

TEST REPORT

FCC ID: 2AOJOIBD-W01

Product: wireless charger

Model No.: IBD-W01

Additional Model No.: N/A

Trade Mark:

Report No.: TCT171124E027

Issued Date: Dec. 14, 2017

Issued for:

Shenzhen LCF Technology Co.,Ltd.
NO.19 2nd RoadXinfa XinqiaoShajing Street Bao' an District Shenzhen,
China

Issued By:

Shenzhen Tongce Testing Lab.

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1. Test Certification

Report No.: TCT171124E027

Product:	wireless charger				
Model No.:	IBD-W01				
Additional Model No.:	N/A				
Trade Mark:	IBD				
Applicant:	Shenzhen LCF Technology Co.,Ltd.				
Address:	NO.19 2nd RoadXinfa XinqiaoShajing Street Bao' an District Shenzhen, China				
Manufacturer:	Shenzhen LCF Technology Co.,Ltd.				
Address:	NO.19 2nd RoadXinfa XinqiaoShajing Street Bao' an District Shenzhen, China				
Date of Test:	Nov. 06 – Dec.14, 2017				
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C				

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:

Bery were

Tomsin

Date: Dec. 14, 2017

Reviewed By:

Date:

Dec. 14, 2017

Approved By:

Date:

Dec. 14, 2017



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
Occupied Bandwidth	§15.215 (c)	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. EUT Description

Report No.: TCT171124E027

Product:	wireless charger		
Model No.:	IBD-W01		
Additional Model No.:	N/A		
Trade Mark:			
Number of Channel	18 channels		
Operation Frequency:	120-205KHz		
Modulation Technology:	MSK		
Antenna Type:	Coil Antenna		
Antenna Gain:	20dBi		

Operation Frequency each of channel

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



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	/	HUAWEI
Mobilephone	honor 9	5JPDU17610004560	/	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
- 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.

Report No.: TCT171124E027

• 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

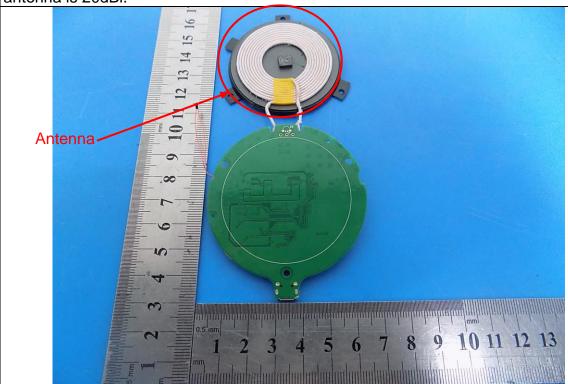
Standard requirement: FCC Part15 C Section 15.203

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 coil antenna which permanently attached, and the best case gain of the antenna is 20dBi.





6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section	15.207					
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz						
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto						
Limits:	Frequency range Limit (dBuV) (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50						
	Reference Plane						
Test Setup:	Test table/Insulation plan Remark: E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Test table height=0.8m	EMI Receiver	er — AC power				
Test Mode:	Charging + Transmittin	g 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.: TCT171124E027

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

Report No.: TCT171124E027

Test Mode : Full Load

Test Results : PASS

Note: The test results are listed in next pages.

This mode is worst case mode, so this report only reflected the worst mode.

If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out.

If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.



TESTING CENTRE TECHNOLOGY

Report No.: TCT171124E027

Site LAB

Phase: L1

Temperature: 24.9

Site LAB Phase: L1 Temperature: 24.9 Limit: FCC Part 15 CLASS B QP Power: DC 5V Humidity: 47 %

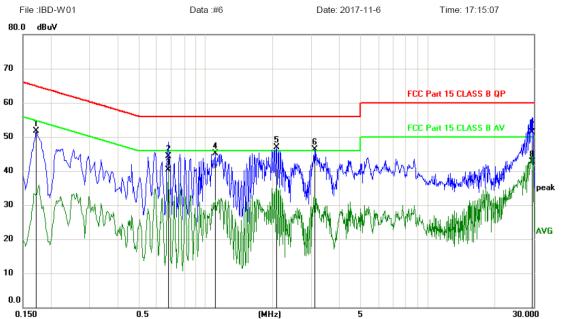
EUT: wireless charger

M/N: IBD-W01 Mode: FULL LOAD

Note:

Engineer Signature:

Conducted Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margir	1	
		MHz	dBuV	dB	dBuV	dBu∨	dB	Detector	Comment
1		0.1723	41.90	9.73	51.63	64.85	-13.22	peak	
2		0.6764	34.52	9.80	44.32	56.00	-11.68	QP	
3	*	0.6764	30.41	9.80	40.21	46.00	-5.79	AVG	
4		1.1038	35.25	9.84	45.09	56.00	-10.91	peak	
5		2.0803	37.04	9.93	46.97	56.00	-9.03	peak	
6		3.1018	36.16	10.05	46.21	56.00	-9.79	peak	
7		29.5800	40.04	11.19	51.23	60.00	-8.77	QP	
8		29.5800	31.48	11.19	42.67	50.00	-7.33	AVG	

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

^{*:}Maximum data x:Over limit !:over margin



TESTING CENTRE TECHNOLOGY

Report No.: TCT171124E027

Site LAB

Phase: N

Temperature: 24.9

Site LAB Phase: N Temperature: 24.8 Limit: FCC Part 15 CLASS B QP Power: DC 5V Humidity: 47 %

EUT: wireless charger

M/N: IBD-W01 Mode: FULL LOAD

Note:

Engineer Signature:

Conducted Emission Measurement File:IBD-W01 Data :#5 Date: 2017-11-6 Time: 17:18:29 80.0 dBuV 70 FCC Part 15 CLASS B QP 60 FCC Part 15 CLASS B AV 50 40 30 20 10 0.0 30.000 0.150 (MHz)

	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margir	1	
			MHz	dBuV	dB	dBuV	dBu∨	dB	Detector	Comment
	1		0.1768	34.80	9.73	44.53	64.63	-20.10	peak	
_	2		0.6719	32.32	9.80	42.12	56.00	-13.88	QP	
	3	*	0.6719	32.08	9.80	41.88	46.00	-4.12	AVG	
	4		2.0622	32.10	9.92	42.02	56.00	-13.98	peak	
	5		3.0840	32.78	10.05	42.83	56.00	-13.17	peak	
	6		8.7583	33.80	10.31	44.11	60.00	-15.89	peak	
	7		29.5931	39.70	11.19	50.89	60.00	-9.11	peak	

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

^{*:}Maximum data x:Over limit !:over margin

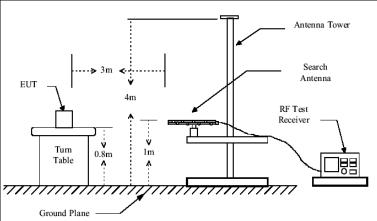


6.3. Radiated Spurious Emission Measurement

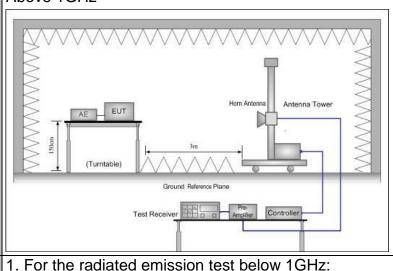
6.3.1. Test Specification

Test Requirement:	FCC Part15	C Section	on 1	15.209				
Test Method:	ANSI C63.10: 2013							
Frequency Range:	9 kHz to 25 GHz							
Measurement Distance:	3 m							
Antenna Polarization:	Horizontal &	Vertica						
Operation mode:	Refer to item 4.1							
	Frequency 9kHz- 150kHz 150kHz-	Detector Quasi-pe Quasi-pe	eak	RBW 200Hz 9kHz	VBW 1kHz 30kHz		Remark si-peak Value si-peak Value	
Receiver Setup:	30MHz 30MHz-1GHz	Quasi-pe	ak	100KHz	300KHz	Oua	si-peak Value	
		Peak		1MHz	3MHz		eak Value	
	Above 1GHz	Peak		1MHz	10Hz		erage Value	
	Frequency			Field Strength (microvolts/meter)		Measurement Distance (meters)		
	0.009-0.490 0.490-1.705			2400/F(KHz) 24000/F(KHz)		300 30		
	1.705-30			30		30		
	30-88			100		3		
I toute	88-216			150		3 3		
Limit:	216-960 Above 960			200 500		3		
	Above 960			1 000				
	Frequency		Field Streng		Measure Distan (meter	се	Detector	
	Above 1GHz		500		3		Average	
	For radiated	emissic	ons below 30MHz					
	Distance = 3m							
Test setup:	Pre -Amplifier						Amplifier	
	Turn table Receiver					Receiver		
			Grou	and Plane		_		
	30MHz to 10	SHz						





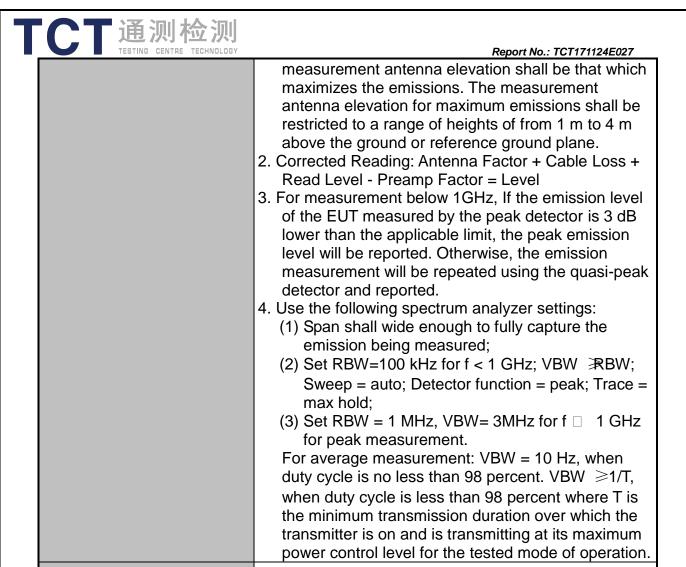
Above 1GHz



The EUT was placed on a turntable with 0.8 meter

Test Procedure:

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



Refer to section 4.1 for details

PASS

Test mode:

Test results:



6.3.2. Test Instruments

Report No.: TCT171124E027

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

Please refer to following diagram for individual

Report No.: TCT171124E027

Frequency : 9KHz~30MHz

Test Mode : TX 170.8KHz For Full Load

Test Results : PASS

Note: 1. The test results are listed in next pages.

2. This mode is worst case mode, so this report only reflected the worst mode.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

Freq.	Readi ng	Antenna Factor	Cab le loss	Amp Factor	Result	Limit	Margin	Detect	State
(MHz)	(dBu V/m)	dB/m	dB	dB	(dBuV/ m)	(dBuV/ m) at 3 m	(dB)	or	P/F
0.11	48.56	48.34	0.16	29.87	67.19	126.77	-59.58	PK	PASS
0.11	47.33	48.34	0.16	29.87	65.96	106.77	-40.81	AV	PASS
0.1708	92.44	48.34	0.16	29.87	111.07	122.95	-11.88	PK	PASS
0.1708	68.87	48.34	0.16	29.87	87.50	102.95	-15.45	AV	PASS
0.22	48.74	48.38	0.17	29.89	67.40	120.76	-53.36	PK	PASS
0.22	50.04	48.38	0.17	29.89	68.70	100.76	-32.06	AV	PASS
0.31	46.52	48.44	0.19	29.89	65.26	117.78	-52.52	PK	PASS
0.31	47.76	48.44	0.19	29.89	66.50	97.78	-31.28	AV	PASS
0.41	48.78	48.47	0.19	29.89	67.55	115.35	-47.80	PK	PASS
0.41	48.86	48.47	0.19	29.89	67.63	95.35	-27.72	AV	PASS
1.963	16.17	49.12	0.20	29.94	35.55	60.00	-24.45	QP	PASS
1.958	21.72	49.12	0.20	29.94	41.10	60.00	-18.90	QP	PASS



Frequency : 30MHz~1000MHz

Test Mode : Full Load

Test Results : PASS

Note: 1. The test results are listed in next pages.

2. This mode is worst case mode, so this report only reflected the worst mode.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

Frequency Above 1GHz Range **EUT** : / Test Date / Temperatur M/N : / / е Test Engineer : / Humidity / Test Mode : / : N/A Test Results

Note:

1. The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang above 1GHz radiation test not applicable.



30MHz-1GHz

Power:

Horizontal:

Site LAB 966-2 Chamber

Limit: FCC Part 15 Class B Radiation

EUT: wireless charger

M/N: IBD-W01 Mode:Full Load

Note:

Engineer Signature: Yun

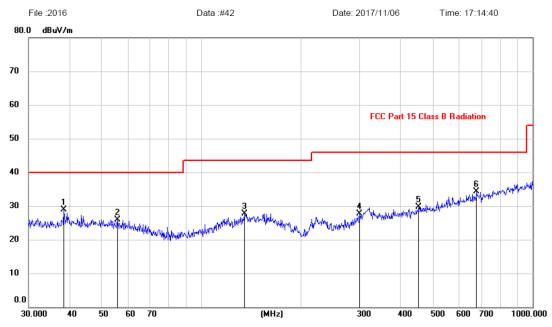
Polarization: Horizontal

Temperature:

Humidity: 49 %

DC 5V Distance: 3m

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	38.3462	14.87	13.95	28.82	40.00	-11.18	peak			
2		55.6094	12.57	13.24	25.81	40.00	-14.19	peak			
3		135.0319	14.15	13.53	27.68	43.50	-15.82	peak			
4		301.4224	14.29	13.51	27.80	46.00	-18.20	peak			
5		454.3100	12.57	17.05	29.62	46.00	-16.38	peak			
6		677.5798	13.36	20.97	34.33	46.00	-11.67	peak			

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.



Vertical:

Site LAB 966-2 Chamber

Limit: FCC Part 15 Class B Radiation

EUT: wireless charger

M/N: IBD-W01 Mode:Full Load

Note:

Engineer Signature: Yun

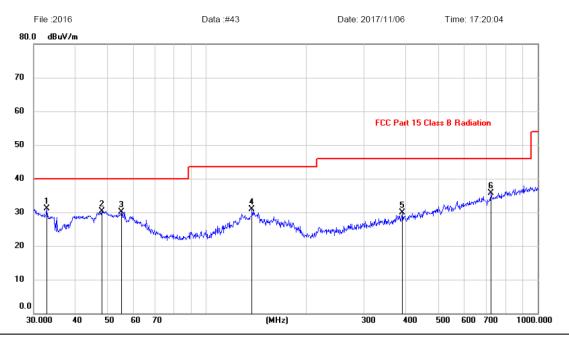
Polarization: *Vertical*Power: DC 5V

Distance: 3m

Temperature: 22.3

Humidity: 49 %

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	32.8637	17.60	13.43	31.03	40.00	-8.97	peak			
2		48.3316	16.69	13.67	30.36	40.00	-9.64	peak			
3		55.2207	16.88	13.25	30.13	40.00	-9.87	peak			
4		136.9389	17.20	13.65	30.85	43.50	-12.65	peak			
5		390.7225	14.51	15.40	29.91	46.00	-16.09	peak			
6		724.2607	14.42	21.24	35.66	46.00	-10.34	peak			

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Note:

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



6.3.4. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
Test Procedure:	 According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. Set to the maximum power setting and enable the EUT transmit continuously. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold. Measure and record the results in the test report.
Test setup:	Spectrum Analyzer EUT
Test Mode:	Refer to section 4.1 for details
Test results:	PASS

6.3.5. Test Instruments

RF Test Room							
Equipment Manufacturer Model Serial Number Calibration Due							
Spectrum Analyzer	R&S	FSU	200054	Aug. 11, 2018			

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



6.3.6. Test data

Frequency(KHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion	
170.8	27.29		PASS	

Test plots as follows:

Lowest channel

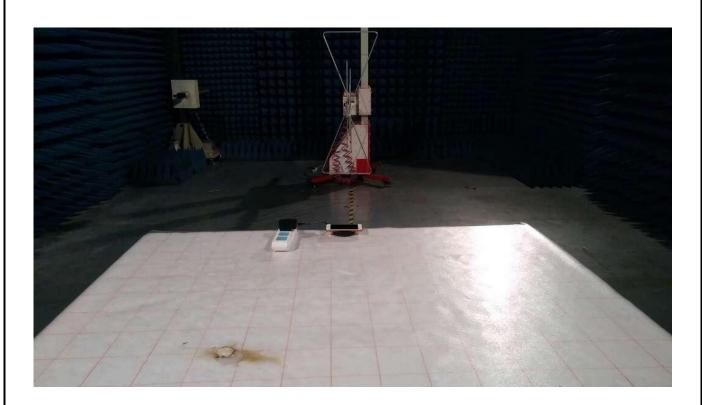




Appendix A: Photographs of Test Setup

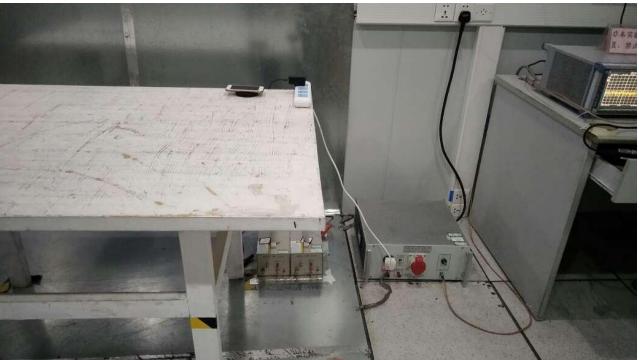
Product: wireless charger Model: IBD-W01 Radiated Emission







Conducted Emission



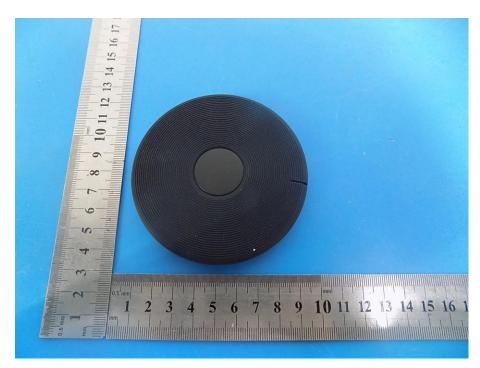


Appendix B: Photographs of EUT
Product: wireless charger
Model: IBD-W01
External Photos

















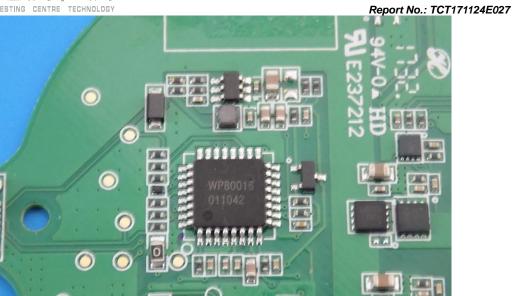


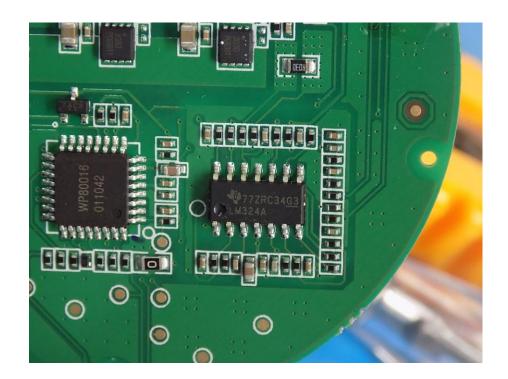


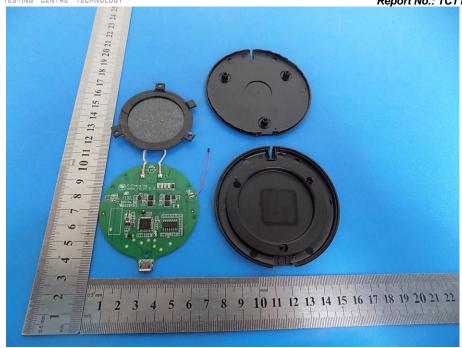
Product: wireless charger Model: IBD-W01 Internal Photos















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