



RF EXPOSURE REPORT

FCC ID: 2ACWB-MUV201

Product Name: UV sanitizer with wireless charging
Trademark: mophie, Halo
Model Number: MUV-WC-201
Prepared For: mophie LLC.
Address: 6244 Technology Ave. Kalamazoo. MI49009, United States of America.
Manufacturer: mophie LLC.
Address: 6244 Technology Ave. Kalamazoo. MI49009, United States of America.
Prepared By: Shenzhen BCTC Testing Co., Ltd.
Address: BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Sample Received Date: May 27, 2020
Sample tested Date: May 27, 2020 to Jun. 09, 2020
Issue Date: Jun. 09, 2020
Report No.: BCTC2005001862-2E
Test Standards: FCC CFR 47 part1, 1.1307(b), 1.1310
Test Results: PASS

Compiled by:

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Reviewed by:

Eric Yang

Eric Yang

Approved by:



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(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2005001862-2E	Jun. 09, 2020	Original	Valid

2. PRODUCT INFORMATION

2.1 Product Information

Model(s): MUV-WC-201
Model Description: N/A
Product Description: Wireless Charging System
Operation Frequency: 105kHz-205kHz
Antenna installation: Inductive loop coil antenna
Ratings: Input DC 5V 3A ,9V 2A, 12V 1.5A (QC3.0)
Adapter: Model No.: PY S-000147
Input: AC 100-240V 50/60Hz Max 0.6A
Output: DC 5V 3A/ 9V 2A/ 12V1.5A (18W)
Hardware Version: V0.0.2
Software Version: V0.5.17 2020-05-18

2.2 Support Equipment

Device Type	Brand	Model	Series No.	Data Cable	Remark
Mobile phone	SAMSUNG	SM-G9600/DS	N/A	N/A	Auxiliary

Notes:

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.

2.3 Test Mode

Test Modes	keeping TX+Charging mode
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2.4 Copy of marking plate

UV sanitizer with wireless charging

Model No: MUV-WC-201

Input: 5V $\equiv$ 3A 9V $\equiv$ 2A 12V $\equiv$ 1.5A(QC3.0)

Output:

Wireless charger: 10W/7.5W/5W

Ultraviolet disinfection: 2W

UVC sterilize light: 268-285nm

UVA sterilize light: 390-410nm

FCC ID: 2ACWB-MUV201

IC: 10465A-MUV201

Made in China





3. TEST FACILITY AND TEST INSTRUMENT USED

3.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

3.2 Test Instrument Used

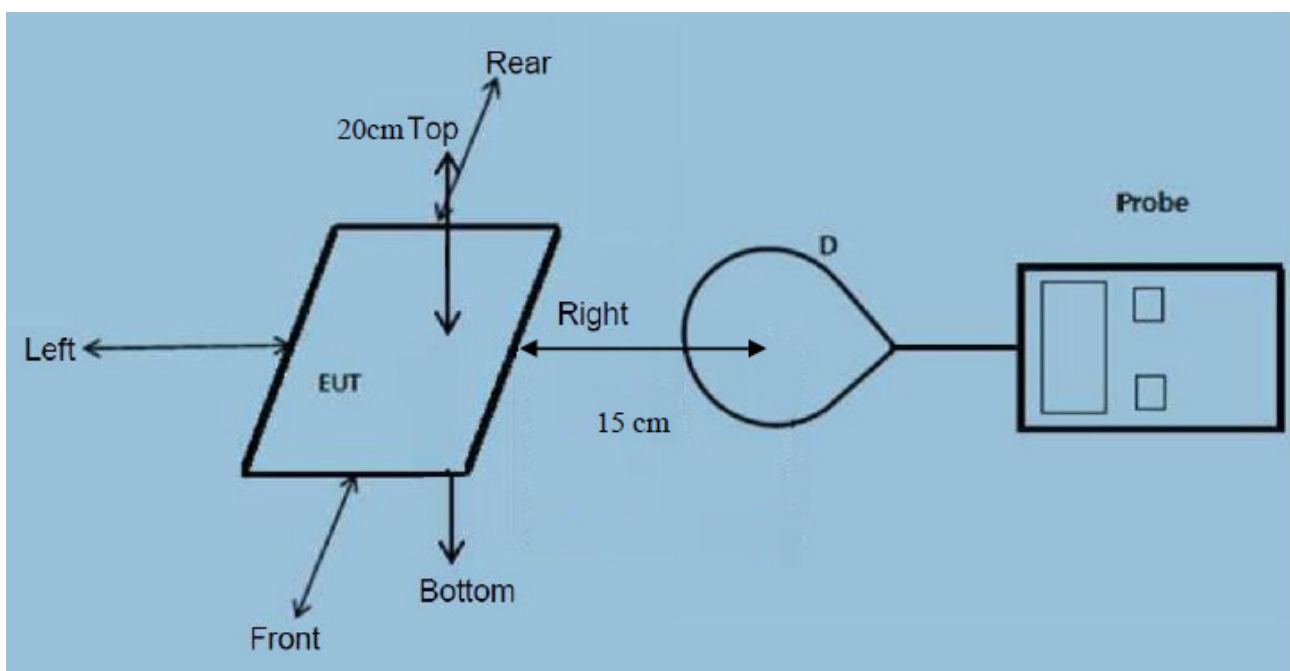
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Exposure Level Tester	Narda	ELT-400	N-0231	Jul. 15, 2019	Jul. 14, 2020
Magnetic field probe 100cm ²	Narda	B-Field Probe 100cm ²	M0675	Jul. 15, 2019	Jul. 14, 2020
843 Chamber	ETS	843	84301	Aug. 27, 2018	Aug. 26, 2021

4. METHOD OF MEASUREMENT

4.1 Applicable Standard

According to §1.1307(b)(1), systems 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 KDB680106 D01v03: RF Exposure Wireless Charging Apps v02.

4.2 Block Diagram Of Test Setup



Note: Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device



4.3 Limit

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 Time 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
1500-100,000			5	6

Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180 / f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1	30

4.4 Test procedure

- The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- The measurement probe was placed at test distance (15cm) which is between the edge of the charger and the geometric centre of probe.
- The turn table was rotated 360d degree to search of highest strength.
- The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- The EUT were measured according to the dictates of KDB 680106D01v03.



4.5 Equipment Approval Considerations

The EUT does comply with item 5(b) of KDB 680106 D01v03

1) Power transfer frequency is less than 1MHz

Yes, the device operate in the frequency range from 100-205KHz

2) Output power from each primary coil is less than or equal to 10 watts.

Yes, the maximum output power of the primary coil is 10W.

3) 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 onlybetween individual pair of coils.

Yes, the transfer system includes only single primary and secondary coils.

4) Client device is inserted in or placed directly in contact with the transmitter.

Yes, client device is placed directly in contact with the transmitter.

5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

Yes, the EUT is a UV sanitizer with wireless charging.

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.

Yes, the EUT field strength levels are 10% x MPE limit.



4.6 E and H field Strength

(The worst data)

E-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of the EUT

Battery level	Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	10% Limits Test (A/m)	Limits Test (A/m)
1%	0.105-0.205	0.71	0.72	0.74	0.54	0.57	61.4	614
50%	0.105-0.205	0.75	0.60	0.65	0.58	0.54	61.4	614
99%	0.105-0.205	0.64	0.68	0.63	0.53	0.72	61.4	614

H-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of the EUT

Battery level	Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	10% Limits Test (A/m)	Limits Test (A/m)
1%	0.105-0.205	0.068	0.105	0.074	0.062	0.093	0.163	1.63
50%	0.105-0.205	0.054	0.054	0.072	0.088	0.088	0.163	1.63
99%	0.105-0.205	0.032	0.066	0.058	0.063	0.054	0.163	1.63

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