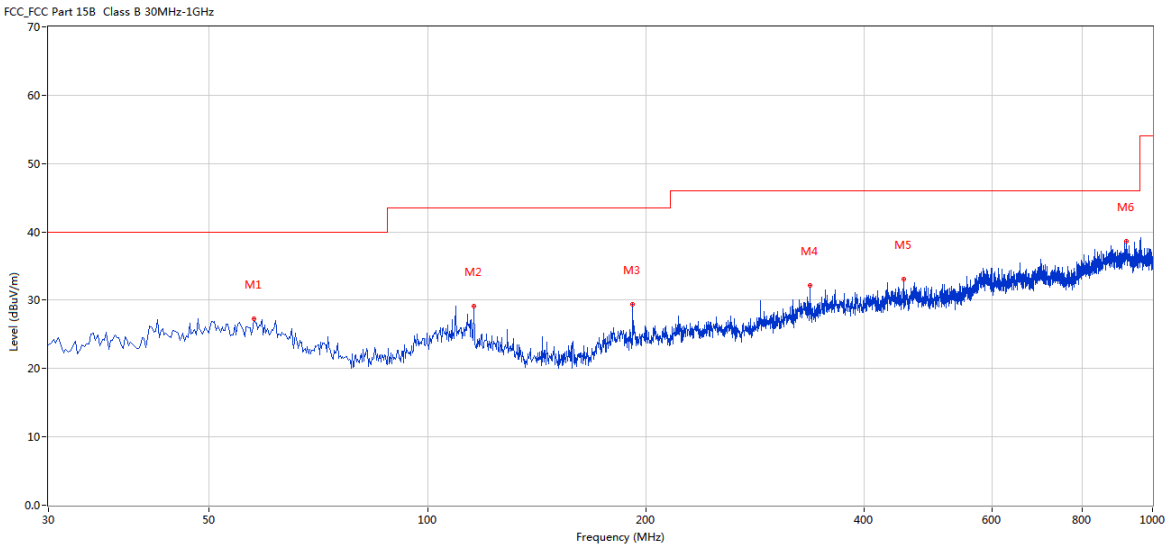
A. General Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting
Results: **Pass**

Test Time: 2024-10-08_15.16.21

EUT Name:	Quake 2.0 15W Wireless Charging Pad/Sphere2.0 15W Wireless Charging Pad	Test Standard:	FCC
Manufacturer:	Leader Lao Co., Ltd	Work Addition:	Keep Transmitting
Model:	AB0183	Load:	
Temp.(℃):	25	Remark:	
Hum.:	65%	Test Voltage:	120V~, 60Hz
Test Engineer:	JERRY	Temp.(oC):	25



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	57.638	27.33	-4.91	40.0	12.67	Peak	216.00	100	Horizontal	Pass
2	115.824	29.18	-6.96	43.5	14.32	Peak	348.00	100	Horizontal	Pass
3	191.950	29.45	-7.38	43.5	14.05	Peak	133.00	100	Horizontal	Pass
4	336.928	32.17	-3.12	46.0	13.83	Peak	50.00	100	Horizontal	Pass
5	454.026	33.07	-0.87	46.0	12.93	Peak	255.00	100	Horizontal	Pass
6	920.480	38.56	5.59	46.0	7.44	Peak	64.00	100	Horizontal	Pass

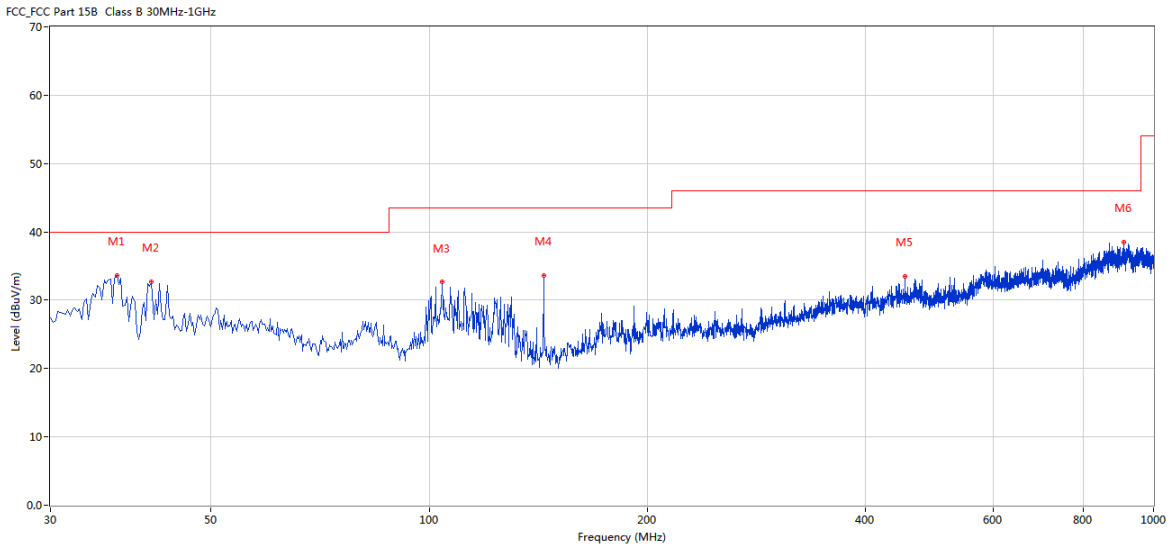
B. General Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting
Results: **Pass**

Test Time: 2024-10-08_15.18.02

EUT Name:	Quake 2.0 15W Wireless Charging Pad/Sphere2.0 15W Wireless Charging Pad	Test Standard:	FCC
Manufacturer:	Leader Lao Co., Ltd	Work Addition:	Keep Transmitting
Model:	AB0183	Load:	
Temp.(℃):	25	Remark:	
Hum.:	65%	Test Voltage:	120V~, 60Hz
Test Engineer:	JERRY	Temp.(oC):	25



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	37.031	33.67	-6.69	40.0	6.33	Peak	300.00	100	Vertical	Pass
2	41.395	32.65	-6.03	40.0	7.35	Peak	173.00	100	Vertical	Pass
3	104.186	32.63	-6.43	43.5	10.87	Peak	50.00	100	Vertical	Pass
4	143.947	33.68	-9.62	43.5	9.82	Peak	97.00	100	Vertical	Pass
5	453.542	33.48	-0.80	46.0	12.52	Peak	193.00	100	Vertical	Pass
6	910.782	38.48	5.21	46.0	7.52	Peak	212.00	100	Vertical	Pass

7.0 20dB Bandwidth Testing

7.1 Test Procedure

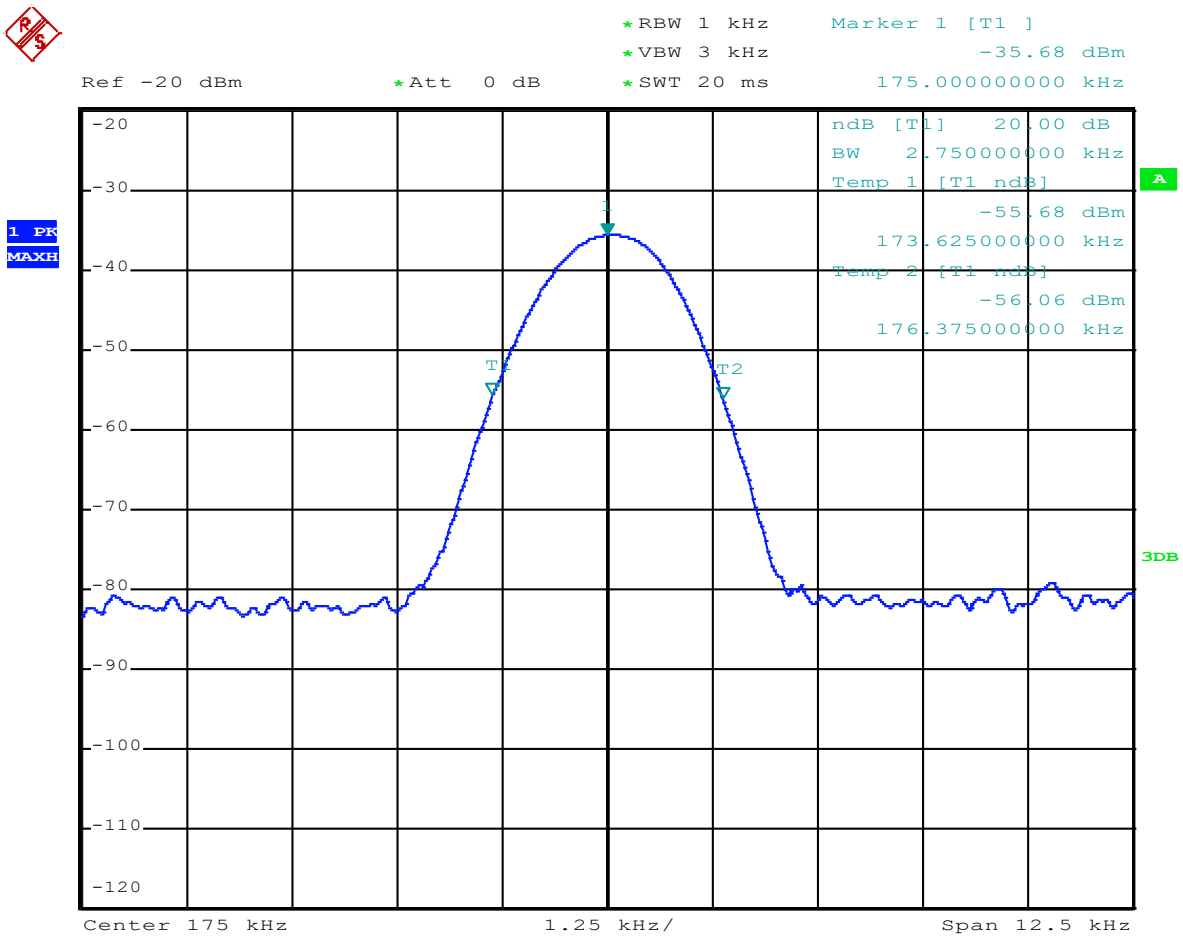
With the EUT's antenna attached, the EUT's 20dB Bandwidth was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

7.3 Test Data

Frequency (MHz)	20dB Bandwidth Emission (kHz)	Limit (kHz)	Result
0.175	2.750	--	Pass

Refer to attached plots:

20dB Bandwidth



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8.0 Antenna Requirement

8.1 Standard Applicable

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

8.2 Antenna Connected constructions

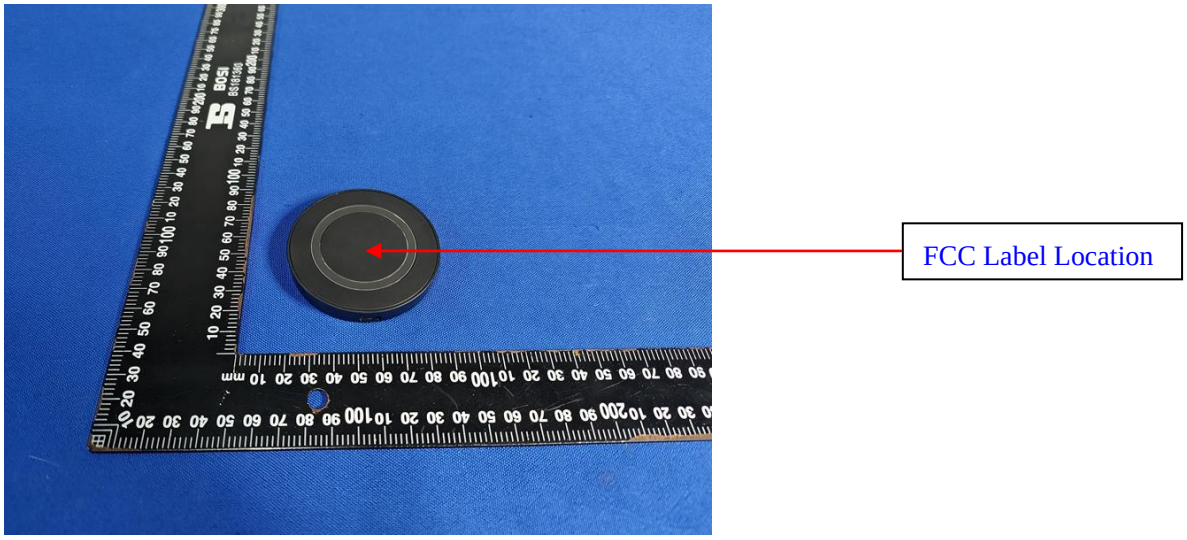
The antenna is Inductive Loop Antenna. The antenna gain is 0dBi. So it meets the requirement of 15.203

9.0 FCC ID Label

FCC ID: 2BAUN-AB0183

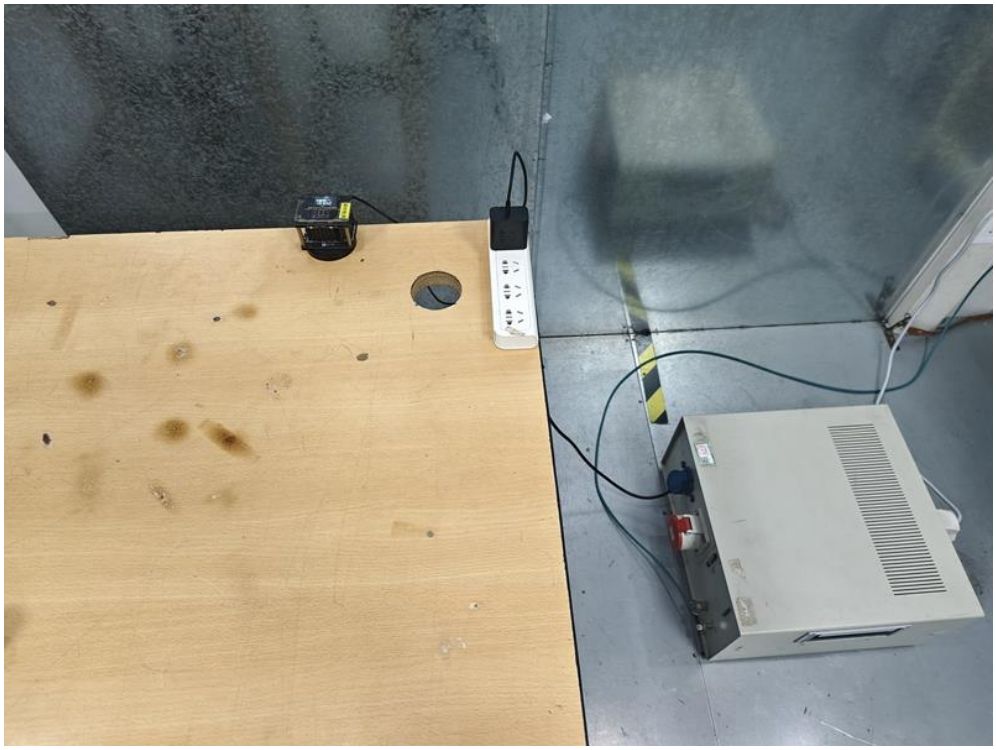
The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:

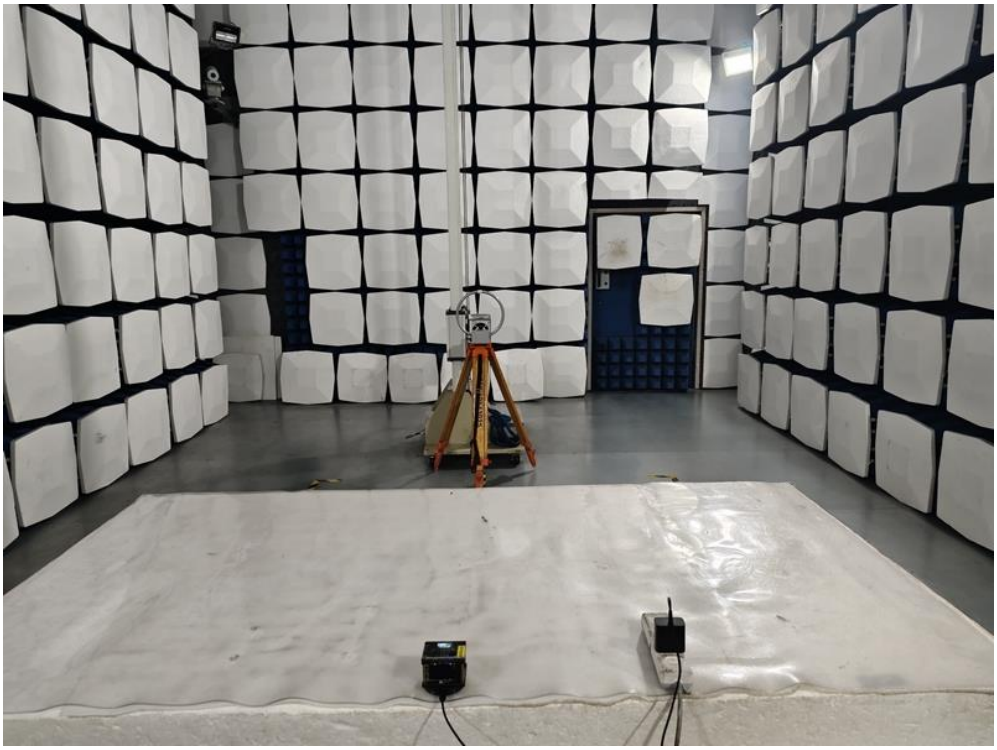


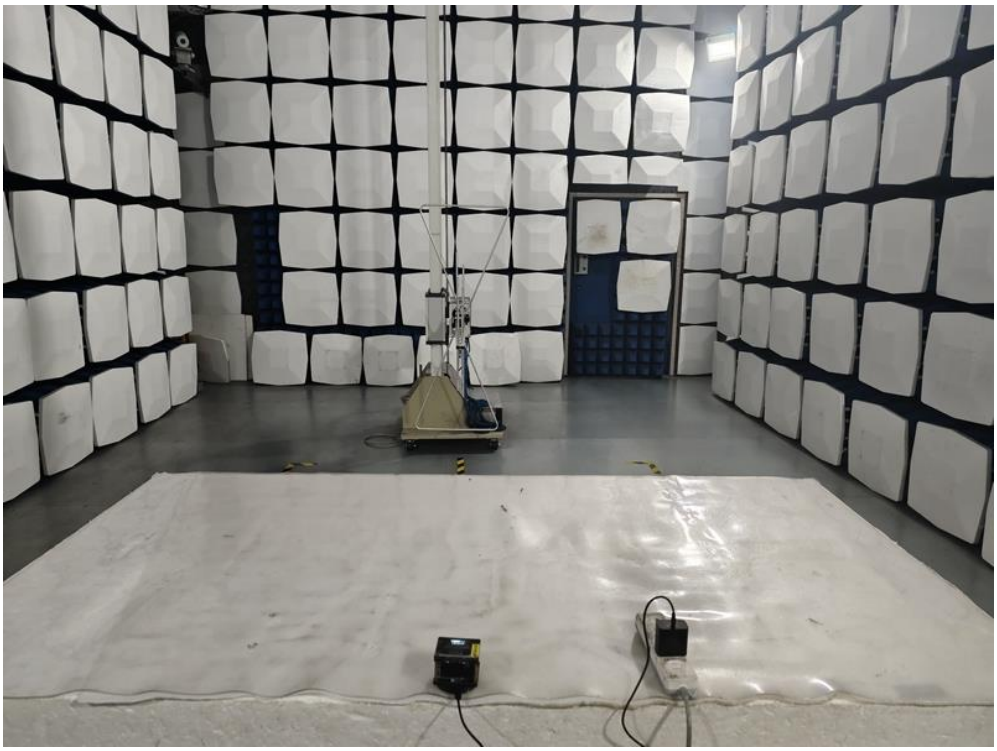
10.0 Photo of testing

10.1 Conducted test View



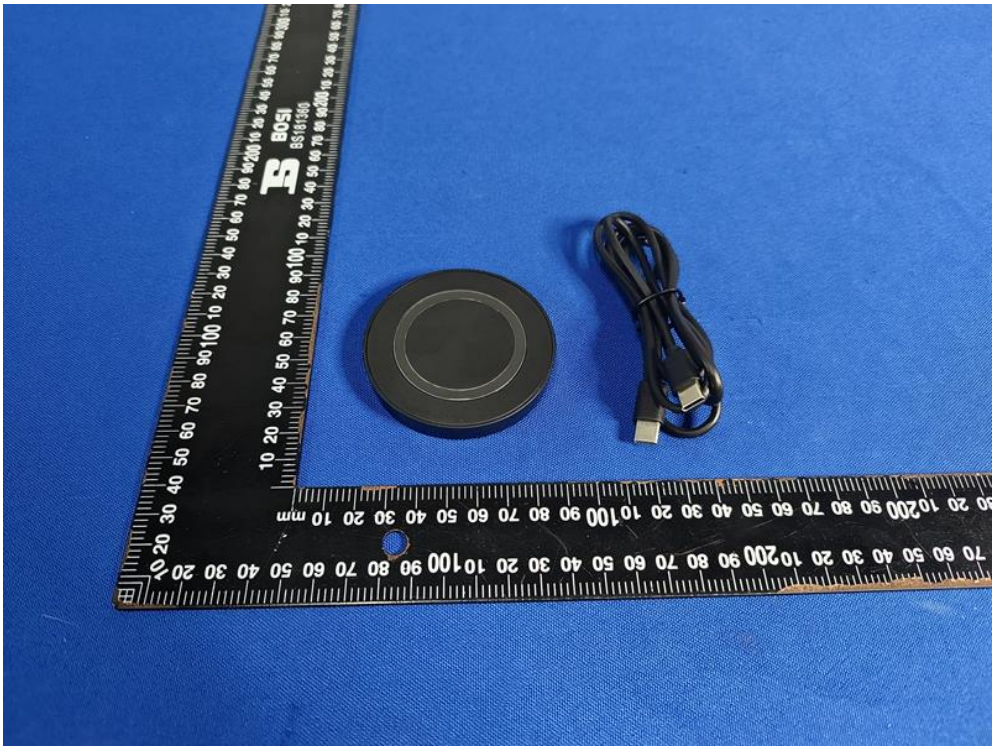
10.2 Radiated emission test view

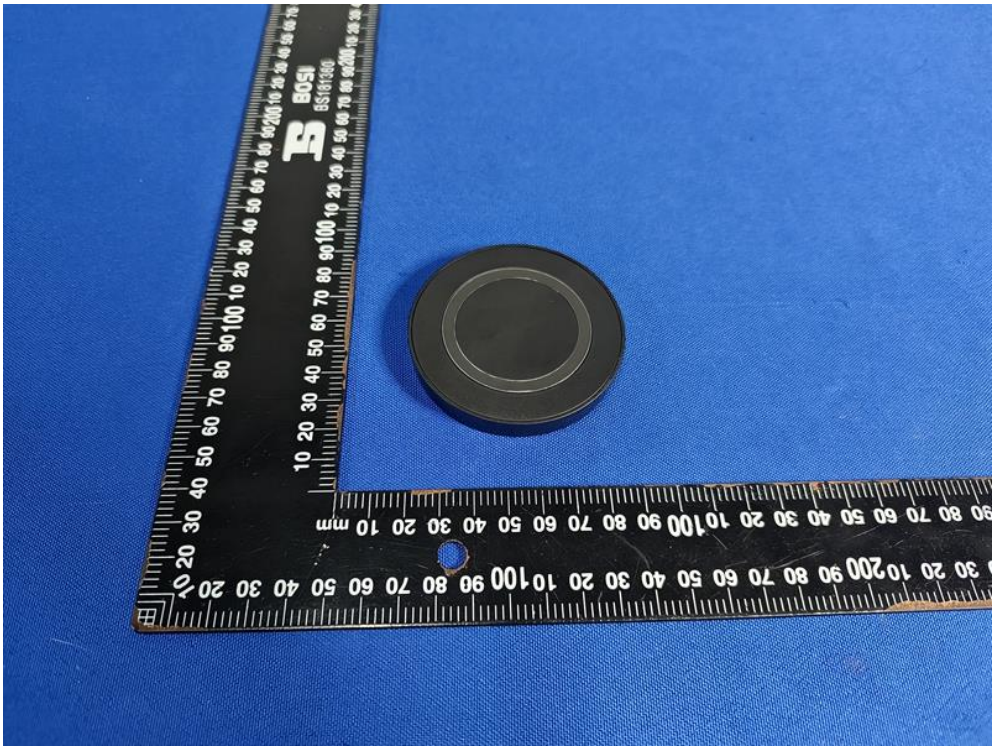




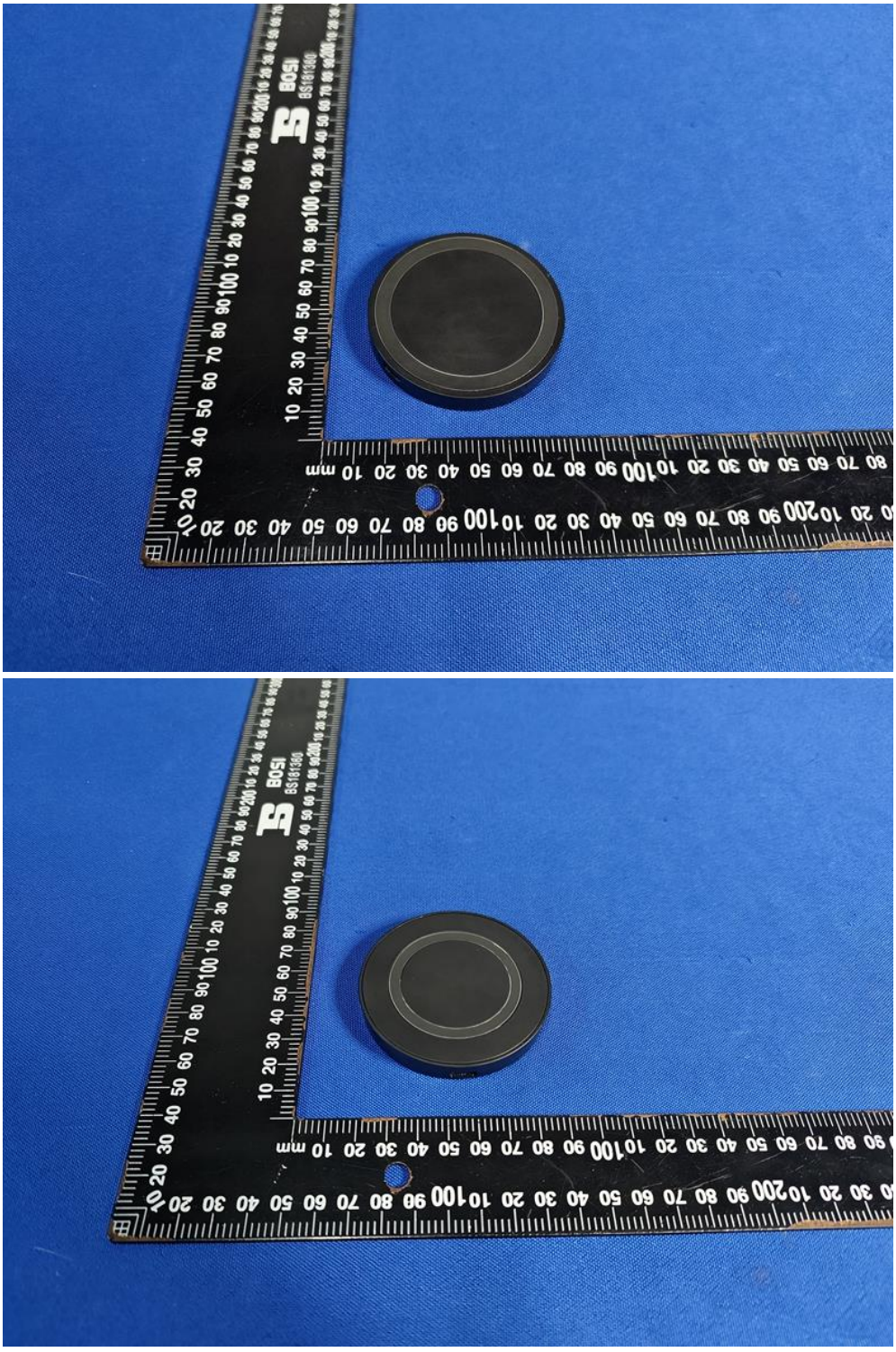
Photographs – EUT

Outside View

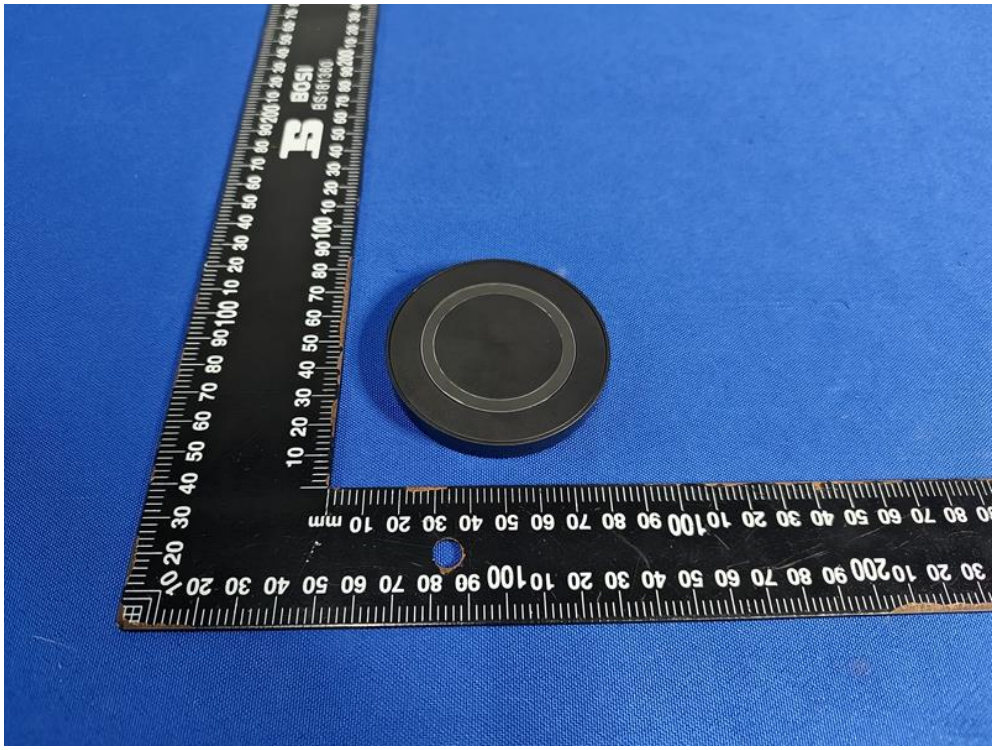




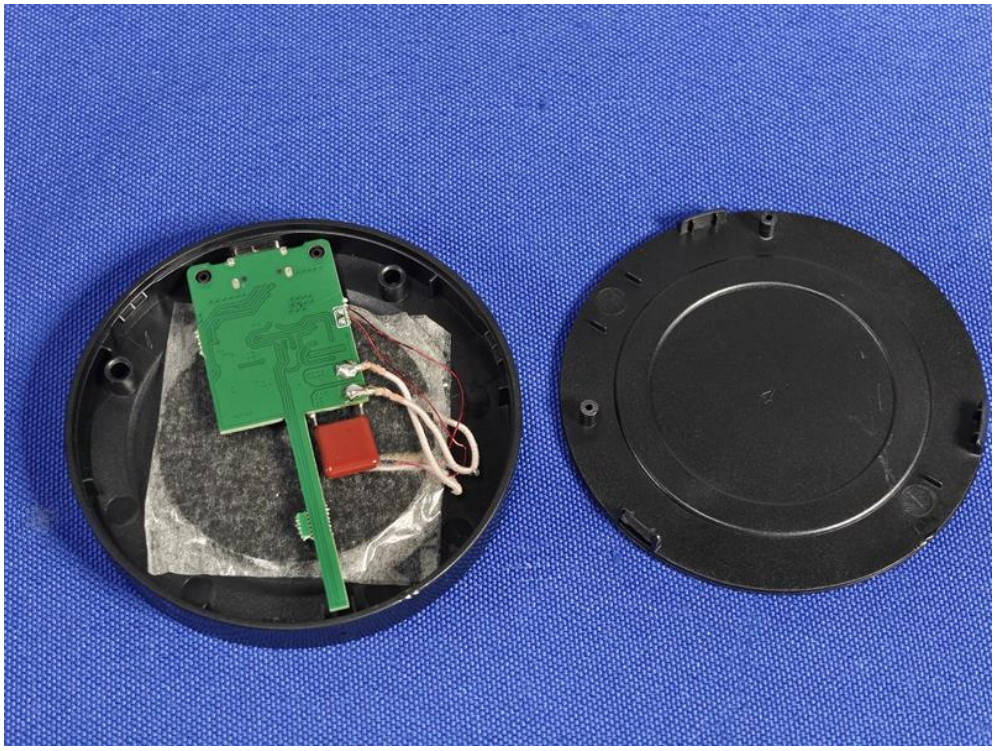
Outside View



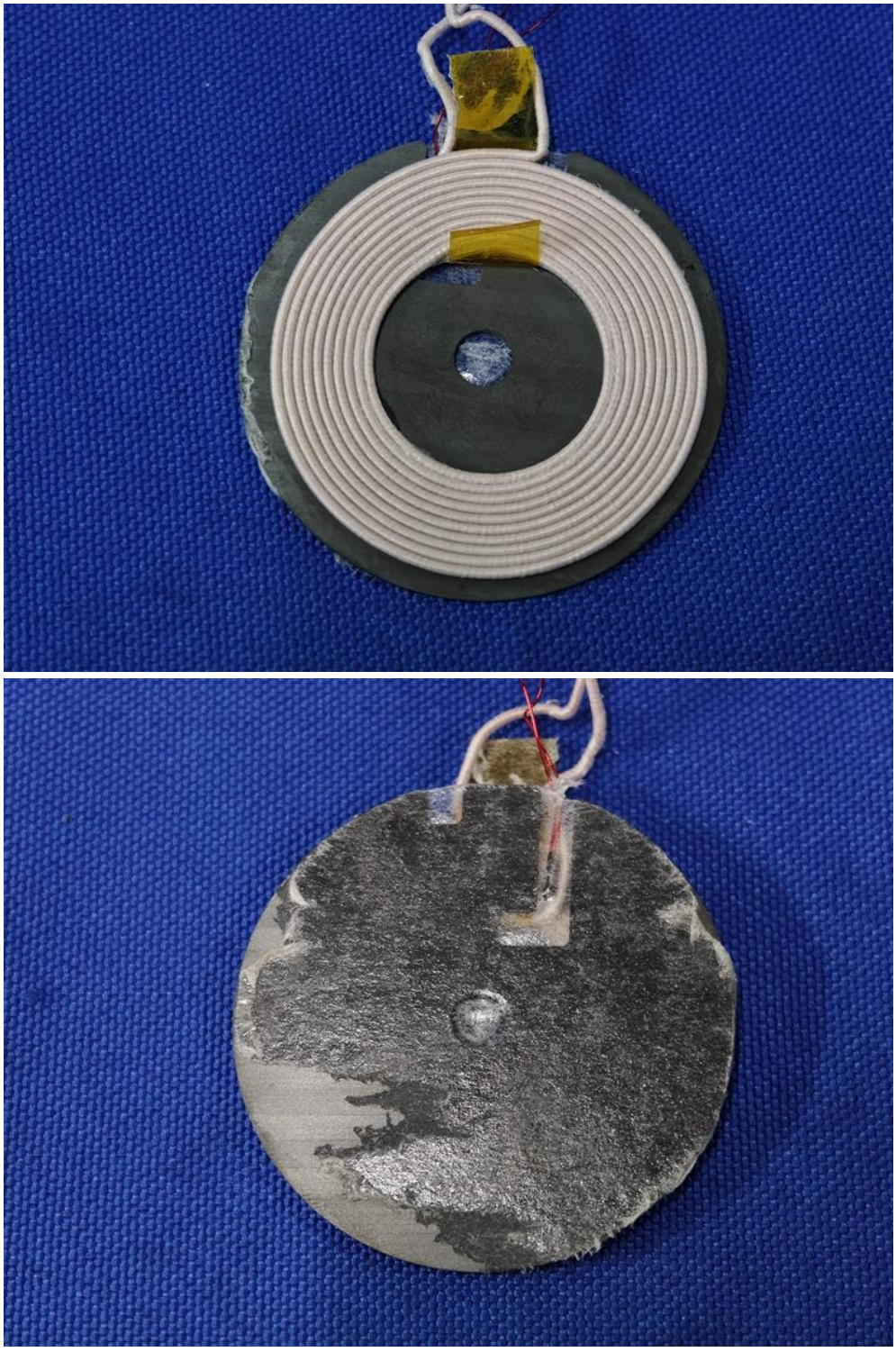
Outside View



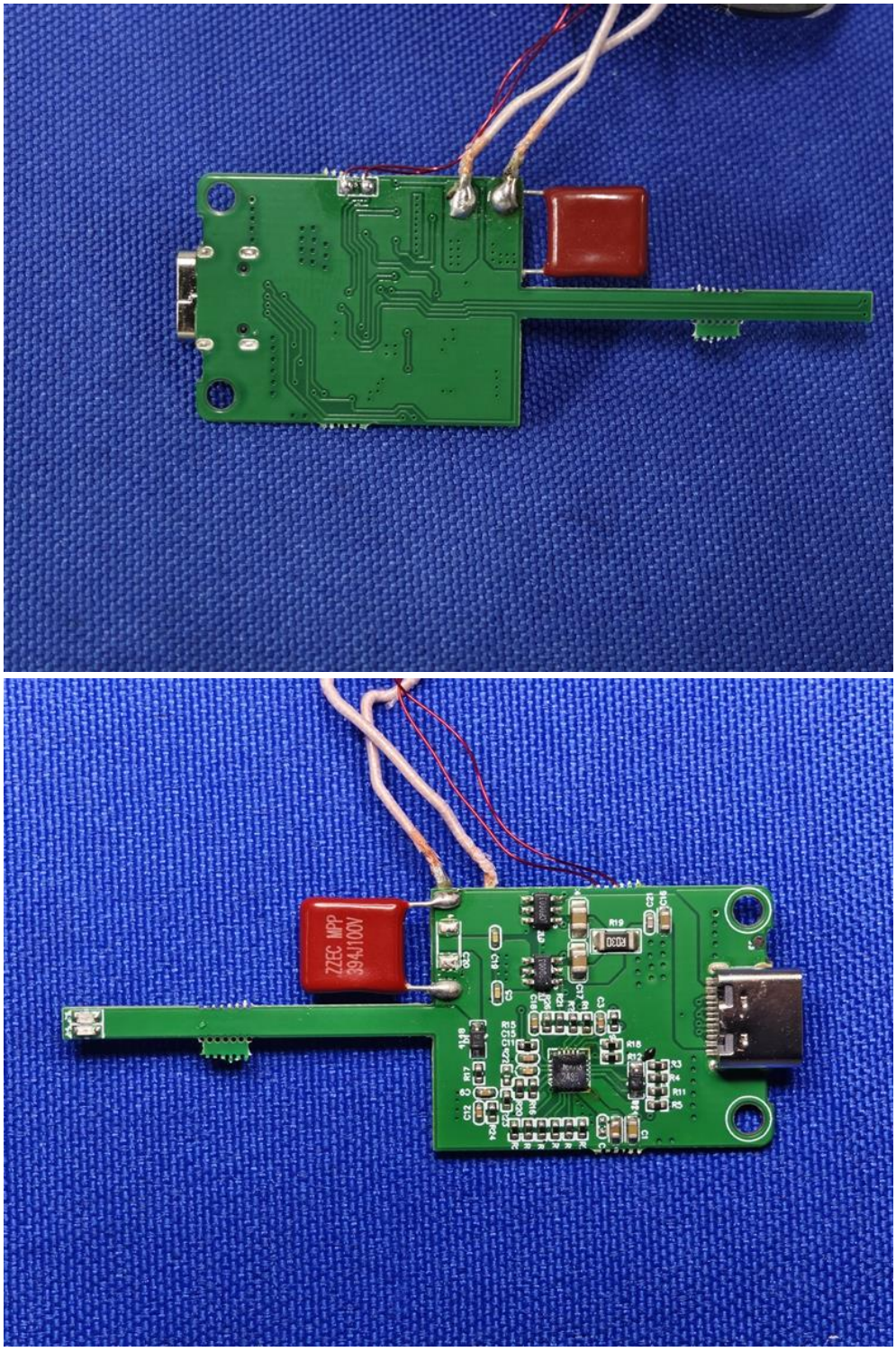
Inside View



Inside View



Inside View



-End of the report-