TCT 通测检测
TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2BCUX-W0582
Test Report No..... :	TCT240612E058
Date of issue..... :	Jun. 26, 2024
Testing laboratory ..... :	SHENZHEN TONGCE TESTING LAB
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China
Applicant's name..... :	Shen Zhen Shi Ai Mei Ke Ke Ji You Xian Gong Si
Address..... :	Room 1615, Building C, Huangdu Plazza, No.3008, Yitian Road, Huanggang Community, Futian Street, Futian District, Shenzhen 518000, China
Manufacturer's name ... :	Dong guan Utopia-Originality Technology Co., Ltd
Address..... :	NO.2, moushan Road, Chan'an Town, Dongguan City, Guangdong Province
Standard(s) ..... :	FCC CFR Title 47 Part 15 Subpart C
Product Name..... :	GeoWallet Power Bank
Trade Mark ..... :	VEGER
Model/Type reference..... :	W0582
Rating(s)..... :	Rechargeable Li-ion Battery DC 3.85V
Date of receipt of test item ..... :	Jun. 12, 2024
Date (s) of performance of test..... :	Jun. 12, 2024 ~ Jun. 26, 2024
Tested by (+signature) ... :	Ronaldo LUO
Check by (+signature).... :	Beryl ZHAO
Approved by (+signature):	Tomsin

General disclaimer:

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1. General Product Information

1.1. EUT description

Product Name.....:	GeoWallet Power Bank
Model/Type reference.....:	W0582
Sample Number.....:	TCT240612E058-0101
Operation Frequency .....:	115.03kHz ~ 149.97kHz
Output power.....:	15W
Modulation Technology .....:	Load modulation
Antenna Type.....:	Inductive loop coil Antenna
Rating(s).....:	Rechargeable Li-ion Battery DC 3.85V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

None.

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Spurious Emission	§15.209(a)(f)	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

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3. General Information

3.1. Test environment and mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	22.8 °C	24.6 °C
Humidity:	49 % RH	49 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar

Test Mode:		
	Mode 1	AC/DC adapter(DC 9V) + EUT + Mobile Phone (battery status>95%)
	Mode 2	AC/DC adapter(DC 9V) + EUT + Mobile Phone (battery status<50%)
	Mode 3	AC/DC adapter(DC 9V) + EUT + Mobile Phone (battery status<5%)
Remark	All modes have been tested. The worst mode (Mode 1) reported for Conducted emission test and The worst mode (Mode 1) reported for Radiated emission test	

The sample was placed 0.8m for the measurement below above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.

3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Adapter	EP-TA200	R37M4PR7QD4SE3	/	SAMSUNG
Mobile Phone	SM-G9350	R28HA2ER3GT	/	SAMSUNG

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

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4. Facilities and Accreditations

4.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098
  SHENZHEN TONGCE TESTING LAB
  Designation Number: CN1205
  The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.
- IC - Registration No.: 10668A-1
  SHENZHEN TONGCE TESTING LAB
  CAB identifier: CN0031
  The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

4.2. Location

SHENZHEN TONGCE TESTING LAB
Address: 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China
TEL: +86-755-27673339

4.3. Measurement Uncertainty

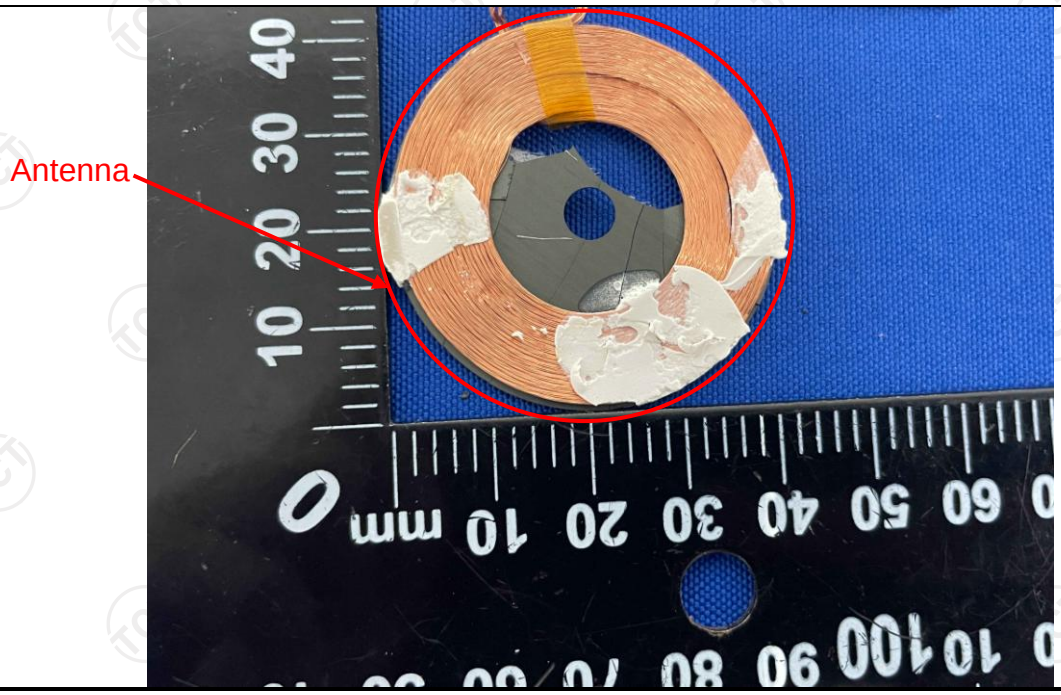
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	± 3.10 dB
2	RF power, conducted	± 0.12 dB
3	Spurious emissions, conducted	± 0.11 dB
4	All emissions, radiated(<1 GHz)	± 4.56 dB
5	All emissions, radiated(1 GHz - 18 GHz)	± 4.22 dB
6	All emissions, radiated(18 GHz- 40 GHz)	± 4.36 dB

5. Test Results and Measurement Data

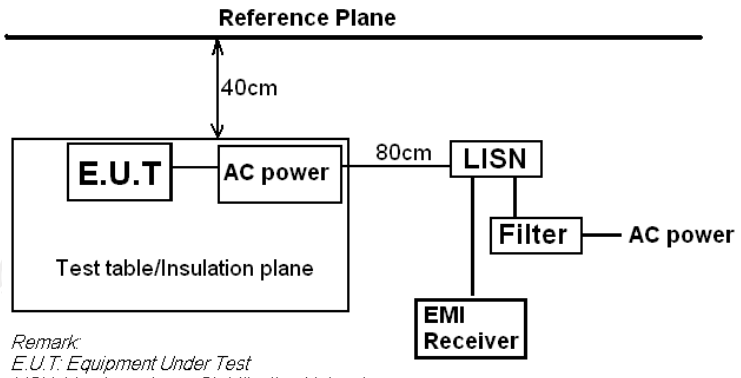
5.1. Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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, 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.	
E.U.T Antenna:	
The antenna is inductive loop coil antenna which permanently attached.	



5.2. Conducted Emission

5.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td>


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m
</td></tr>
<tr><td>Test Mode:</td><td>Refer to item 3.1</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

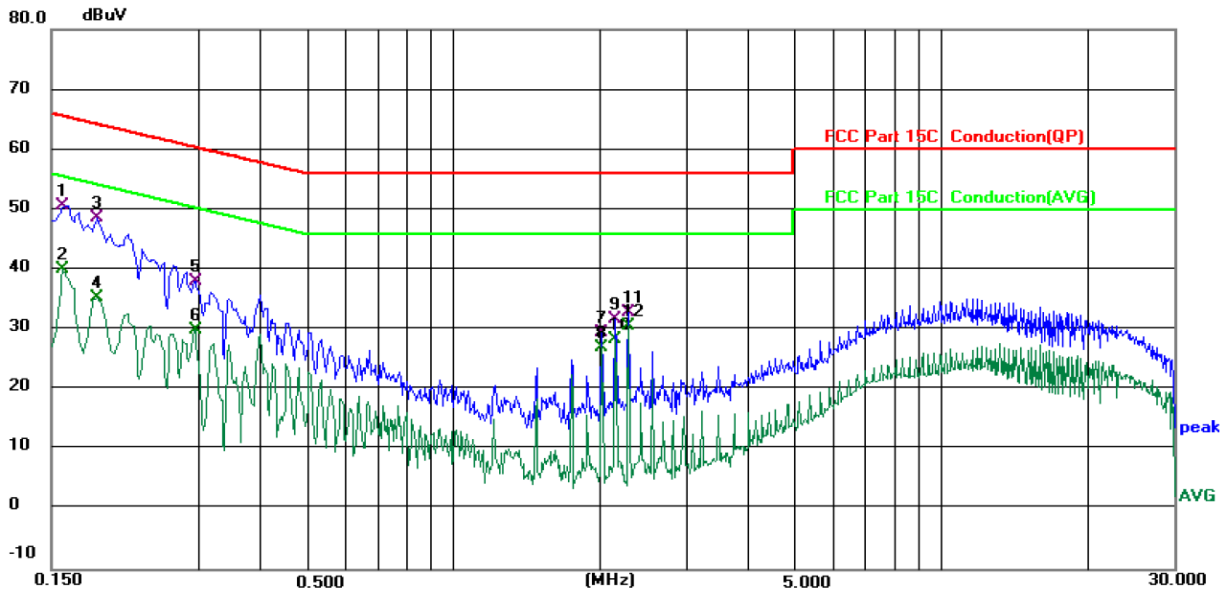
5.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI3	100898	Jun. 29, 2024
Line Impedance Stabilisation Newtork(LISN)	Schwarzbeck	NSLK 8126	8126453	Jan. 31, 2025
Line-5	TCT	CE-05	/	Jul. 03, 2024
EMI Test Software	Shurple Technology	EZ-EMC	/	/

5.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site 844 Shielding Room | Phase: *L1* | Temperature: 22.8 (℃) | Humidity: 49 %

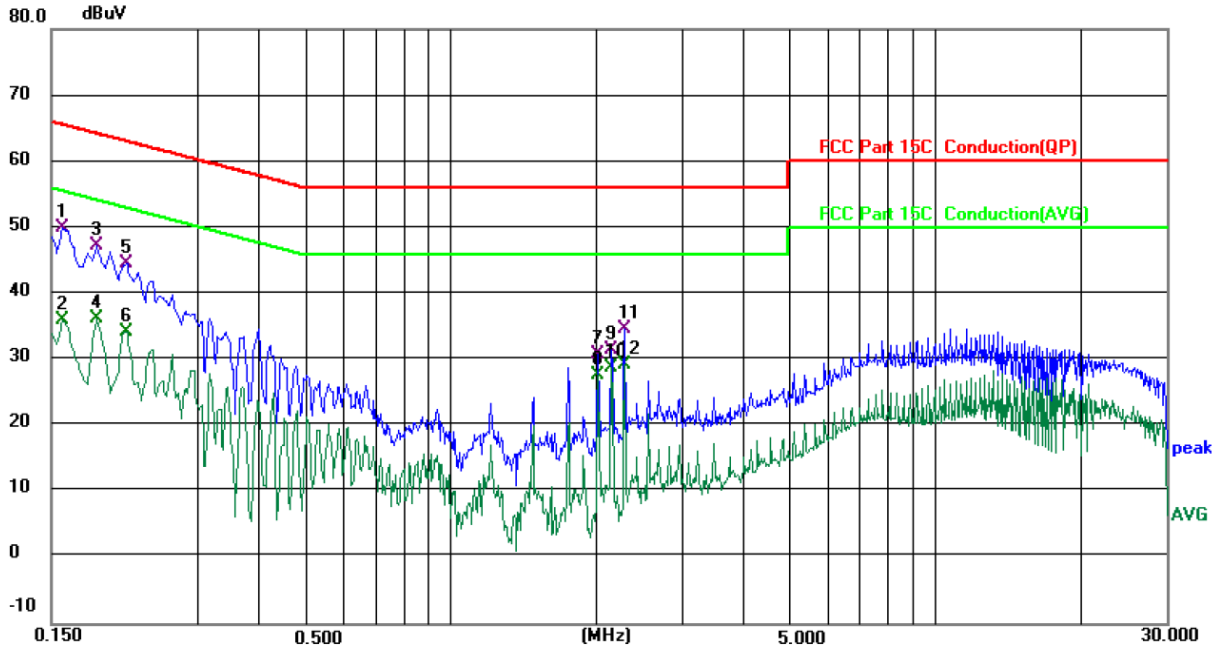
Limit: FCC Part 15C Conduction(QP) | Power: DC 9V(Adapter Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1580	40.67	10.03	50.70	65.57	-14.87	QP	
2		0.1580	30.07	10.03	40.10	55.57	-15.47	AVG	
3		0.1859	38.48	10.04	48.52	64.22	-15.70	QP	
4		0.1859	25.31	10.04	35.35	54.22	-18.87	AVG	
5		0.2939	28.26	9.85	38.11	60.41	-22.30	QP	
6		0.2939	20.08	9.85	29.93	50.41	-20.48	AVG	
7		2.0178	19.37	10.03	29.40	56.00	-26.60	QP	
8		2.0178	16.97	10.03	27.00	46.00	-19.00	AVG	
9		2.1538	21.75	10.05	31.80	56.00	-24.20	QP	
10		2.1538	18.38	10.05	28.43	46.00	-17.57	AVG	
11		2.2900	22.71	10.08	32.79	56.00	-23.21	QP	
12		2.2900	20.48	10.08	30.56	46.00	-15.44	AVG	

Note:

Freq. = Emission frequency in MHz
Reading level (dBµV) = Receiver reading
Corr. Factor (dB) = LISN factor + Cable loss
Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)
Limit (dBµV) = Limit stated in standard
Margin (dB) = Measurement (dBµV) – Limits (dBµV)
Q.P. =Quasi-Peak
AVG =average
** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz*

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site 844 Shielding Room | Phase: *N* | Temperature: 22.8 (℃) | Humidity: 49 %

Limit: FCC Part 15C Conduction(QP) | Power: DC 9V(Adapter Input AC 120V/60Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1580	39.90	10.01	49.91	65.57	-15.66	QP	
2		0.1580	25.96	10.01	35.97	55.57	-19.60	AVG	
3		0.1859	37.19	10.02	47.21	64.22	-17.01	QP	
4		0.1859	26.24	10.02	36.26	54.22	-17.96	AVG	
5		0.2139	34.75	9.82	44.57	63.05	-18.48	QP	
6		0.2139	24.48	9.82	34.30	53.05	-18.75	AVG	
7		2.0178	20.94	9.98	30.92	56.00	-25.08	QP	
8		2.0178	17.64	9.98	27.62	46.00	-18.38	AVG	
9		2.1538	21.46	9.99	31.45	56.00	-24.55	QP	
10		2.1538	18.84	9.99	28.83	46.00	-17.17	AVG	
11		2.2860	24.54	10.03	34.57	56.00	-21.43	QP	
12		2.2860	19.22	10.03	29.25	46.00	-16.75	AVG	

Note:

Freq. = Emission frequency in MHz
Reading level (dBµV) = Receiver reading
Corr. Factor (dB) = LISN factor + Cable loss
Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)
Limit (dBµV) = Limit stated in standard
Margin (dB) = Measurement (dBµV) – Limits (dBµV)
Q.P. =Quasi-Peak AVG =average
** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz*

5.3. Radiated Spurious Emission Measurement

5.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10: 2013
Frequency Range:	9 kHz to 25 GHz
Measurement Distance:	3 m
Antenna Polarization:	Horizontal & Vertical
Operation mode:	Refer to item 3.1
Receiver Setup:	

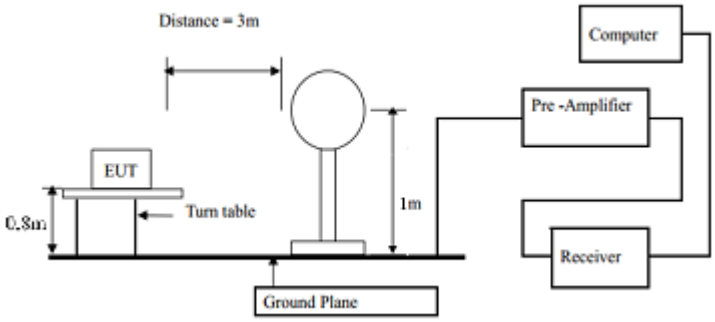
Frequency	Detector	RBW	VBW	Remark
9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value

Limit:

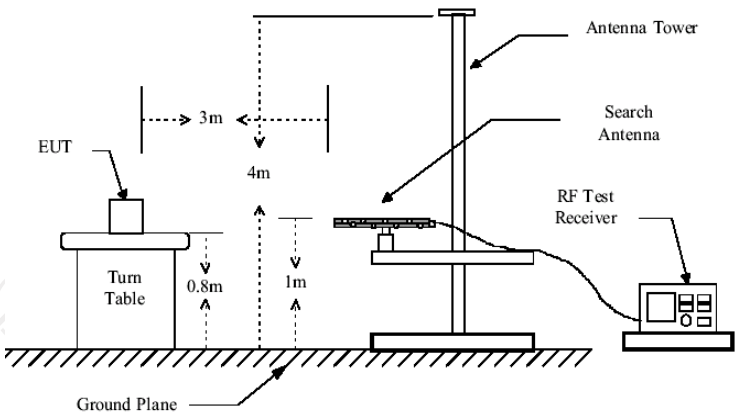
Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test setup:

For radiated emissions below 30MHz



30MHz to 1GHz

	
Test Procedure:	1. For the radiated emission test below 1GHz: The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level. 2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 3. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 4. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=120 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f □ 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 3.1 for details
Test results:	PASS

5.3.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESIB7	100197	Jun. 29, 2024
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 29, 2024
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 31, 2025
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 31, 2025
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jul. 02, 2024
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 01, 2024
Antenna Mast	Keleto	RE-AM	/	/
Coaxial cable	SKET	RC-18G-N-M	/	Jan. 31, 2025
Coaxial cable	SKET	RC_40G-K-M	/	Jan. 31, 2025
EMI Test Software	Shurple Technology	EZ-EMC	/	/

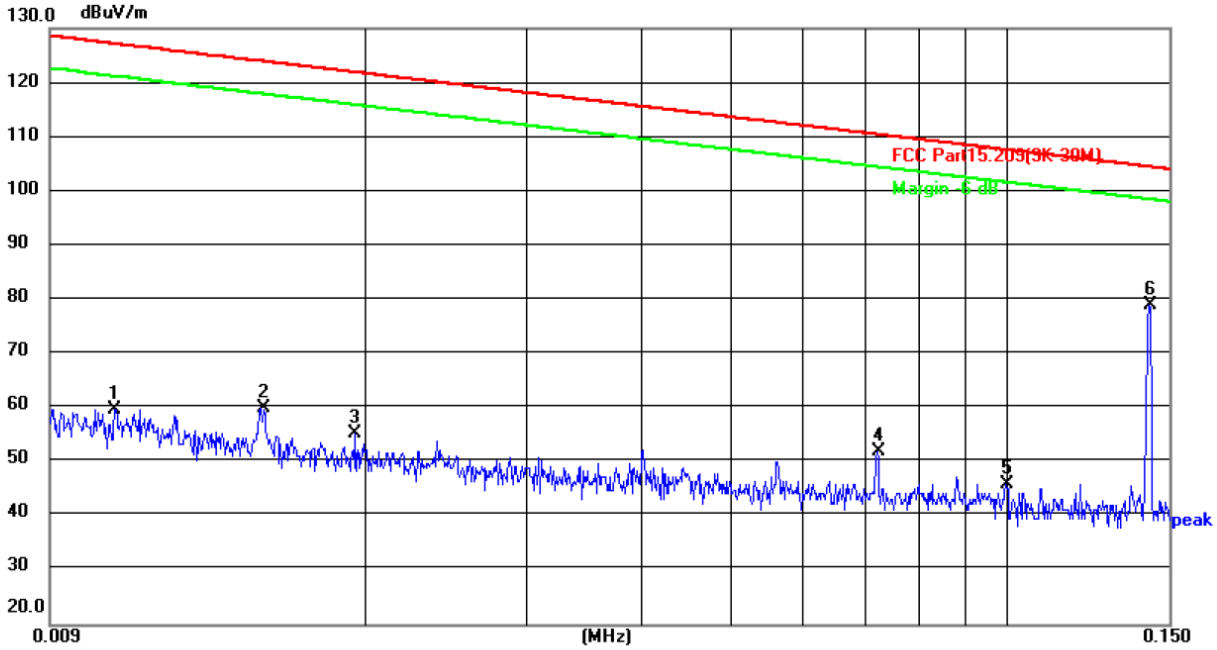
5.3.3. Test Data

Please refer to following diagram for individual

9KHz-30MHz

9KHz-150KHz:

Coaxial:

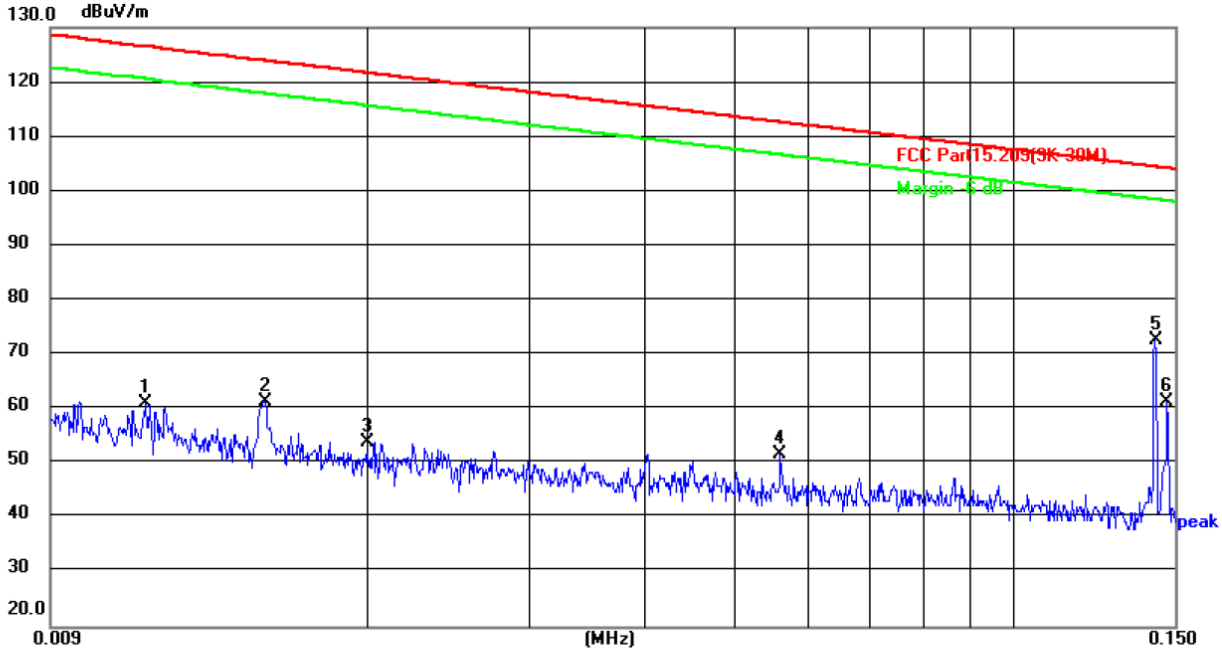


Site: 3m Anechoic Chamber Polarization: ***Coaxial*** Temperature: 22.9(℃) Humidity: 53 %

Limit: FCC Part15.209(9K-30M) Power:Supply power by internal battery

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0106	39.41	20.33	59.74	127.10	-67.36	peak	P	
2	0.0153	39.74	20.32	60.06	123.91	-63.85	peak	P	
3	0.0194	35.17	20.30	55.47	121.85	-66.38	peak	P	
4	0.0720	31.76	20.25	52.01	110.46	-58.45	peak	P	
5	0.0996	25.56	20.47	46.03	107.64	-61.61	peak	P	
6 *	0.1430	58.88	20.20	79.08	104.50	-25.42	peak	P	

Coplanar:



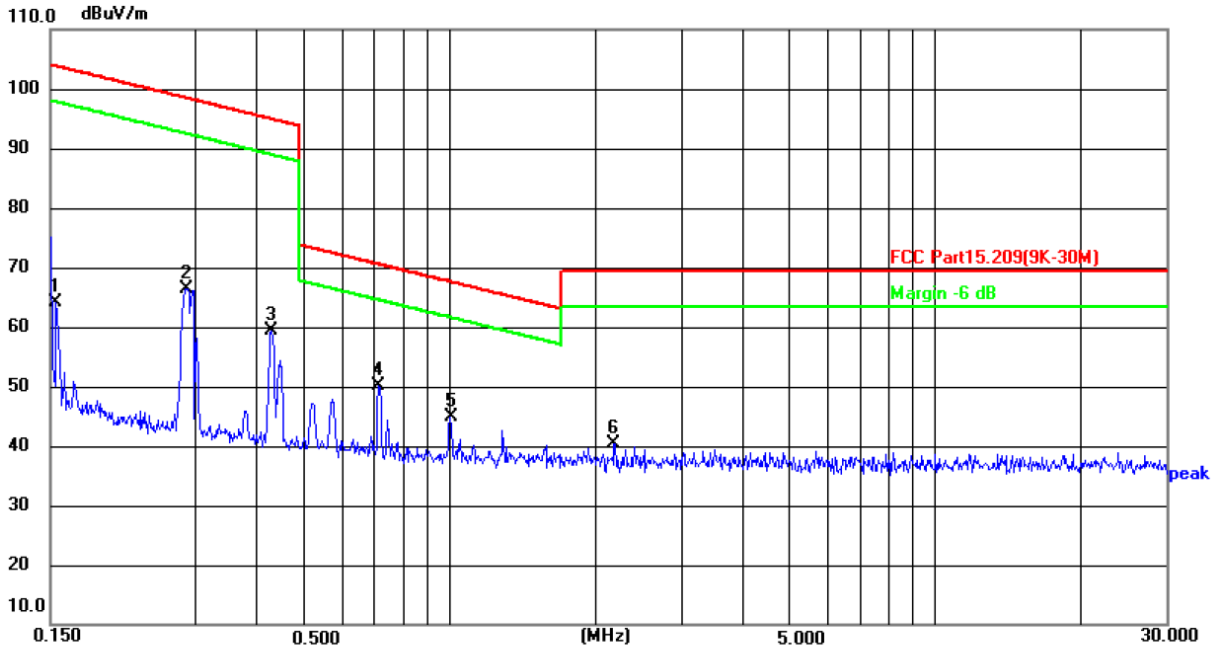
Site: 3m Anechoic Chamber Polarization: ***Coplanar*** Temperature: 22.9(℃) Humidity: 53 %

Limit: FCC Part15.209(9K-30M) Power:Supply power by internal battery

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0114	40.82	20.32	61.14	126.47	-65.33	peak	P	
2	0.0152	41.20	20.32	61.52	123.97	-62.45	peak	P	
3	0.0200	33.65	20.30	53.95	121.58	-67.63	peak	P	
4	0.0558	31.39	20.30	51.69	112.67	-60.98	peak	P	
5 *	0.1425	52.52	20.21	72.73	104.53	-31.80	peak	P	
6	0.1474	41.31	20.16	61.47	104.23	-42.76	peak	P	

150KHz-30MHz:

Coaxial:

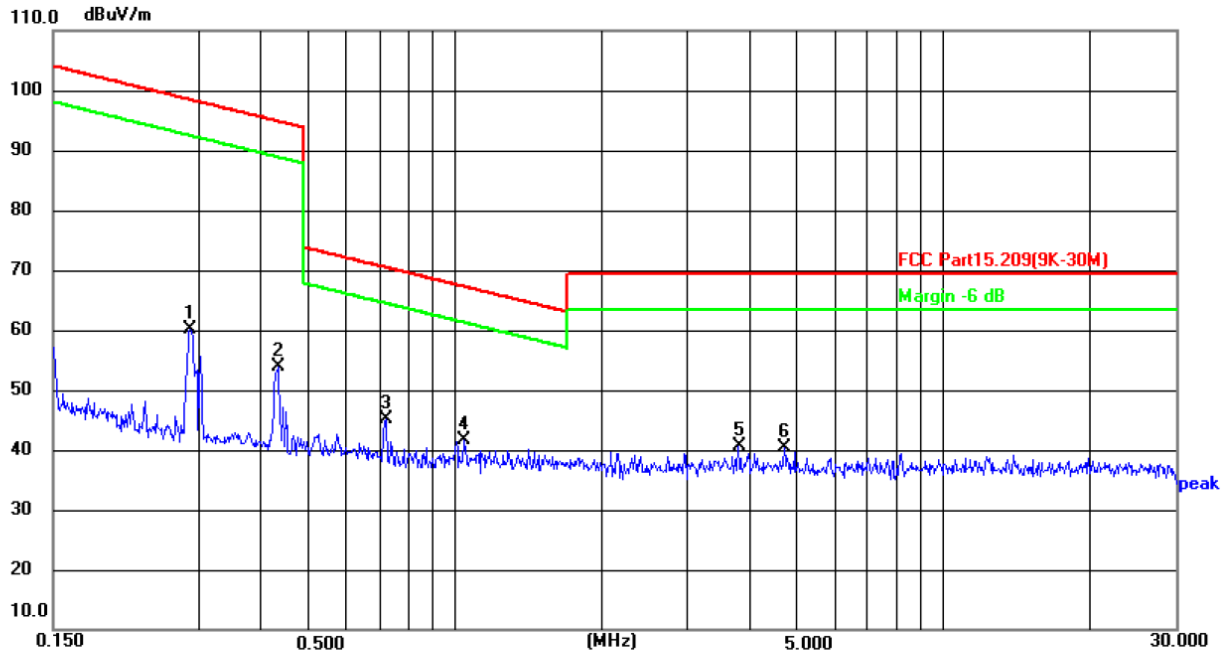


Site: 3m Anechoic Chamber Polarization: *Coaxial* Temperature: 22.9(℃) Humidity: 53 %

Limit: FCC Part15.209(9K-30M) Power:Supply power by internal battery

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.1544	43.97	20.12	64.09	103.83	-39.74	peak	P	
2	0.2871	46.10	20.35	66.45	98.44	-31.99	peak	P	
3	0.4289	38.83	20.60	59.43	94.96	-35.53	peak	P	
4 *	0.7155	28.94	21.12	50.06	70.52	-20.46	peak	P	
5	1.0022	23.33	21.62	44.95	67.60	-22.65	peak	P	
6	2.1897	16.41	24.01	40.42	69.50	-29.08	peak	P	

Coplanar:



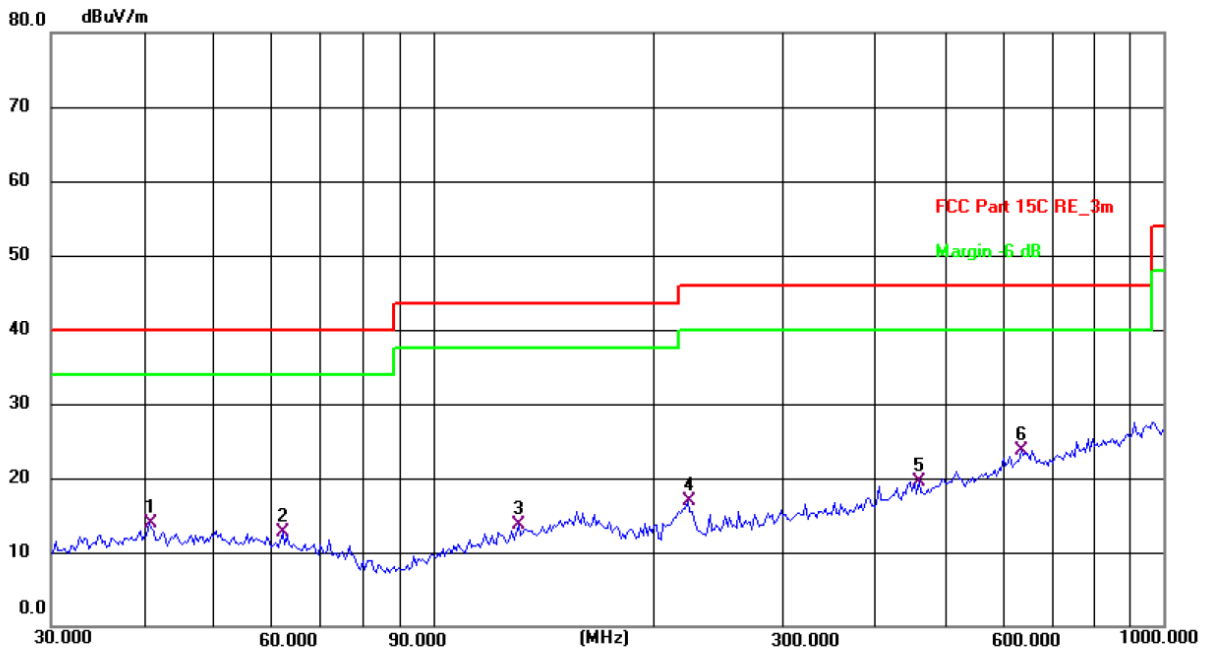
Site: 3m Anechoic Chamber Polarization: ***Coplanar*** Temperature: 22.9(℃) Humidity: 53 %

Limit: FCC Part15.209(9K-30M) Power:Supply power by internal battery

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.2868	39.86	20.35	60.21	98.45	-38.24	peak	P	
2	0.4335	33.35	20.60	53.95	94.86	-40.91	peak	P	
3 *	0.7228	23.97	21.12	45.09	70.43	-25.34	peak	P	
4	1.0468	19.84	21.72	41.56	67.23	-25.67	peak	P	
5	3.8025	13.44	27.24	40.68	69.50	-28.82	peak	P	
6	4.7363	11.20	29.12	40.32	69.50	-29.18	peak	P	

30MHz-1GHz

Horizontal:

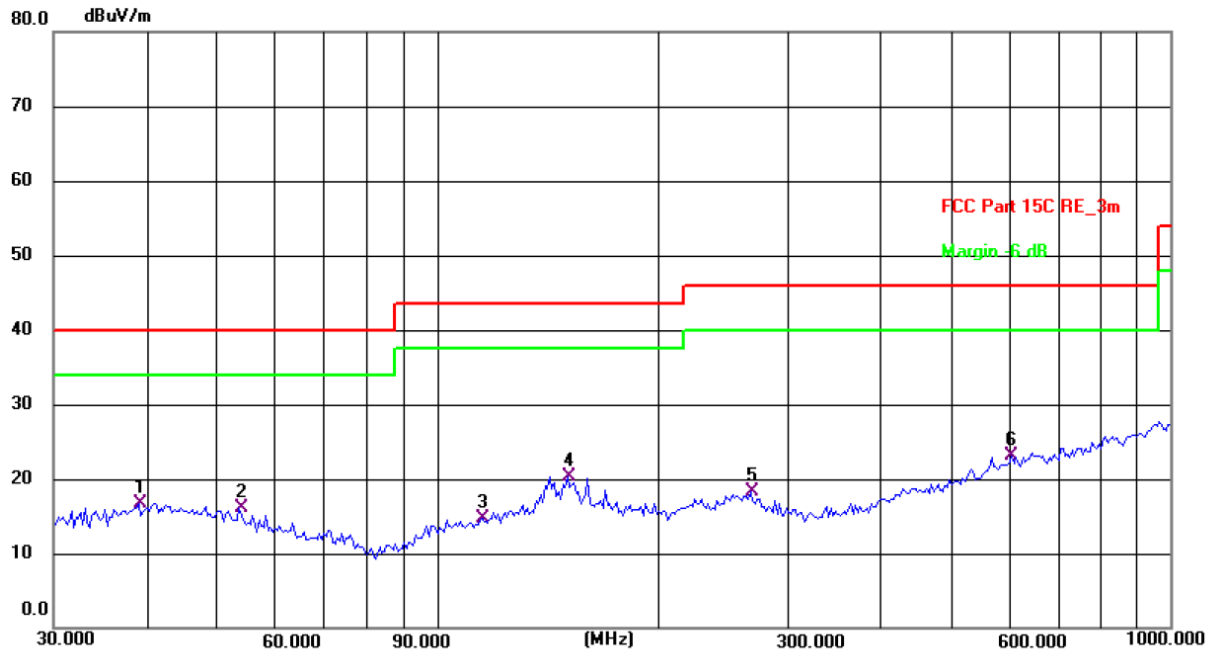


Site: 3m Anechoic Chamber1 Polarization: ***Horizontal*** Temperature: 24.6(C) Humidity: 49 %

Limit: FCC Part 15C RE_3m Power: Supply power by internal battery

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	40.8446	26.19	-12.28	13.91	40.00	-26.09	QP	P	
2	62.2128	25.96	-13.28	12.68	40.00	-27.32	QP	P	
3	130.8369	25.98	-12.37	13.61	43.50	-29.89	QP	P	
4	222.9502	31.12	-14.24	16.88	46.00	-29.12	QP	P	
5	462.3455	26.97	-7.44	19.53	46.00	-26.47	QP	P	
6 *	638.3686	27.12	-3.43	23.69	46.00	-22.31	QP	P	

Vertical:



Site: 3m Anechoic Chamber1 Polarization: ***Vertical*** Temperature: 24.6(C) Humidity: 49 %

Limit: FCC Part 15C RE_3m Power: Supply power by internal battery

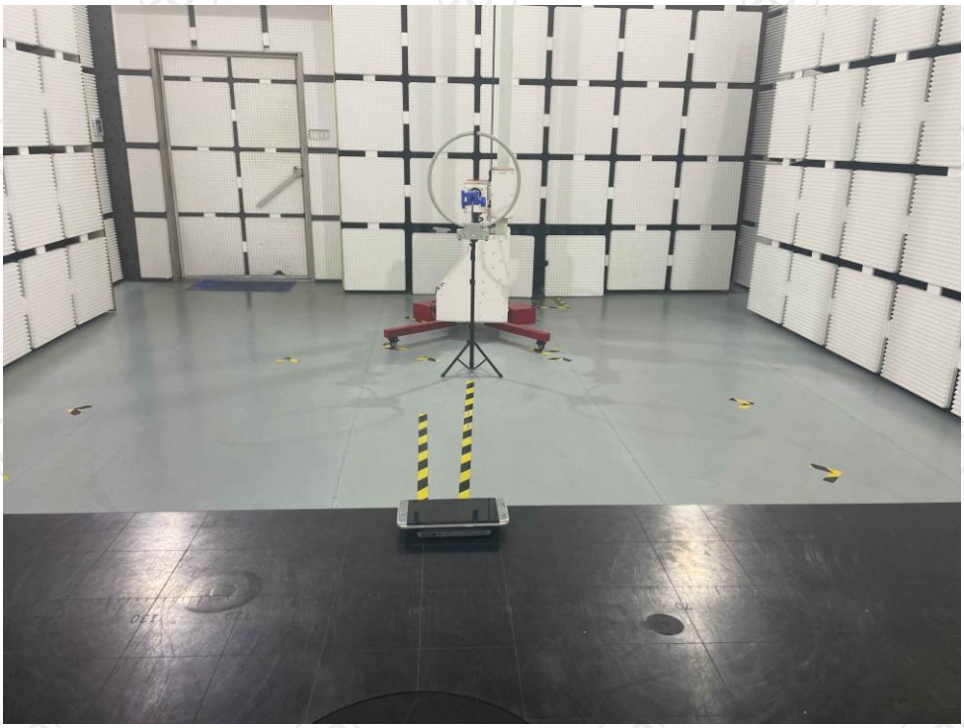
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	39.1616	29.06	-12.40	16.66	40.00	-23.34	QP	P	
2	53.6932	28.92	-12.85	16.07	40.00	-23.93	QP	P	
3	115.3205	28.65	-13.96	14.69	43.50	-28.81	QP	P	
4	150.5378	31.42	-11.04	20.38	43.50	-23.12	QP	P	
5	267.5455	29.91	-11.66	18.25	46.00	-27.75	QP	P	
6 *	607.7867	27.29	-4.09	23.20	46.00	-22.80	QP	P	

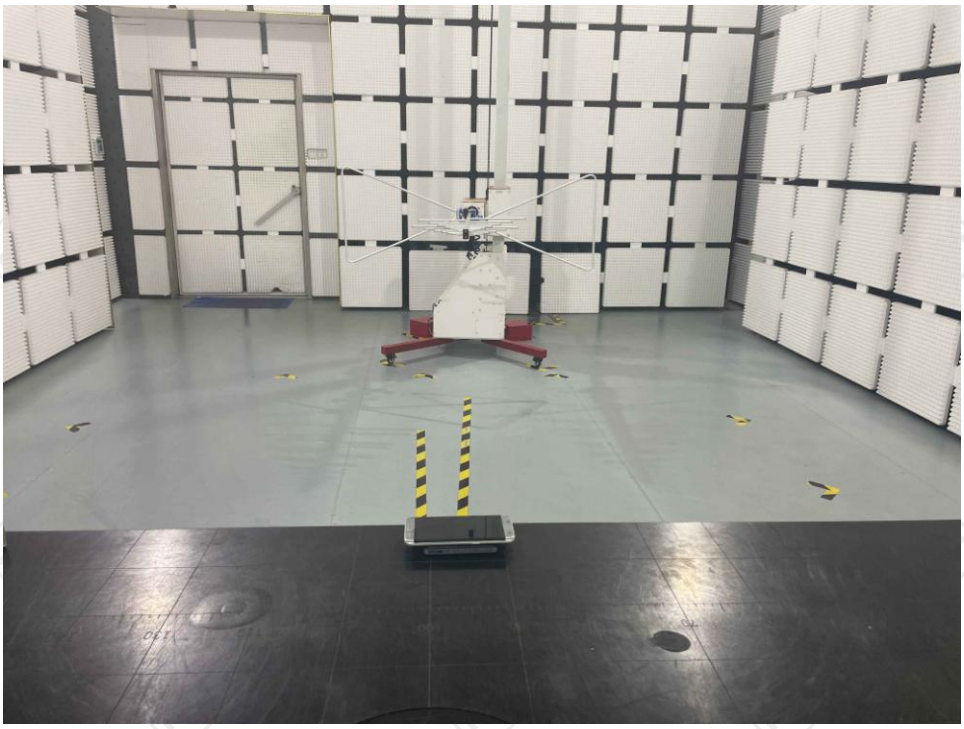
Note:

Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

Appendix A: Photographs of Test Setup

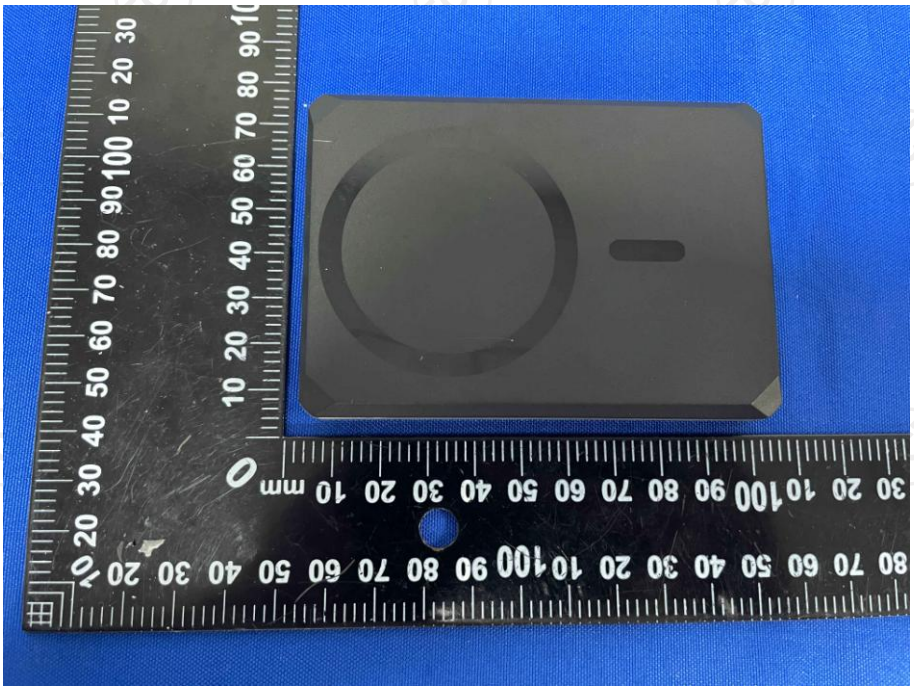
Product: GeoWallet Power Bank
Model: W0582
Radiated Emission

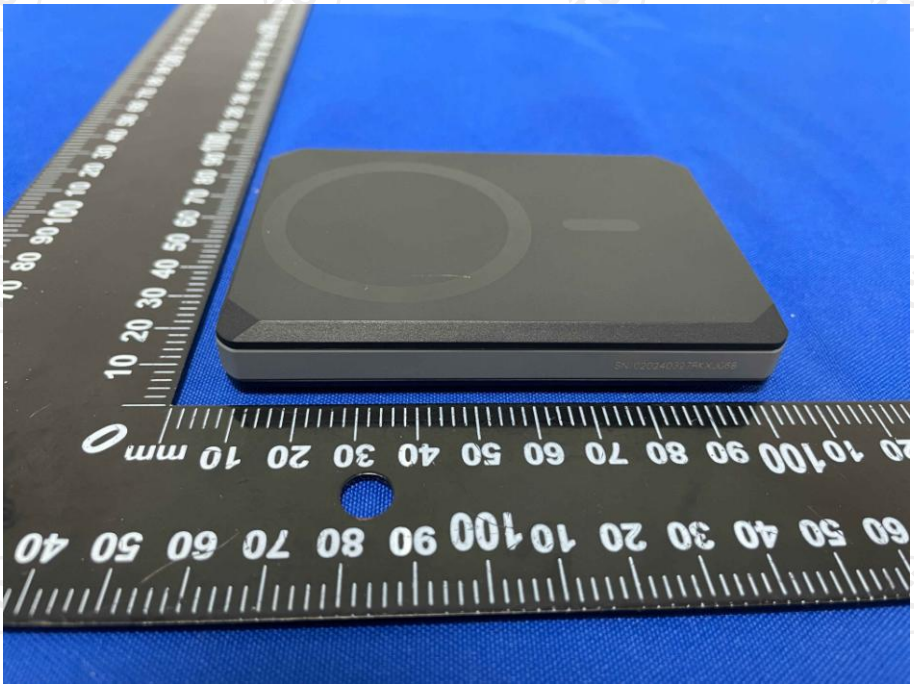


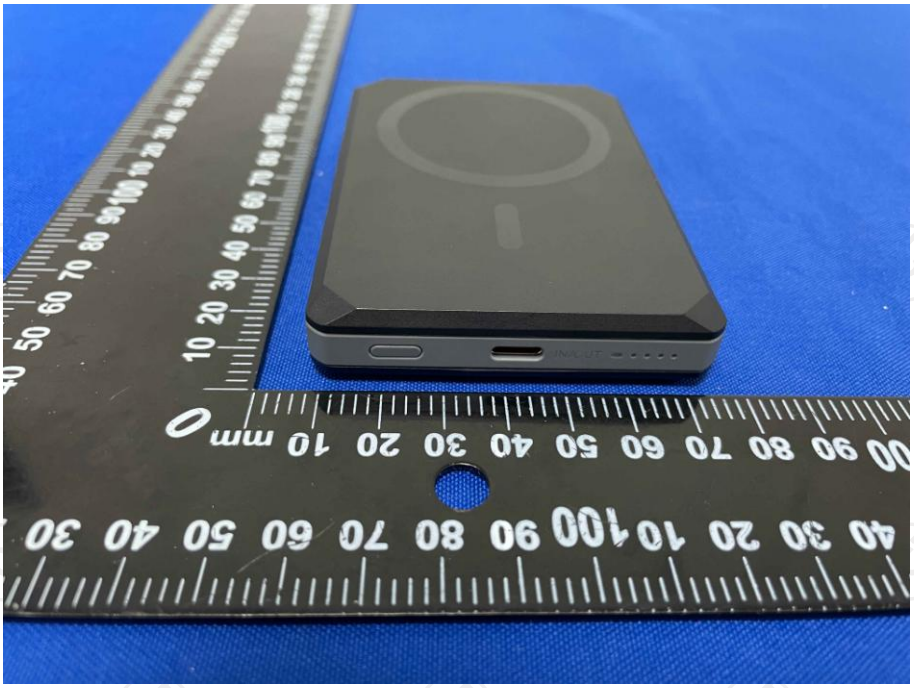


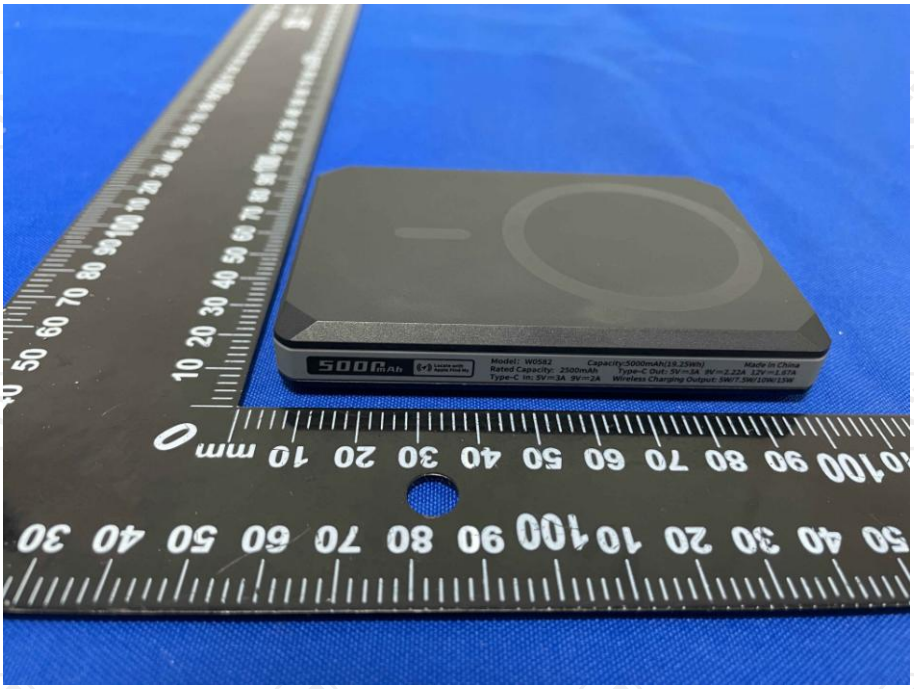
Conducted Emission

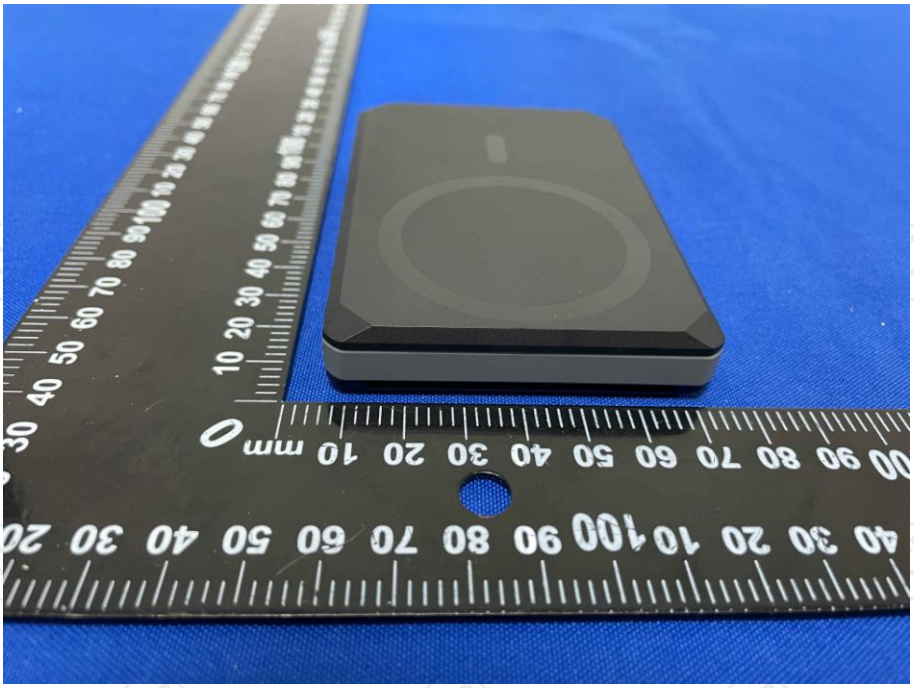
Appendix B: Photographs of EUT
Product: GeoWallet Power Bank
Model: W0582
External Photos

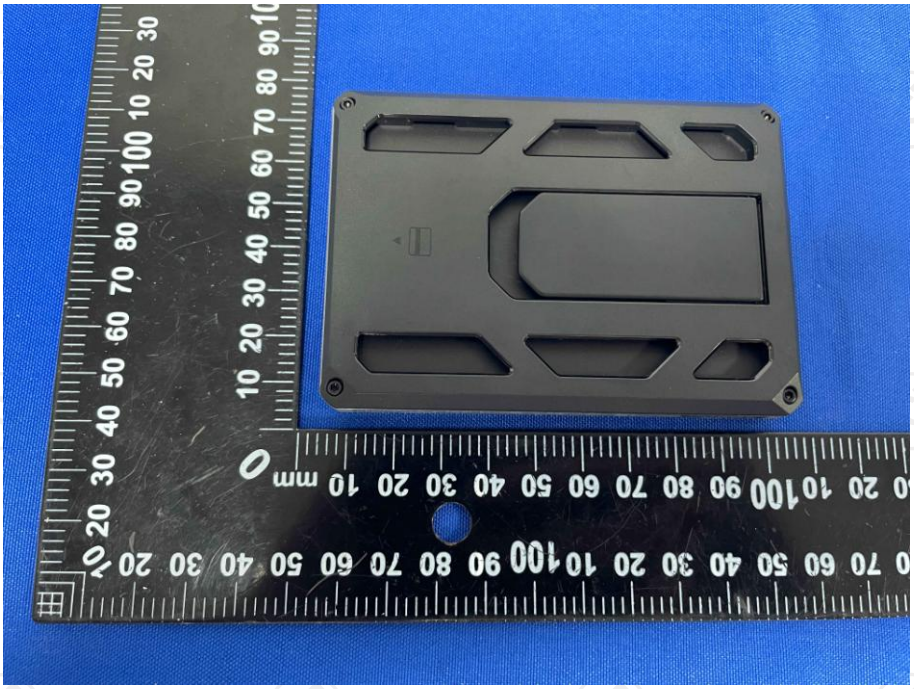




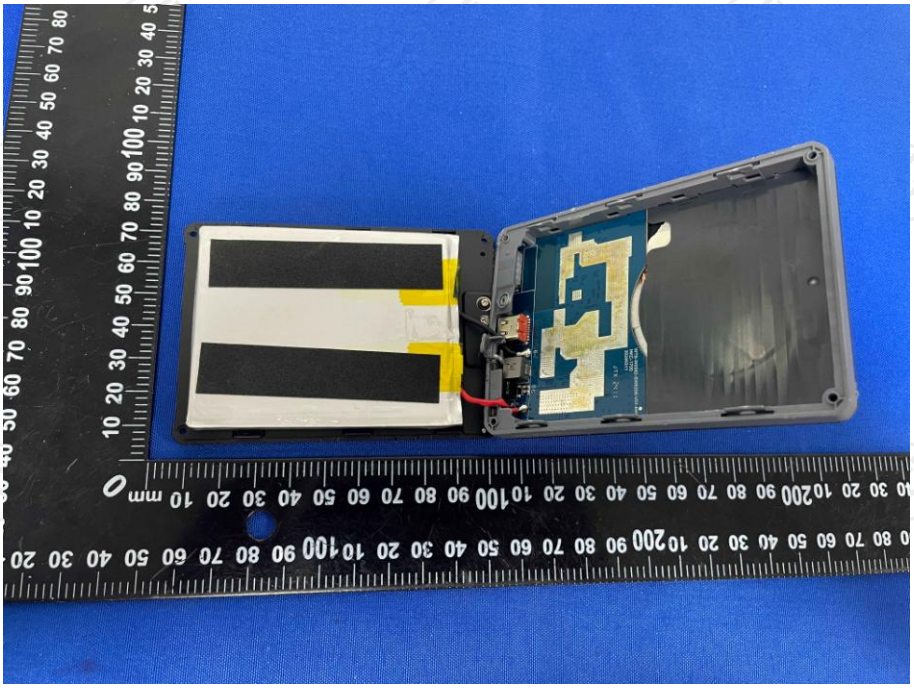


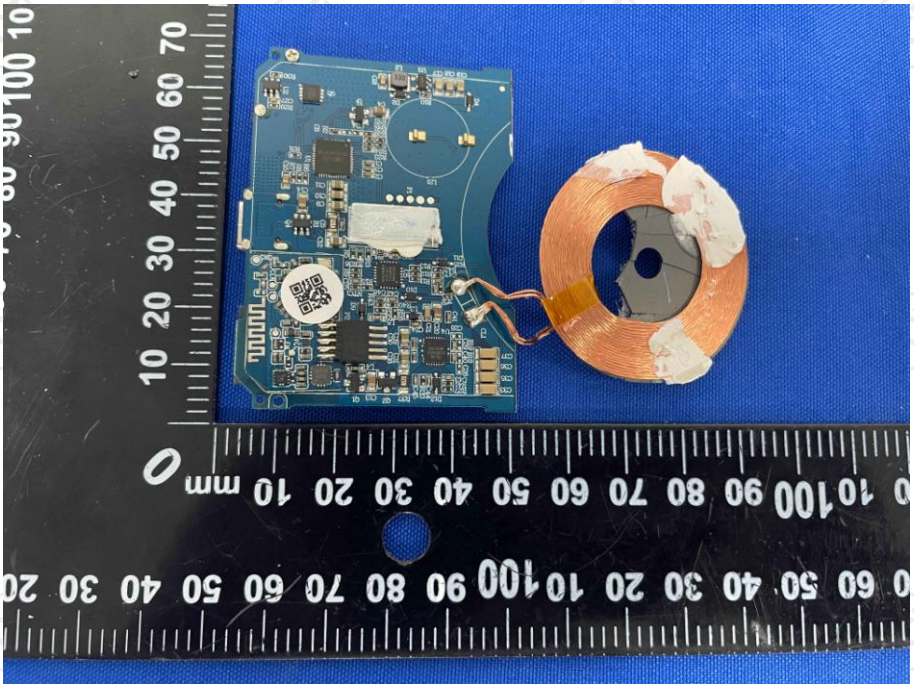

5000mAh

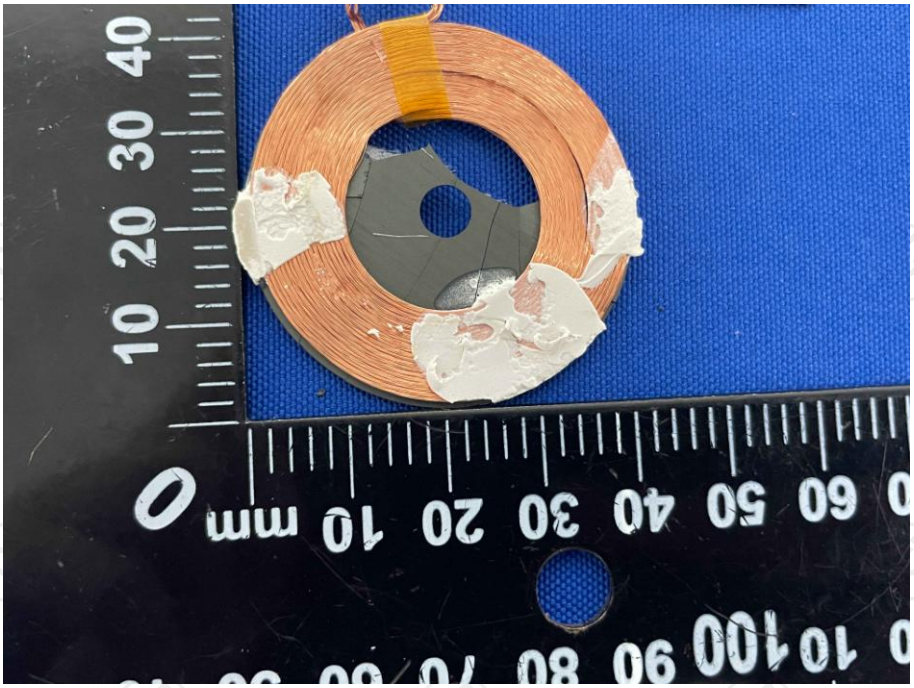


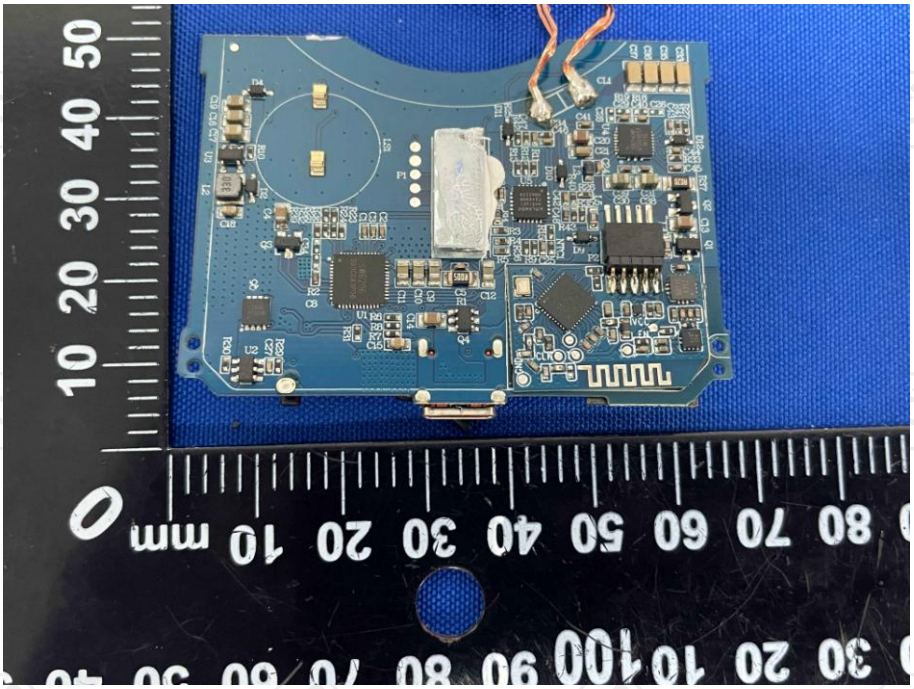


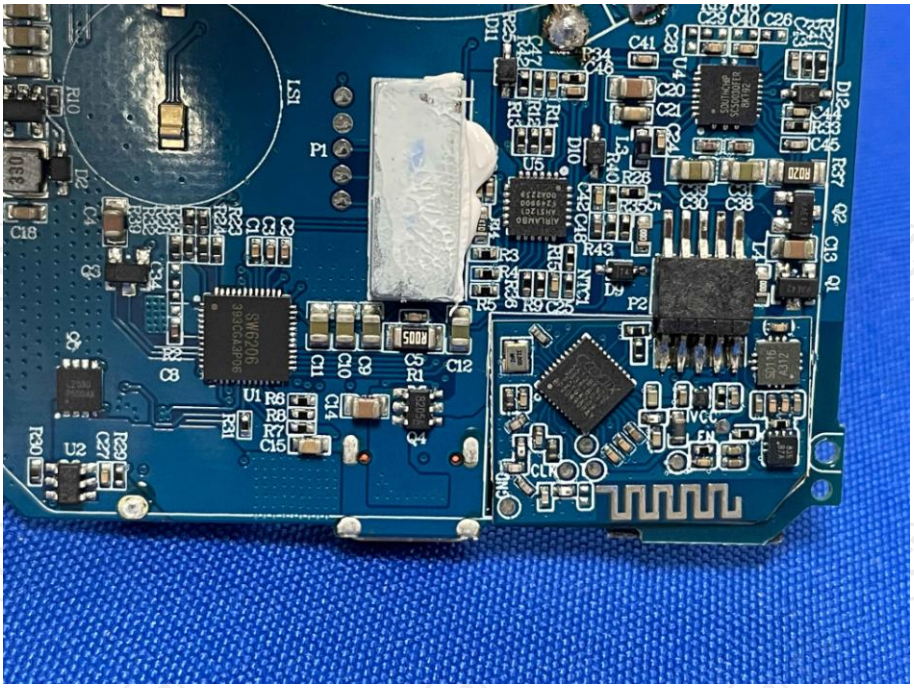
Product: GeoWallet Power Bank
Model: W0582
Internal Photos

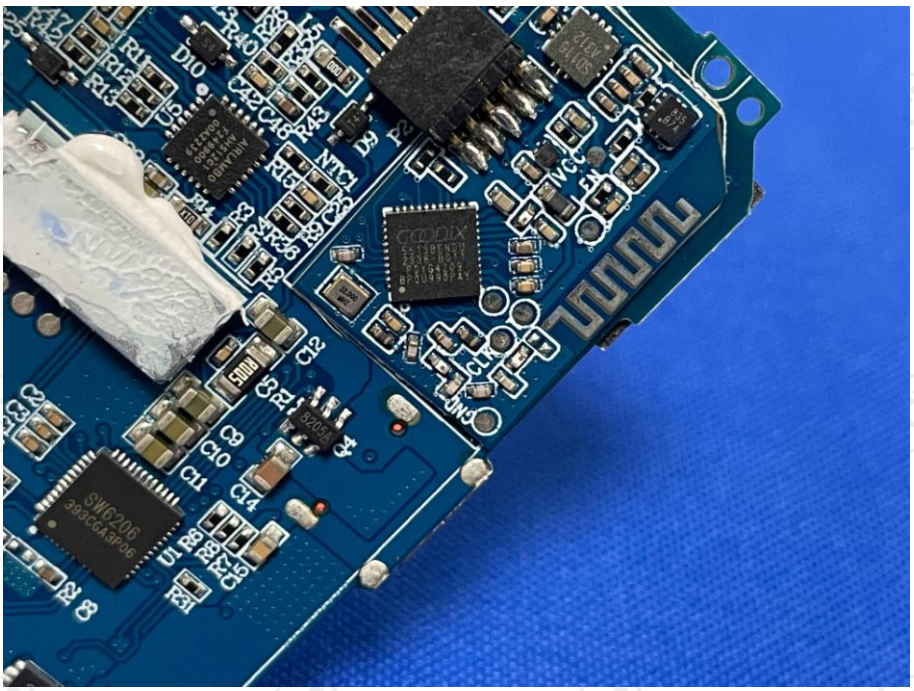












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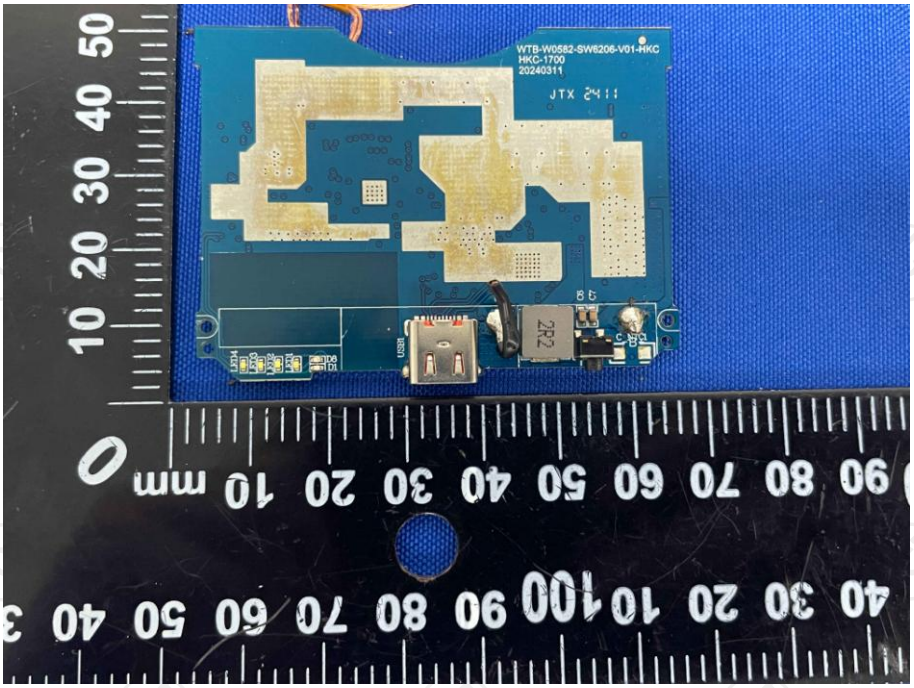

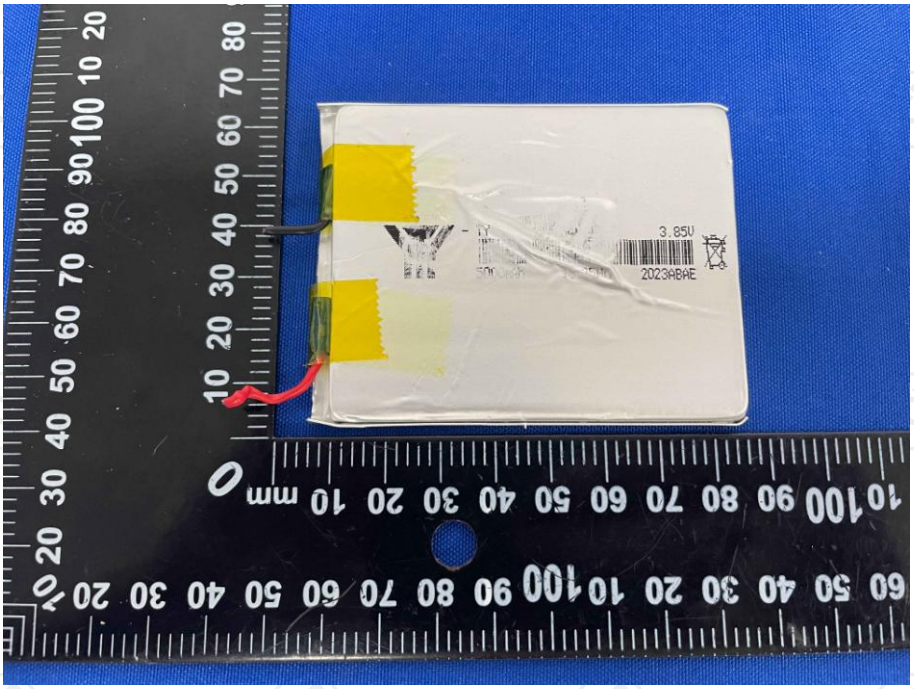

*****END OF REPORT*****