

TEST REPORT

FCC ID: 2AN4YCDRZ34

Product: Wireless Charger

Model No.: CDRZ34

Additional Model No.: N/A

Trade Mark: TORRAS

Report No.: TCT171218E015

Issued Date: Jan. 04, 2018

Issued for:

SHENZHEN TORRAS TECHNOLOGY CO., LTD.

17F, BLOCK C, ZHANTAO TECHNOLOGY BUILDING, MINZHI ROAD, LONGHUA DISTRICT, SHENZHEN, China

Issued By:

Shenzhen Tongce Testing Lab.

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

TEL: +86-755-27673339

FAX: +86-755-27673332

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com





TABLE OF CONTENTS

2. Test	Result S	Summary	<i>'</i>	(6)		(0)	 4
3. EUT	Descrip	tion					 5
4. Gen	era Infor	mation			<u>(a)</u>		6
4.1.	TEST ENVIROR	MENT AND MO	ODE				6
			-				
5. Faci	lities and	d Accred	itations .	()		()	 7
5.1.	FACILITIES						 7
				nt Data			
				(6)			
				EMENT			
				_			 13
				est Setup	(3)		
Appei	ildix b. F	hotogra	pris oi E	O I			



1. Test Certification

Manufacturer:

Address:

Date of Test:

and measurement uncertainties.

Applicable

. Test Cert	ilication	
Product:	Wireless Charger	
Model No.:	CDRZ34	
Additional Model No.:	N/A	
Trade Mark:	TORRAS	
Applicant:	SHENZHEN TORRAS TECHNOLOGY CO., LTD.	
Address:	17F, BLOCK C, ZHANTAO TECHNOLOGY BUILDING, MINZHI ROAD, LONGHUA DISTRICT, SHENZHEN, China	

SHENZHEN TORRAS TECHNOLOGY CO., LTD.

ROAD, LONGHUA DISTRICT, SHENZHEN, China

Dec. 19, 2017 – Jan. 03, 2018

FCC CFR Title 47 Part 15 Subpart C

17F, BLOCK C, ZHANTAO TECHNOLOGY BUILDING, MINZHI

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

Tested By: Jan. 03, 2018

Brews Xu

Tomsin

Reviewed By: Date: Jan. 04, 2018

Approved By: Date: Jan. 04, 2018

Report No.: TCT171218E015



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.





3. EUT Description

Product:	Wireless Charger
Model No.:	CDRZ34
Additional Model No.:	N/A
Trade Mark:	TORRAS
Operation Frequency:	110-205KHz
Number of Channel:	20 Channels
Modulation Technology:	MSK
Antenna Type:	Inductive loop coil Antenna
Antenna Gain:	0dBi
Power supply:	DC 5V via adapter

Operation Frequency each of channel

operation i requestey each or channel										
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)			
1	0.110	6	0.135	11	0.160	16	0.185			
2	0.115	7	0.140	12	0.165	17	0.190			
3	0.120	8	0.145	13	0.170	18	0.195			
4	0.125	9	0.150	14	0.175	19	0.200			
5	0.130	10	0.155	15	0.180	20	0.205			





4. Genera Information

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
Adapter	HW-059200CHQ	K68247F5H01734	1	HUAWEI
Mobilephone	honor 9	5JPDU17610004560	1	honor

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.

Report No.: TCT171218E015



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		
9	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%		

Report No.: TCT171218E015



6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:

FCC Part15 C Section 15.203

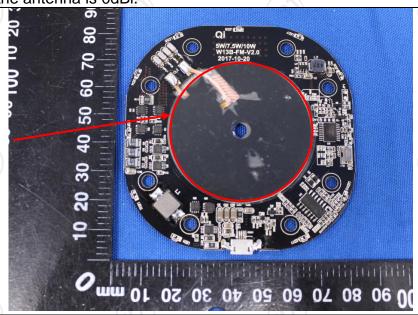
15.203 requirement:

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:

Antenna

The antenna is inductive loop coil antenna which permanently attached, and the best case gain of the antenna is 0dBi.





6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section	15.207	AC.						
Test Method:	ANSI C63.10:2013								
Frequency Range:	150 kHz to 30 MHz	150 kHz to 30 MHz							
Receiver setup:	RBW=9 kHz, VBW=30	RBW=9 kHz, VBW=30 kHz, Sweep time=auto							
Limits:	Frequency range (MHz) Limit (dBuV) 0.15-0.5 Quasi-peak Average 0.5-5 56 46 5-30 60 50								
	Refere	nce Plane	1201						
Test Setup:	Adapter Filter AC power E.U.T Adapter Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m								
Test Mode:	Charging + Transmitting	ng 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								



6.2.2. Test Instruments

Report No.: TCT171218E015

Conducted Emission Shielding Room Test Site (843)										
Equipment	Manufacturer	Model	Serial Number	Calibration Due						
Test Receiver	R&S	ESPI	101401 Jun. 12, 201							
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 27, 2018						
Coax cable (9KHz-30MHz)	тст	CE-05	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).



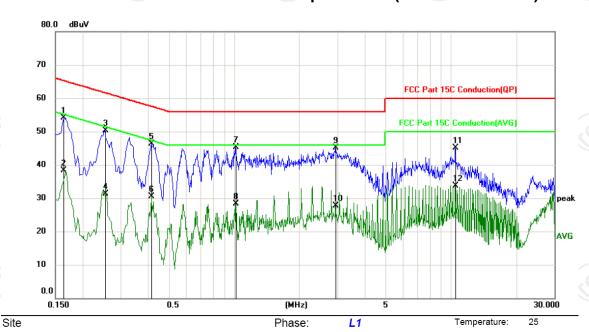




6.2.3. Test data

Please refer to following diagram for individual

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



Limit: FCC Part 15C Conduction(QP)					Pov	wer:	AC 120V/60Hz		Humidity:	55 %
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	•			
	MHz	dBu∀	dB	dBu∨	dBu∨	dB	Detector	Comment		
1	0.1635	42.58	11.47	54.05	65.28	-11.23	peak			
2	0.1635	26.78	11.47	38.25	55.28	-17.03	AVG			
3	0.2535	38.88	11.42	50.30	61.64	-11.34	peak			
4	0.2535	19.94	11.42	31.36	51.64	-20.28	AVG			
5	0.4155	34.96	11.34	46.30	57.54	-11.24	peak			
6	0.4155	19.13	11.34	30.47	47.54	-17.07	AVG			
7 *	1.0184	34.05	11.21	45.26	56.00	-10.74	peak			
8	1.0184	17.02	11.21	28.23	46.00	-17.77	AVG			
9	2.9355	33.77	11.36	45.13	56.00	-10.87	peak			
10	2.9355	16.33	11.36	27.69	46.00	-18.31	AVG			
11	10.4775	33.84	11.35	45.19	60.00	-14.81	peak			
12	10.4775	22.42	11.35	33.77	50.00	-16.23	AVG			

Note:

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 (dBµV) = Limit stated in standard

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

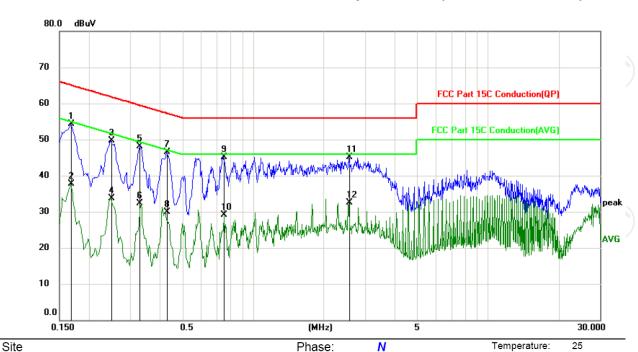
Q.P. =Quasi-Peak

AVG =average

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



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



Limit:	FCC	Part 150	Conductio	n(QP)		Pow	er:	AC 120V/60Hz		Humidity:	55 %	
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Ove	r				
		MHz	dBu∨	dB	dBu∀	dBu∨	dB	Detector	Comment			
1		0.1680	42.78	11.47	54.25	65.06	-10.8°	1 peak				
2		0.1680	26.19	11.47	37.66	55.06	-17.40	0 AVG				
3		0.2490	38.27	11.42	49.69	61.79	-12.10	0 peak				
4		0.2490	22.36	11.42	33.78	51.79	-18.0°	1 AVG				
5		0.3300	36.74	11.38	48.12	59.45	-11.33	3 peak				
6		0.3300	20.86	11.38	32.24	49.45	-17.2°	1 AVG				
7	*	0.4290	35.18	11.33	46.51	57.27	-10.76	6 peak				
8		0.4290	18.64	11.33	29.97	47.27	-17.30	0 AVG				
9		0.7485	33.89	11.23	45.12	56.00	-10.88	8 peak				
10		0.7485	17.95	11.23	29.18	46.00	-16.82	2 AVG				
11		2.5574	33.60	11.49	45.09	56.00	-10.9°	1 peak				
12		2.5574	21.09	11.49	32.58	46.00	-13.42	2 AVG				

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.



6.3. Radiated Spurious Emission Measurement

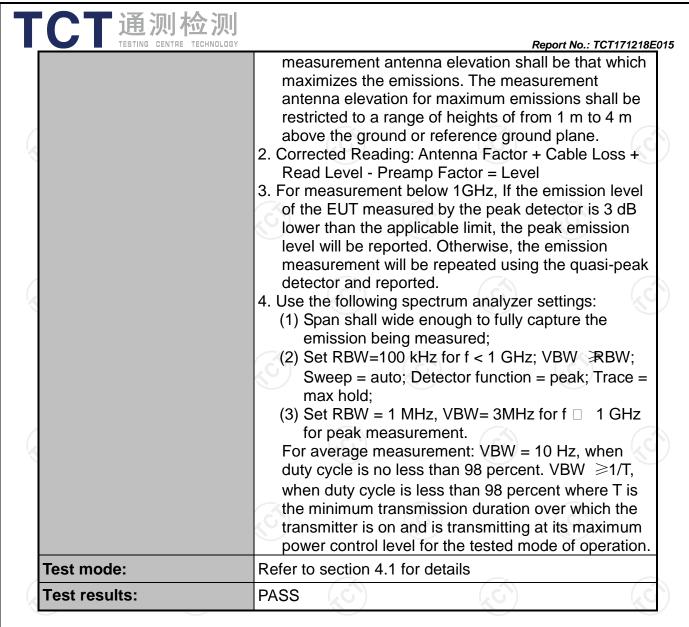
6.3.1. Test Specification

Test Requirement:	FCC Part15	C Section	n 15.209	(0)	(40						
Test Method:	ANSI C63.10	ANSI C63.10: 2013									
Frequency Range:	9 kHz to 25 GHz										
Measurement Distance:	3 m										
Antenna Polarization:	Horizontal & Vertical										
Operation mode:	Refer to item	ÇĆ									
	Frequency 9kHz- 150kHz	Quasi-pea	k 200Hz	VBW 1kHz	Remark Quasi-peak Value						
Receiver Setup:	150kHz- 30MHz	Quasi-pea	ık 9kHz	30kHz	Quasi-peak Value						
	30MHz-1GHz			300KHz	Quasi-peak Value						
Refer to item 4.1	1MHz 1MHz	3MHz 10Hz	Peak Value Average Value								
		Field Str (microvolts 2400/F(s/meter)	Measurement Distance (meters) 300							
		1	24000/F		30						
	1.705-3	30	30		30						
			100)	3						
			150		3						
Limit:			200		3						
	Above 9	60	500		3						
	Frequency	Field Strength (microvolts/meter)		Measure Distan (mete	ce Detector						
	Above 1GH:	z	500 5000	3	Average Peak						
Test setup:		Distance = 3m Turn table	s below 30	OMHz	Pre -Amplifier Receiver						
	30MHz to 10	GHz									

「通测检测 Report No.: TCT171218E015 Antenna Tower Search Antenna EUT RF Test Receiver Turn 0.8m Above 1GHz 1. For the radiated emission test below 1GHz: 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: **Test Procedure:** 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







6.3.2. Test Instruments

Radiated Emission Test Site (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).



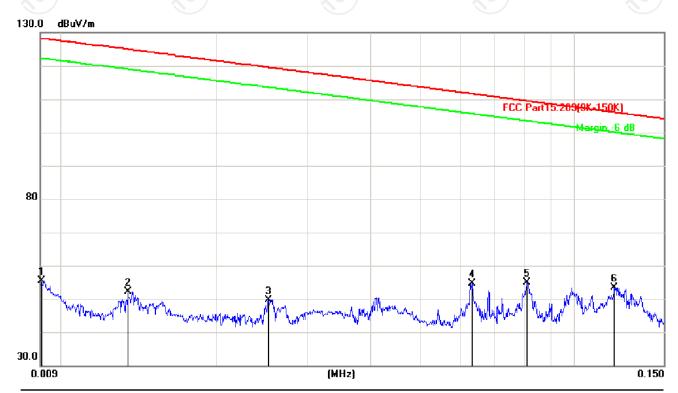
6.3.3. Test Data

Report No.: TCT171218E015

9KHz-30MHz

Please refer to following diagram for individual

9KHz-150KHz:



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	0.0091	55.49	0.00	55.49	128.3	-72.84	peak			
2	0.0134	30.15	22.02	52.17	125.0	-72.89	peak			
3	0.0252	30.85	18.88	49.73	119.5	-69.85	peak			
4	0.0632	33.18	21.44	54.62	111.6	-56.98	peak			
5	0.0810	32.24	22.65	54.89	109.4	-54.56	peak			
6 *	0.1200	28.53	24.90	53.43	106.0	-52.61	peak			





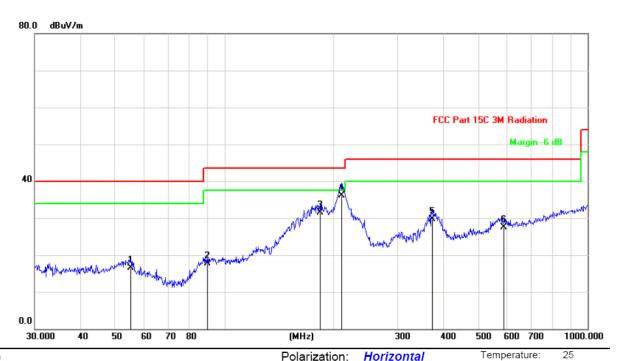
150KHz-30MHz:





30MHz-1GHz

Horizontal:



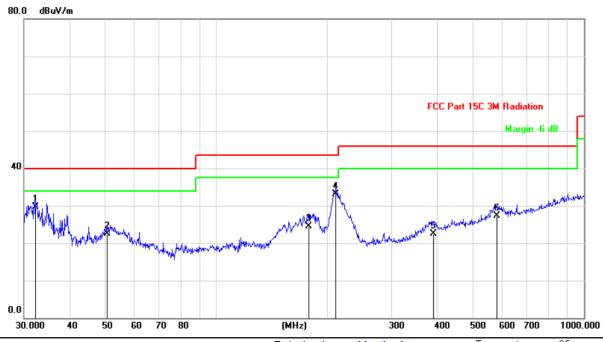
Site Polarization: Horizontal Temperature: 25
Limit: FCC Part 15C 3M Radiation Power: Humidity: 55 %

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		55.2207	29.50	-13.05	16.45	40.00	-23.55	QP			
2		89.9047	31.50	-13.70	17.80	43.50	-25.70	QP			
3		183.8440	45.31	-13.74	31.57	43.50	-11.93	QP			
4	*	210.0482	48.50	-12.35	36.15	43.50	-7.35	QP			
5		373.3112	36.20	-6.56	29.64	46.00	-16.36	QP			
6		588.9051	28.60	-1.03	27.57	46.00	-18.43	QP			





Vertical:



Site Polarization: Vertical Temperature: 25
Limit: FCC Part 15C 3M Radiation Power: Humidity: 55 %

	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
			MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
	1	*	32.1795	43.20	-13.58	29.62	40.00	-10.38	QP			
-	2		50.4089	35.20	-12.66	22.54	40.00	-17.46	QP			
-	3		178.7584	38.50	-14.04	24.46	43.50	-19.04	QP			
	4		211.5265	45.30	-12.29	33.01	43.50	-10.49	QP			
	5		389.3549	28.60	-6.10	22.50	46.00	-23.50	QP			
-	6		578.6699	28.60	-1.27	27.33	46.00	-18.67	QP			

Note:

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

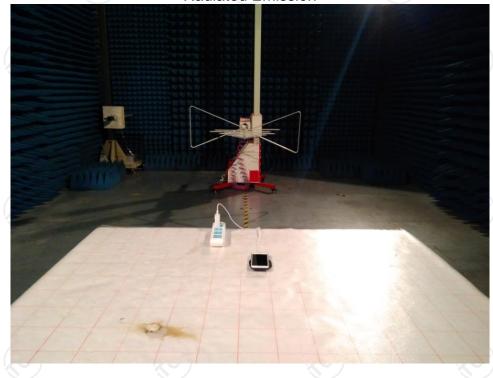


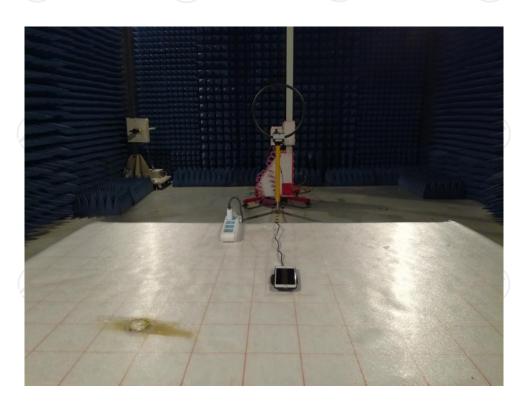
Page 20 of 27



Appendix A: Photographs of Test Setup Product: Wireless Charger

Product: Wireless Charger Model: CDRZ34 Radiated Emission





TCT通测检测 testing centre technology

Report No.: TCT171218E015





Appendix B: Photographs of EUT Product: Wireless Charger Model: CDRZ34





TCT通测检测
TESTING CENTRE TECHNOLOGY





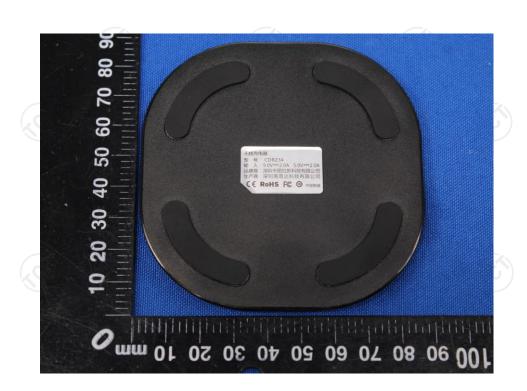




TCT通测检测 testing centre technology

Report No.: TCT171218E015







Page 25 of 27



Product: Wireless Charger Model: CDRZ34 Internal Photos

