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TCT 通测检测 TESTING CENTRE TECHNOLOGY

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「CT通测检测 TESTING CENTRE TECHNOLOGY 1. Test Certification

Product: Foldable fast wireless charger Model No.: HKWP1110-10Q Additional N/A Model No.: Trade Mark: N/A HANK ELECTRONICS CO., LTD. Applicant: Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road, Address: Baoan District, Shenzhen, China HANK ELECTRONICS CO., LTD. Manufacturer: Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road, Address: Baoan District, Shenzhen, China Date of Test: Apr. 17, 2018 - Apr. 18, 2018 Applicable FCC CFR Title 47 Part 18 Standards:

Report No.: TCT180416E030

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:	Brens Xu	Date:	Apr. 18, 2018	
(C)	Brews Xu	-		
Reviewed By:	Beny zharo	Date:	Apr. 19, 2018	
	Beryl Zhao			
Approved By:	Jomsm	Date:	Apr. 19, 2018	
(c)	Tomsin	-	(C)	6

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2. Test Result Summary

Requirement	0	CFR 47 Se	ection		Result	
AC Power Line Conducted Emission		§18.30)7	Re la	PASS	K
Spurious Emission	(c)	§18.30)5		PASS	
ote: 1. PASS: Test item meets the requi 2. Fail: Test item does not meet the 3. N/A: Test case does not apply to 4. The leatment is do in	e requirement. the test object.					
4. The test result judgment is decid		di test standar	a.			
						e 4 of 2



3. EUT Description

Foldable fast wireless charger
HKWP1110-10Q
N/A
N/A
V1.0
V1.0
127.3-175.6KHz
MSK
Coil Antenna
DC 5V,2A/9V,1.67A via adapter















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4. Genera Information

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4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The

value of duty cycle is 98.46%) with

Fully-charged battery.

The sample was placed (0.1m below 1GHz, 1.5m above 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 are shown in Test Results of the following pages.

4.2. Description of Support Units

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

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Mobile Phone	SM-G9350	R28HA2ER3GT	/	SAMSUNG
Adapter	EP-TA20CBC	R37HAEY0DT1RT3	1	SAMSUNG
Adapter	XC-0502000-U		R	1

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. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

5. Facilities and Accreditations

5.1. Facilities

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

• FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber 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

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. 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 %.

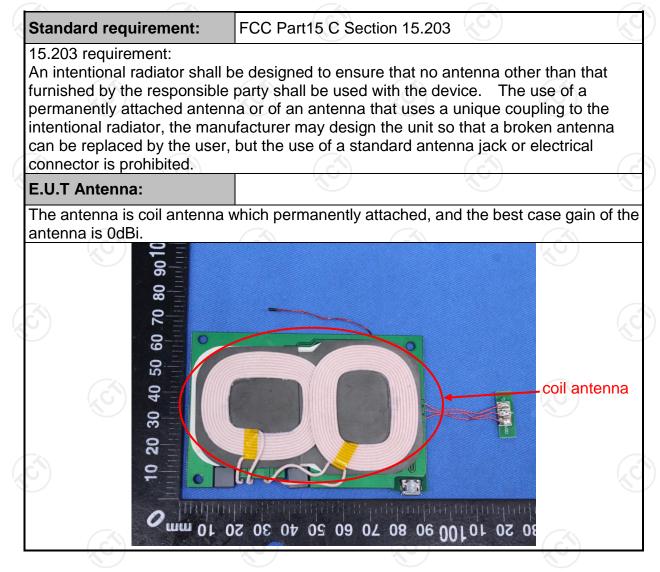
No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%





6. Test Results and Measurement Data

6.1. Antenna requirement



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6.2. Conducted Emission

6.2.1. Test Specification

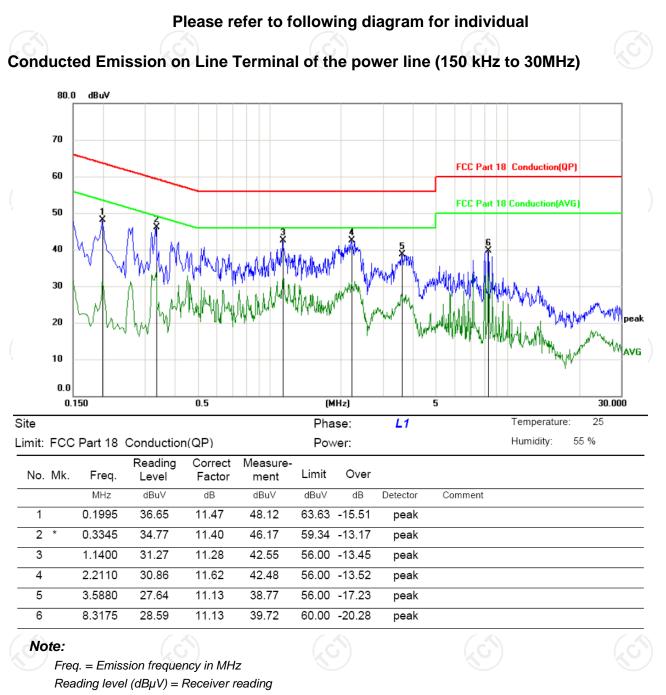
Test Requirement:	FCC Part18 Section 1	FCC Part18 Section 15.307					
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz	3	$\left(\begin{array}{c} c \end{array} \right)$				
Receiver setup:	RBW=9 kHz, VBW=30	kHz, Sweep time	≔auto				
	Frequency range	Limit (dBuV)					
	(MHz)	Quasi-peak	Average				
Limits:	0.15-0.5	66 to 56*	56 to 46*				
	0.5-5	56	46				
	5-30	60	50				
	Refere	nce Plane					
Test Setup:	Test table/Insulation plan	Test table/Insulation plane EMI Receiver Remark: E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network					
Test Mode:	Charging + Transmittin	ng Mode					
		<u> </u>					
Test Procedure:	 The E.U.T is connelimpedance stabilizing provides a 500hm/5 measuring equipment The peripheral device 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 im nt. ces are also conne SN that provides with 50ohm term diagram of the line are checkence. In order to fir e positions of equ s must be chang	(L.I.S.N.). This pedance for the ected to the main a 50ohm/50uh nination. (Please test setup and ed for maximun nd the maximun ipment and all c ed according to				
Test Procedure: Test Result:	 impedance stabiliz provides a 50ohm/s measuring equipment 2. The peripheral device power through a LI coupling impedance refer to the block photographs). 3. Both sides of A.C. conducted interferent emission, the relative 	ation network 50uH coupling im nt. ces are also conne SN that provides with 50ohm term diagram of the line are checkence. In order to fir e positions of equ s must be chang	(L.I.S.N.). This pedance for the ected to the main a 50ohm/50uh nination. (Please test setup and ed for maximun nd the maximun ipment and all c ed according to				

6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)									
Equipr	nent	Manufacturer	Model	Serial Number	Calibration Due				
Test Red	ceiver	R&S	ESPI	101401	Jun. 12, 2018				
LISI	N	Schwarzbeck	NSLK 8126	8126453	Sep. 27, 2018				
Coax c (9KHz-30		тст	CE-05	N/A	Sep. 27, 2018				
EMI Test S	oftware	Shurple Technology	EZ-EMC	N/A	N/A				

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2.3. Test data



Corr. Factor (dB) = Antenna 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 μ V) – Limits (dB μ V)

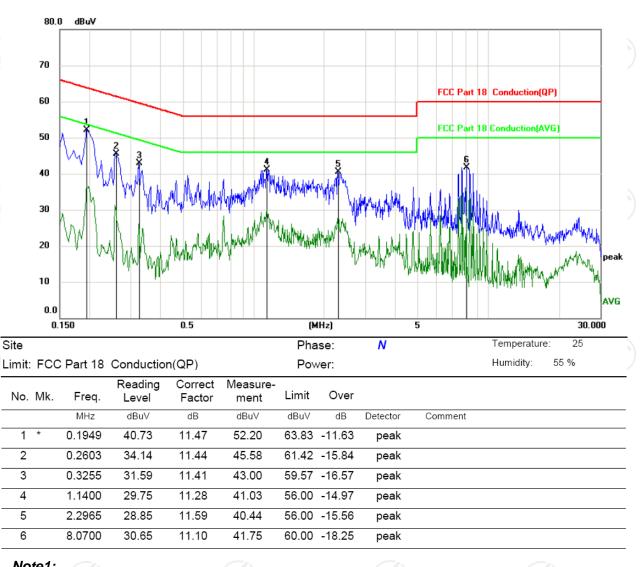
Q.P. =Quasi-Peak

AVG =average

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

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

Note1:

Freq. = Emission frequency in MHz Reading level $(dB\mu V)$ = Receiver reading Corr. Factor (dB) = Antenna 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.

Note2:

Measurements were conducted in both DC 5V and DC 9V input model, and the worst case Mode (DC 9V) was submitted only.



6.3. Radiated Spurious Emission Measurement

6.3.1. Test Specification

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Test Requirement:	FCC Part18 Section 15.305						
Test Method:	ANSI C63.10): 2013					
Frequency Range:	9 kHz to 25 0	GHz					
Measurement Distance:	3 m	No.)		S)		
Antenna Polarization:	Horizontal &	Vertical					
Operation mode:	Refer to item	n 4.1	(<i>(</i>)		(.	
	Frequency	Detector	RBW	VBW	Rem		
Receiver Setup:	9kHz- 150kHz 150kHz- 30MHz	Quasi-peak Quasi-peak	200Hz 9kHz	1kHz 30kHz	Quasi-pea Quasi-pea		
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-pea	ak Value	
	Above 1GHz	Peak	1MHz	3MHz	Peak V		
		Peak	1MHz	10Hz	Average	Value	
	Equipment Any type unless otherwise s	Operating frequency specified Any ISM	RF Power gener equipment (wa Below 500		ield strength limit uV/m)	Distance (meters) 30	
	(miscellaneous)	frequency Any non-ISM	500 or more Below 500	2	5 × SQRT(power/500) 5		
		frequency	500 or more	1	5 × SQRT(power/500)	¹ 30	
	Industrial heaters and RF st arc welders	5,725 MHz Above 5,725 MHz	Any Any	(2	- 	1,60 (²	
Limit:	Medical diathermy	Any ISM frequency Any non-ISM frequency	Any Any	2 1		30 30	
	Ultrasonic	Below 490 kHz	Below 500 500 or more	2,	,400/F(kHz) ,400/F(kHz) × QRT(power/500)	30 ³ 30	
		490 to 1,600 kl Above 1,600 kl			4,000/F(kHz) 5	3	
	Induction cooking ranges	Below 90 kHz On or above 9	Any		,500 00	43 43	
		kHz	,				
Test setup:	For radiated	Distance = 3m	Ind Plane		Con Pre -Amplifi Receiver		
Test Procedure:	1. For the rad	diated emis	sion tes	t below [•]	1GHz:		

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		above inter on the EUT the a (from react for the 2. Correc Read 3. For m of the lowe leve mead dete 4. Use the (1) S	EUT was p ve ground. ference rec he top of a was arran antenna tov n 0 degree ling. A pre-a he test in or ected Read d Level - Prineasurement d Level - Prineasurement will be rep asurement ve ctor and re the following pan shall we	The EUT variable ho ged to its variable ho ged to its variable ho ged to its variable ho ver (from 2 to 360 deg amp and a rder to get ing: Anten reamp Fac nt below 1 asured by applicable orted. Oth vill be repe ported. g spectrur vide enoug ing measu	a turntable was set 3 r tenna, whice eight anter worst case 1 m to 4 m grees) to fi high PAS better sign na Factor ctor = Leve GHz, If the the peak d limit, the p nerwise, the pated using n analyzer gh to fully o ured;	neters from ch was mo- na tower. and then) and turnt nd the ma- S filter are nal level. + Cable Lo e emission letector is so eak emiss e emission g the quas settings: capture the	neter n the bunted The tune able ximum used oss + level 3 dB sion i-peak
		(2) S F T (3) S	Set RBW=20 RBW; Swee race = max Set RBW = 9 0 MHz for p	p = auto; I (hold; 9 KHz, VB	Detector fu W= 30KHz	inction = p	eak;
Test mode: Test results		(2) S F T (3) S 3 Refer to	RBW; Swee race = max Set RBW = 9	p = auto; I c hold; 9 KHz, VB beak meas	Detector fu W= 30KHz surement.	inction = p	eak;
		(2) S F T (3) S 3	RBW; Swee race = max Set RBW = 9 0 MHz for p	p = auto; I c hold; 9 KHz, VB beak meas	Detector fu W= 30KHz surement.	inction = p	eak;
	:	(2) S F T (3) S 3 Refer to	RBW; Swee race = max Set RBW = 9 0 MHz for p	p = auto; I c hold; 9 KHz, VB beak meas	Detector fu W= 30KHz surement.	inction = p	eak;
		(2) S F T (3) S 3 Refer to	RBW; Swee race = max Set RBW = 9 0 MHz for p	p = auto; I c hold; 9 KHz, VB beak meas	Detector fu W= 30KHz surement.	inction = p	eak;
		(2) S F T (3) S 3 Refer to	RBW; Swee race = max Set RBW = 9 0 MHz for p	p = auto; I c hold; 9 KHz, VB beak meas	Detector fu W= 30KHz surement.	inction = p	eak;

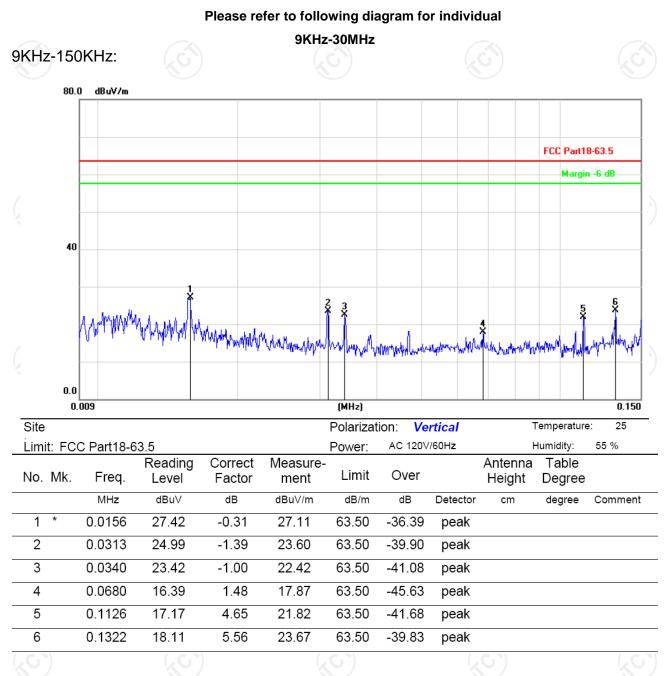


6.3.2. Test Instruments

	Radiated Em	ission Test Sit	te (966)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESVD	100008	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ	200061	Sep. 27, 2018
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 27, 2018
Pre-amplifier	HP	8447D	2727A05017	Sep. 27, 2018
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBH 9170	582	Jun. 07, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
Coax cable (9KHz-1GHz)	тст	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	тст	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9KHz-1GHz)	тст	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	тст	RE-high-04	N/A	Sep. 27, 2018
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.3.3. Test Data



Note1: If measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor. So the limit at 3 m is 1500 $uv/m(\approx 63.5 \text{ dBuv/m})$

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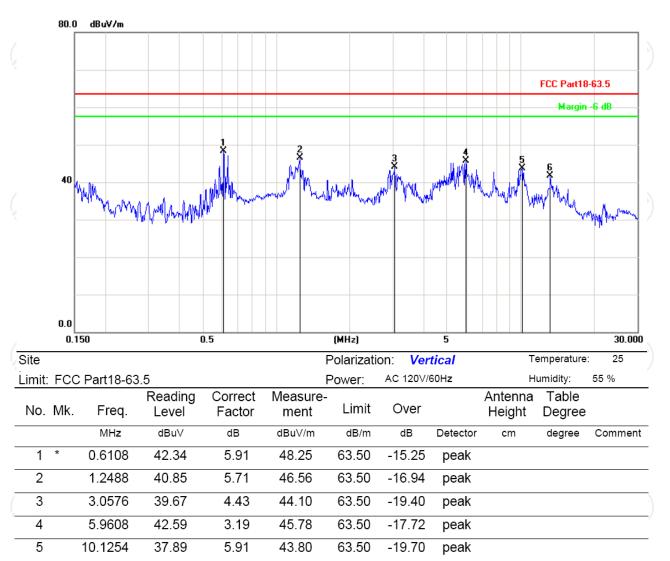
150KHz-30MHz:

6

13.1966

36.46

5.24



Note1: If measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor. So the limit at 3 m is 1500 $uv/m(\approx 63.5 \text{ dBuv/m})$

63.50

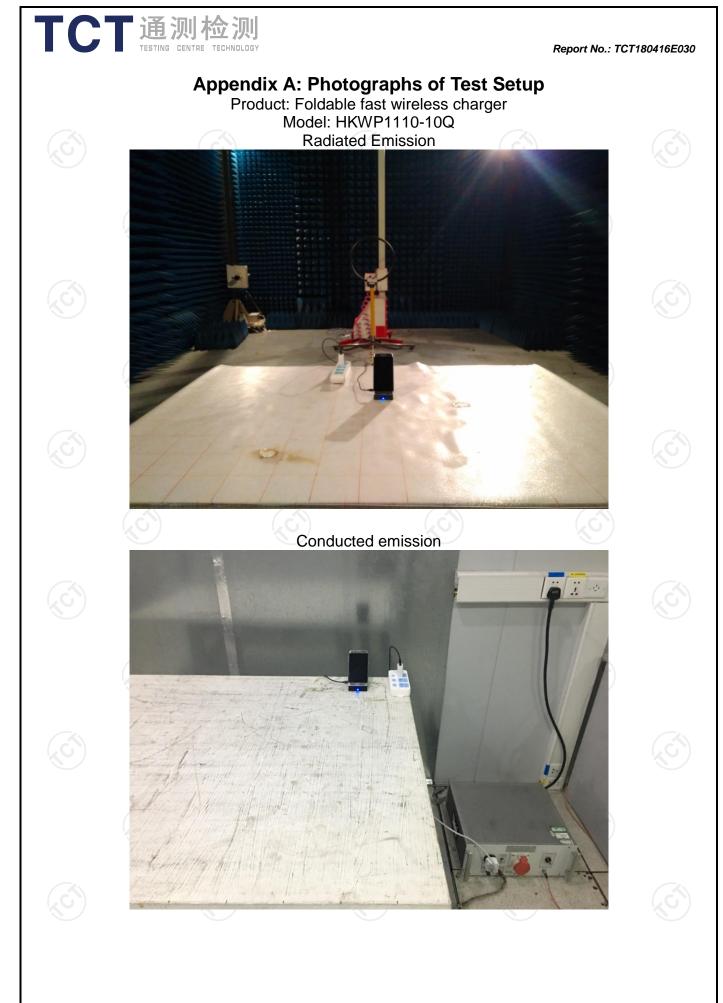
-21.80

peak

41.70

Note2: Measurements were conducted in both DC 5V and DC 9V input model, and the worst case Mode (DC 9V) was submitted only.

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