

# RF EXPOSURE REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures in ANSI C63.10(2013).

Applicant / Manufacturer : Raffel Systems, LLC

Address : N112 W14600 Mequon Road Germantown Wisconsin United States

Factory : FORTRESS ELECTRONICS (XIAMEN) CO.,LTD

Address : East of the fifth floor, 181 banqiao road, jimei district, Xiamen, Fujian, China

E.U.T. : Wireless Charging Tray

Brand Name : N/A

Model No. : WCT BR 01, WCT XX 01 (For model difference refer to section 1)

FCC ID : YZHWCTXX01

Measurement Standard : FCC PART 15 Subpart C

Date of Receiver : September 16, 2020

Date of Test : September 16, 2020 to September 29, 2020

Date of Report : September 30, 2020

In the configuration tested, the EUT complied with the standards specified above.

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment under Test

Product name : Wireless Charging Tray

Main model : WCT BR 01

Additional model : WCT XX 01 (The XX in the middle represents the treatment of the shell, which is composed of two or three letters, the letters may be a-z, which are 26 letters.)

Model difference : These models have the same circuit schematic, construction, PCB Layout and critical components. The difference in model number and shell material due to trading purpose.

Power Supply : Input: DC 5V 2A  
Output: DC 5V, 1A, 5W Max

Adapter : M/N: FS0500-2000  
Input: AC 100-240V 50/60Hz, 0.3A  
Output: DC 5V 2.0A

Test voltage : AC 120V 60Hz, AC 240V 50Hz  
(Only the worst case was record in the report.)

Cable : DC Line: 120cm unshielded.  
Adapter DC Line: 190cm unshielded.

Software version : V1.0

Hardware version : V1.0

Note : N/A

Remark : According to the model difference, all tests were performed on model WCT BR 01.

Frequency Range : 110.5-205KHz

Test frequency : 145K

Remark : N/A

## 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **YZHWCTXX01** filing to comply with FCC Part 15, Subpart C Rule.

## 1.3 Test Facility and Location

### Site Description

EMC Lab : Listed by CNAS, August 13, 2018  
The certificate is valid until August 13, 2024  
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01  
The Certificate Registration Number is L5795.

Listed by A2LA, November 01, 2017  
The certificate is valid until December 31, 2021  
The Laboratory has been assessed and proved to be in compliance with ISO17025  
The Certificate Registration Number is 4429.01

Listed by FCC, November 06, 2017  
The Designation Number is CN1214  
Test Firm Registration Number: 907417

### Name of Firm

>Listed by Industry Canada, June 08, 2017  
The Certificate Registration Number. Is 46405-9743  
: Dongguan Nore Testing Center Co., Ltd.  
(Dongguan NTC Co., Ltd.)

### Site Location

: Building D, Gaosheng Science & Technology Park,  
Zhouxi Longxi Road, Nancheng District, Dongguan  
City, Guangdong Province, China

## 2. Measurement Uncertainty

Measurement Uncertainty for a Level of Confidence of 95%,  $U=2\times U_c(y)$

Radiated emission(9KHz~150KHz)	$\pm 3.50\text{dB}$
Radiated emission(150KHz~30MHz)	$\pm 3.50\text{dB}$
Radiated emission(30MHz~1GHz)	$\pm 4.60\text{dB}$

### 3. Method of measurement

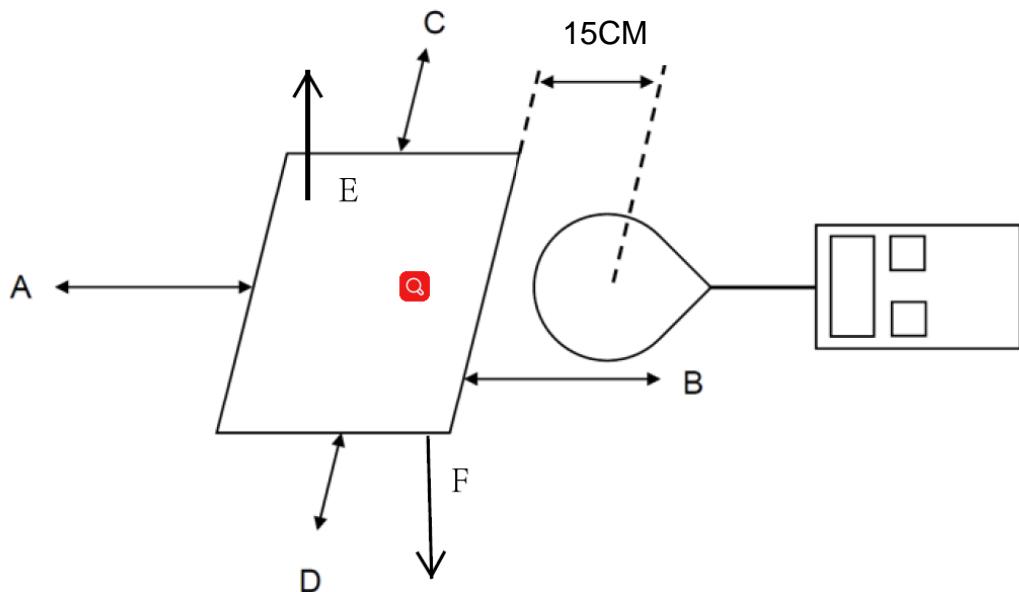
#### 3.1 Applicable standard

According to 1.1307(b)(1), system operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidelines.

According to 1.1310 and 2.1093 RF exposure is calculated.

According to KDB680106 D01V03: RF exposure wireless charging apps v03.

#### 3.2 Test Setup



#### 3.3 Test procedure

1. The RF exposure test was performed on 360 degree turn table in anechoic chamber;
2. The measurement probe was placed at test distance 15cm which is between the edge of the charger and 20cm between top of the charger and the geometric centre of probe.
3. The turn table was rotated 360 degree to search of highest strength.
4. The highest emission level was recorded and compared with limit as soon as measurement of each points (A,B,C,D,E) were completed.
5. The EUT were measured according to the dictates of KDB 680106D01V03

### 3.4 Equipment approval considerations

1. The EUT dose comply with item 5.2 of KDB 680106D01V03
  - a, Power transfer frequency is less than 1MHz.  
YES; the device operated in the frequency range from 110.5-205KHz.
  - b, Output power from each primary coil is less than or equal to 15 watts  
YES; the maximum output power of the primary coil is 5W<15W.
  - c, The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that able to detect and allow coupling only between individual pair of coils.  
YES; the transfer system includes only single primary and secondary coils.
  - d, Client device is placed directly in contact with the transmitter.  
YES; Client device is placed directly in contact with the transmitter.
  - e, Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).  
YES;
  - f, The aggregate H-field strengths at 15cm surrounding the device and 20cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.  
YES; The EUT field strength levels are less than 50% x MPE limits.

### 3.5 E and H field strength Limit

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30
F=frequency in MHz *=Plane-wave equivalent power density RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).				

### Test Result

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

#### Electric Field Emissions

Operation frequency	Test Position	Test Distance (cm)	Probe Measure Result(V/m)			Limit (V/m)	50% Limit (V/m)
			zero charge	intermediate charge	full charge		
145KHz	Side A	15	3.32	3.55	3.21	614	307
	Side B	15	3.54	3.52	3.29	614	307
	Side C	15	3.51	3.51	3.54	614	307
	Side D	15	3.61	3.58	3.47	614	307
	Side E	20	2.51	2.62	2.66	614	307

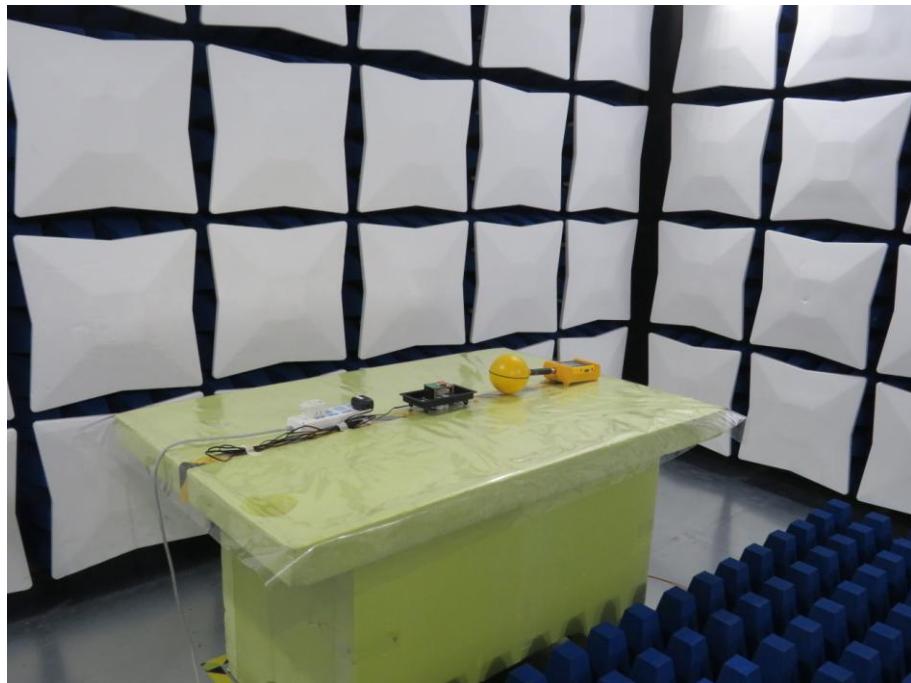
#### Magnetic Field Emissions

Operation frequency	Test Position	Test Distance (cm)	Probe Measure Result(A/m)			Limit (A/m)	50% Limit (A/m)
			zero charge	intermediate charge	full charge		
145KHz	Side A	15	0.0763	0.0731	0.0754	1.63	0.815
	Side B	15	0.0754	0.0744	0.0762	1.63	0.815
	Side C	15	0.0763	0.0766	0.0775	1.63	0.815
	Side D	15	0.0726	0.0755	0.0721	1.63	0.815
	Side E	20	0.0459	0.0463	0.0532	1.63	0.815

### 3.6 Test equipment list

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Magnetic field probe 100cm <sup>2</sup>	Narda	ETL Probe 1Hz-400KHz	M-1587	June 29,2020	June 28, 2021
Exposure lever tester	Narda	ETL- 400	O-0167	June 29,2020	June 28, 2021

### 3.7 Test Photo



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