RF EXPOSURE EVALUATION REPORT

Product Name:	Qi Wireless Charging Pad
Trade Mark:	INSIGNIA
Model No.:	NS-MWPCLC5B
Additional Model No.:	Refer to report clause 1.2
Report Number:	180310002RFC-2
Test Standards:	FCC 47 CFR Part 1 Subpart I RSS-102 Issue 5
FCC ID:	2ALAP-002701
IC:	22492-002701
HVIN:	UNIQT-1069
Test Result:	PASS
Date of Issue:	April 2, 2018

Prepared for:

U-way Corporation
3F-2, No.125, Lane 235, Pao-Chiao Ro Hsintien City, Taipei, Taiwan

Prepared by:

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Date: April 2, 2018

UnionTrust Laboratories * Certified *

Version

Version No.	Date	Description
V1.0	April 2, 2018	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	U-way Corporation
Address of Applicant:	3F-2, No.125, Lane 235, Pao-Chiao Ro Hsintien City, Taipei, Taiwan
Manufacturer:	U-way Corporation
Address of Manufacturer:	3F-2, No.125, Lane 235, Pao-Chiao Ro Hsintien City, Taipei, Taiwan

1.2 EUT INFORMATION

Product Name:	Qi Wireless Charging Pad
Model No.:	NS-MWPCLC5B
Additional Model No.:	NS-MWPCLC5G, NS-MWPCLC5G-C, NS-MWPCLC5B-C, NS-MWPCxxxxxxxx (x can be "a"-"z", "A"-"Z", "0"-"9", "-" or blank).
HVIN:	UNIQT-1069
Trade Mark:	INSIGNIA
DUT Stage:	Identical Prototype
Operating Frequency Range:	111KHz-148KHz
Antenna Type:	Coil antenna
Power Supply	DC 5V supply by USB adapter
Temperature Range	0°C ~ +35°C
Sample Received Date:	March 12, 2018
Sample Tested Date:	March 12, 2018 to March 21, 2018
Note: All the models are same with each other in hardware and electronics aspects, the differences are just model name and color for market strategy.	

1.3 OTHER INFORMATION

Accessories

Description	Manufacturer	Model No.	Serial Number	Supplied by
Micro USB cable 1.05m	N/A	N/A	N/A	U-way

Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Mobile phone	Apple	IPHONE 8 plus	N/A	U-way
Adapter	Aohai	A88-502000	N/A	U-way

1.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I

All test items have been performed and recorded as per the above standards

1.5 DEVIATION FROM STANDARDS

None.

1.6 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Conducted Emission Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☑	E-Field Probe	narda	EMR-20	2244/90.21 AH-0001	Jan. 29, 2018	Jan. 28, 2019
☑	EM radiation meter	narda	EMR-20	AF-0024	Jan. 29, 2018	Jan. 28, 2019
☑	B-Field Probe	narda	ELT-400	C-0014 2300/90.10	Mar. 08, 2018	Mar. 08, 2019
☑	Broadband Field Meter	narda	ELT-400	C-0014 0304/03	Mar. 08, 2018	Mar. 08, 2019
☑	3M Chamber & Accessory Equipment	ETS-LINDGREN	3M	N/A	Dec. 20, 2015	Dec. 19, 2018

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	RSS-102 Issue 5	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
3	RSS-216 Issue 2	Wireless Power Transfer Devices

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

3.2.1.2 RSS-102 Issue 5

According to RSS-102 Issue 5, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency range (MHz)	Electric Field (E) (V/m rms)	Magnetic Field (H) (A/m rms)	Power Density (S) (W/m^2)	Reference Period $\|H\|^2$ or S (minutes)
0.003-10^{21}	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$\mathbf{0.02619 f^{0.6834}}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

3.2.2 Test Procedure

Enabled the EUT to transmit and receive data continue

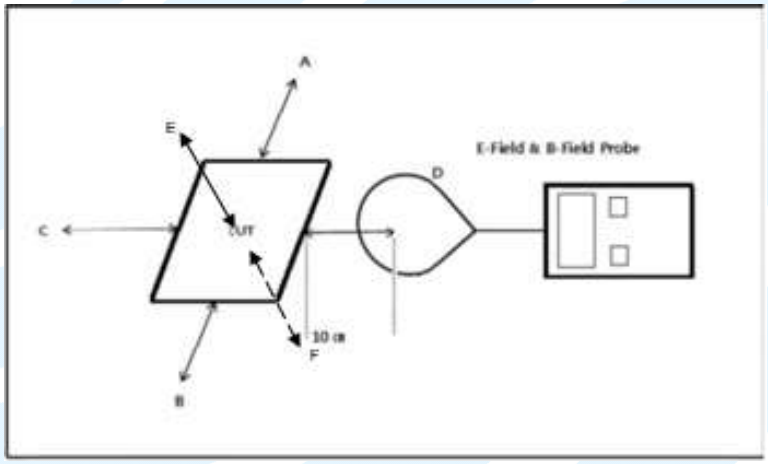
a. The field strength of both E-field and H-field was measured at 10cm using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.

b. The RF power density was measured with the battery at 3 different charge conditions: battery at less than 1 % , battery at 50% charger, battery at 99% charger,.

c. Maximum E-field and H-field measurements were made 10cm from each side of the EUT. Along the side of the EUT and still 10cm away from the edge of the EU T, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.

d. This device uses a wireless charging circuit for power transfer operating at the frequency of 111-148 kHz. Thus, the 300 kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

3.2.3 Test setup



Note

- The RF exposure test is performed in the shield room
- The test distance is between the edge of the charger and the geometric center of probe

3.3 TEST DATA

E-Field Strength

Test Mode	Frequency Range (kHz)	Distance	Probe Position A (V/m)	Probe Position B (V/m)	Probe Position C (V/m)	Probe Position D (V/m)	Probe Position E (V/m)	Probe Position F (V/m)	Limits (V/m)
Mode 1	<1% Battery status	10CM	0.71	0.61	0.27	0.55	0.52	0.66	614
Mode 2	50% Battery status	10CM	0.57	0.46	0.30	0.42	0.48	0.67	614
Mode 3	99% Battery status	10CM	0.79	0.54	0.33	0.55	0.49	0.57	614

H-Field Strength

Test Mode	Frequency Range (kHz)	Distance	Probe Position A (A/m)	Probe Position B (A/m)	Probe Position C (A/m)	Probe Position D (A/m)	Probe Position E (A/m)	Probe Position F (A/m)	Limits (A/m)
Mode 1	<1% Battery status	10CM	0.075	0.058	0.065	0.046	0.125	0.293	1.63
Mode 2	50% Battery status	10CM	0.062	0.054	0.057	0.039	0.098	0.269	1.63
Mode 3	99% Battery status	10CM	0.069	0.056	0.061	0.042	0.108	0.285	1.63

Remark:
The device meets the mobile RF exposure limit at a 10cm separation distance as specified in &2.1091 of the FCC Rules and chapter 6.4.4 of the RSS 102.

*** End of Report ***