



**Shenzhen Global Test Service Co.,Ltd.**

No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street, Longgang District,Shenzhen,Guangdong,China

### TEST REPORT

## FCC Rules and Regulations Part 15 Subpart C (Section 15.209), ANSI C63.10: 2013

**Report Reference No.**.....: **GTS20210310003-1-1**

**FCC ID**.....: **2ATGY-PWB1085SG**

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Date of issue.....: Mar.17, 2021

**Representative Laboratory Name** ..: **Shenzhen Global Test Service Co.,Ltd.**

Address.....: No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street,Longgang District,Shenzhen,Guangdong,China

**Applicant's name** .....: **UBIO LABS, INC.**

Address .....: 2821 Northup Way, Suite 250, Bellevue, WA 98004 USA

**Test specification** .....

Standard.....: FCC Rules and Regulations Part 15 Subpart C (Section 15.209),  
ANSI C63.10: 2013

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**Test item description** .....: **Power Bank**

Trade Mark .....: **ubiolabs**

Manufacturer .....: UBIO LABS, INC.

Model/Type reference.....: PWB1085SG

List Model .....: N/A

Modulation Type .....: CW (Continuous Wave)

Operation Frequency.....: 110-205KHz

Ratings .....: Input(Lightning): DC 5.0V/1.8A

Input(USB-C): DC 5.0V/2.4A

Output(USB-A): DC 5.0V/2.4A,12W

Output(USB-C): DC 5.0V/3.0A,15W

Wireless Output(Qi): 5W

Result.....: **PASS**

# TEST REPORT

<b>Test Report No. :</b> <b>GTS20210310003-1-1</b>	Mar.17, 2021 <hr style="border: 0; border-top: 1px solid black;"/> Date of issue
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Equipment under Test            :        Power Bank

Model /Type                        :        PWB1085SG

Listed Models                     :        N/A

**Applicant**                         :        **UBIO LABS, INC.**

Address                                :        2821 Northup Way, Suite 250, Bellevue, WA 98004 USA

**Manufacturer**                    :        **UBIO LABS, INC.**

Address                                :        2821 Northup Way, Suite 250, Bellevue, WA 98004 USA

<b>Test Result:</b>	<b>PASS</b>
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The test report merely corresponds to the test sample.  
 It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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## **1. TEST STANDARDS**

The tests were performed according to following standards:

[FCC Rules and Regulations Part 15 Subpart C \(Section 15.209\)](#): Radiated emission limits; general requirements.

[ANSI C63.10: 2013](#): American National Standard for Testing Unlicensed Wireless Devices

## 2. SUMMARY

### 2.1. General Remarks

Date of receipt of test sample	:	Mar.12, 2021
Testing commenced on	:	Mar.12, 2021
Testing concluded on	:	Mar.17, 2021

### 2.2. Product Description

Product Name:	Power Bank
Trade Mark:	<b>ubiolabs</b>
Model/Type reference:	PWB1085SG
List Model:	N/A
Model Declaration	PCB board, structure and internal of these model(s) are the same, Only the model name is different , So no additional models were tested.
Power supply:	Input(Lightning): DC 5.0V/1.8A Input(USB-C): DC 5.0V/2.4A Output(USB-A): DC 5.0V/2.4A,12W Output(USB-C): DC 5.0V/3.0A,15W Wireless Output(Qi): 5W
Hardware version	V01
Software version	Rev 4.0
Sample ID	GTS20210310003-1-1#
WPT	
Operation frequency	110-205KHz
Modulation Type	CW (Continuous Wave)
Load Sensing	Contact transmission
Antenna Type	Coil Antenna
Antenna Gain	0dBi

## 2.3. Equipment Under Test

### Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

### Description of the test mode

Operation Frequency each of channel	
Channel	Frequency
1	145.1KHz

Test Modes:		
TM1	AC/DC Adapter (5.0V/2.4A) + EUT + Wireless load (Battery Status: <1%)	Record
TM2	AC/DC Adapter (5.0V/2.4A) + EUT + Wireless load (Battery Status: <50%)	Pre-tested
TM3	AC/DC Adapter (5.0V/2.4A) + EUT + Wireless load (Battery Status: 100%)	Pre-tested
TM4	AC/DC Adapter (5.0V/1.8A) + EUT + Wireless load (Battery Status: <1%)	Pre-tested
TM5	AC/DC Adapter (5.0V/1.8A) + EUT + Wireless load (Battery Status: <50%)	Pre-tested
TM6	AC/DC Adapter (5.0V/1.8A) + EUT + Wireless load (Battery Status: 100%)	Pre-tested

Note: All test modes were pre-tested, but we only recorded the worst case in this report.

## 2.4. EUT Exercise Software

N/A

## 2.5. Special Accessories

Manufacturer	Description	Model	Serial Number	Certificate
HUAWEI Corporation	Adapter	E5572-855	--	SDOC

**Note:** The Adapter is only used for auxiliary testing.

## 2.6. External I/O Cable

I/O Port Description	Quantity	Cable
DC IN Port	2	1.2M, Unscreened Cable
USB Port	1	N/A

## 2.7. Modifications

No modifications were implemented to meet testing criteria.

### 3. TEST ENVIRONMENT

#### 3.1. Address of the test laboratory

##### **Shenzhen Global Test Service Co.,Ltd.**

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden No.98, Pingxin North Road, Shangmugu, Pinghu Street, Longgang District, Shenzhen, Guangdong, China

#### 3.2. Test Facility

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

CNAS (No. CNAS L8169)

Shenzhen Global Test Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2019 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA (Certificate No. 4758.01)

Shenzhen Global Test Service Co., Ltd. has been assessed by the American Association for Laboratory Accreditation (A2LA). Certificate No. 4758.01.

Industry Canada Registration Number. is 24189.

FCC Designation Number is CN1234.

FCC Registered Test Site Number is 165725.

IC Registration Number is 24189.

CAB identifier is CN0082.

#### 3.3. Test Description

Description Of Test	Result
Conducted Emissions Test	Compliant
Radiated Emission Test	Compliant
Occupied Bandwidth Measurement	Compliant
Antenna Requirement	Compliant

#### 3.4. Statement of the measurement uncertainty

Measurement Uncertainty		
Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	=	4.06dB, k=2

**3.5. Equipments Used during the Test**

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ULTRA-BROADBAND ANTENNA	Schwarzbeck	VULB9163	000976	2020/09/19	2021/09/18
2	EMI Test Receiver	R&S	ESCI 3	101841-cd	2020/06/25	2021/06/24
3	Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2020/09/19	2021/09/18
4	Pre-Amplifier	Agilent	8349B	3008A02306	2020/09/19	2021/09/18
5	Pre-Amplifier	Agilent	8447D	2944A10176	2020/09/19	2021/09/18
6	Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	15006	2020/09/19	2021/09/18
7	RS SPECTRUM ANALYZER	R&S	FSP40-N	101800	2020/09/19	2021/09/18
8	EMI Test software	Tonscend	JS32-RE	Version 2.0.1.5	/	/
9	EMI Test Software	AUDIX	E3	/	N/A	N/A
10	EMI Test Receiver	ROHDE & SCHWARZ	ESCI 7	101102	2020/09/19	2021/09/18
11	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	893606/008	2020/09/19	2021/09/18
12	Artificial Mains	CYBERTEK	EM5040A	E1850400105	2020/09/19	2021/09/18
13	Pulse Limiter	Agilent	11947A	3107A04120	2020/09/19	2021/09/18
14	Impedance Stabilization Network	Schwarzbeck	CAT5 8158	102	2020/09/19	2021/09/18
15	Transient Limiter	CYBERTEK	EM5010A	E1950100106	2020/09/19	2021/09/18
16	Spectrum Analyzer	Agilent	N9020A	MY48010425	2020/09/19	2021/09/18

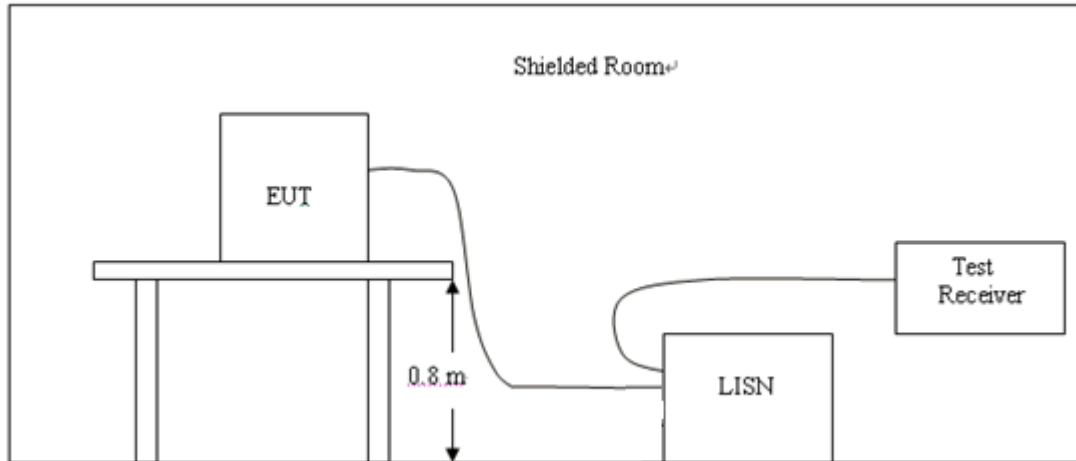
The calibration interval is 1 year.



## 4. TEST CONDITIONS AND RESULTS

### 4.1. AC Power Conducted Emission

#### TEST CONFIGURATION



#### TEST PROCEDURE

- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of adapter, the adapter received power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

#### AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

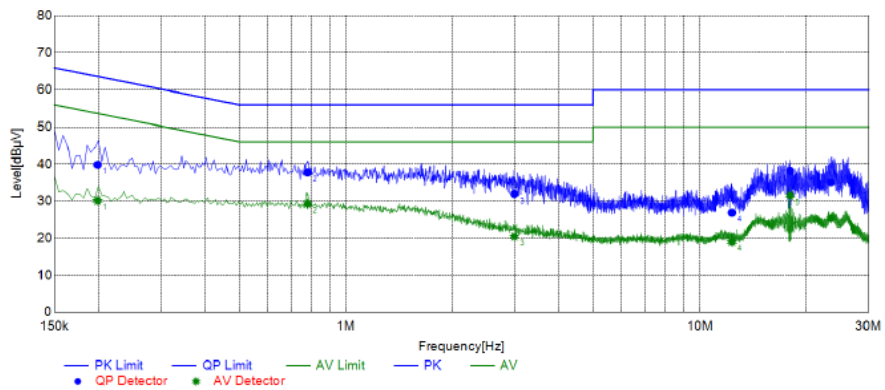
#### TEST RESULTS

1. Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:.

Temperature	23.6°C	Humidity	55.3%
Test Engineer	Moon Tan	Configurations	WPT

Power supply: AC 120V/60Hz Polarization L

Test Graph



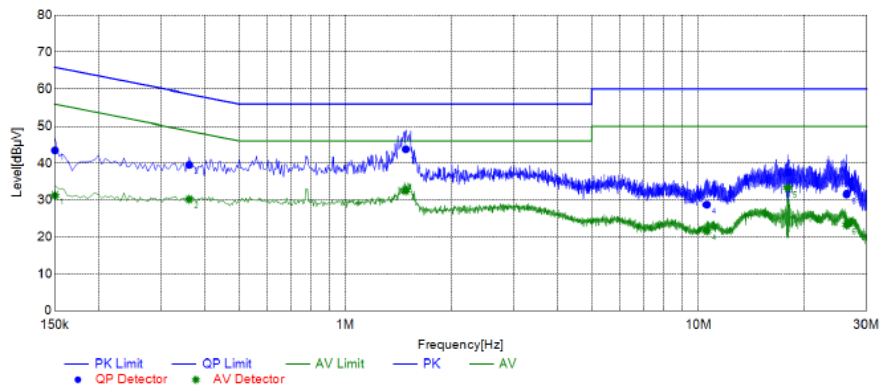
Final Data List

NO.	Frequency [MHz]	QP Reading [dBµV]	AVG. Reading [dBµV]	Factor [dB]	QP Result [dBµV]	AVG. Result [dBµV]	QP Limit [dBµV]	AVG. Limit [dBµV]	QP Margin [dB]	AVG. Margin [dB]	Line	Remark
1	0.1987	29.79	20.13	10.06	39.85	30.19	63.67	53.67	23.82	23.48	L1	PASS
2	0.7790	27.71	19.23	10.07	37.78	29.30	56.00	46.00	18.22	16.70	L1	PASS
3	2.9952	21.66	10.21	10.29	31.95	20.50	56.00	46.00	24.05	25.50	L1	PASS
4	12.3251	16.00	8.12	10.87	26.87	18.99	60.00	50.00	33.13	31.01	L1	PASS
5	17.9794	26.88	20.19	11.33	38.21	31.52	60.00	50.00	21.79	18.48	L1	PASS
6	23.4944	23.39	13.69	11.62	35.01	25.31	60.00	50.00	24.99	24.69	L1	PASS

Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).  
 2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply: AC 120V/60Hz Polarization N

Test Graph



Final Data List

NO.	Frequency [MHz]	QP Reading [dBµV]	AVG. Reading [dBµV]	Factor [dB]	QP Result [dBµV]	AVG. Result [dBµV]	QP Limit [dBµV]	AVG. Limit [dBµV]	QP Margin [dB]	AVG. Margin [dB]	Line	Remark
1	0.1504	33.34	21.22	10.05	43.39	31.27	65.98	55.98	22.59	24.71	N	PASS
2	0.3613	29.56	20.24	10.00	39.56	30.24	58.70	48.70	19.14	18.46	N	PASS
3	1.4849	33.60	22.45	10.11	43.71	32.56	56.00	46.00	12.29	13.44	N	PASS
4	10.5620	18.03	10.92	10.73	28.76	21.65	60.00	50.00	31.24	28.35	N	PASS
5	17.9121	26.14	22.01	11.24	37.38	33.25	60.00	50.00	22.62	16.75	N	PASS
6	26.3090	19.91	11.64	11.68	31.59	23.32	60.00	50.00	28.41	26.68	N	PASS

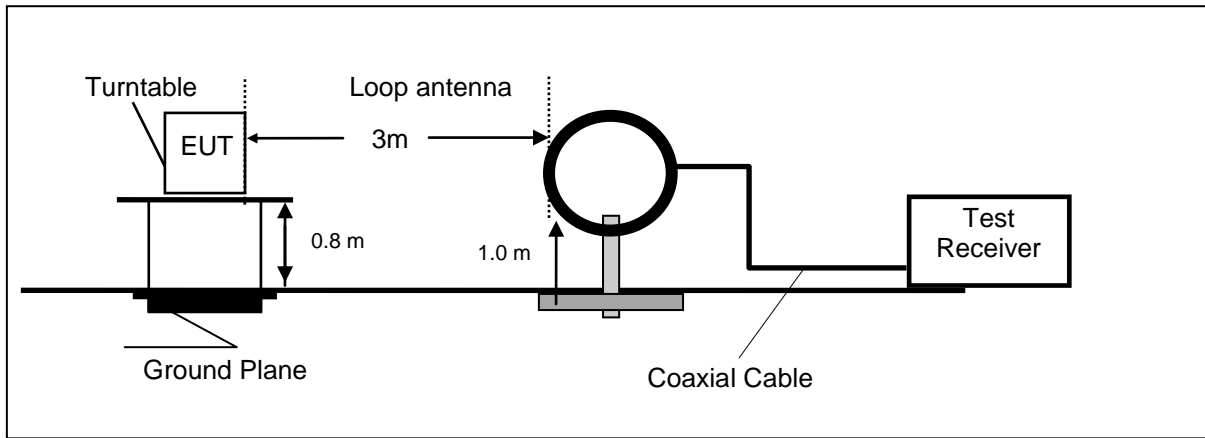
Note: 1. Result (dBµV) = Reading (dBµV) + Factor (dB).  
 2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Note: All the modes have been tested and recorded worst mode in the report.

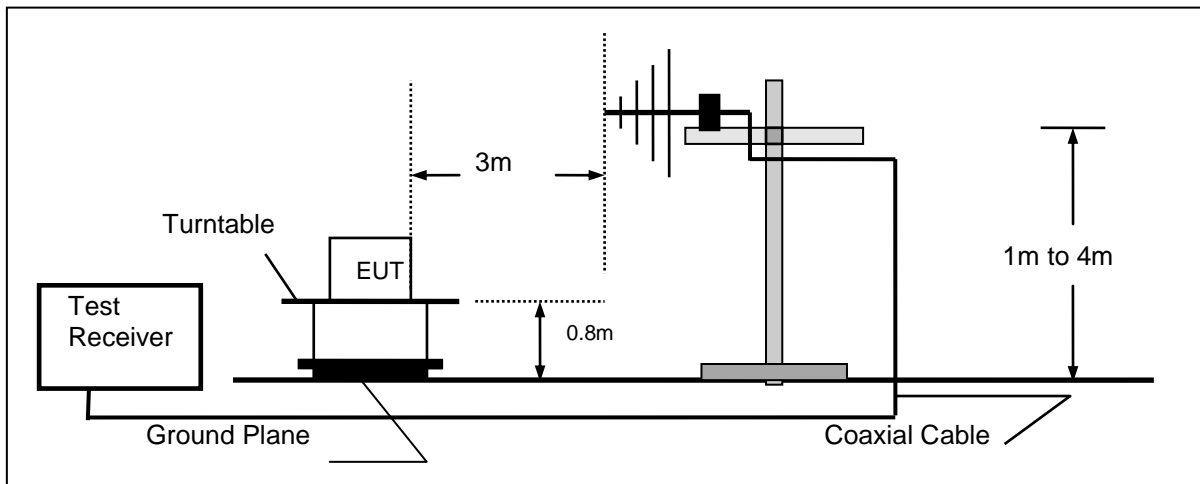
### 4.2. Radiated Emission

#### TEST CONFIGURATION

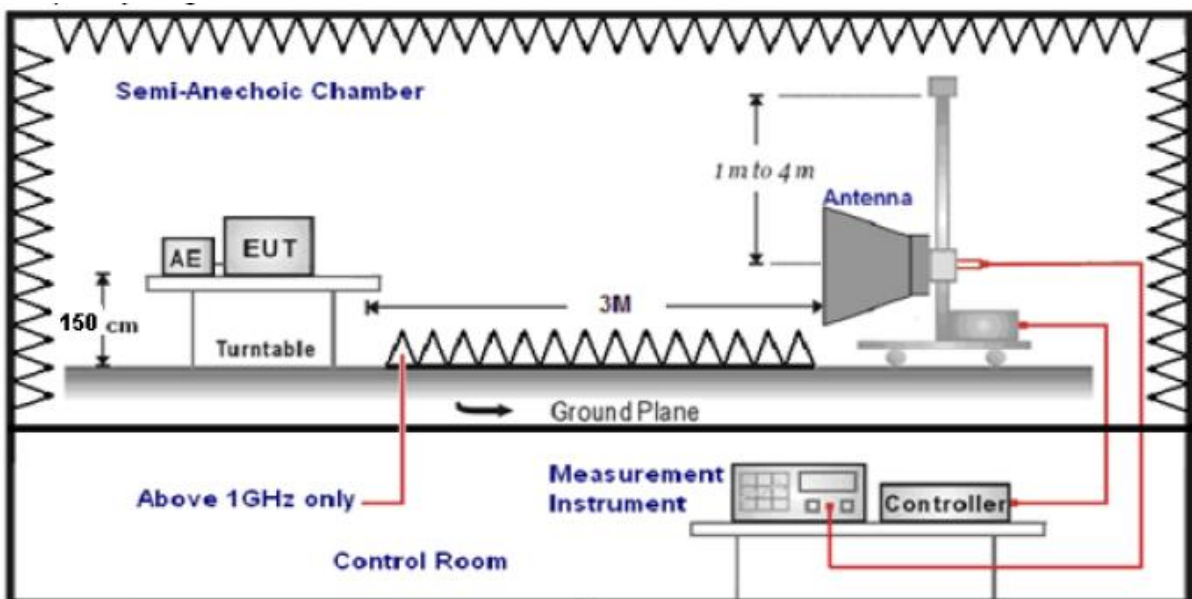
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



**TEST PROCEDURE**

- 1.The EUT was placed on a turn table which is 12mm above ground plane when testing frequency range 9 KHz –25GHz.
- 2.Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT.
- 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 measurements have been completed.
- 5.The EUT minimum operation frequency was 32.768KHz and maximum operation frequency was 205KHz.so radiated emission test frequency band from 9KHz to 1GHz.
- 6.The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

- 7.Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

**Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

$$Transd=AF +CL-AG$$

**RADIATION LIMIT**

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

**TEST RESULTS**

Temperature	23.6°C	Humidity	55.3%
Test Engineer	Moon Tan	Configurations	WPT

**For 9 KHz-30MHz**

Frequency (MHz)	Corrected Reading (dBuV/m)@3m	FCC Limit (dBuV/m) @3m	Margin (dB)	Detector	Result
0.145	76.72	104.37	27.64	QP	PASS
0.619	37.77	71.75	33.98	QP	PASS
1.502	45.34	64.05	18.71	QP	PASS
5.961	44.61	91.58	46.97	QP	PASS
10.043	48.83	91.58	42.75	QP	PASS

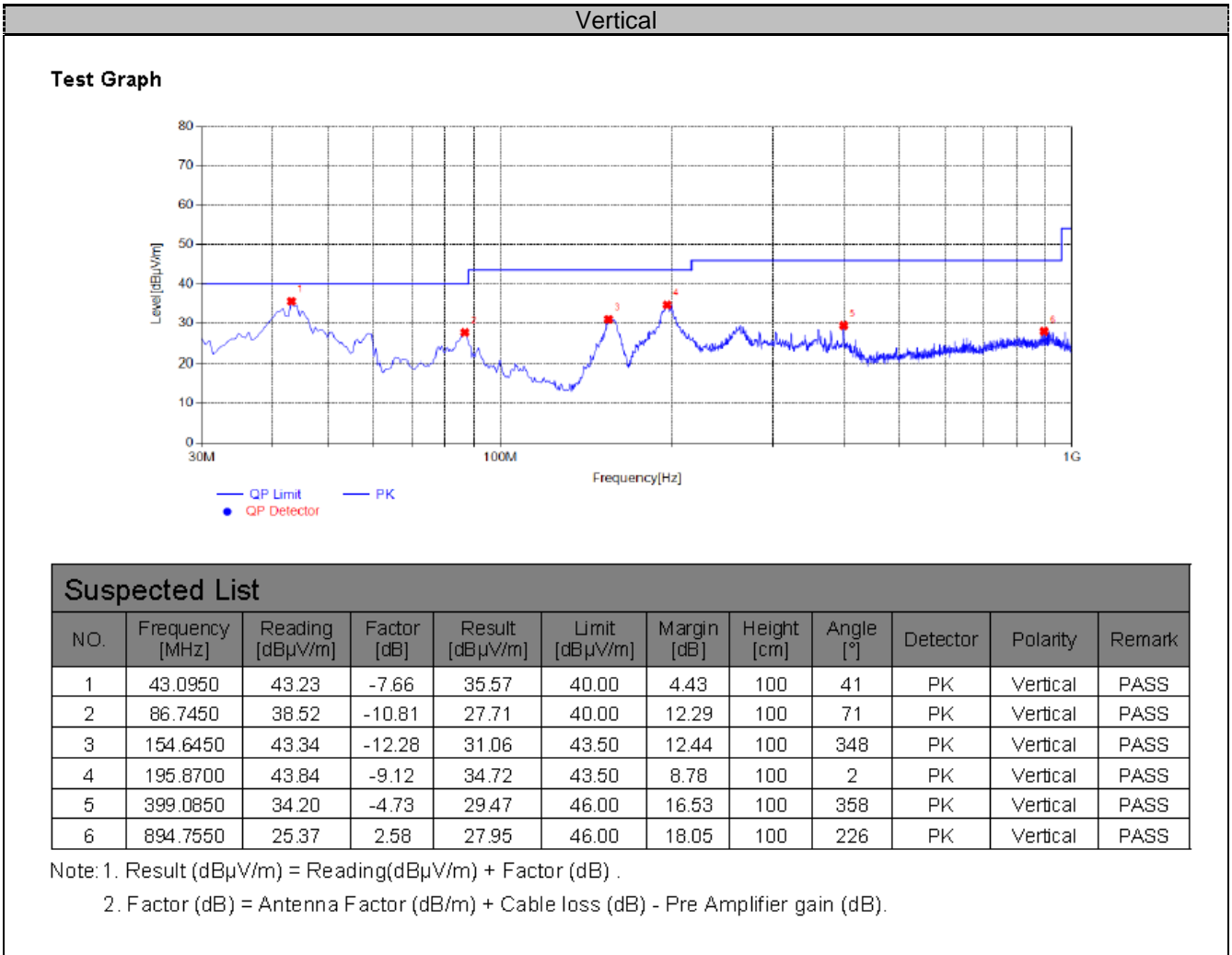
**For 30MHz-1GHz**

**Horizontal**

**Test Graph**

Suspected List												
NO.	Frequency [MHz]	Reading [dBuV/m]	Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark	
1	86.7450	33.32	-10.81	22.51	40.00	17.49	100	358	PK	Horizontal	PASS	
2	158.0400	40.49	-12.02	28.47	43.50	15.03	100	309	PK	Horizontal	PASS	
3	198.2950	46.76	-8.92	37.84	43.50	5.66	100	93	PK	Horizontal	PASS	
4	304.0250	48.34	-7.01	41.33	46.00	4.67	100	73	PK	Horizontal	PASS	
5	399.5700	45.66	-4.67	40.99	46.00	5.01	100	100	PK	Horizontal	PASS	
6	833.1600	25.07	1.67	26.74	46.00	19.26	100	0	PK	Horizontal	PASS	

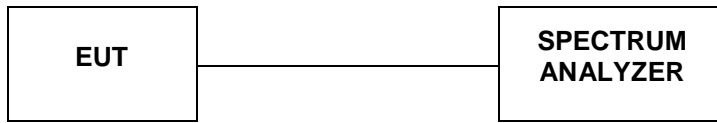
Note:1. Result (dBuV/m) = Reading(dBuV/m) + Factor (dB) .  
 2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).



Note: All the modes have been tested and recorded worst mode in the report.

### 4.3. Occupied Bandwidth

#### TEST CONFIGURATION



#### TEST PROCEDURE

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator’s antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be demonstrated by measuring the radiated emissions.

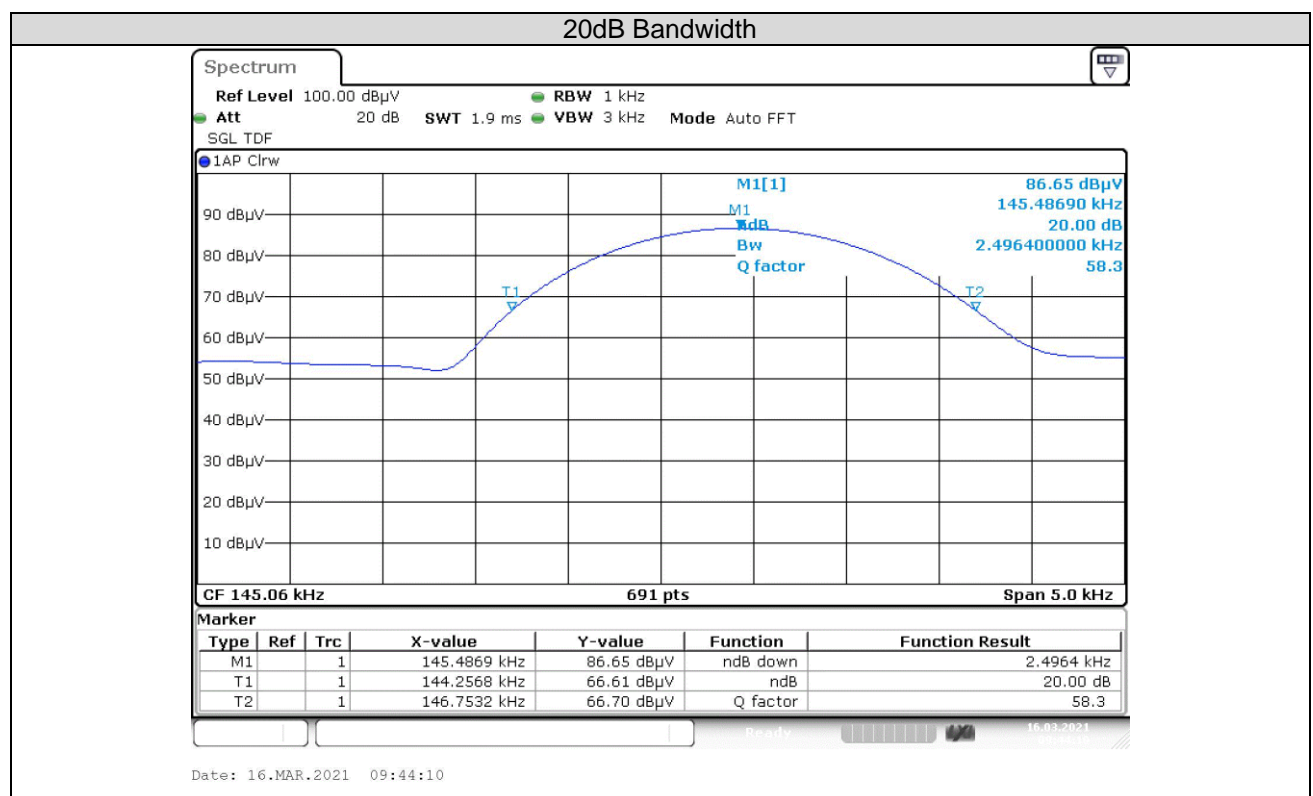
#### LIMIT

./

#### TEST RESULTS

Temperature	24.5°C	Humidity	53.9%
Test Engineer	Moon Tan	Configurations	WPT

Mode	Freq (KHz)	20dB Bandwidth (KHz)	Limit (kHz)	Conclusion
Tx Mode	145.1	2.496	/	PASS



#### 4.4. Antenna Requirement

##### Standard Applicable

##### **Standard Applicable**

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.

##### **Antenna Information**

The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 0dBi.

Reference to the **Internal photos**.



## 5. Test Setup Photos of the EUT

Photo of Radiated Emissions Measurement

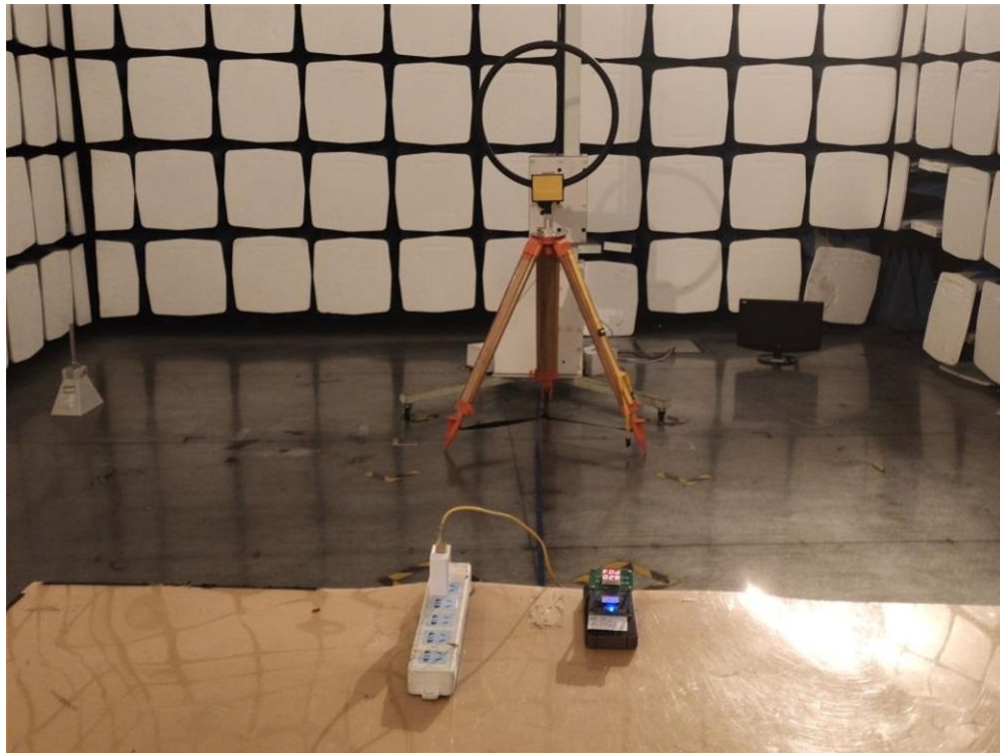


Fig. 1



Fig. 2

Photo of Conducted Emissions Measurement



Fig. 3

## 6. External and Internal Photos of the EUT



Fig. 1



Fig. 2





Fig. 3



Fig. 4



Fig. 5



Fig. 6



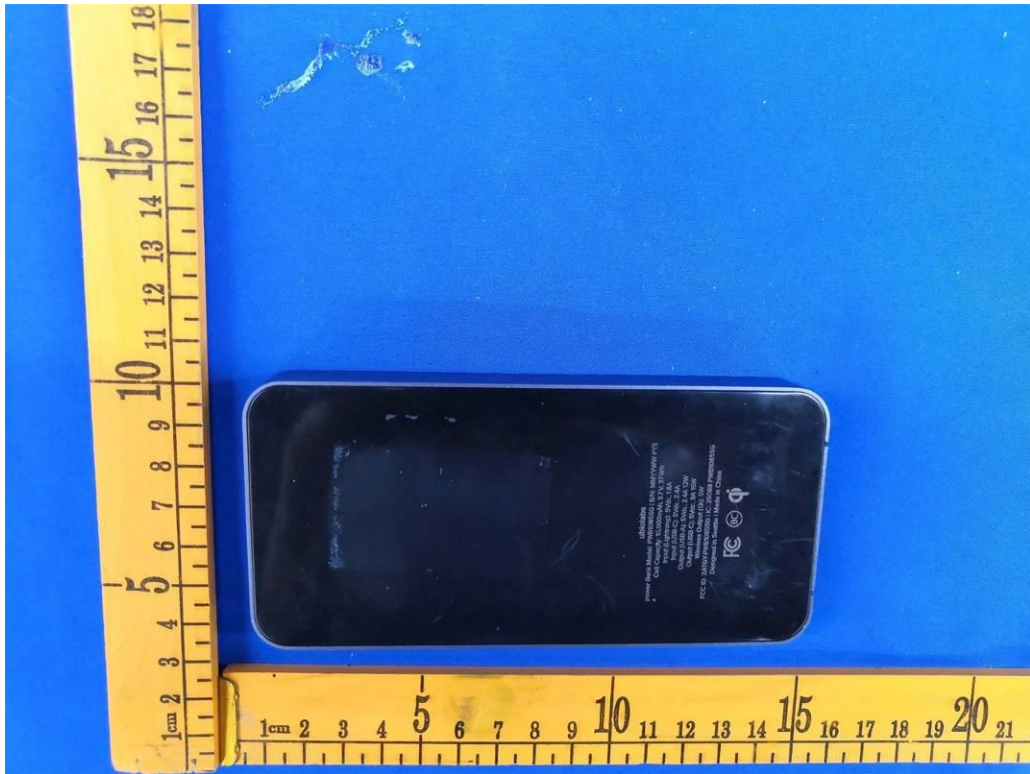


Fig. 7

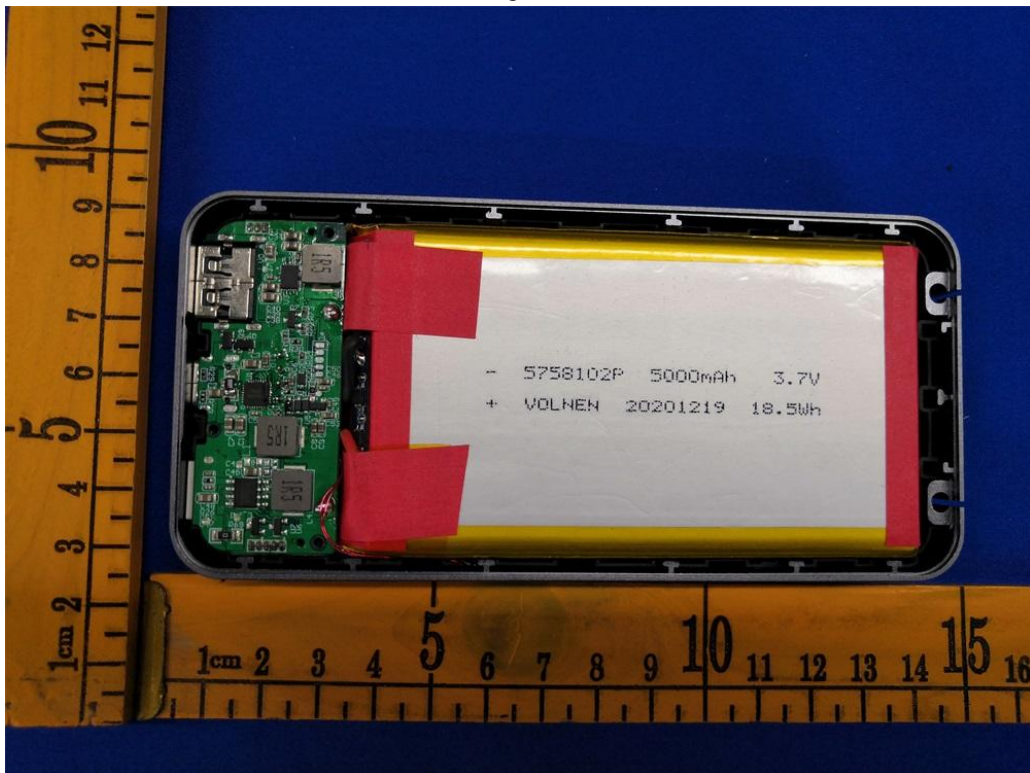


Fig. 8

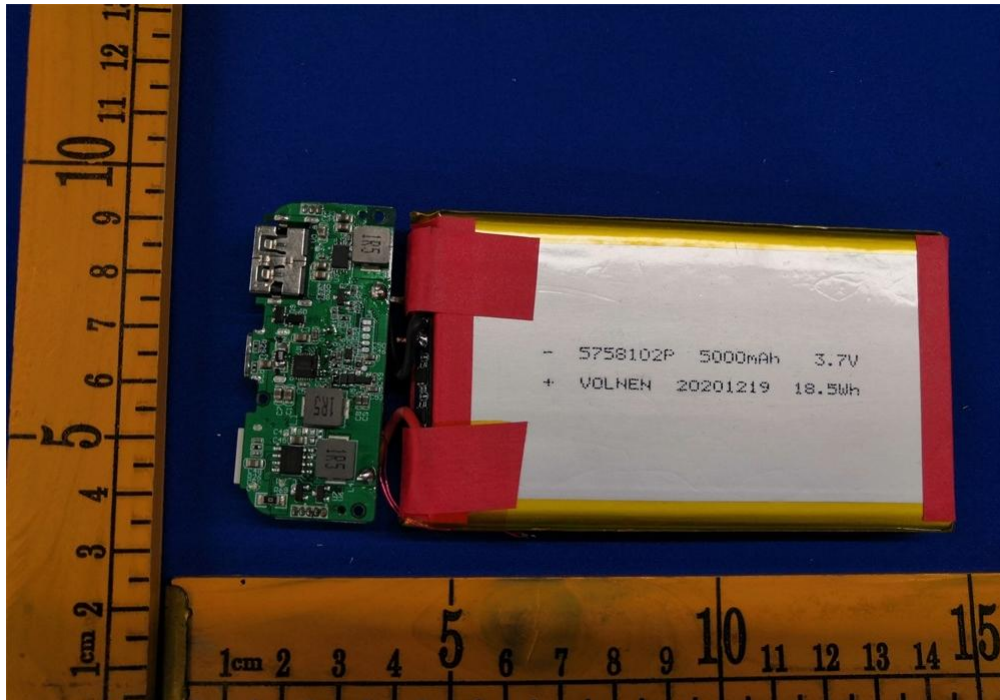


Fig. 9

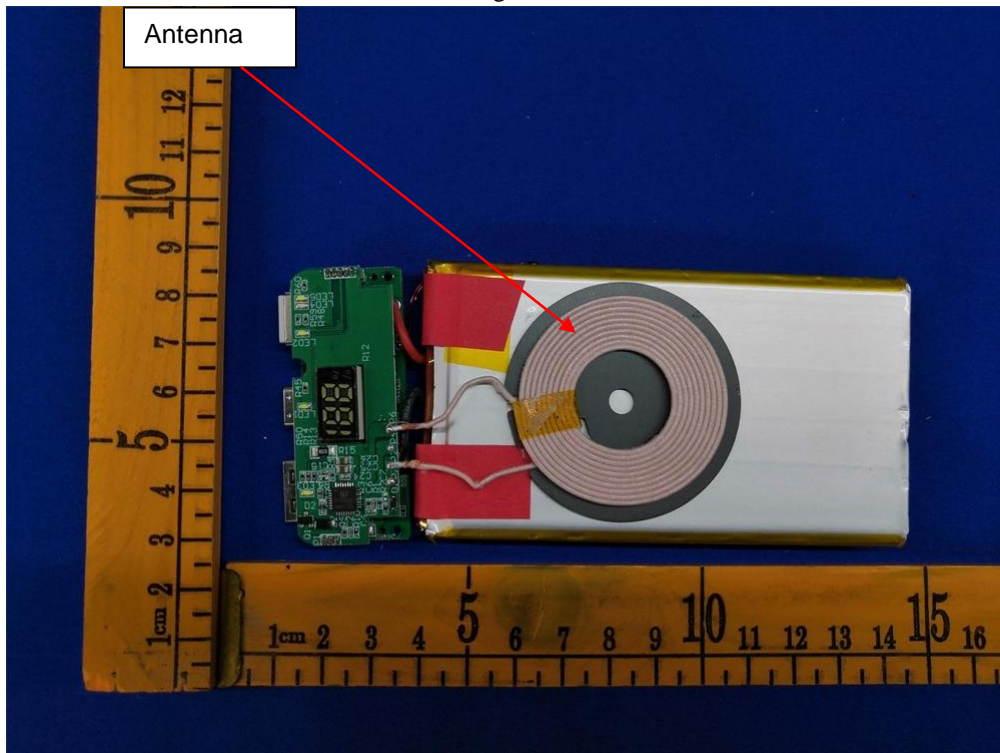


Fig. 10



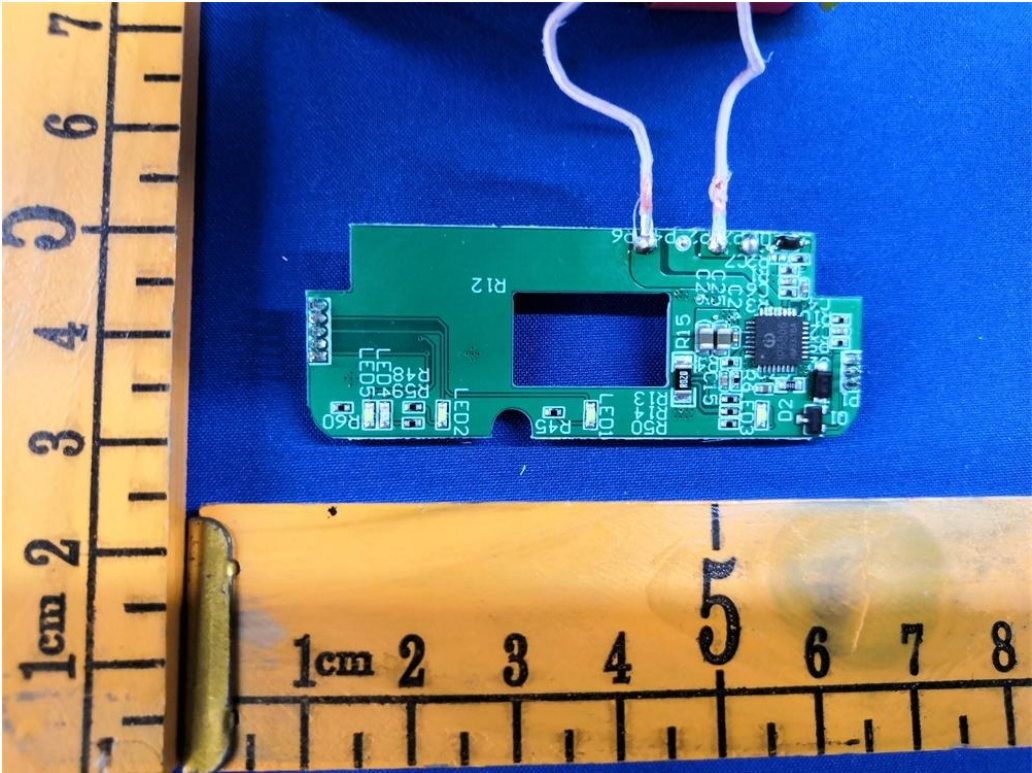


Fig. 11

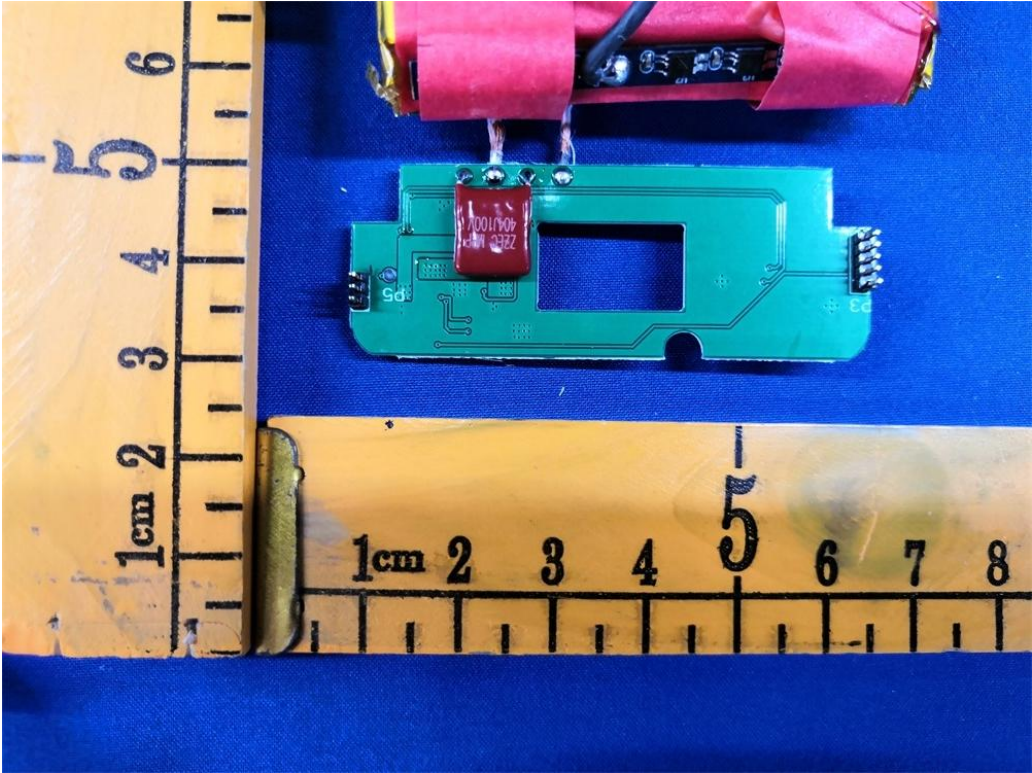


Fig. 12



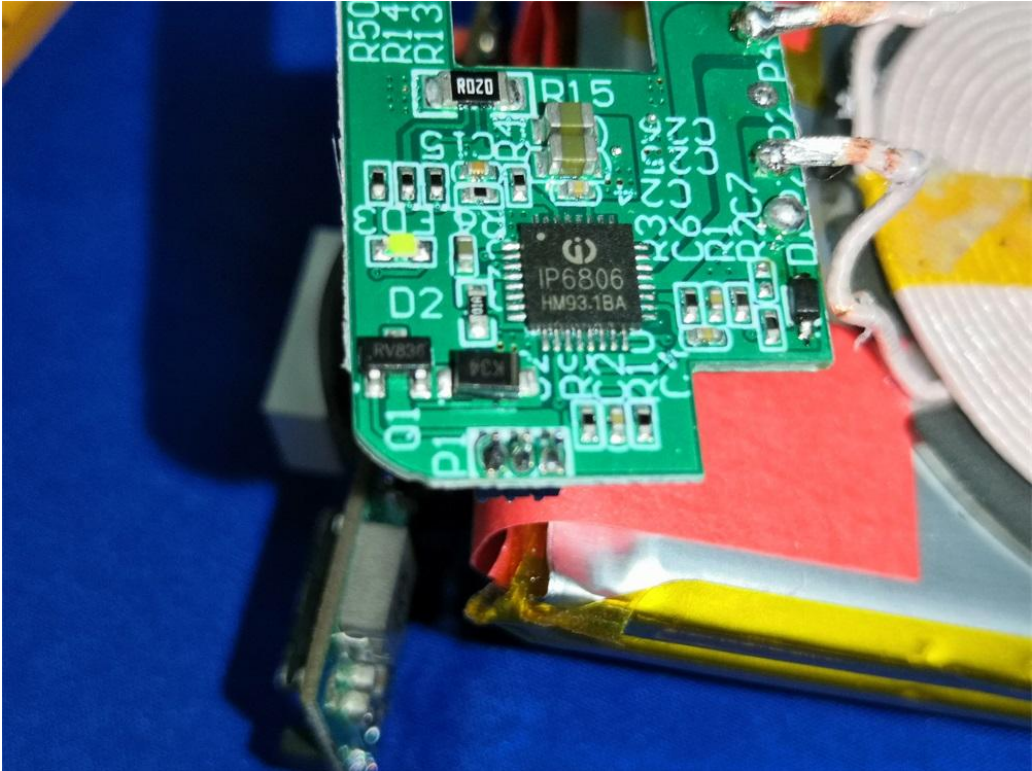


Fig. 13

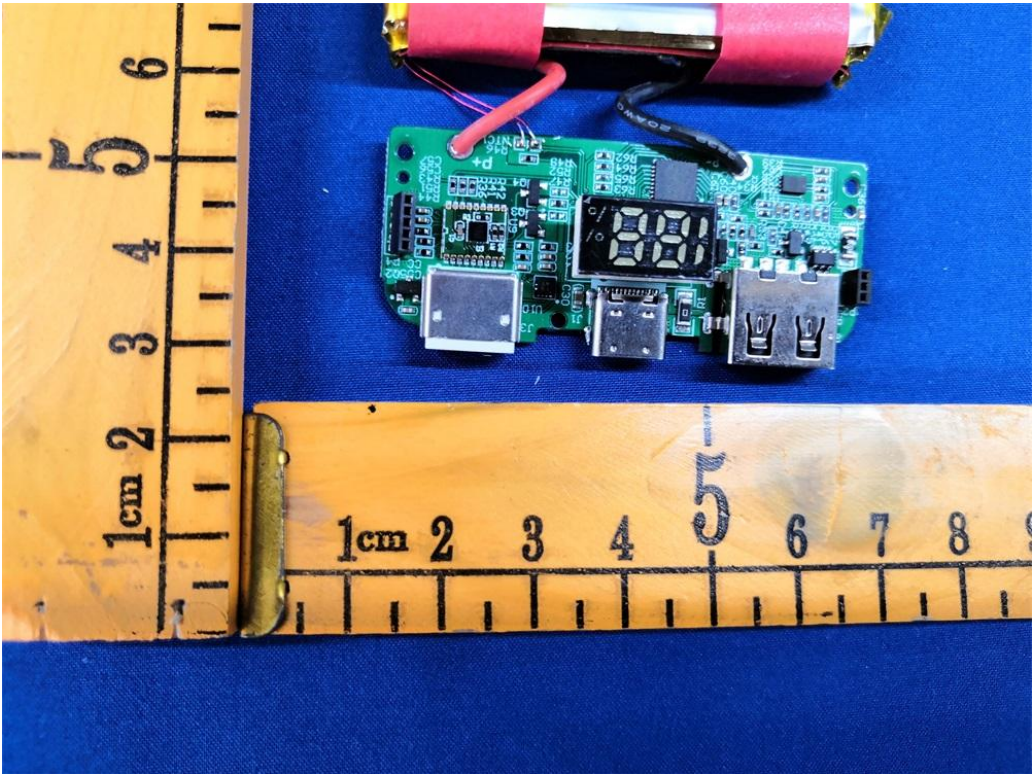


Fig. 14

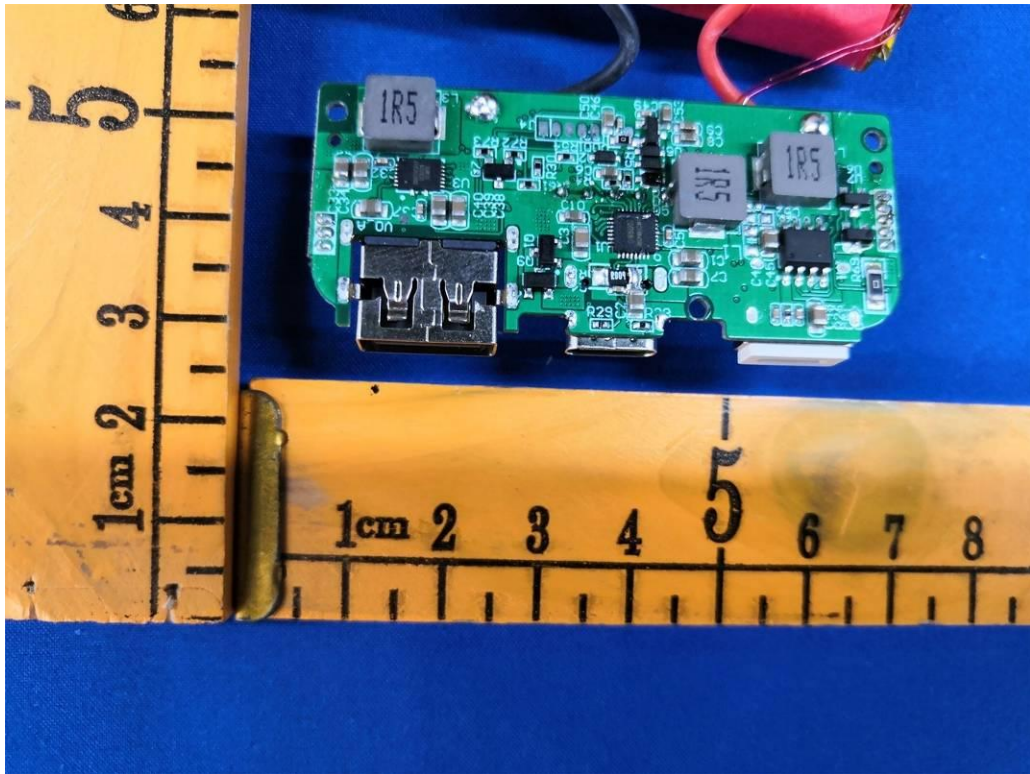


Fig. 15

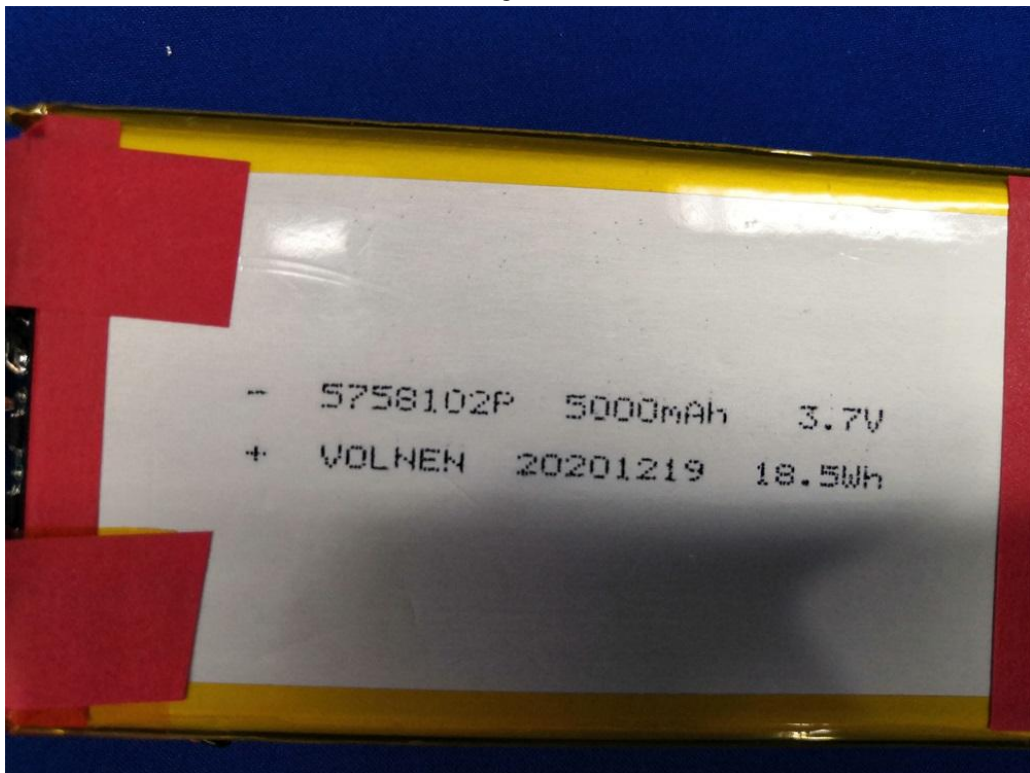


Fig. 16

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