

	TEST REPOR	Т	
FCC ID:	2A4DZ-TSB4350		
Test Report No::	TCT220224E030	(c)	
Date of issue::	Mar. 04, 2022		
Testing laboratory:	SHENZHEN TONGCE TESTING	LAB	<u> </u>
Testing location/ address:	TCT Testing Industrial Park Fuqi Street, Bao'an District Shenzhen Republic of China		/
Applicant's name::	MITA EXPEDITIONS LLC	(3)	(c ⁴)
Address::	3821 Bedford Avenue, Brooklyn,	New York, 11229,	United States
Manufacturer's name:	MITA EXPEDITIONS LLC		
Address::	3821 Bedford Avenue, Brooklyn,	New York, 11229,	United States
Standard(s):	FCC CFR Title 47 Part 15 Subpa	rrt C	
Product Name::	MagBoost Protable Charger 20K		
Trade Mark:	Techsmarter		
Model/Type reference:	TSB4350	(c)	(i
Rating(s)::	Rechargeable Li-ion Battery DC	3.7V	
Date of receipt of test item:	Feb. 24, 2022	(3)	(3)
Date (s) of performance of test:	Feb. 24, 2022 - Mar. 04, 2022		
Tested by (+signature):	Rleo LIU	Pro Wigner	
Check by (+signature):	Beryl ZHAO	By TC1	PIND
Approved by (+signature):	Tomsin	Joms it's	and (a)

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Table of Contents

1.	General Product Information			3
	1.1. EUT description			.3
	1.2. Model(s) list			.3
2.	Test Result Summary		<u></u>	4
3.	General Information			5
	3.1. Test environment and mode			
	3.2. Description of Support Units	<u>(c)</u>	<u>(0</u>	.5
4.	Facilities and Accreditations			
	4.1. Facilities			
	4.2. Location	<u></u>	<u> </u>	.6
	4.3. Measurement Uncertainty			. 6
5 .	Test Results and Measurement Data			7
	5.1. Antenna requirement			.7
	5.2. Conducted Emission			.8
	5.3. Radiated Spurious Emission Measurement		<u></u>	12
Α	ppendix A: Photographs of Test Setup			
A	ppendix B: Photographs of EUT			



1. General Product Information

1.1.EUT description

Product Name:	MagBoost Protable Charger 20K	agBoost Protable Charger 20K				
Model/Type reference:	TSB4350					
Sample Number:	TCT220224E030-0101					
Operation Frequency:	122.44kHz - 174.36kHz	(6)				
Modulation Technology:	Load modulation					
Max. Wireless Output Power:	15W		(C)			
Antenna Type:	Inductive loop coil Antenna					
Rating(s):	Rechargeable Li-ion Battery DC 3.7V					
		1787				

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

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.





3. General Information

3.1. Test environment and mode

Operating Environment	:			
Condition	Conducted Emission	Radiated Emission		
Temperature:	25.0 °C	25.1 °C		
Humidity:	55 % RH	48 % RH		
Atmospheric Pressure:	1010 mbar	1010 mbar		
Test Mode:				
Mode	Mode1	Mode2		
AC mode	Wireless Charging 15W			
Internal Battery Mode	Wireless Charging 15W	Wireless Charging 15W+ Full Load		

The sample was placed 0.8m above the ground plane for the measurement from 9KHz to 30MHz in 3m chamber. 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	Equipment Model No.		FCC ID	Trade Name		
Mobile Phone	SM-G9350	R28HA2ER3GT		SAMSUNG		
Adapter	EP-TA200	R37M4PR3QD1SE3		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.
- 3. Both AC mode and internal battery mode have been tested, only worse case (AC mode) is reported



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

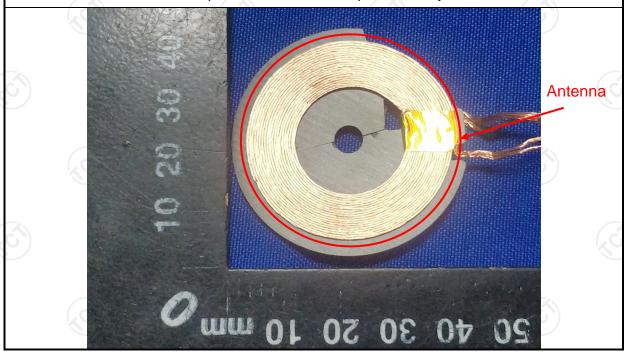
Standard requirement: FCC Part15 C Section 15.203

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	6						
Test Method:	ANSI C63.10:2013								
Frequency Range:	150 kHz to 30 MHz	<u>(()</u>	(0)						
Receiver setup:	RBW=9 kHz, VBW=30	kHz, Sweep time	=auto						
Limits:	Frequency range (MHz) 0.15-0.5 0.5-5 5-30	Limit (Quasi-peak 66 to 56* 56 60	dBuV) Average 56 to 46* 46 50						
	Refere	nce Plane	χο /						
Test Setup:	Remark E.U.T Adapter Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m								
Test Mode:	AC Mode								
Test Procedure:	 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. 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). 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. 								
Test Result:	PASS								



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	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						

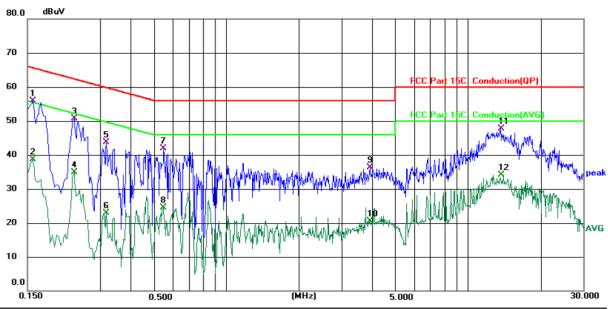




5.2.3. Test data

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	46.24	9.60	55.84	65.57	-9.73	QP	
2		0.1580	29.07	9.60	38.67	55.57	-16.90	AVG	
3		0.2340	41.29	9.36	50.65	62.31	-11.66	QP	
4		0.2340	25.52	9.36	34.88	52.31	-17.43	AVG	
5		0.3180	34.38	9.30	43.68	59.76	-16.08	QP	
6		0.3180	13.61	9.30	22.91	49.76	-26.85	AVG	
7		0.5500	32.68	9.20	41.88	56.00	-14.12	QP	
8		0.5500	15.38	9.20	24.58	46.00	-21.42	AVG	
9		3.9300	26.68	9.55	36.23	56.00	-19.77	QP	
10		3.9300	10.97	9.55	20.52	46.00	-25.48	AVG	
11		13.6419	38.09	9.64	47.73	60.00	-12.27	QP	
12		13.6419	24.55	9.64	34.19	50.00	-15.81	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

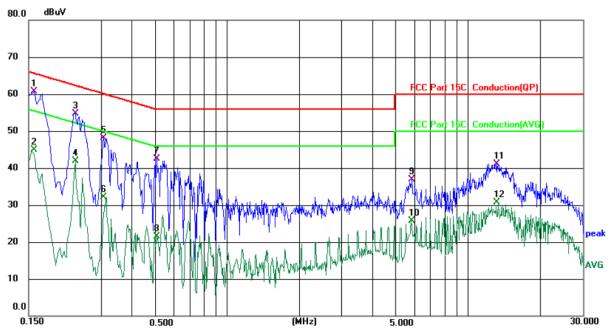
AVG =average

^{*} 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)



Site 844 Shielding Room Phase: N 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	51.03	9.59	60.62	65.57	-4.95	QP	
2		0.1580	35.33	9.59	44.92	55.57	-10.65	AVG	
3		0.2340	45.36	9.32	54.68	62.31	-7.63	QP	
4		0.2340	32.54	9.32	41.86	52.31	-10.45	AVG	
5		0.3059	38.68	9.35	48.03	60.08	-12.05	QP	
6		0.3059	22.80	9.35	32.15	50.08	-17.93	AVG	
7		0.5100	33.26	9.22	42.48	56.00	-13.52	QP	
8		0.5100	12.25	9.22	21.47	46.00	-24.53	AVG	
9		5.8460	27.33	9.51	36.84	60.00	-23.16	QP	
10		5.8460	16.27	9.51	25.78	50.00	-24.22	AVG	
11		13.2019	31.53	9.65	41.18	60.00	-18.82	QP	
12		13.2019	20.96	9.65	30.61	50.00	-19.39	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.



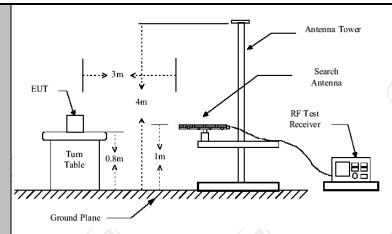


5.3. Radiated Spurious Emission Measurement

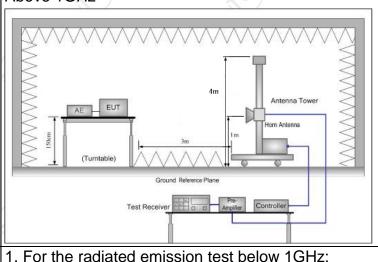
5.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209									
Test Method:	ANSI C63.10	0:2013								
Frequency Range:	9 kHz to 25 (GHz			C					
Measurement Distance:	3 m									
Antenna Polarization:	Horizontal &	Vertical								
Operation mode:	Refer to item	3.1	()	(6)		ŹĆ				
Receiver Setup:	Frequency 9kHz- 150kHz 150kHz- 30MHz 30MHz-1GHz	Detector Quasi-peak Quasi-peak Quasi-peak	9kHz	VBW 1kHz 30kHz 300KHz 3MHz	(₂ C)					
	Above 1GHz	Peak	1MHz	10Hz		erage Value				
	0.009-0.4 0.490-1.7	190	(microvolts	Field Strength (microvolts/meter) 2400/F(KHz)		easurement ince (meters) 300 30				
	1.705-3 30-88	30	30 100		30					
Limit:	88-216 216-96		150 200		3 3					
	Above 9		500			3				
	Frequency Above 1GHz	(micro	Field Strength (microvolts/meter) 500 5000		ment ice rs)	Detector Average Peak				
Test setup:	For radiated	Turn table	s below 30	Pre -	Compu					





Above 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







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		

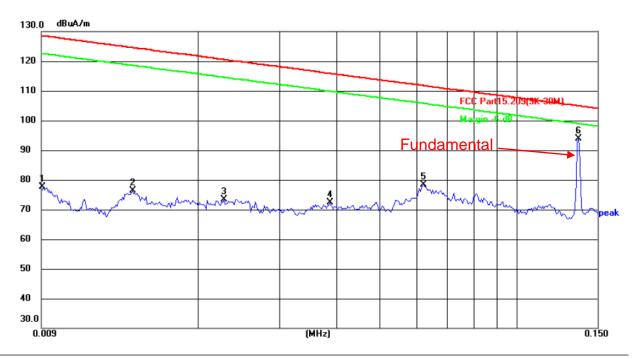


5.3.3. Test Data

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

9KHz-150KHz:

coaxial



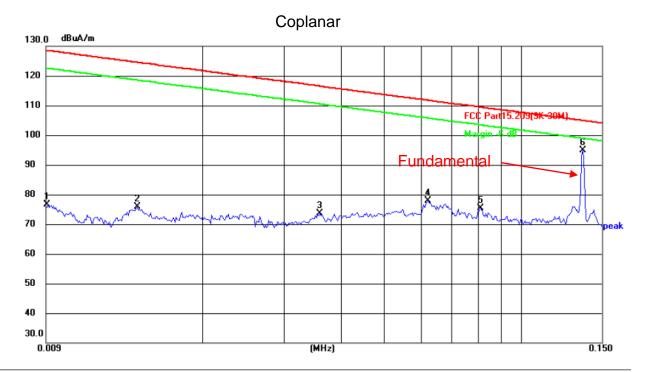
Site Polarization: Coaxial Temperature: 25(°C)

Limit: FCC Part15.209(9K-30M) Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

Humidity: 55 %

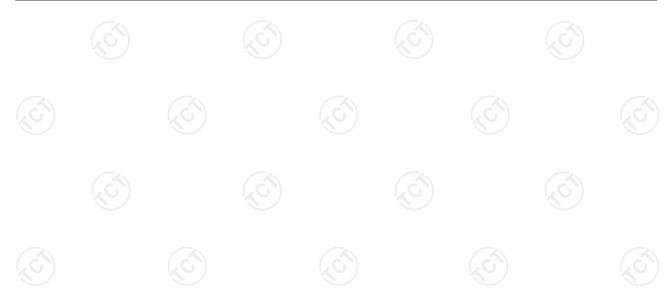
No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.0091	52.99	24.75	77.74	128.42	-50.68	peak	Р	
2	0.0143	54.89	21.56	76.45	124.50	-48.05	peak	Р	
3	0.0227	54.70	18.72	73.42	120.48	-47.06	peak	Р	
4	0.0388	52.67	19.80	72.47	115.83	-43.36	peak	Р	
5	0.0621	57.04	21.37	78.41	111.74	-33.33	peak	Р	
6 *	0.1363	68.16	25.72	93.88	104.91	-11.03	peak	Р	





Site Polarization: Coplanar Temperature: 25(°C)
Limit: FCC Part15.209(9K-30M) Power: DC 5 V(Adapter Input AC 120 V/60 Hz) Humidity: 55 %

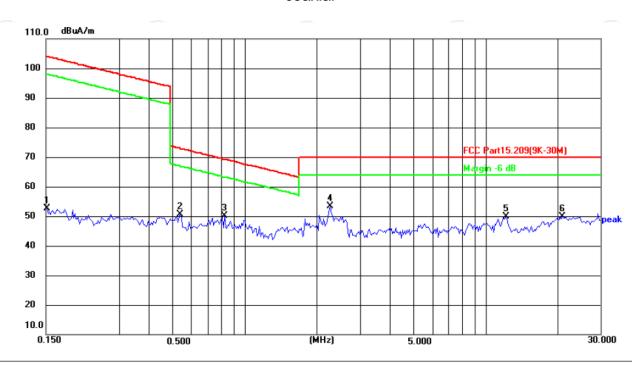
No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)		Margin (dB)	Detector	P/F	Remark
1	0.0091	51.99	24.75	76.74	128.42	-51.68	peak	Р	
2	0.0143	54.39	21.56	75.95	124.50	-48.55	peak	Р	
3	0.0359	53.98	19.61	73.59	116.50	-42.91	peak	Р	
4	0.0621	56.54	21.37	77.91	111.74	-33.83	peak	Р	
5	0.0810	52.67	22.67	75.34	109.43	-34.09	peak	Р	
6 *	0.1363	69.16	25.72	94.88	104.91	-10.03	peak	Р	





150KHz-30MHz:

coaxial



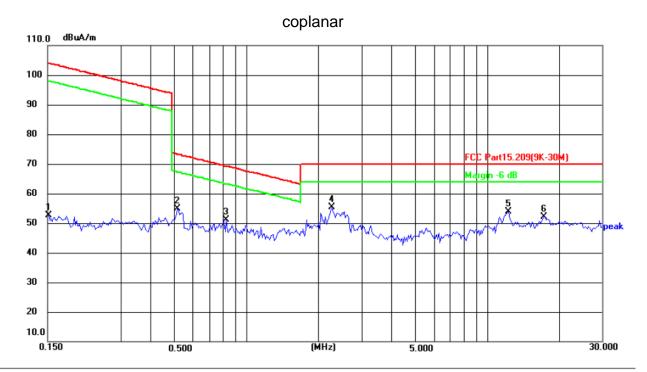
Site Polarization: Coaxial Temperature: 25(°C)

Limit: FCC Part15.209(9K-30M) Power: DC 5 V(Adapter Input AC Humidity: 55 % 120 V/60 Hz)

No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.1516	25.97	26.66	52.63	103.99	-51.36	peak	Р	
2	0.5421	24.01	26.52	50.53	72.92	-22.39	peak	Р	
3	0.8286	23.02	27.11	50.13	69.25	-19.12	peak	Р	
4 *	2.2728	23.74	29.68	53.42	70.00	-16.58	peak	Р	
5	12.1661	23.93	25.88	49.81	70.00	-20.19	peak	Р	
6	20.9085	24.38	25.61	49.99	70.00	-20.01	peak	Р	







Site Polarization: Coplanar Temperature: 25(°C)

Limit: FCC Part15.209(9K-30M) Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

Humidity: 55 %

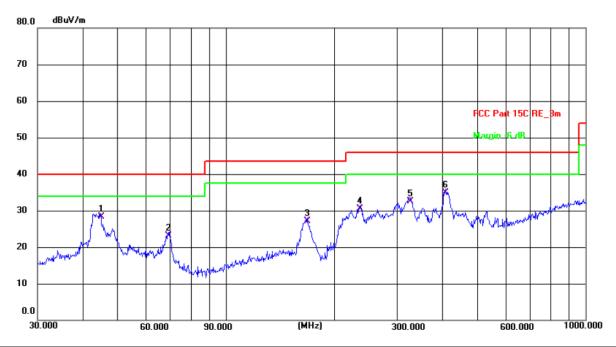
No.	Frequency (MHz)	Reading (dBuA)	Factor (dB/m)	Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Detector	P/F	Remark
1	0.1516	25.97	26.66	52.63	103.99	-51.36	peak	Р	
2	0.5191	28.30	26.48	54.78	73.30	-18.52	peak	Р	
3	0.8286	24.02	27.11	51.13	69.25	-18.12	peak	Р	
4 *	2.2728	25.74	29.68	55.42	70.00	-14.58	peak	Р	
5	12.2963	27.99	25.84	53.83	70.00	-16.17	peak	Р	
6	17.2713	26.84	25.26	52.10	70.00	-17.90	peak	Р	





30MHz-1GHz

Horizontal:



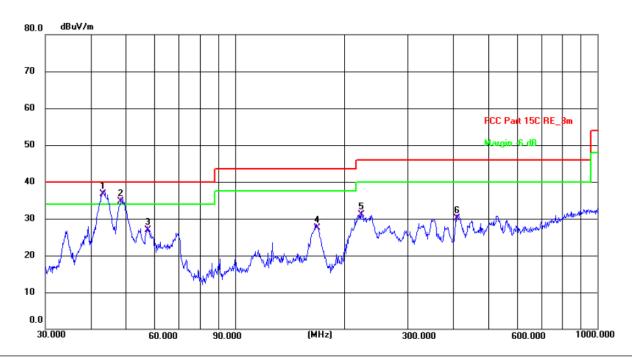
Site #2 3m Anechoic Chamber Polarization: *Horizontal* Temperature: 25.1(C) Humidity: 48 % Limit: FCC Part 15C RE_3m Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	44.9006	14.41	13.89	28.30	40.00	-11.70	QP	Р	
2	69.3568	11.96	11.24	23.20	40.00	-16.80	QP	Р	
3	168.4138	14.68	12.52	27.20	43.50	-16.30	QP	Р	
4	236.6447	17.94	12.56	30.50	46.00	-15.50	QP	Р	
5	324.4561	18.00	14.60	32.60	46.00	-13.40	QP	Р	
6 *	407.5145	17.48	17.42	34.90	46.00	-11.10	QP	Р	





Vertical:



Site #2 3m Anechoic Chamber Polarization: Vertical Temperature: 25.1(C) Humidity: 48 %

Limit: FCC Part 15C RE_3m Power: DC 5 V(Adapter Input 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 *	43.3534	22.77	13.93	36.70	40.00	-3.30	QP	Р	
2!	48.5015	21.00	13.80	34.80	40.00	-5.20	QP	Р	
3	57.3923	13.60	13.30	26.90	40.00	-13.10	QP	Р	
4	167.8242	14.91	12.59	27.50	43.50	-16.00	QP	Р	
5	222.9502	19.57	11.63	31.20	46.00	-14.80	QP	Р	
6	410.3824	12.72	17.48	30.20	46.00	-15.80	QP	Р	

Note:

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





Appendix A: Photographs of Test Setup

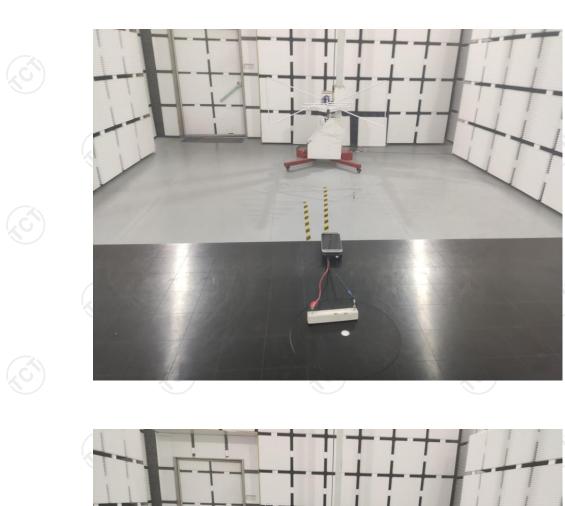
Product: MagBoost Protable Charger 20K Model: TSB4350

Model: TSB4350 Radiated Emission













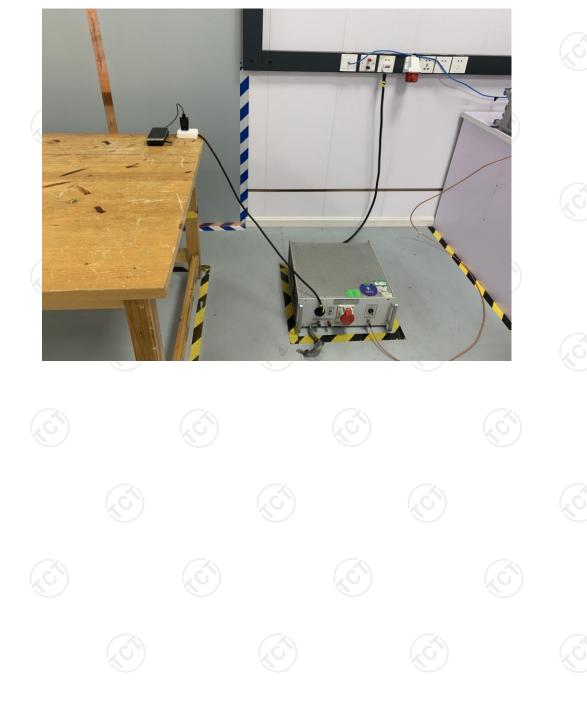








Conducted Emission









Appendix B: Photographs of EUT Product: MagBoost Protable Charger 20K Model: TSB4350















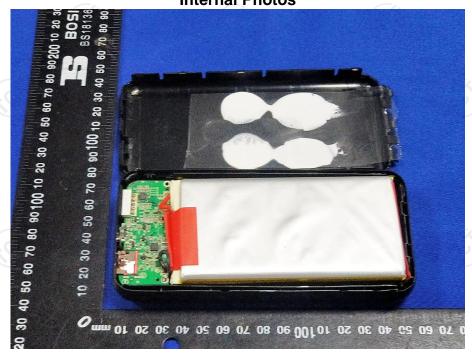


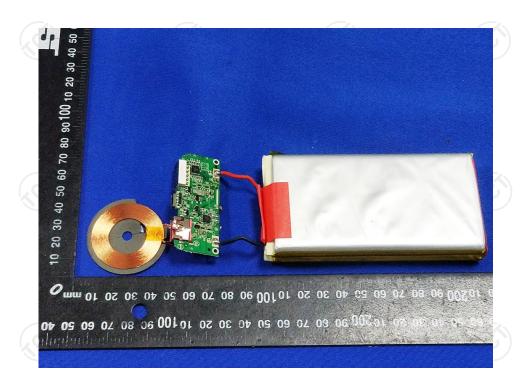






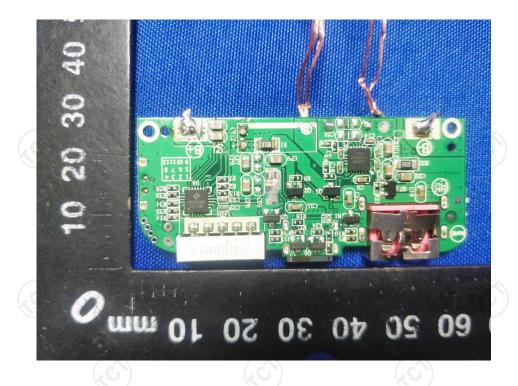
Product: MagBoost Protable Charger 20K Model: TSB4350 Internal Photos

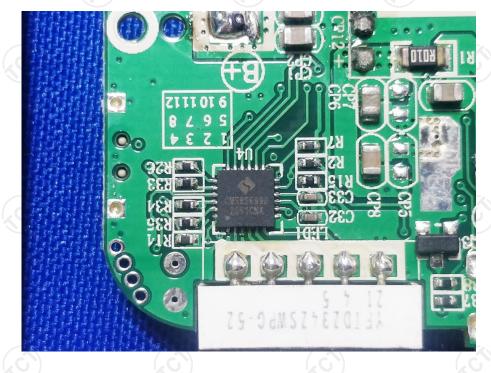






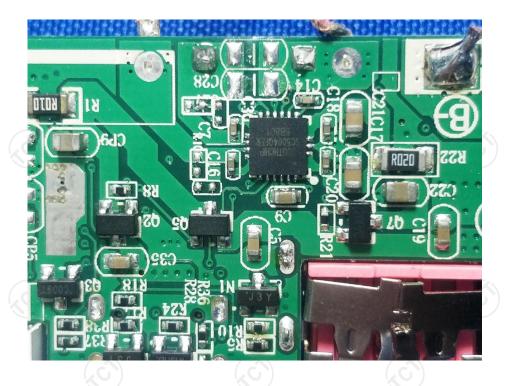


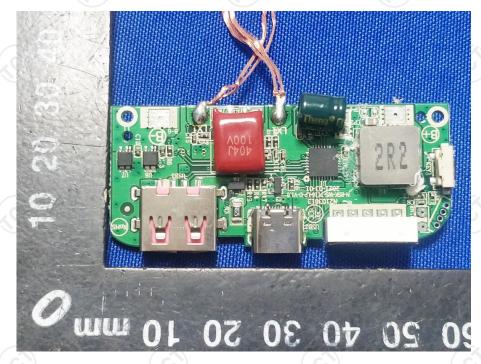




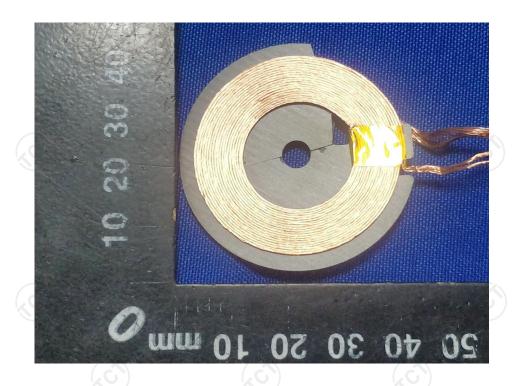








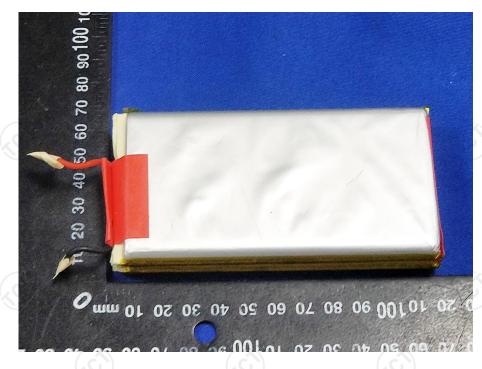
TCT通测检测 TESTING CENTRE TECHNOLOGY











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

