

	TEST REPO	RT				
FCC ID:	2A3VSBXF-20212802					
Test Report No::	TCT211202E008		(C)			
Date of issue::	Jan. 21, 2022					
Testing laboratory::	SHENZHEN TONGCE TEST	TING LAB				
Testing location/ address:	TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China					
Applicant's name::	Shenzhen Willsoon Electroni	ic Technology Co., Ltd				
Address::	Floor 5, Nanken No.2 Industrial Bantian, Longgang, Shenzhen, China					
Manufacturer's name:	Shenzhen Willsoon Electronic Technology Co., Ltd					
Address::	Floor 5, Nanken No.2 Industrial Bantian, Longgang, Shenzhen, China					
Standard(s)::	FCC CFR Title 47 Part 15 St	ubpart C	(3)			
Test item description:	MAGNETIC POWER BANK					
Trade Mark:	ijoY)			
Model/Type reference:	IJPB210136, MGPB202101,	MGPB202102, IJPB210	135			
Rating(s)::	Rechargeable Li-ion Battery	DC 3.7V				
Date of receipt of test item:	Dec. 02, 2021					
Date (s) of performance of test:	Dec. 02, 2021 ~ Jan. 21, 202	22				
Tested by (+signature) :	Rleo LIU	Pro Gangce				
Check by (+signature):	Beryl ZHAO	Boyl PATCT	DNITS			
Approved by (+signature):	Tomsin	Joms s				

General disclaimer:

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1. General Product Information

1.1.EUT description

Test item description:	MAGNETIC POWER BANK	(3)		(3)
Model/Type reference:	IJPB210136			
Sample Number::	TCT211202E008-0101			
Operation Frequency:	115.71kHz – 161.86kHz		(0)	
Center frequency:	122.31 kHz			
Output power:	5W			
Power Supply:	Power input:5V/2A Power output:5V/2A Wireless charging output:5W			
Modulation Technology:	Load modulation		(60)	
Antenna Type:	Inductive loop coil Antenna			
Rating(s):	Rechargeable Li-ion Battery DC	3.7V		

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

No.	Model No.	Tested with
(3)1	IJPB210136	
Other models	MGPB202101, MGPB202102, IJPB210135	

Note: IJPB210136 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of IJPB210136 can represent the remaining models.





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. General Information

3.1. Test environment and mode

Operating Environment:						
Condition	Conducted Emission	Radiated Emission				
Temperature:	25.0 °C	25.3 °C				
Humidity:	55 % RH	54 % RH				
Atmospheric Pressure:	1010 mbar	1010 mbar				
Test Mode:						
Mode	Mode1	Mode2				
AC mode	Wireless Charging 5W	Wireless Charging 5W+full load				

The sample was placed 0.8m for the measurement below 1GHz 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.

Wireless Charging 5W

output

output

Wireless Charging 5W+full load

3.2. Description of Support Units

Internal Battery Mode

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
Mobile Phone	SM-G9350	R28HA2ER3GT	(3)	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: TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, 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

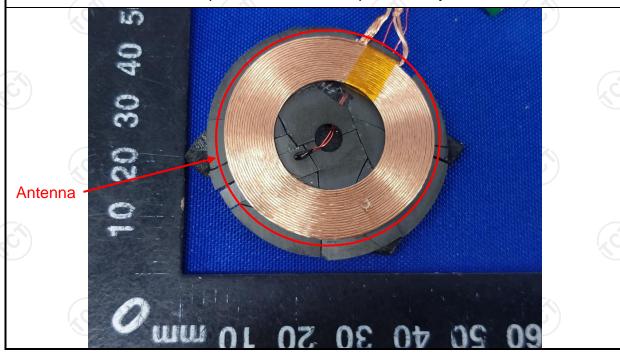
Standard requirement: FCC Part15 C Section 15.203

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.

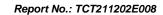




5.2. Conducted Emission

5.2.1. Test Specification

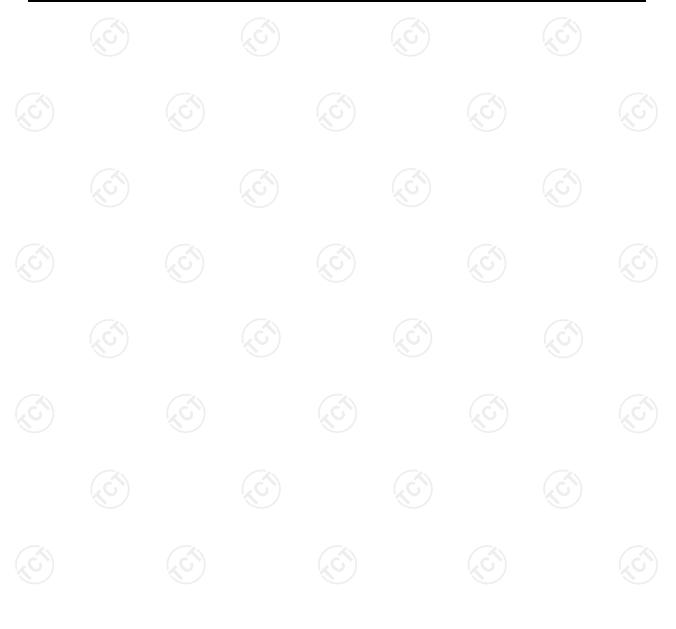
Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10:2013					
Frequency Range:	150 kHz to 30 MHz					
Limits:	Frequency range (MHz) 0.15-0.5 0.5-5 5-30	Limit (c Quasi-peak 66 to 56* 56 60	Average 56 to 46* 46 50			
Test Setup:	Reference 40cm E.U.T Adap Test table/Insulation plan Remarkc E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Test table height=0.8m	EMI Receiver	ter — AC power			
Test Mode:	AC Mode		Ć			
Test Procedure:	 The E.U.T is connecting impedance stabilized provides a 50 ohm/5 measuring equipment. The peripheral deviced power through a LI coupling impedance refer to the block photographs). Both sides of A.C. conducted interferent emission, the relative the interface cables ANSI C63.10: 2013 	ation network 50uH coupling import. es are also connects SN that provides with 50ohm term diagram of the line are checkence. In order to fire e positions of equite must be change	(L.I.S.N.). This pedance for the ected to the main a 500hm/50uH hination. (Please test setup and d for maximum at the maximum ipment and all of ed according to			
Test Result:	PASS	(3)	ÇĆ			
Rmark:	All modes in AC mode mode2 is report only.	have been tested	and the worst			





5.2.2. Test Instruments

Cond	Conducted Emission Shielding Room Test Site (843)									
Equipment Manufacturer Model Serial Number Cali										
EMI Test Receiver	R&S	ESCI3	100898	Jul. 07, 2022						
Line Impedance Stabilisation Newtork(LISN)	Schwarzbeck	NSLK 8126	8126453	Mar. 11, 2022						
Line-5	TCT	CE-05	N/A	Jul. 07, 2022						
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A						

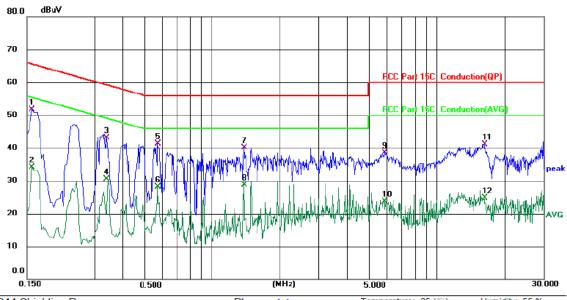




5.2.3. Test data

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: 25 (°C) Humidity: 55 %

Limit: FCC Part 15C Conduction(QP)

Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1580	42.19	9.60	51.79	65.57	-13.78	QP	
2	0.1580	24.54	9.60	34.14	55.57	-21.43	AVG	
3	0.3379	33.74	9.29	43.03	59.25	-16.22	QP	
4	0.3379	21.21	9.29	30.50	49.25	-18.75	AVG	
5	0.5737	32.03	9.19	41.22	56.00	-14.78	QP	
6	0.5737	18.84	9.19	28.03	46.00	-17.97	AVG	
7	1.3817	30.69	9.36	40.05	56.00	-15.95	QP	
8	1.3817	19.37	9.36	28.73	46.00	-17.27	AVG	
9	5.9260	29.04	9.56	38.60	60.00	-21.40	QP	
10	5.9260	14.09	9.56	23.65	50.00	-26.35	AVG	
11	16.3736	31.43	9.69	41.12	60.00	-18.88	QP	
12	16.3736	15.10	9.69	24.79	50.00	-25.21	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement $(dB\mu V)$ = Reading level $(dB\mu V)$ + Corr. Factor (dB)

 $Limit (dB\mu V) = Limit stated in standard$

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak

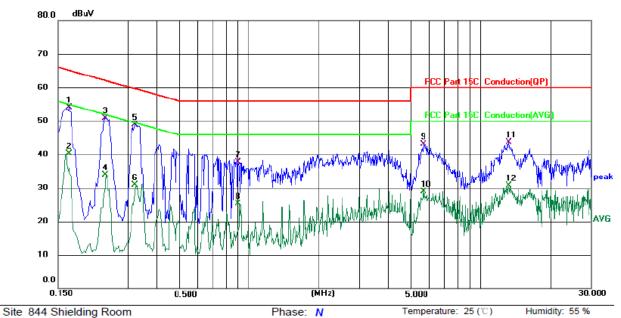
AVG =average

^{*} 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)



Limit: FCC Part 15C Conduction(QP)

Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1660	44.49	9.58	54.07	65.16	-11.09	QP	
2	0.1660	30.76	9.58	40.34	55.16	-14.82	AVG	
3	0.2379	41.65	9.32	50.97	62.17	-11.20	QP	
4	0.2379	24.67	9.32	33.99	52.17	-18.18	AVG	
5 *	0.3220	39.55	9.34	48.89	59.66	-10.77	QP	
6	0.3220	21.52	9.34	30.86	49.66	-18.80	AVG	
7	0.9020	28.35	9.28	37.63	56.00	-18.37	QP	
8	0.9020	15.93	9.28	25.21	46.00	-20.79	AVG	
9	5.6859	33.66	9.50	43.16	60.00	-16.84	QP	
10	5.6859	19.50	9.50	29.00	50.00	-21.00	AVG	
11	13.3100	34.13	9.65	43.78	60.00	-16.22	QP	
12	13.3100	21.04	9.65	30.69	50.00	-19.31	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement ($dB\mu V$) = Reading level ($dB\mu V$) + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak AVG =average

^{*} is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.



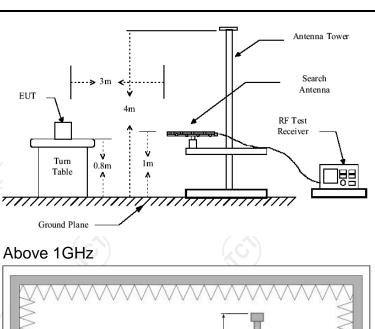
5.3. Radiated Spurious Emission Measurement

5.3.1. Test Specification

Test Requirement:	FCC Part15	C Section	15.209	(0)		100			
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	Refer to item 3.1							
	Frequency 9kHz- 150kHz	Detector Quasi-peak		VBW 1kHz	Quas	Remark si-peak Value			
Receiver Setup:	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quas	si-peak Value			
	30MHz-1GHz Above 1GHz	Quasi-peak Peak	1MHz	300KHz 3MHz	Pe	si-peak Value eak Value			
	715070 10112	Peak	1MHz	10Hz	Ave	erage Value			
	Frequer	ncy	Field Strength (microvolts/meter)			asurement nce (meters)			
	0.009-0.4		2400/F(300			
	0.490-1.7		24000/F(KHz)		30				
	1.705-3 30-88		30 100		30				
	88-210		150		3				
Limit:	216-96	•	200			3			
	Above 9	500			3				
					KO				
	Frequency		Strength volts/meter)	- I Higtan		Detector			
	Above 1GH:	, (,	500		(,c	Average			
	Above IGH.	2	5000			Peak			
	For radiated	emissions	below 30	OMHz					
Test setup:	C.Sm EUT	Turn table Ground Pl	1.3m	Pre -Amp					
	30MHz to 10	GHz							



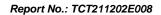




1. For the radiated emission test below 1GHz:

Test Procedure:

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. For the radiated emission test above 1GHz: Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final





	 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
Rmark:	AC mode and internal Battery Mode were tested and the worst mode2 is report only.





5.3.2. Test Instruments

	Radiated En	nission Test Site	e (966)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESIB7	100197	Jul. 07, 2022
Spectrum Analyzer	R&S	FSQ40	200061	Jul. 07, 2022
Pre-amplifier	SKET	LNPA_0118G- 45	SK2021012 102	Mar. 11, 2022
Pre-amplifier	SKET	LNPA_1840G- 50	SK2021092 03500	Apr. 08, 2022
Pre-amplifier	HP	8447D	2727A05017	Jul. 07, 2022
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 05, 2022
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Apr. 10, 2023
Antenna Mast	Keleto	RE-AM	N/A	N/A
Coaxial cable	SKET	RC_DC18G-N	N/A	Apr. 08, 2022
Coaxial cable	SKET	RC-DC18G-N	N/A	Apr. 08, 2022
Coaxial cable	SKET	RC-DC40G-N	N/A	Jul. 07, 2022
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

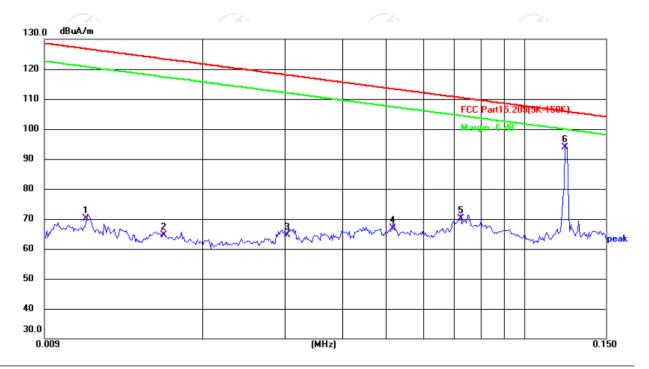


5.3.3. Test Data

Please refer to following diagram for individual 9KHz-30MHz

9KHz-150KHz:

coaxial

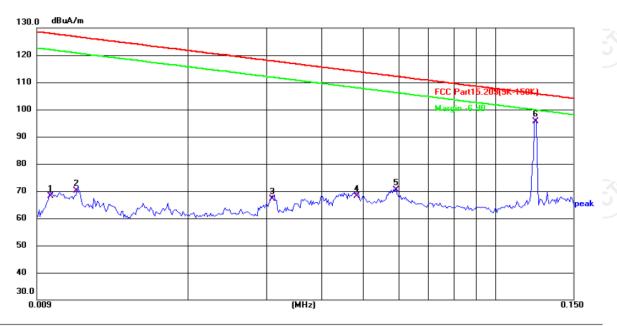


Site Polarization: Temperature: 25($^{\circ}$ C) Limit: FCC Part15.209(9K-150K) Power: DC 5 V Humidity: 55 %

No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.0111	46.98	23.26	70.24	126.69	-56.45	QP	Р	
2	0.0164	44.20	20.45	64.65	123.31	-58.66	QP	Р	
3	0.0303	45.52	19.23	64.75	117.98	-53.23	QP	Р	
4	0.0517	46.16	20.66	66.82	113.34	-46.52	QP	Р	
5	0.0724	48.06	22.07	70.13	110.42	-40.29	QP	Р	
6 *	0.1223	68.81	25.03	93.84	105.87	-12.03	QP	Р	



coplanar



Site Polarization: Temperature: 25(°C) Limit: FCC Part15.209(9K-150K) Power: DC 5 V Humidity: 55 %

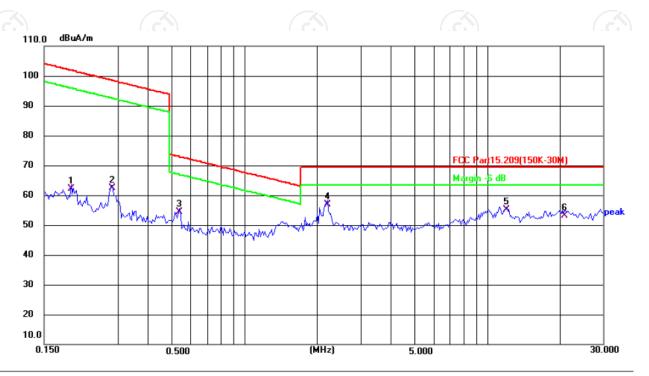
No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.0097	44.09	24.05	68.14	127.86	-59.72	QP	Р	
2	0.0111	46.94	23.26	70.20	126.69	-56.49	QP	Р	
3	0.0309	47.89	19.27	67.16	117.81	-50.65	QP	Р	
4	0.0483	47.76	20.44	68.20	113.93	-45.73	QP	Р	
5	0.0592	49.18	21.18	70.36	112.17	-41.81	QP	Р	
6 *	0.1231	70.53	25.07	95.60	105.82	-10.22	QP	Р	





150KHz-30MHz:

coaxial



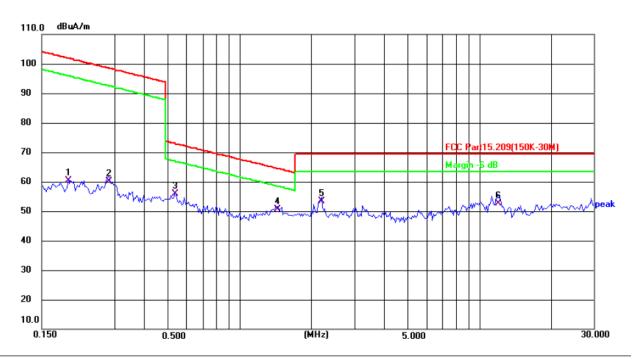
Site Polarization: Temperature: 25(°C) Limit: FCC Part15.209(150K-30M) Power: DC 5V Humidity: 55%

No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.1935	35.75	26.41	62.16	101.88	-39.72	QP	Р	
2	0.2867	35.97	26.41	62.38	98.46	-36.08	QP	Р	
3	0.5421	27.74	26.52	54.26	72.92	-18.66	QP	Р	
4 *	2.2015	27.25	29.55	56.80	69.50	-12.70	QP	Р	
5	12.0379	29.23	25.93	55.16	69.50	-14.34	QP	Р	
6	20.9085	27.59	25.61	53.20	69.50	-16.30	QP	Р	





Coplanar



Site Polarization: Temperature: 25(°C) Limit: FCC Part15.209(150K-30M) Power: DC 5V Humidity: 55 %

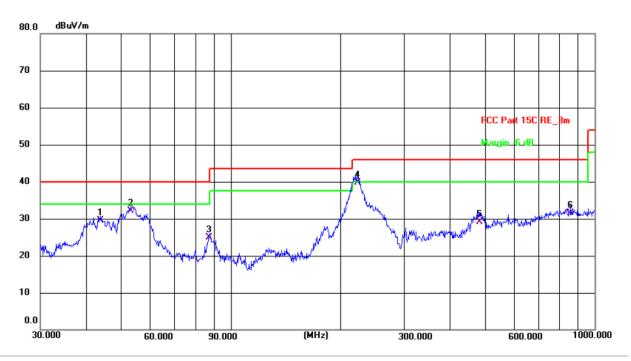
No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.1935	33.89	26.41	60.30	101.88	-41.58	QP	Р	
2	0.2867	33.71	26.41	60.12	98.46	-38.34	QP	Р	
3	0.5421	29.28	26.52	55.80	72.92	-17.12	QP	Р	
4 *	1.4395	22.54	28.20	50.74	64.47	-13.73	QP	Р	
5	2.2015	23.85	29.55	53.40	69.50	-16.10	QP	Р	
6	12.0379	26.76	25.93	52.69	69.50	-16.81	QP	Р	





30MHz-1GHz

Horizontal:



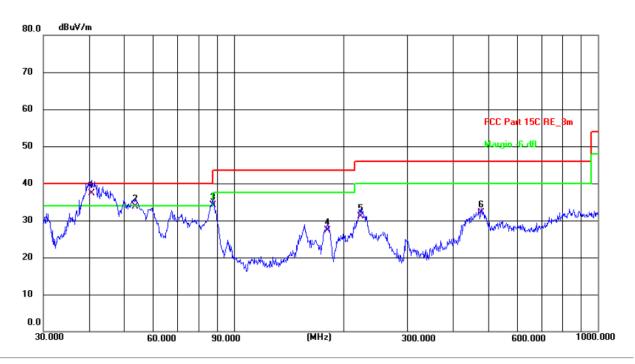
Site #1 3m Anechoic Chamber Polarization: *Horizontal* Temperature: 25.3(C) Humidity: 54 %

Limit: FCC Part 15C RE_3m Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	43.8119	16.00	13.50	29.50	40.00	-10.50	QP	Р	
2	53.1313	19.22	12.93	32.15	40.00	-7.85	QP	Р	
3	87.4175	16.37	8.51	24.88	40.00	-15.12	QP	Р	
4 *	222.9500	28.71	10.94	39.65	46.00	-6.35	QP	Р	
5	483.9094	11.28	17.87	29.15	46.00	-16.85	QP	Р	
6	860.0351	7.64	23.84	31.48	46.00	-14.52	QP	Р	



Vertical:



Site #1 3m Anechoic Chamber Polarization: Vertical Temperature: 25.3(C) Humidity: 54 %

Limit: FCC Part 15C RE_3m Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1 *	40.7014	23.70	13.59	37.29	40.00	-2.71	QP	Р	
2	53.6931	20.83	12.86	33.69	40.00	-6.31	QP	Р	
3 !	87.7245	25.67	8.50	34.17	40.00	-5.83	QP	Р	
4	181.2834	16.09	11.21	27.30	43.50	-16.20	QP	Р	
5	222.9500	20.16	10.94	31.10	46.00	-14.90	QP	Р	
6	478.8455	14.36	17.74	32.10	46.00	-13.90	QP	Р	

Note

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

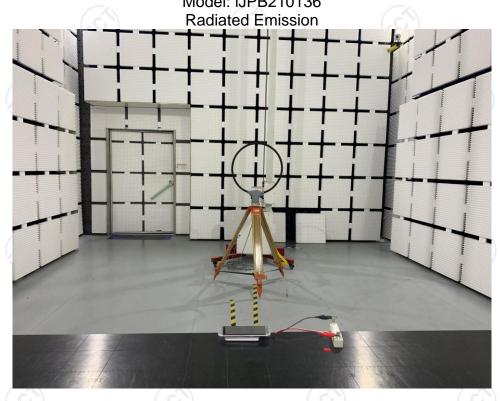






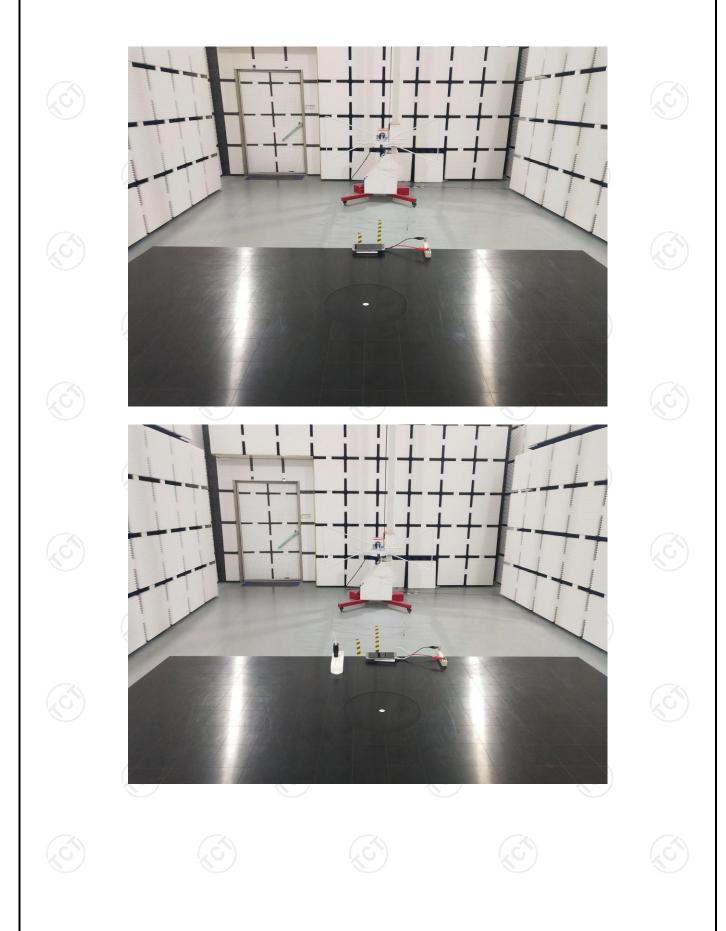
Appendix A: Photographs of Test Setup Product: MAGNETIC POWER BANK

Product: MAGNETIC POWER BANK Model: IJPB210136



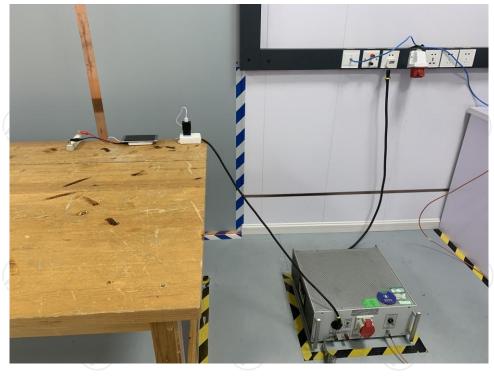








Conducted Emission

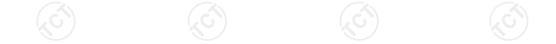


















Appendix B: Photographs of EUT Product: MAGNETIC POWER BANK Model: IJPB210136





TCT通测检测 TESTING CENTRE TECHNOLOGY











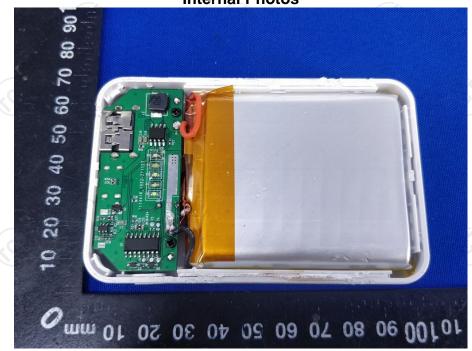


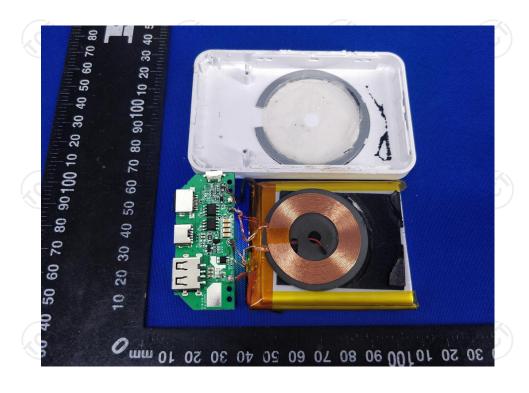


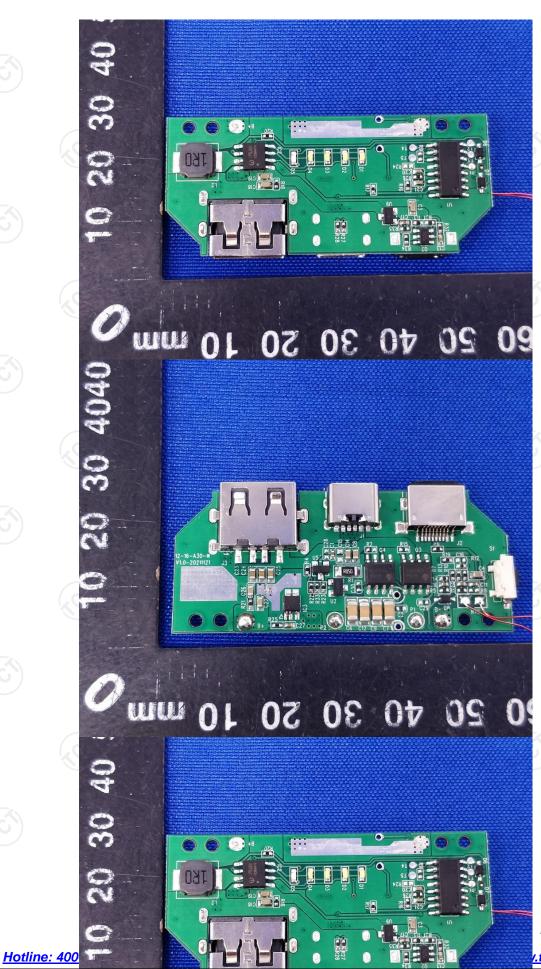




Product: MAGNETIC POWER BANK Model: IJPB210136 Internal Photos



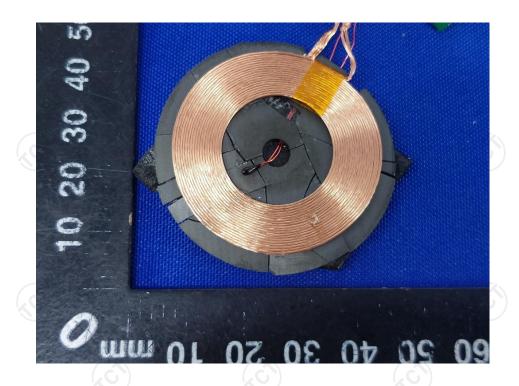




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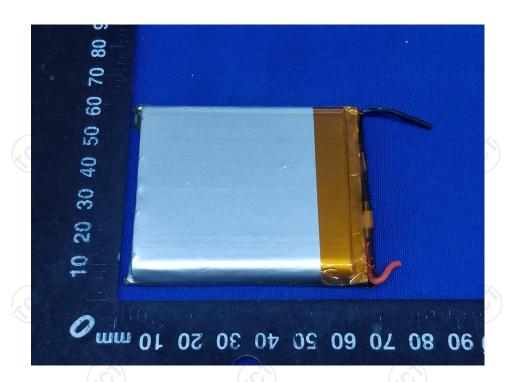
<u>.tct-lab.com</u>











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

