

FCC REPORT

Applicant: JOGEEK TECHNOLOGY LIMITED

Address of Applicant: 2F., NO. 285, SEC. 3, ROOSEVELT RD., DA'AN DIST., TAIPEI CITY 106, TAIWAN (R.O.C.)

Equipment Under Test (EUT)

Product Name: POWER BANK

Model No.: JPB002

Trade mark: JOGEEK

FCC ID: 2AZ2ZJPB002

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.209

Date of sample receipt: 21 Jan., 2021

Date of Test: 22 Jan., to 03 Mar., 2021

Date of report issue: 18 Oct, 2021

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

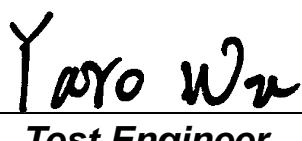
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	03 Mar., 2021	Original
01	25 May, 2021	Update FCC ID
02	18 Oct, 2021	<ol style="list-style-type: none">Updated remark of test mode on page 5.Updated data on page 11/12.

Tested By:
Test Engineer**Date:** 18 Oct, 2021**Reviewed By:**
Project Engineer**Date:** 18 Oct, 2021

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4 Test Summary

Test Item	Section in CFR 47	Result
Spurious emissions	15.209	Pass
20dB Bandwidth	15.215(c)	Pass
Conducted Emission	15.207	Pass
Remark:		
1. Pass: The EUT complies with the essential requirements in the standard.		
Test Method:	ANSI C63.4-2014 ANSI C63.10-2013	

5 General Information

5.1 Client Information

Applicant:	JOGEEK TECHNOLOGY LIMITED
Address:	2F., NO. 285, SEC. 3, ROOSEVELT RD., DA'AN DIST., TAIPEI CITY 106, TAIWAN (R.O.C.)
Manufacturer:	JOGEEK TECHNOLOGY LIMITED
Address:	2F., NO. 285, SEC. 3, ROOSEVELT RD., DA'AN DIST., TAIPEI CITY 106, TAIWAN (R.O.C.)
Factory:	Shenzhen Hasic Technology Co., Ltd.
Address:	Building C, Tu Yang Second Industrial zone, Kui chong street, Da Peng New District, Shenzhen.

5.2 General Description of E.U.T.

Product Name:	POWER BANK
Model No.:	JPB002
Operation Frequency:	112-148kHz
Modulation type:	ASK
Antenna Type:	Coil Antenna
Test Sample Condition:	The test samples were provided in good working order with no visible defects.
Power supply:	Rechargeable Li-ion polymer Battery DC3.7V, 10000mAh
Power supply (Wireless Charger):	<p>Input: Micro USB: 5V/2A, 9V/2A, 12V/1.5A Type-C: 5V/3A, 9V2A, 12V/1.5A</p> <p>Output: USB: 5V/3A, 9V/2A, 12V/1.5A Type-C: 5V/3A, 9V2A, 12V/1.5A Wireless: 5W/7.5W/10W</p>
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation
<i>Remark:</i>	
<i>Pre-scan input: 5V/2A, 5V/3A, 9V/2A 12V/1.5A, output: 5W, 7.5W, 10W of the Power supply, found input: 12V/1.5A, output: 10W was worse case mode. So the report only reflects the worse mode.</i>	

5.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
CAC	Adapter	HKA01105021-XE	N/A	N/A
Apple	Mobile phone	iPhone 11 Pro	MWDE2CH/A	Doc

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB
Radiated Emission (18GHz ~ 26.5GHz)	±3.20 dB

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax:+86-755-23116366

Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

5.9 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2020	07-21-2021
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-07-2020	03-06-2021
Loop Antenna	SCHWARZBECK	FMZB 1519 B	00044	03-07-2020	03-06-2021
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	03-07-2020	03-06-2021
Pre-amplifier	CD	PAP-1G18	11804	03-07-2020	03-06-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-05-2020	03-04-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-05-2020	03-04-2021
Simulated Station	Anritsu	MT8820C	6201026545	03-07-2020	03-06-2021
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2020	03-06-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2020	03-06-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2020	03-06-2021

Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-05-2020	03-04-2021
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-05-2020	03-04-2021
LISN	CHASE	MN2050D	1447	03-05-2020	03-04-2021
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2020	07-20-2021
Cable	HP	10503A	N/A	03-05-2020	03-04-2021
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A

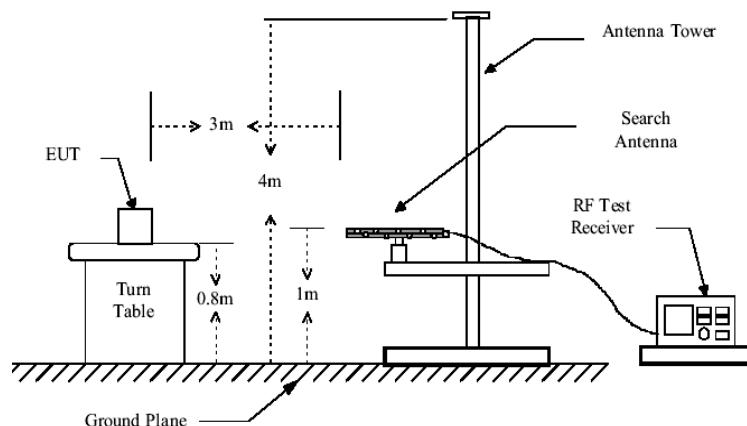
6 Test results and Measurement Data

6.1 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 detailed ant information please check internal photos.

6.2 Radiated Emission

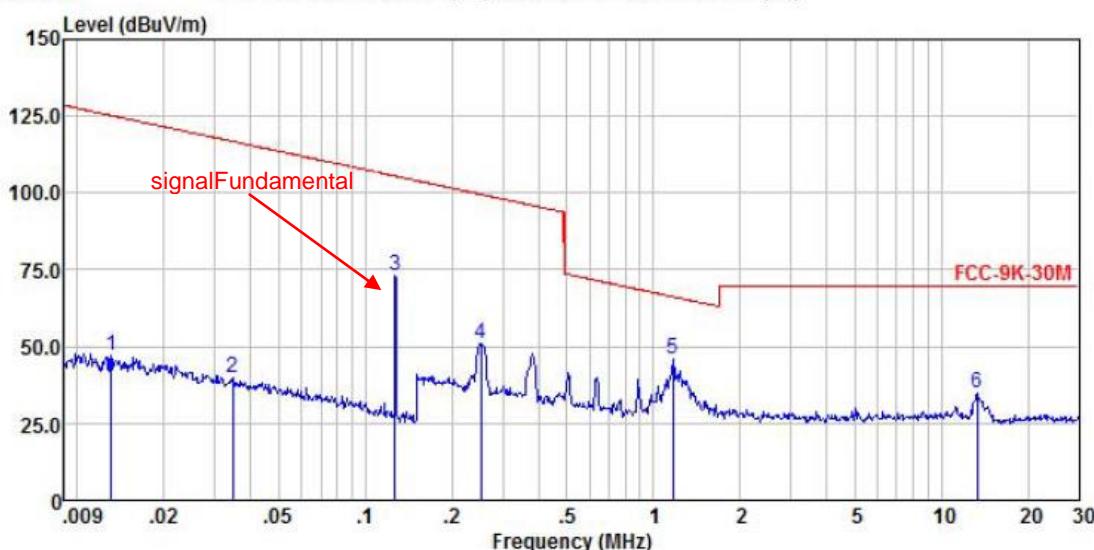
Test Requirement:	FCC Part15 C Section 15.209								
Test Frequency Range:	9kHz to 1000MHz								
Test site:	Measurement Distance: 3m(Semi-Anechoic Chamber)								
Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
	9kHz-150kHz	Quasi-peak	200Hz	600Hz	Quasi-peak Value				
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value				
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
Limit:	Frequency (MHz)	Limit (uV/m @3m)		Distance (m)					
	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					
Test Procedure:	Above 1GHz	500		3					
	<p>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p>								
	Test setup:								
	9kHz-30MHz								
	30MHz-1GHz								



Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass
Remark:	The emission levels of above 1 GHz are very lower than the limit and not show in test report.

Measurement Data:**Below 1GHz:**

Product Name:	POWER BANK	Product Model:	JPB002
Test By:	Yaro	Test mode:	Charing mode
Test Frequency:	9kHz~30MHz	Polarization:	Coxial
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24°C Huni: 57%

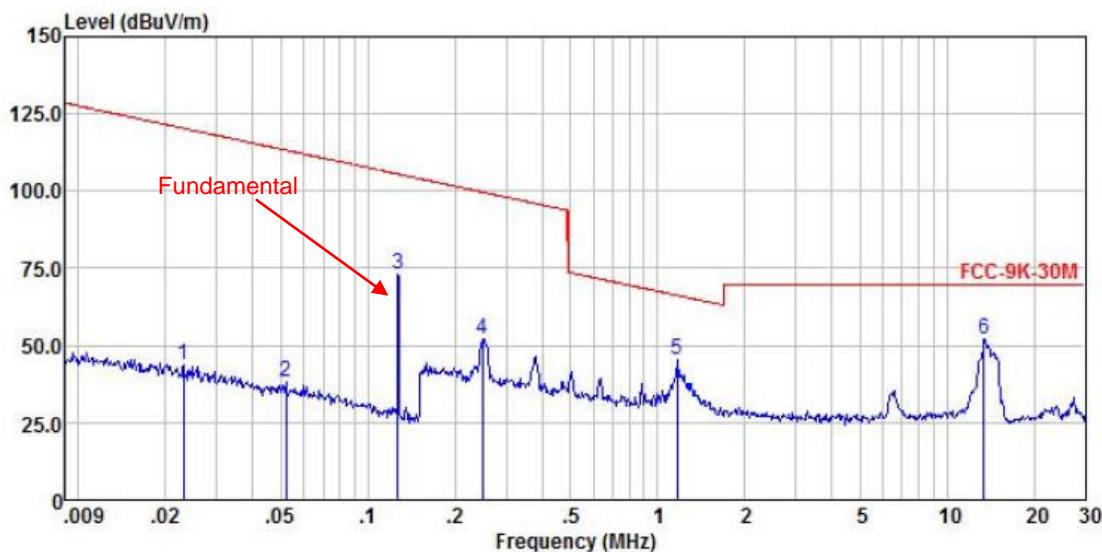


Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over
	Level	Antenna Factor	Loss Factor	Level				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.013	26.40	20.43	0.01	0.00	46.84	125.25	-78.41 Peak
2	0.035	19.51	20.31	0.02	0.00	39.84	116.82	-76.98 Peak
3	0.127	52.84	19.96	0.03	0.00	72.83	105.57	-32.74 Peak
4	0.252	30.51	20.46	0.05	0.00	51.02	99.57	-48.55 Peak
5	1.172	25.29	20.49	0.17	0.00	45.95	66.25	-20.30 Peak
6	13.337	14.68	19.63	0.40	0.00	34.71	69.50	-34.79 Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	POWER BANK	Product Model:	JPB002
Test By:	Yaro	Test mode:	Charing mode
Test Frequency:	9kHz~30MHz	Polarization:	Coplanar
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24°C Huni: 57%

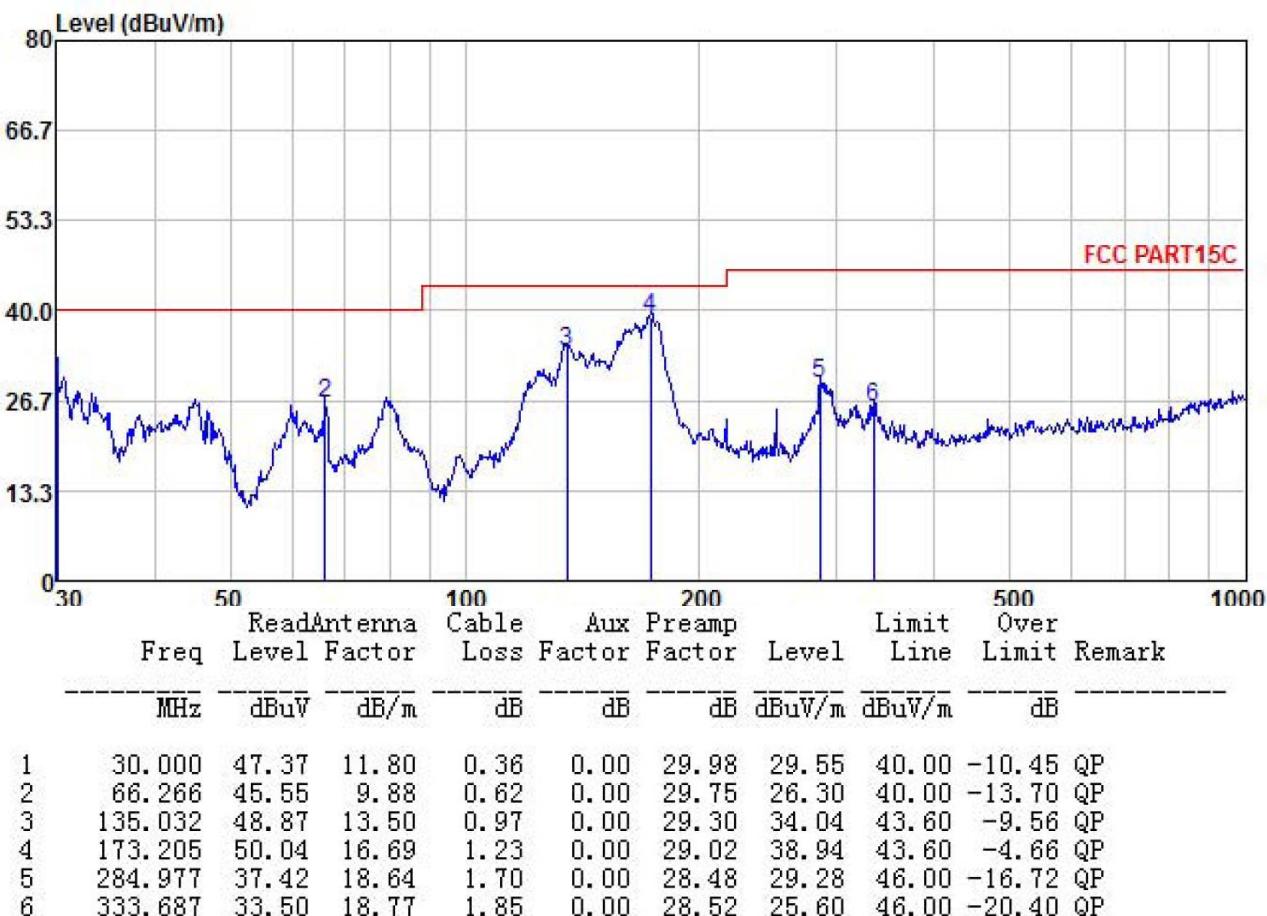


Freq MHz	Read	Antenna Level	Cable Loss	Preamp Factor	Limit Level	Line	Over Limit	Over Remark
	Antenna Level	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	0.023	23.63	20.27	0.01	0.00	43.91	120.36	-76.45 Peak
2	0.052	17.79	20.59	0.02	0.00	38.40	113.28	-74.88 Peak
3	0.127	52.93	19.96	0.03	0.00	72.92	105.57	-32.65 Peak
4	0.248	31.52	20.45	0.05	0.00	52.02	99.71	-47.69 Peak
5	1.172	24.83	20.49	0.17	0.00	45.49	66.25	-20.76 Peak
6	13.408	32.02	19.61	0.41	0.00	52.04	69.50	-17.46 Peak

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

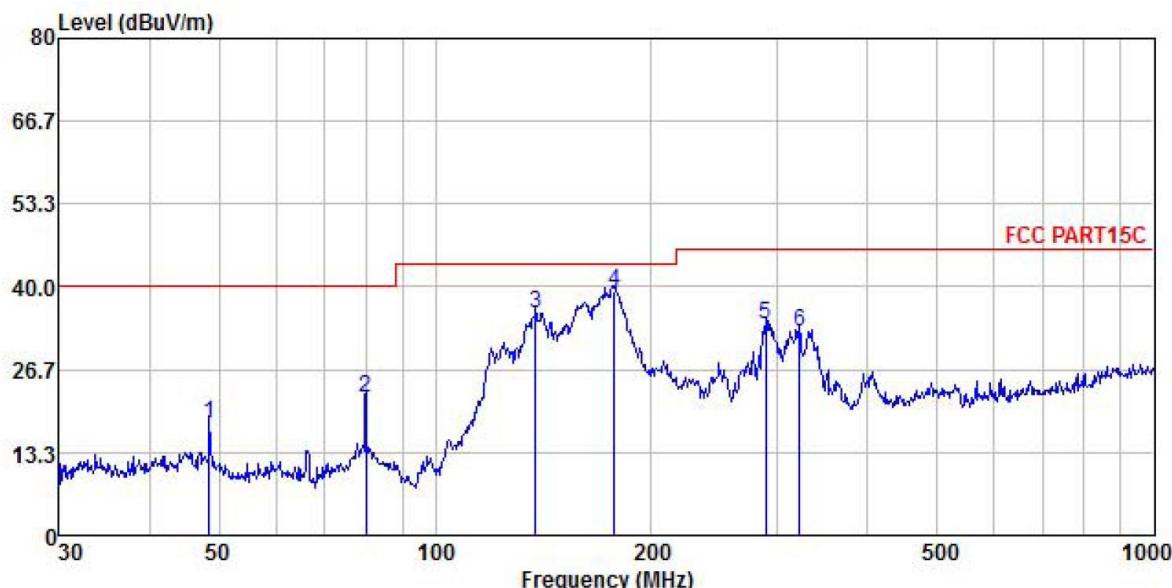
Product Name:	POWER BANK	Product Model:	JPB002
Test By:	Yaro	Test mode:	Charing mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24°C Huni: 57%



Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- The Aux Factor is a notch filter switch box loss, this item is not used.

Product Name:	POWER BANK	Product Model:	JPB002
Test By:	Yaro	Test mode:	Charing mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24°C Huni: 57%



Freq MHz	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamplifier Factor	Limit Level dBuV/m	Line Limit dBuV/m	Over Line Limit dB	Over Line Limit Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	48.502	34.36	13.11	0.48	0.00	29.83	18.12	40.00	-21.88 QP
2	80.081	38.40	12.80	0.69	0.00	29.64	22.25	40.00	-17.75 QP
3	137.903	50.39	13.68	0.98	0.00	29.28	35.77	43.60	-7.83 QP
4	177.509	50.11	16.85	1.26	0.00	28.99	39.23	43.60	-4.37 QP
5	287.990	41.96	18.65	1.71	0.00	28.47	33.85	46.00	-12.15 QP
6	321.061	40.60	18.74	1.82	0.00	28.50	32.66	46.00	-13.34 QP

Remark:

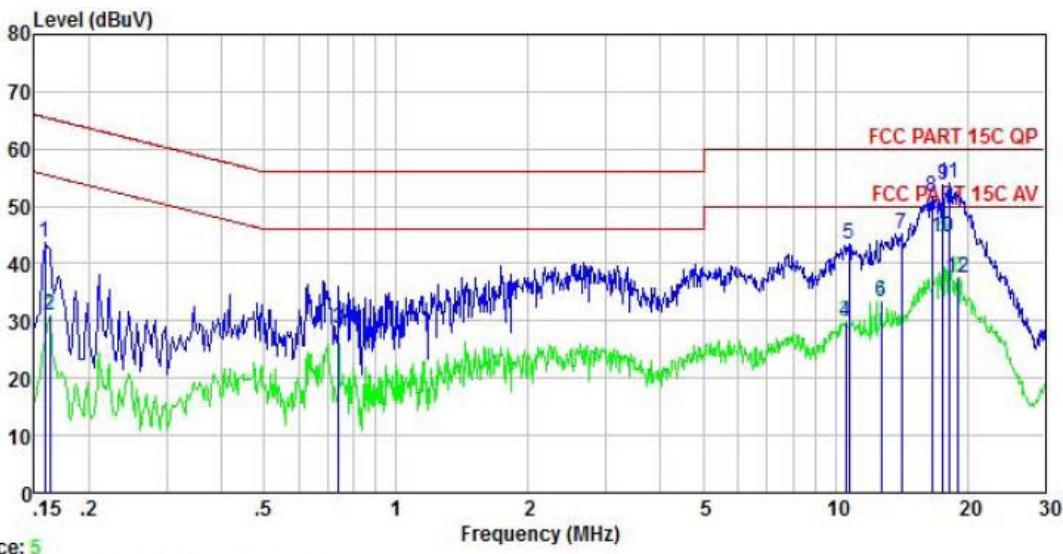
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. The Aux Factor is a notch filter switch box loss, this item is not used.

6.3 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15.207					
Test Frequency Range:	150kHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9kHz, VBW=30kHz					
Limit:	Frequency range (MHz)		Limit (dB μ V)			
			Quasi-peak Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
Limit:	0.5-30	60	50			
	* Decreases with the logarithm of the frequency.					
Test setup:	<p>Reference Plane</p> <p>LISN</p> <p>40cm</p> <p>80cm</p> <p>AUX Equipment</p> <p>E.U.T</p> <p>Test table/Insulation plane</p> <p>Filter</p> <p>AC power</p> <p>EMI Receiver</p>					
<p><i>Remark:</i> <i>E.U.T: Equipment Under Test</i> <i>LISN: Line Impedance Stabilization Network</i> <i>Test table height=0.8m</i></p>						
Test procedure	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). They provide 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 refers 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 C63.4: 2014 on conducted measurement. 					
Test environment:	Temp.:	23 °C	Humid.:	56%	Press.:	101kPa
Test Instruments:	Refer to section 5.9 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

Measurement data:

Product name:	POWER BANK	Product Model:	JPB002
Test by:	Yaro	Test mode:	Charing mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%

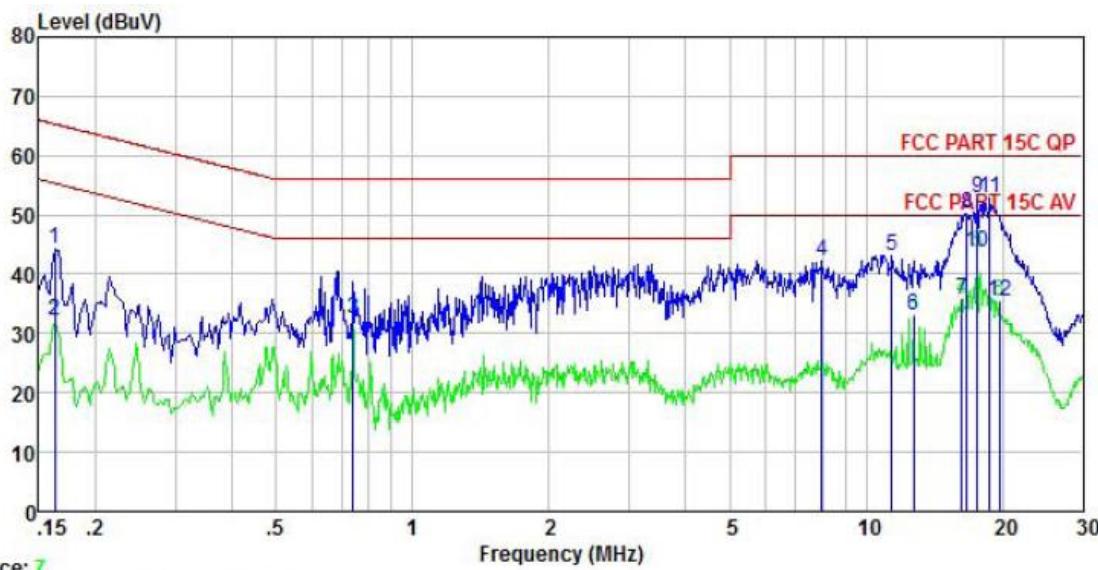


Freq	Read	LISN	Aux	Cable	Limit	Over	Remark
	Freq	Level	Factor	Factor			
1	0.158	33.46	-0.57	-0.07	10.77	43.59	65.56 -21.97 QP
2	0.162	20.80	-0.58	-0.08	10.77	30.91	55.34 -24.43 Average
3	0.739	18.65	-0.54	-0.28	10.79	28.62	46.00 -17.38 Average
4	10.564	17.58	-0.73	2.15	10.94	29.94	50.00 -20.06 Average
5	10.733	31.08	-0.72	2.22	10.93	43.51	60.00 -16.49 QP
6	12.716	20.23	-0.71	2.91	10.92	33.35	50.00 -16.65 Average
7	14.138	31.75	-0.70	3.34	10.91	45.30	60.00 -14.70 QP
8	16.573	38.68	-0.75	2.68	10.91	51.52	60.00 -8.48 QP
9	17.568	41.54	-0.79	2.13	10.92	53.80	60.00 -6.20 QP
10	17.568	32.28	-0.79	2.13	10.92	44.54	50.00 -5.46 Average
11	18.135	42.05	-0.81	1.82	10.92	53.98	60.00 -6.02 QP
12	19.021	26.10	-0.84	1.36	10.92	37.54	50.00 -12.46 Average

Notes:

- An initial pre-scan was performed on the line and neutral lines with peak detector.
- Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level =Receiver Read level + LISN Factor + Cable Loss.

Product name:	POWER BANK	Product Model:	JPB002
Test by:	Yaro	Test mode:	Charing mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%

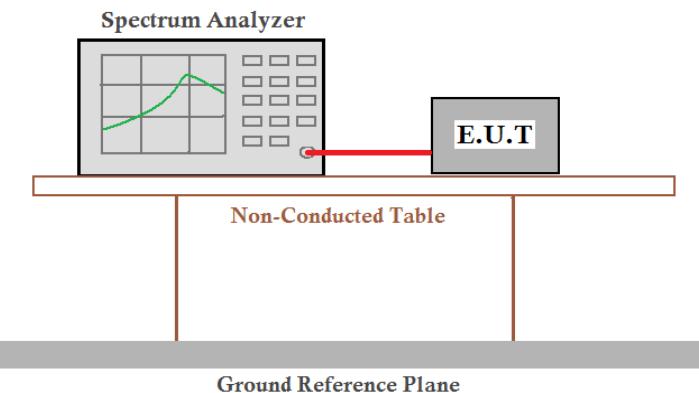


Freq	Read	LISN	Aux	Cable	Limit	Over	Remark	
	Freq	Level	Factor	Factor				
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.162	34.22	-0.68	0.01	10.77	44.32	65.34	-21.02 QP
2	0.162	22.22	-0.68	0.01	10.77	32.32	55.34	-23.02 Average
3	0.739	22.30	-0.65	0.05	10.79	32.49	46.00	-13.51 Average
4	7.977	31.19	-0.76	1.04	10.85	42.32	60.00	-17.68 QP
5	11.377	31.13	-0.80	1.92	10.93	43.18	60.00	-16.82 QP
6	12.716	20.62	-0.80	2.40	10.92	33.14	50.00	-16.86 Average
7	16.226	23.42	-0.93	2.38	10.91	35.78	50.00	-14.22 Average
8	16.661	38.10	-0.97	2.13	10.91	50.17	60.00	-9.83 QP
9	17.568	41.31	-1.07	1.55	10.92	52.71	60.00	-7.29 QP
10	17.568	32.15	-1.07	1.55	10.92	43.55	50.00	-6.45 Average
11	18.721	42.12	-1.17	0.89	10.92	52.76	60.00	-7.24 QP
12	19.635	25.29	-1.25	0.40	10.93	35.37	50.00	-14.63 Average

Notes:

- An initial pre-scan was performed on the line and neutral lines with peak detector.
- Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level =Receiver Read level + LISN Factor + Cable Loss.

6.4 20dB Bandwidth

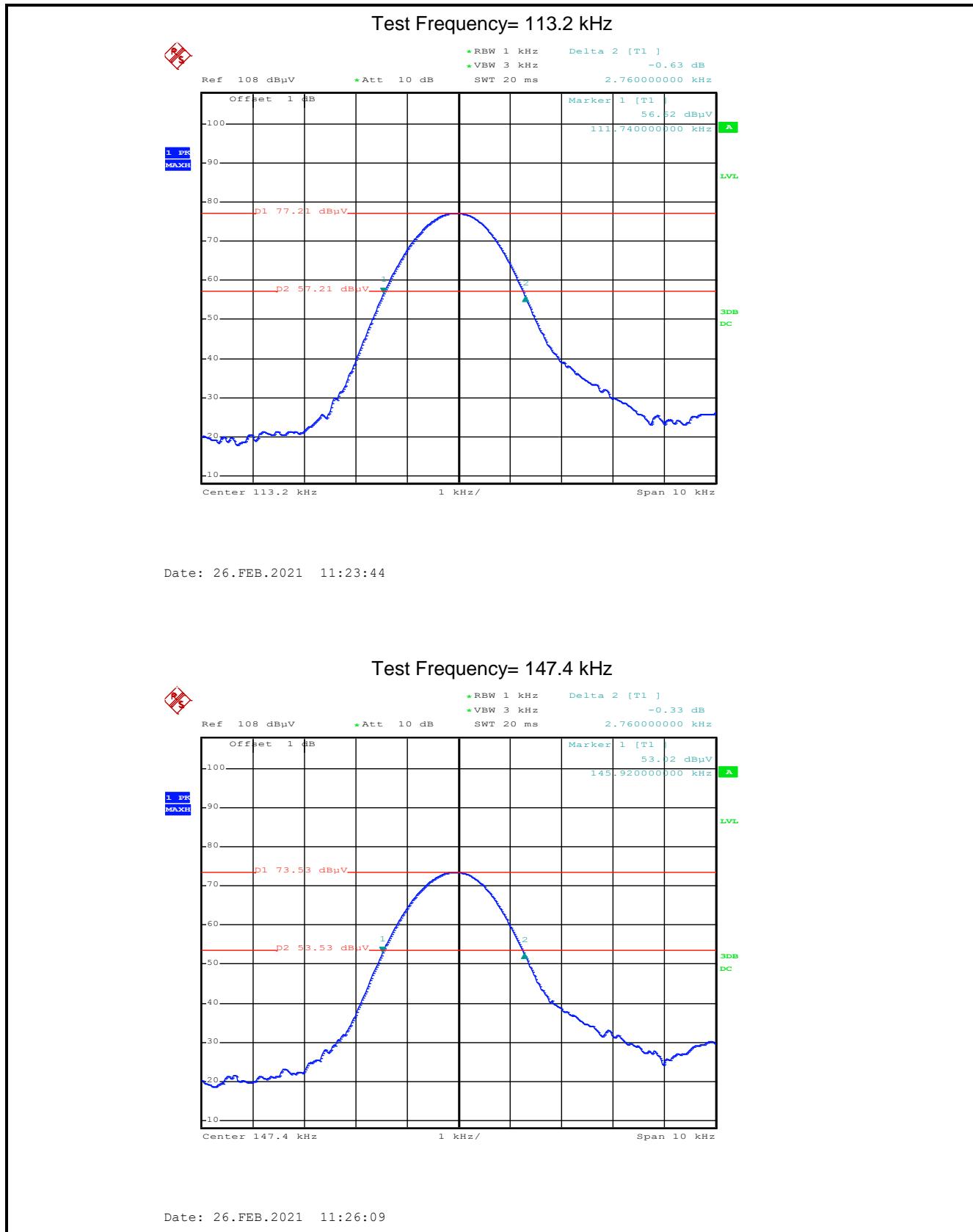
Test Requirement:	FCC Part15 C Section 15.215 (c)
Receiver setup:	RBW=1 kHz, VBW=3 kHz, detector: Peak
Limit:	The fundamental emission be kept within atleast the central 80% of the permitted band
Test Procedure:	<ol style="list-style-type: none"> 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

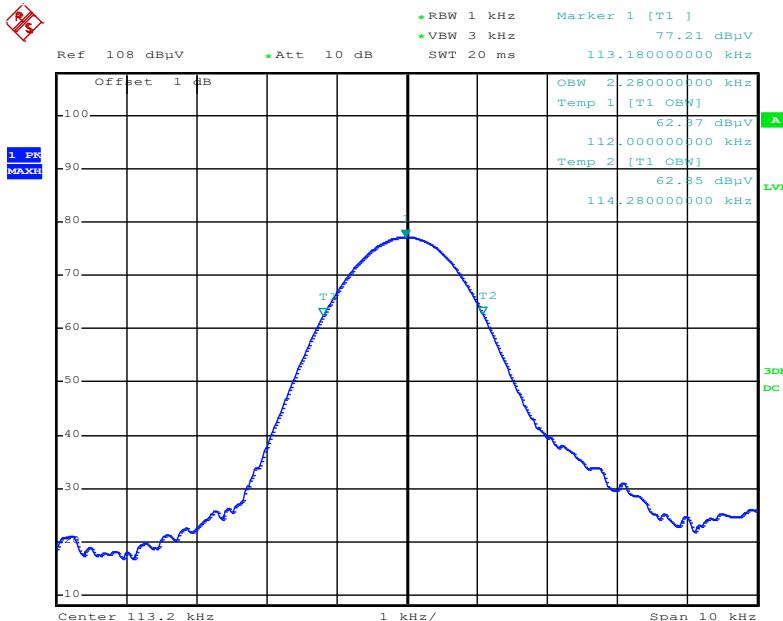
20dB bandwidth (kHz)	99% OBW (kHz)	Limit (MHz)
2.76	2.28	N/A
2.76	2.30	N/A

Remark: For report purpose only.

Test plot as follows:

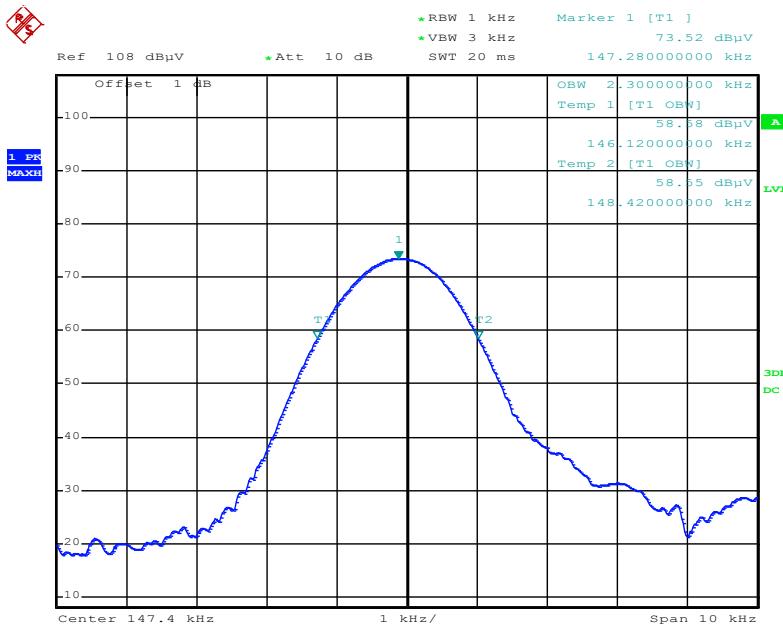


Test Frequency= 113.2 kHz



Date: 26.FEB.2021 11:23:17

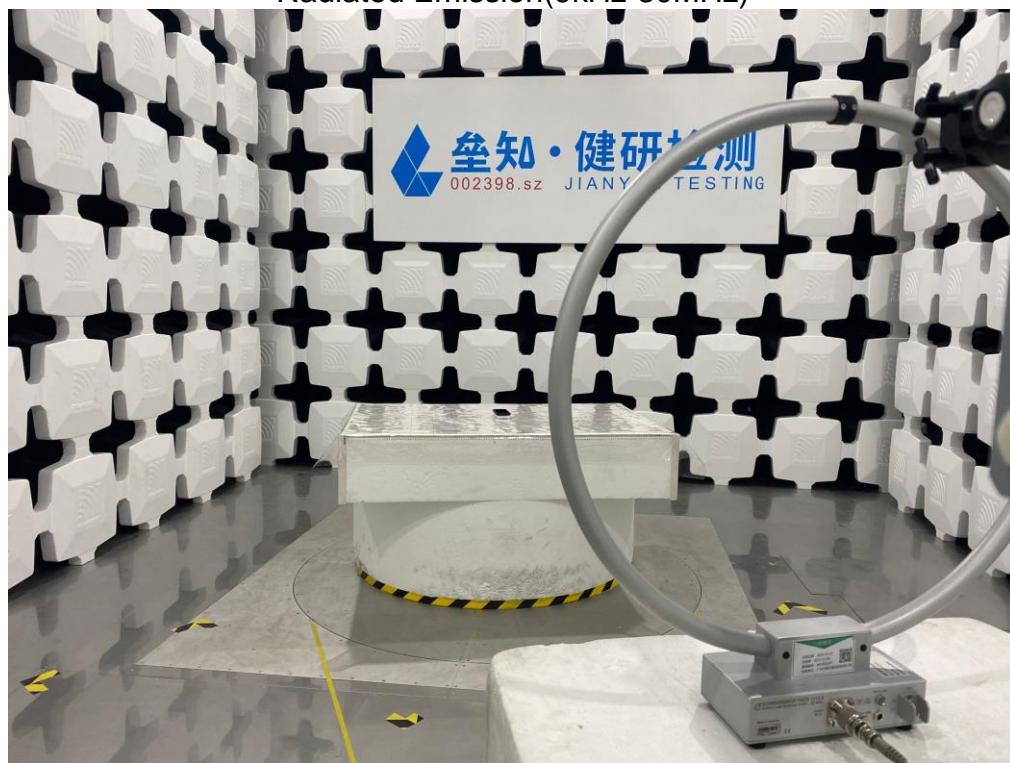
Test Frequency= 147.4 kHz



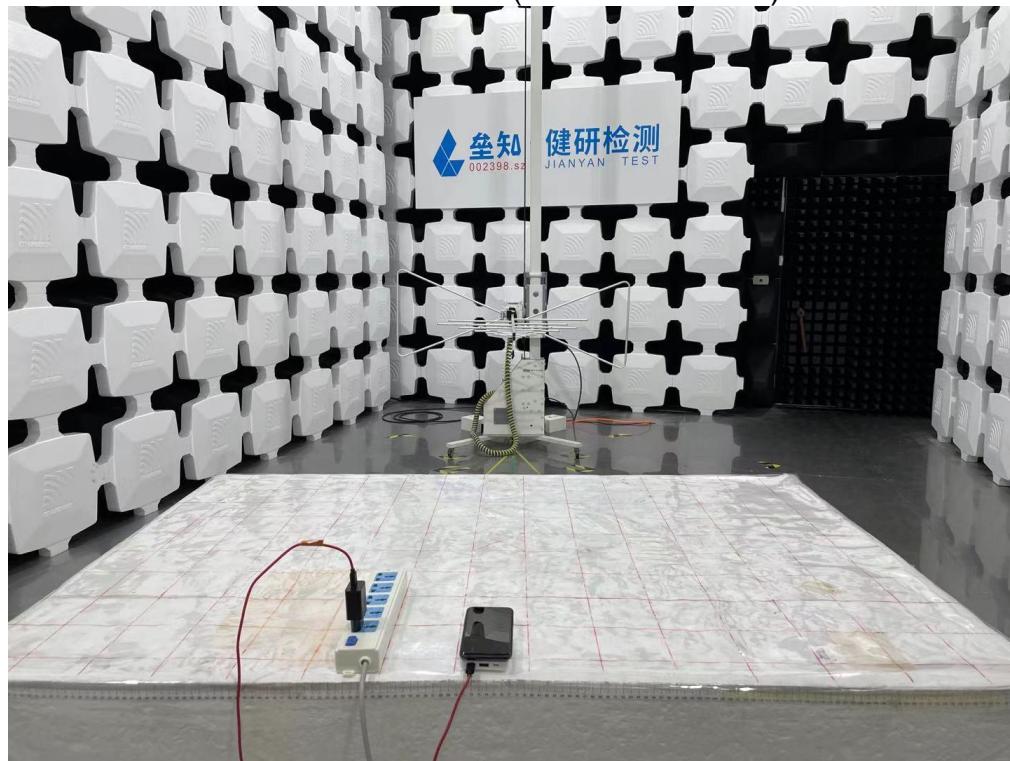
Date: 26.FEB.2021 11:26:23

7 Test Setup Photos

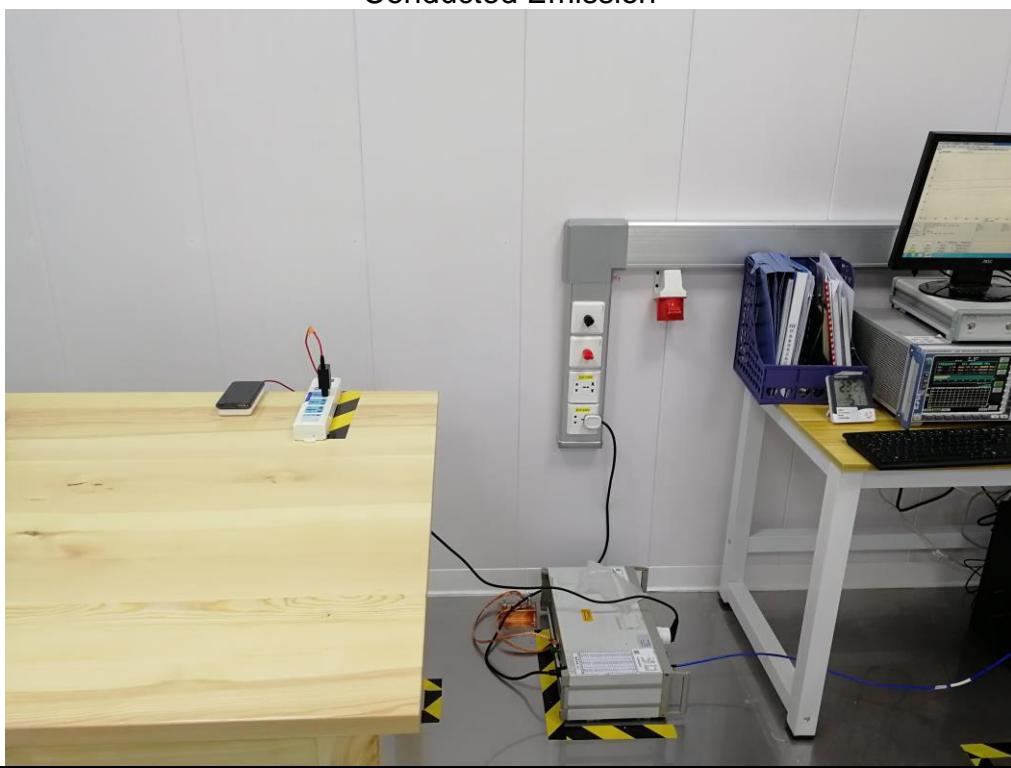
Radiated Emission(9kHz-30MHz)

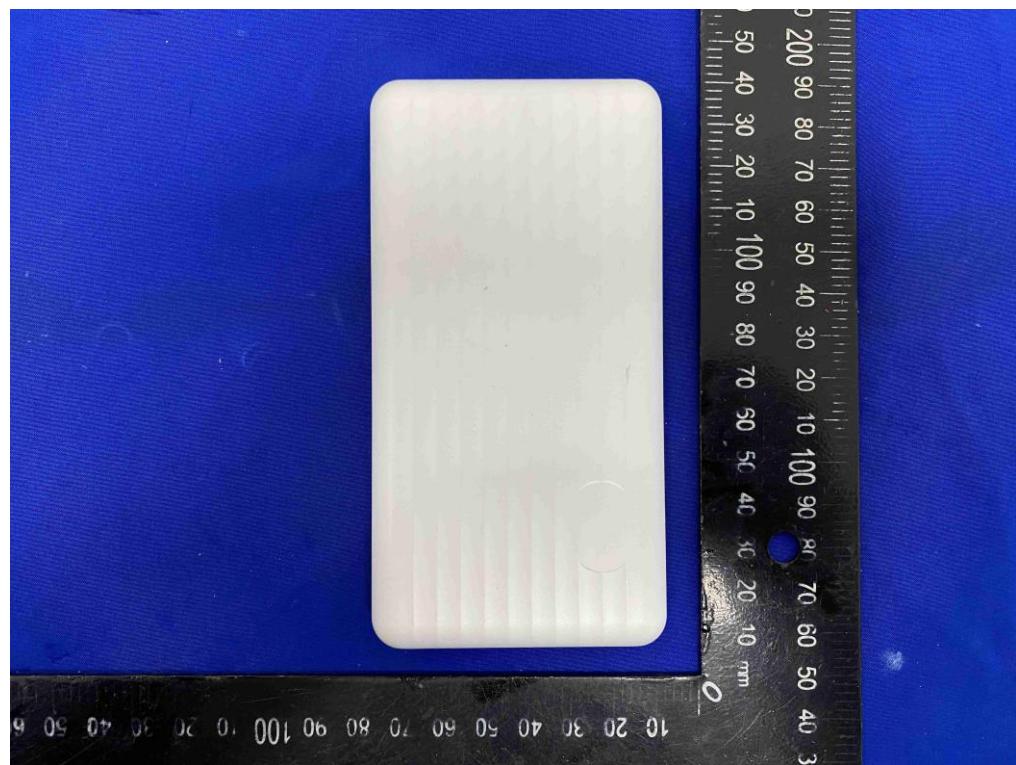
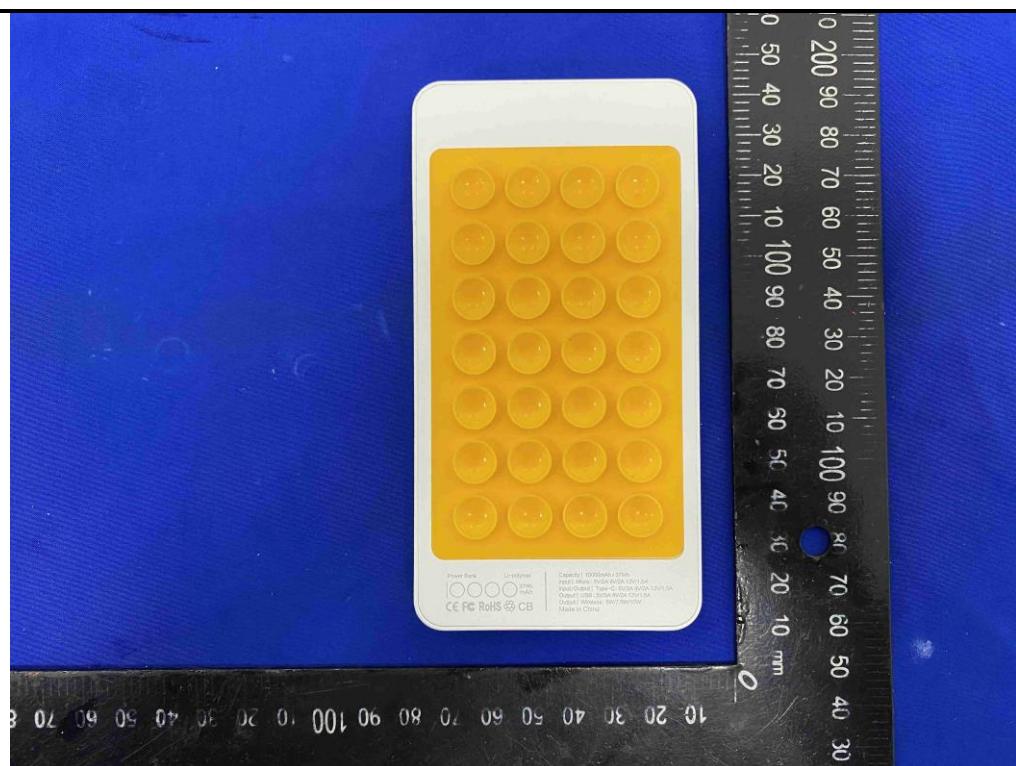


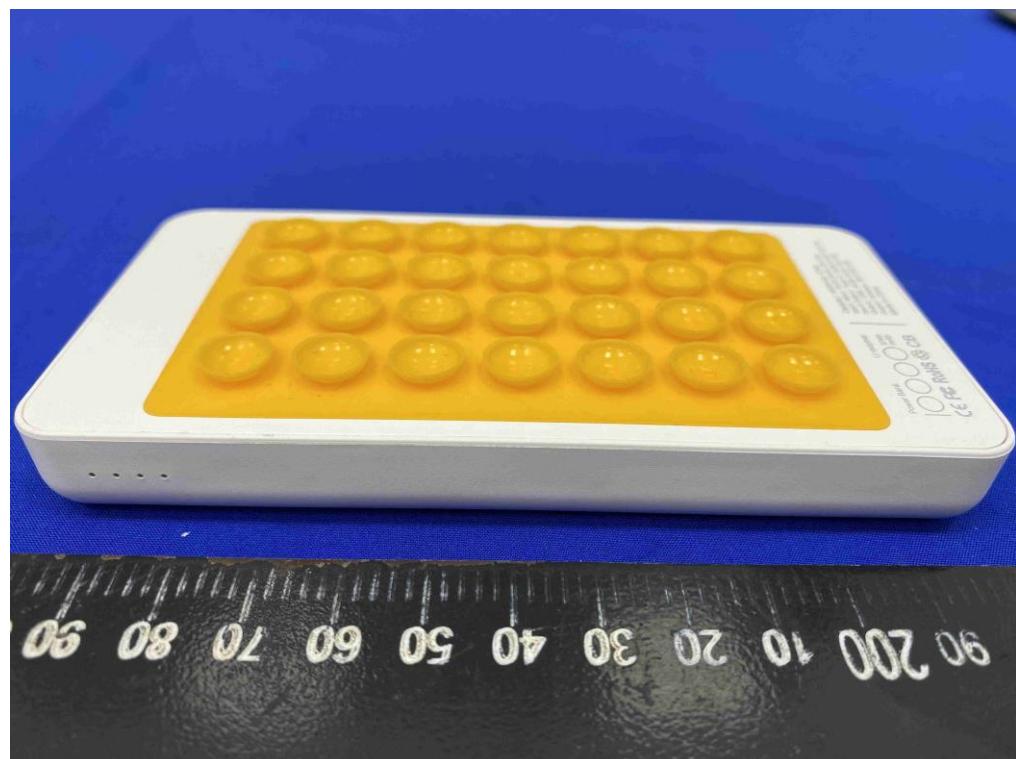
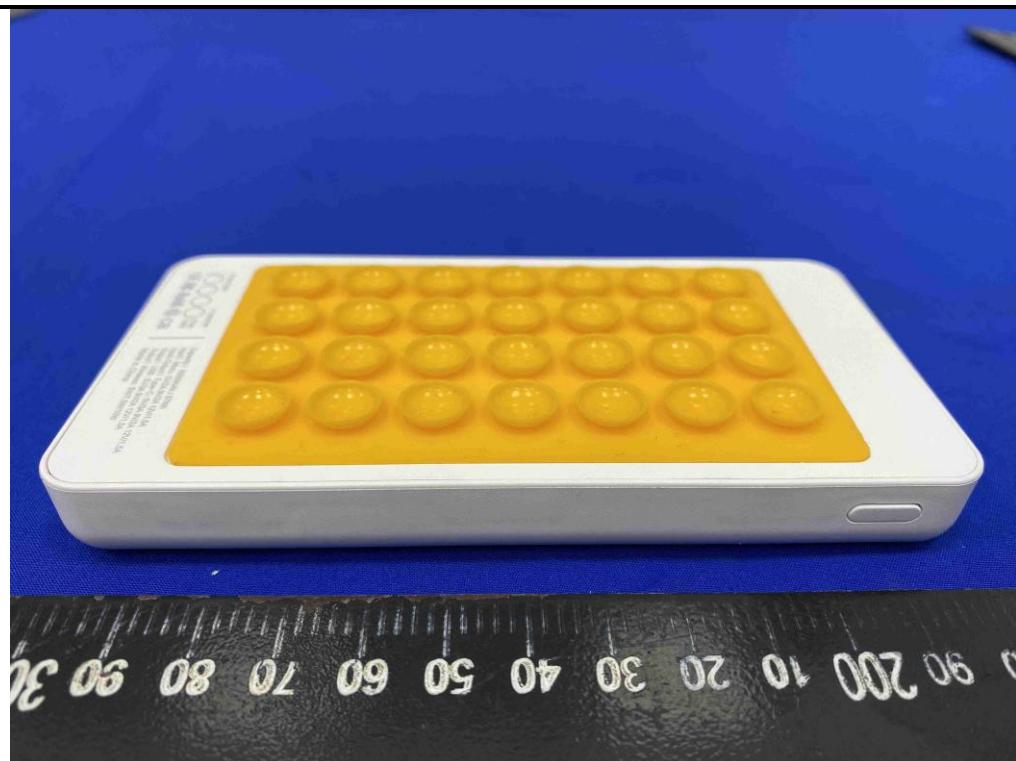
Radiated Emission(30MHz-1000MHz)

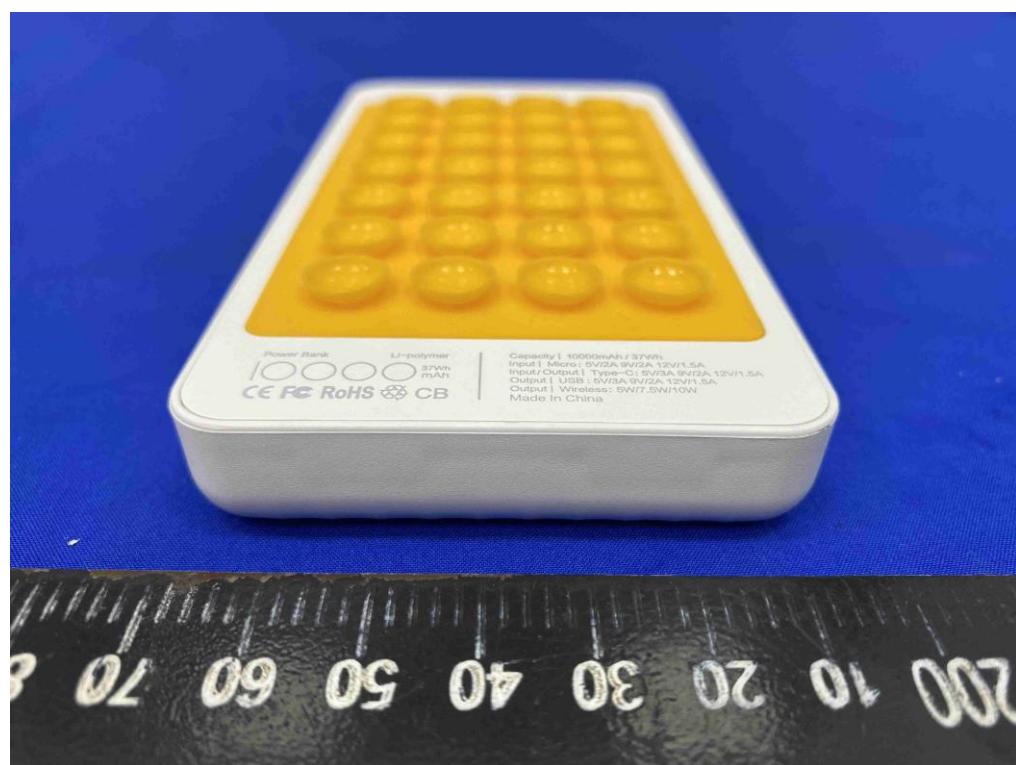


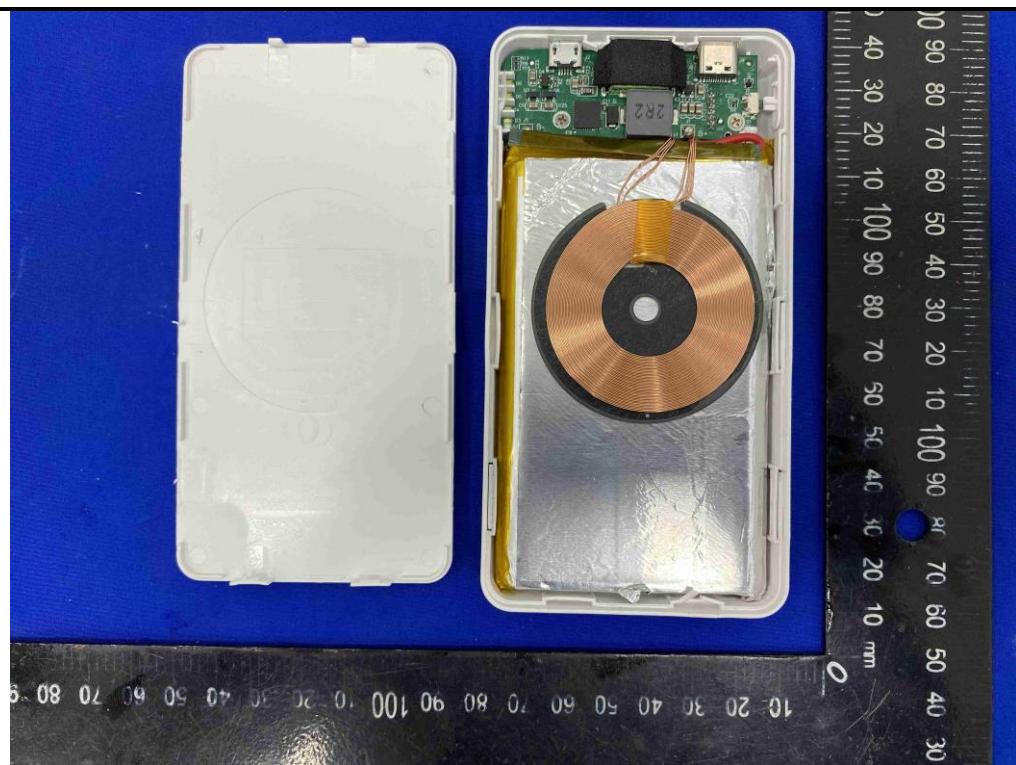
Conducted Emission

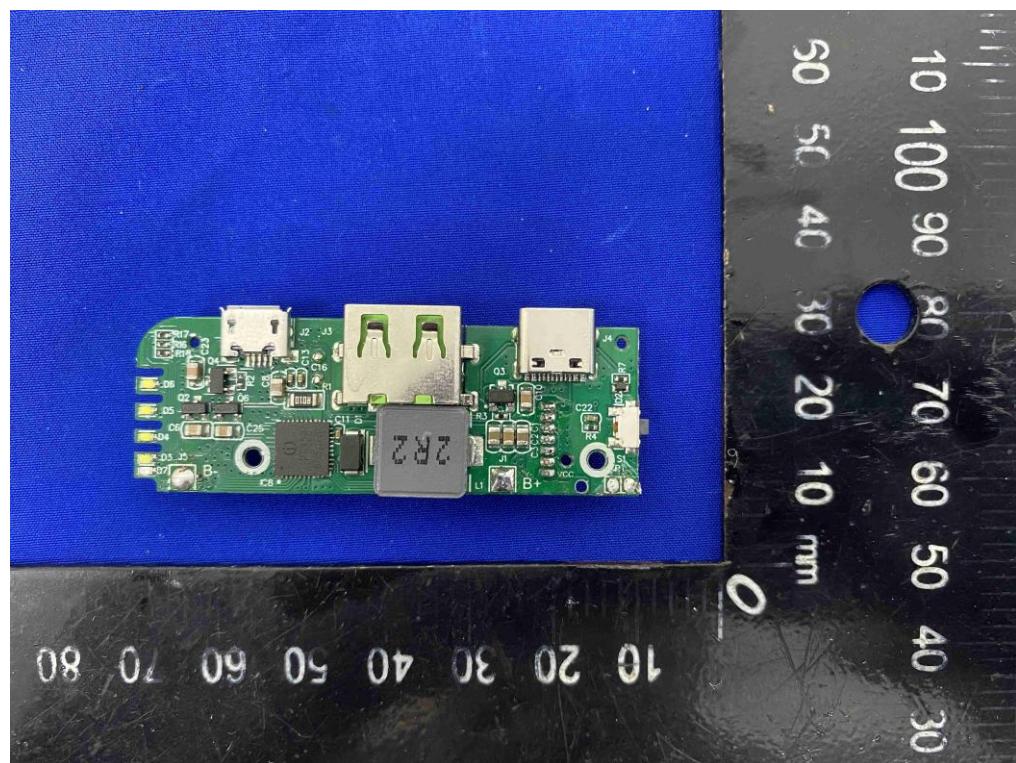
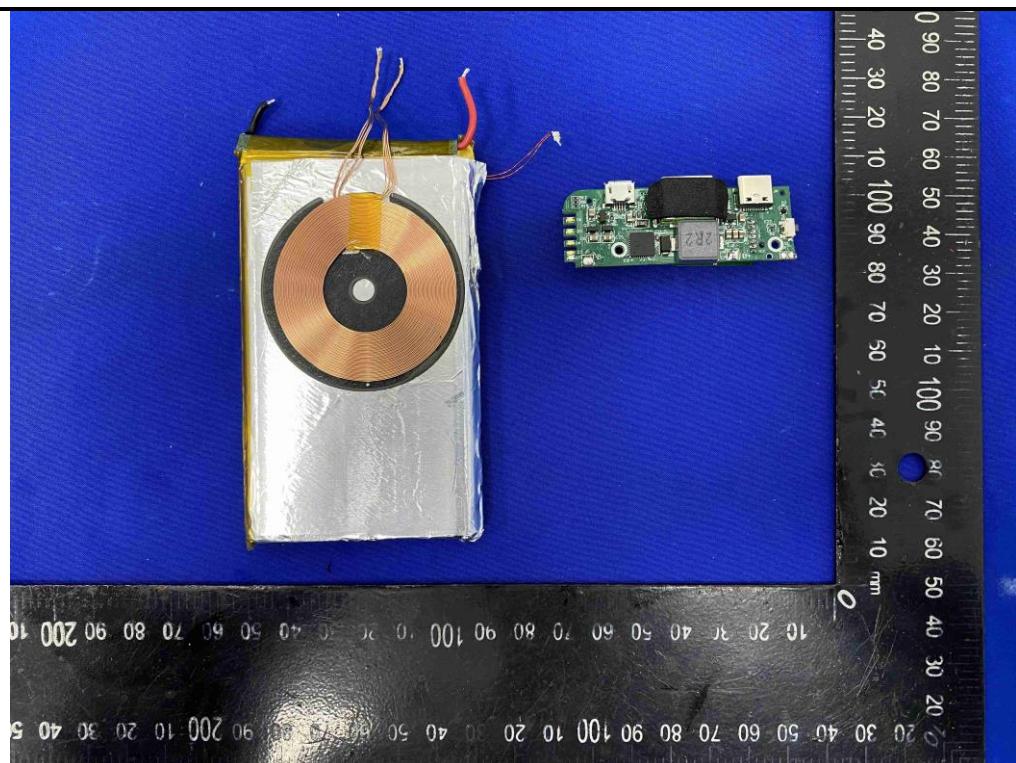


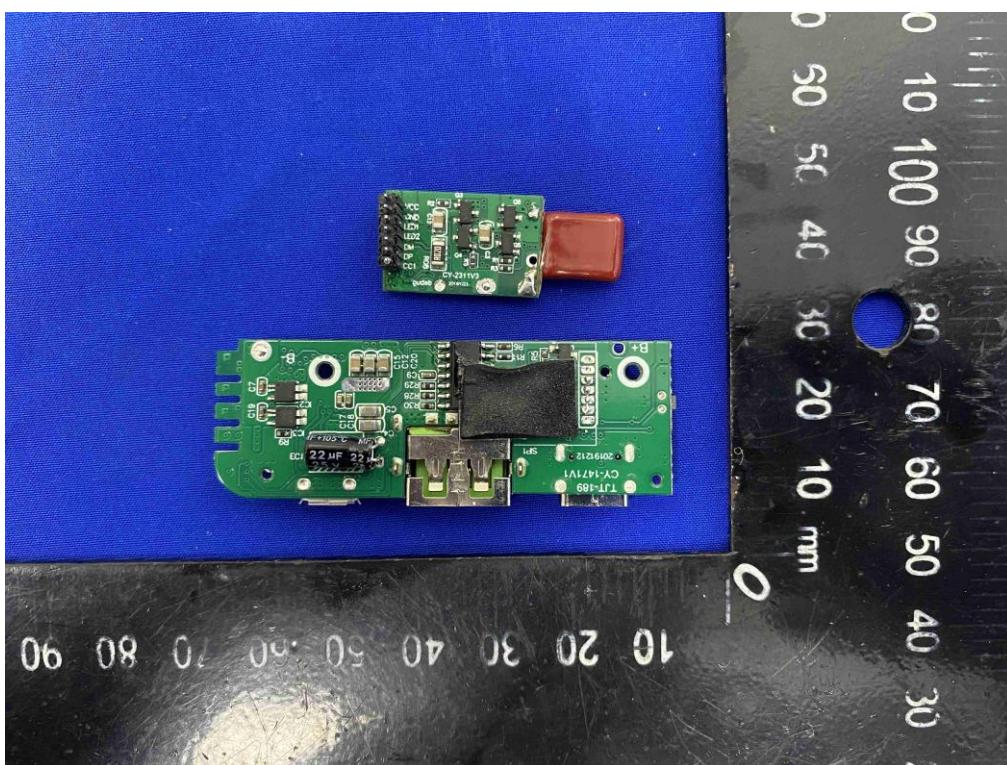
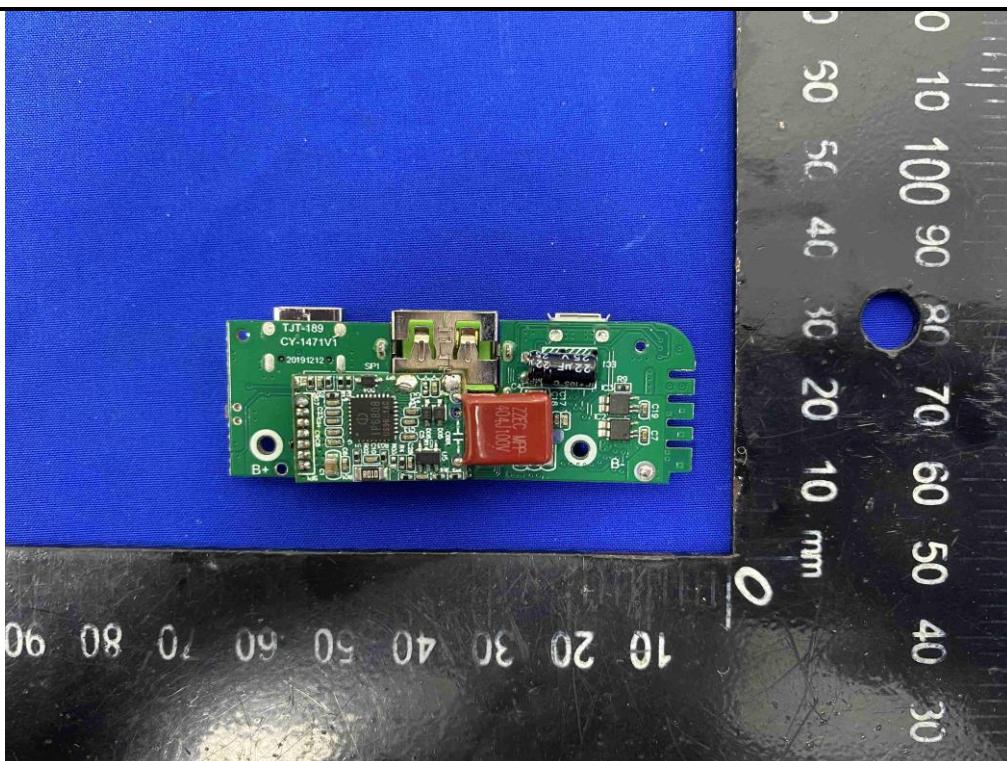
8 EUT Constructional Photos

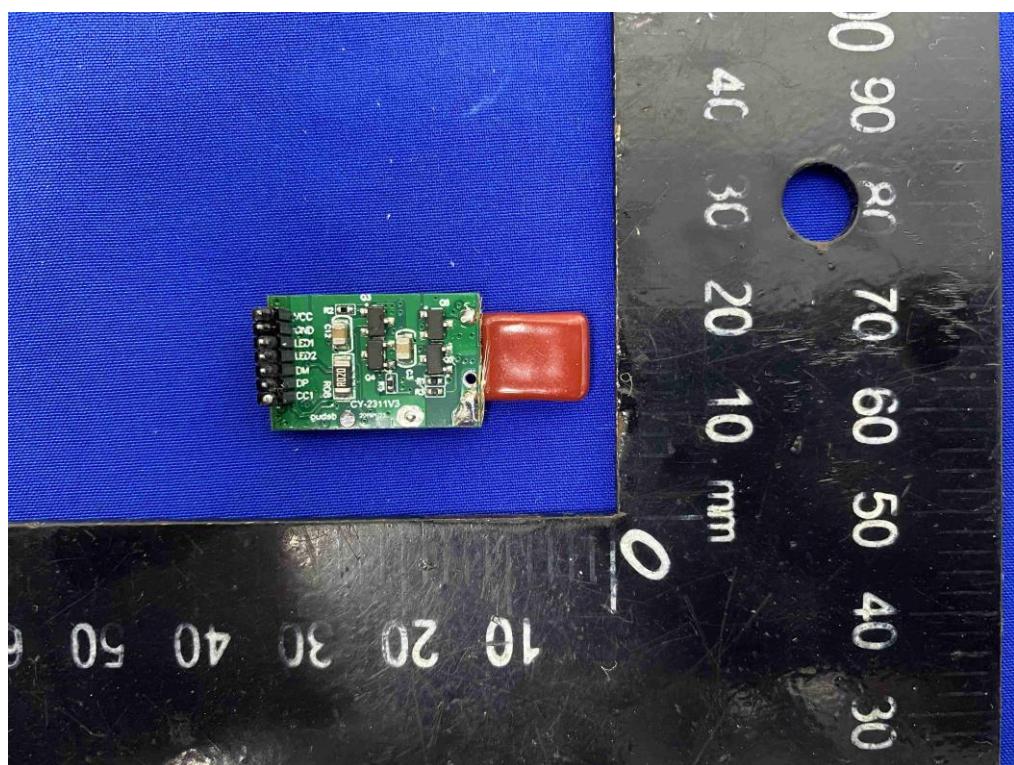
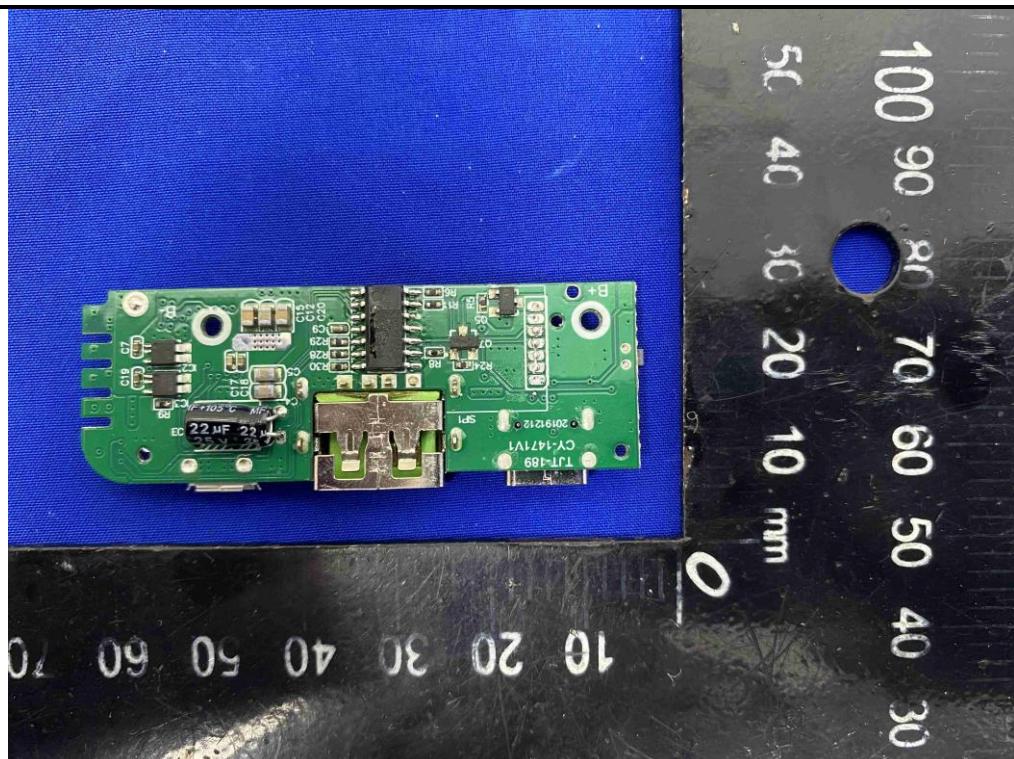


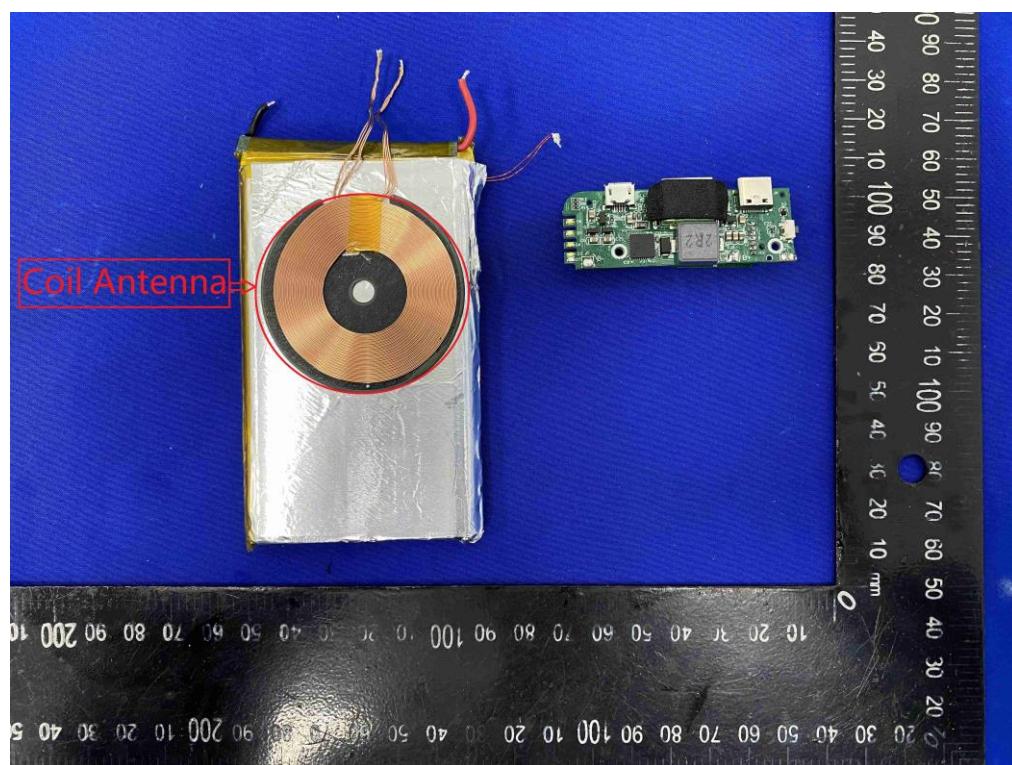
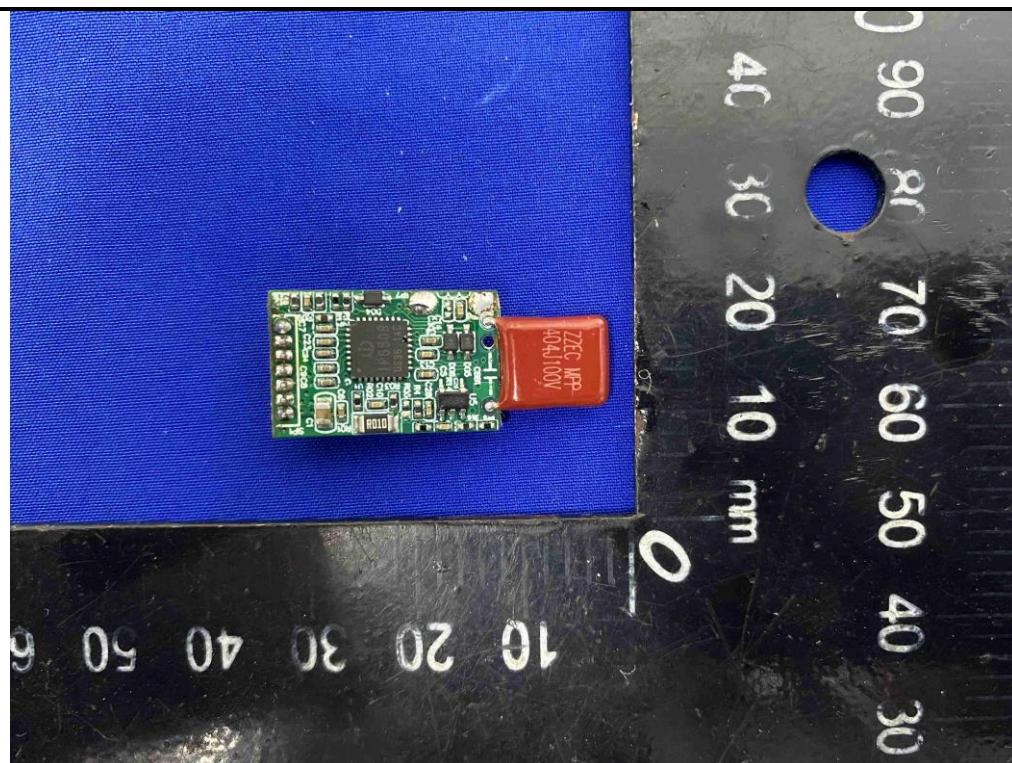












-----End of report-----