

EXPOSURE REPORT

FCC ID: 2AMBHRW1702

Date of issue: Dec. 14, 2020

Report Number:	MTi20042810-3E2
Sample Description:	Multi-unit Wireless Charger
Model(s):	RW1702
Applicant:	Republic Wireless, Inc.
Address:	940 Main Campus Drive, Ste 300, Raleigh, NC, 27606 USA
Date of Test:	Nov. 25, 2020 - Dec. 08, 2020

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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Tel: (86-755) 88850135

Fax: (86-755) 88850136

Web: <http://www.mtitest.com>

E-mail: mti@51mti.com

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.

Test Result Certification

Applicant's name:	Republic Wireless, Inc.
Address:	940 Main Campus Drive, Ste 300, Raleigh, NC, 27606 USA
Manufacture's name:	Shenzhen Aodehong Electronic Technology Co., Ltd
Address:	5/F Elegant Industrial Park, No. 8, Liuhe Rd. , Henggang St., Longgang Dist., Shenzhen, R.P.C.
Product name:	Multi-unit Wireless Charger
Trademark:	Relay
Model name:	RW1702
Standard:	FCC CFR 47 PART 1 , 1.1310
RF Exposure Procedures:	KDB 680106 D01 RF Exposure Wireless Charging App v03

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

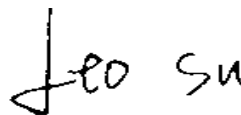
Tested by:



Demi Mu

Dec. 08, 2020

Reviewed by:



Leo Su

Dec. 14, 2020

Approved by:



Tom Xue

Dec. 14, 2020

1 General Information

1.1 Description of EUT

Product name:	Multi-unit Wireless Charger
Brand name:	Relay
Model name:	RW1702
Series model:	N/A
Deference in serial model:	N/A
Operation frequency:	115–205 kHz
Maximum output power:	15W
Operational mode:	Wireless charging
Modulation type:	ASK
Antenna type:	Coil Antenna
Power source:	DC 15V from adapter AC 120V/60Hz
Battery:	N/A
Adapter information:	N/A

1.2 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
Adapter	BS-E915	/	Shenzhen Times Innovation Technology Co., Ltd
Load	AP	/	/

1.3 Measurement uncertainty

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

Radiated emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	± 1 degree
Humidity	± 5 %

2 Testing site

Test Site	Shenzhen Microtest Co., Ltd
Test Site Location	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China.
FCC Registration No.:	448573



3 List of test equipment

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E115	Electric and Magnetic Field Probe - Analyzer	Narda Safety Test Solutions GmbH	EHP-200A	/	2020/11/12	2021/11/11

4 Test Results

4.4 Maximum permissible exposure

4.4.1 Limit

Frequency range(MHz)	Electric field strength(V/m)	Magnetic field strength(A/m)	Power density(mW/cm ²)	Averaging time(minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0 6	6
300-1500			f/300	6
1500-100000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100000			1	30
f = frequency in MHz * = Plane-wave equivalent power density				

4.4.2 Test Procedures

E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the device and 20 cm above the top surface of the primary/client pair.

These measurements should be repeated for three different client battery levels, 1%, 50%, and 99%.

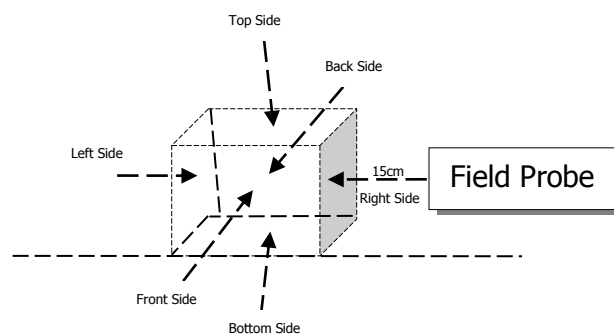
Record the test results.

KDB 680106 D01 RF Exposure Wireless Charging App v03:

- (1) Power transfer frequency is less than 1MHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
- (3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
- (4) Client device is placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
- (6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

Note: The device is in compliance with KDB 680106 D01 RF Exposure Wireless Charging App v03 6 conditions.

4.4.3 Test Setup



4.4.4 Test Result

Left coil:

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<1%	Top	20	0.63	0.0083
<1%	Bottom	15	0.49	0.0110
<1%	Left	15	0.52	0.0044
<1%	Right	15	0.55	0.0173
<1%	Front	15	0.63	0.0180
<1%	Back	15	0.47	0.0051
Limit			614	1.63
Margin Limit (%)			0.103	1.103

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<50%	Top	20	0.61	0.0126
<50%	Bottom	15	0.50	0.0050
<50%	Left	15	0.52	0.0173
<50%	Right	15	0.55	0.0079
<50%	Front	15	0.63	0.0210
<50%	Back	15	0.46	0.0152
Limit			614	1.63
Margin Limit (%)			0.103	1.289

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<99%	Top	20	0.62	0.0056
<99%	Bottom	15	0.49	0.0067
<99%	Left	15	0.52	0.0135
<99%	Right	15	0.55	0.0094
<99%	Front	15	0.64	0.0071
<99%	Back	15	0.46	0.0046
Limit			614	1.63
Margin Limit (%)			0.105	0.826

Right coil:

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	20	0.62	0.0067
<1%	Bottom	15	0.50	0.0108
<1%	Left	15	0.51	0.0049
<1%	Right	15	0.56	0.0164
<1%	Front	15	0.65	0.0063
<1%	Back	15	0.46	0.0163
Limit			614	1.63
Margin Limit (%)			0.106	1.005

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<50%	Top	20	0.63	0.0070
<50%	Bottom	15	0.49	0.0170
<50%	Left	15	0.53	0.0212
<50%	Right	15	0.57	0.0158
<50%	Front	15	0.64	0.0220
<50%	Back	15	0.45	0.0187
Limit			614	1.63
Margin Limit (%)			0.105	1.353

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<99%	Top	20	0.63	0.0106
<99%	Bottom	15	0.49	0.0132
<99%	Left	15	0.52	0.0043
<99%	Right	15	0.57	0.0173
<99%	Front	15	0.64	0.0070
<99%	Back	15	0.47	0.0080
Limit			614	1.63
Margin Limit (%)			0.105	1.059

Middle coil:

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	20	0.62	0.0073
<1%	Bottom	15	0.48	0.0118
<1%	Left	15	0.53	0.0201
<1%	Right	15	0.55	0.0173
<1%	Front	15	0.64	0.0208
<1%	Back	15	0.46	0.0141
Limit			614	1.63
Margin Limit (%)			0.105	1.277

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<50%	Top	20	0.63	0.0121
<50%	Bottom	15	0.49	0.0202
<50%	Left	15	0.52	0.0149
<50%	Right	15	0.56	0.0127
<50%	Front	15	0.64	0.0034
<50%	Back	15	0.47	0.0072
Limit			614	1.63
Margin Limit (%)			0.104	1.237

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<99%	Top	20	0.61	0.0039
<99%	Bottom	15	0.49	0.0233
<99%	Left	15	0.53	0.0191
<99%	Right	15	0.56	0.0184
<99%	Front	15	0.65	0.0194
<99%	Back	15	0.47	0.0215
Limit			614	1.63
Margin Limit (%)			0.105	1.428

Simultaneous transmission:

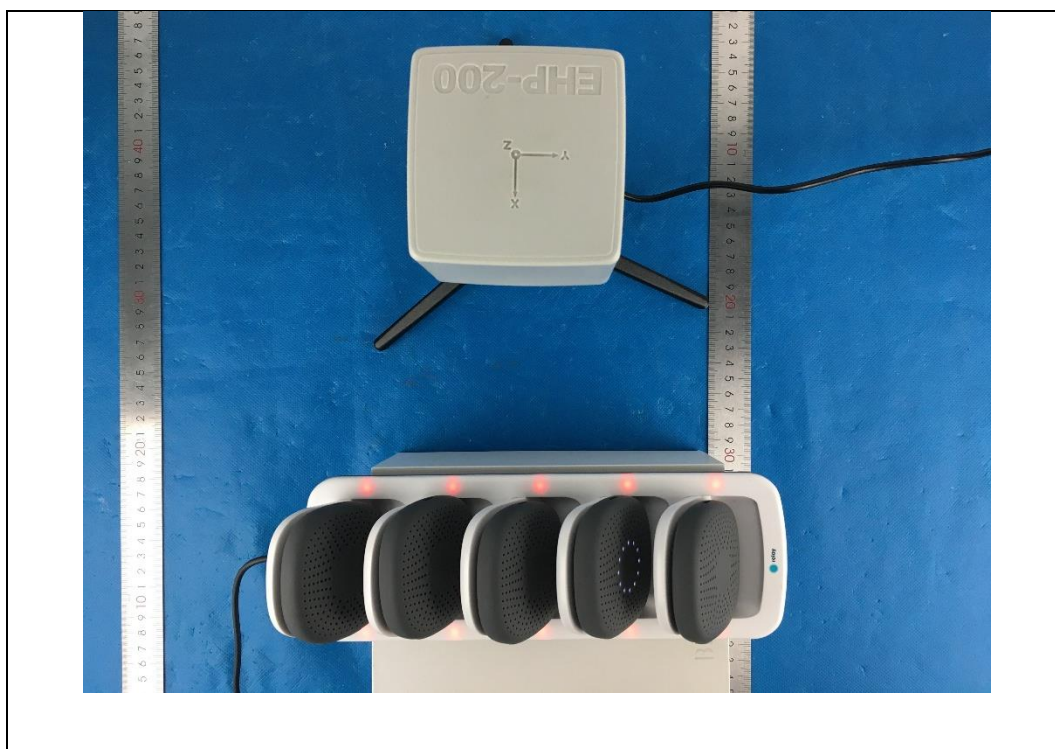
Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	20	0.62	0.0103
<1%	Bottom	15	0.49	0.0232
<1%	Left	15	0.52	0.0217
<1%	Right	15	0.56	0.0027
<1%	Front	15	0.63	0.0152
<1%	Back	15	0.46	0.0106
Limit			614	1.63
Margin Limit (%)			0.103	1.421

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<50%	Top	20	0.62	0.0071
<50%	Bottom	15	0.49	0.0233
<50%	Left	15	0.52	0.0177
<50%	Right	15	0.56	0.0175
<50%	Front	15	0.65	0.0186
<50%	Back	15	0.46	0.0039
Limit			614	1.63
Margin Limit (%)			0.105	1.432

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<99%	Top	20	0.61	0.0073
<99%	Bottom	15	0.49	0.0158
<99%	Left	15	0.52	0.0140
<99%	Right	15	0.56	0.0109
<99%	Front	15	0.64	0.0070
<99%	Back	15	0.46	0.0204
Limit			614	1.63
Margin Limit (%)			0.104	1.249

Remark: All other cases have been pre-scan, and the worst mode is launched at the same time.

4.4.5 MPE Setup photo



----END OF REPORT----