

# FCC REPORT

**Applicant:** UBIO LABS, INC.

**Address of Applicant:** 2821 Northup Way, Suite 250, Bellevue, WA 98004, USA

**Equipment Under Test (EUT)**

Product Name: wireless charging pad

Model No.: AWC1058SG, AWC1058NA

Trade mark: ubiolabs

FCC ID: 2ATGY-AWC1058

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.209

**Date of sample receipt:** 29 Nov., 2019

**Date of Test:** 30 Nov., to 26 Dec., 2019

**Date of report issue:** 02 Jan., 2020

**Test Result:** PASS \*

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

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2 Version

Version No.	Date	Description
00	26 Dec., 2019	Original
01	02 Jan., 2020	Update page 4

**Prepared By:**

Carey Chen  
Report Clerk

**Date:**

02 Jan., 2020

**Check By:**

Winner Zhang  
Project Engineer

**Date:**

02 Jan., 2020

### 3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION.....	2
3 CONTENTS.....	3
4 TEST SUMMARY.....	4
5 GENERAL INFORMATION.....	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF E.U.T.....	5
5.3 TEST MODE .....	5
5.4 DESCRIPTION OF SUPPORT UNITS.....	5
5.5 MEASUREMENT UNCERTAINTY.....	5
5.6 DESCRIPTION OF CABLE USED .....	6
5.7 LABORATORY FACILITY.....	6
5.8 LABORATORY LOCATION .....	6
5.9 TEST INSTRUMENTS LIST.....	7
6 TEST RESULTS AND MEASUREMENT DATA.....	8
6.1 ANTENNA REQUIREMENT .....	8
6.2 RADIATED EMISSION .....	9
6.3 CONDUCTED EMISSION .....	16
6.4 BANDWIDTH .....	19
7 TEST SETUP PHOTOS.....	21
8 EUT CONSTRUCTIONAL DETAILS .....	23

## 4 Test Summary

Test Item	Section in CFR 47	Result
Spurious emissions	15.209	Pass
20dB Bandwidth	15.215(c)	Pass
Conducted Emission	15.207	Pass
<b>Remark:</b>		
1. Pass: The EUT complies with the essential requirements in the standard. 2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).		
<b>Test Method:</b>	ANSI C63.10-2013	

## 5 General Information

### 5.1 Client Information

Applicant:	UBIO LABS, INC.
Address of Applicant:	2821 Northup Way, Suite 250, Bellevue, WA 98004, USA
Manufacturer:	UBIO LABS, INC.
Address:	2821 Northup Way, Suite 250, Bellevue, WA 98004, USA
Factory:	Gopod Group Holding Limited
Address:	4-6/F, Building 8, Lian Jian Industrial Park, Hua Rong Rd, DaLang, LongHua New District, Shenzhen, China

### 5.2 General Description of E.U.T.

Product Name:	wireless charging pad
Model No.:	AWC1058SG, AWC1058NA
Operation Frequency:	110kHz ~ 205kHz
Modulation type:	ASK
Antenna Type:	Coil Antenna
Power supply (Wireless Charger):	Input: DC 5V, 2.4A Output: 5W
Test Sample Condition:	The test samples were provided in good working order with no visible defects.
Remark:	The Model No.: AWC1058SG, AWC1058NA are identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name and color.

### 5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation
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### 5.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
Skytek	Wireless charging match load	N/A	N/A	N/A
UGREEN	USB3.0 to Type-C3.1	US204	N/A	N/A
MIXOMI	Adapter	MDY-03-EB	15100912998	N/A

### 5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.38 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	±3.36 dB (k=2)

## 5.6 Description of Cable Used

N/A

## 5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

## 5.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

## 5.9 Test Instrumentslist

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-16-2019	03-15-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-16-2019	03-15-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-21-2019	11-20-2020
Loop Antenna	SCHWARZBECK	FMZB 1519 B	00044	04-28-2019	04-27-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-07-2019	03-06-2020
Pre-amplifier	CD	PAP-1G18	11804	03-07-2019	03-06-2020
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-07-2019	03-06-2020
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-21-2019	11-20-2020
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-07-2019	03-06-2020
Simulated Station	Anritsu	MT8820C	6201026545	03-07-2019	03-06-2020
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2019	03-06-2020
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2019	03-06-2020
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2019	03-06-2020

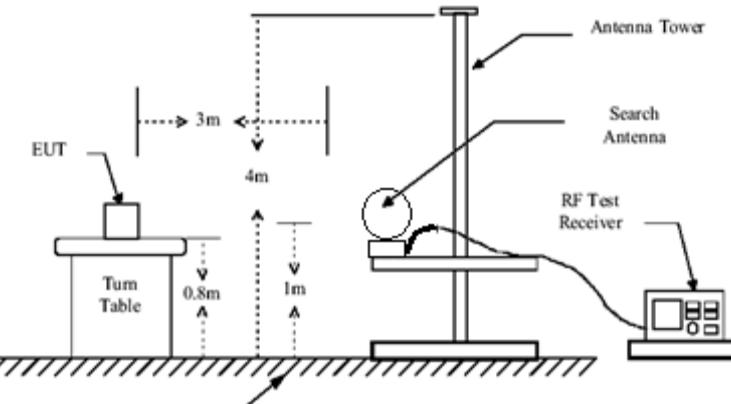
Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2019	03-06-2020
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2019	03-06-2020
LISN	CHASE	MN2050D	1447	03-19-2019	03-18-2020
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2018	07-20-2021
Cable	HP	10503A	N/A	03-07-2019	03-06-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		

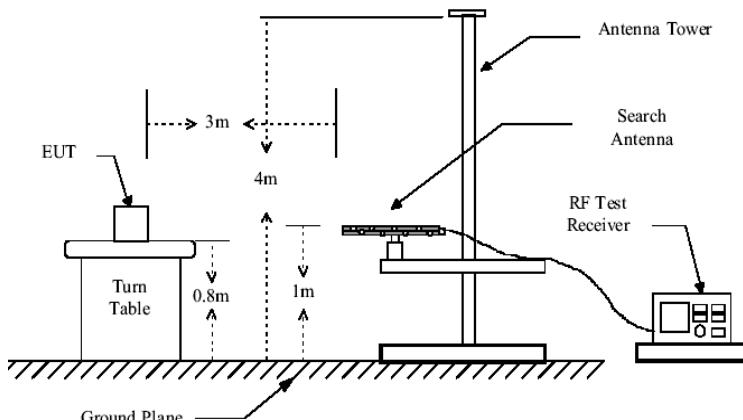
## 6 Test results and Measurement Data

### 6.1 Antenna requirement

<b>Standard requirement:</b>	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.
<b>E.U.T Antenna:</b>	

## 6.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209								
Test Method:	ANSI C63.4:2014								
Test Frequency Range:	9kHz to 1000MHz								
Test site:	Measurement Distance: 3m(Semi-Anechoic Chamber)								
Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
	9kHz-150kHz	Quasi-peak	200Hz	600Hz	Quasi-peak Value				
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value				
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
Limit:	Frequency (MHz)	Limit (uV/m @3m)		Distance (m)					
	0.009-0.490	2400/F(kHz)		300					
	0.490-1.705	24000/F(kHz)		30					
	1.705-30	30		30					
	30-88	100		3					
	88-216	150		3					
	216-960	200		3					
	Above 1GHz	500		3					
Test Procedure:	<ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol>								
Test setup:	<p>9kHz-30MHz</p>  <p>30MHz-1GHz</p>								



<b>Test Instruments:</b>	Refer to section 5.9 for details
<b>Test mode:</b>	Refer to section 5.3 for details
<b>Test results:</b>	Pass
<b>Remark:</b>	The emission levels of above 1 GHz are very lower than the limit and not show in test report.

**Measurement Data:****a) Fundamental field strength**

<b>Peak value</b>				
Test Polarization	Frequency (kHz)	H-field@3m (dB $\mu$ V)	Limit@3m (dB $\mu$ V)	Result
Horizontal	125.00	49.63	125.67	Pass
Vertical	125.00	48.57	125.67	Pass
<b>Average value</b>				
Test Polarization	Frequency (kHz)	H-field@3m (dB $\mu$ V)	Limit@3m (dB $\mu$ V)	Result
Horizontal	125.00	41.58	105.67	Pass
Vertical	125.00	39.82	105.67	Pass

## b) Radiated spurious (By 9 kHz ~ 30 MHz):

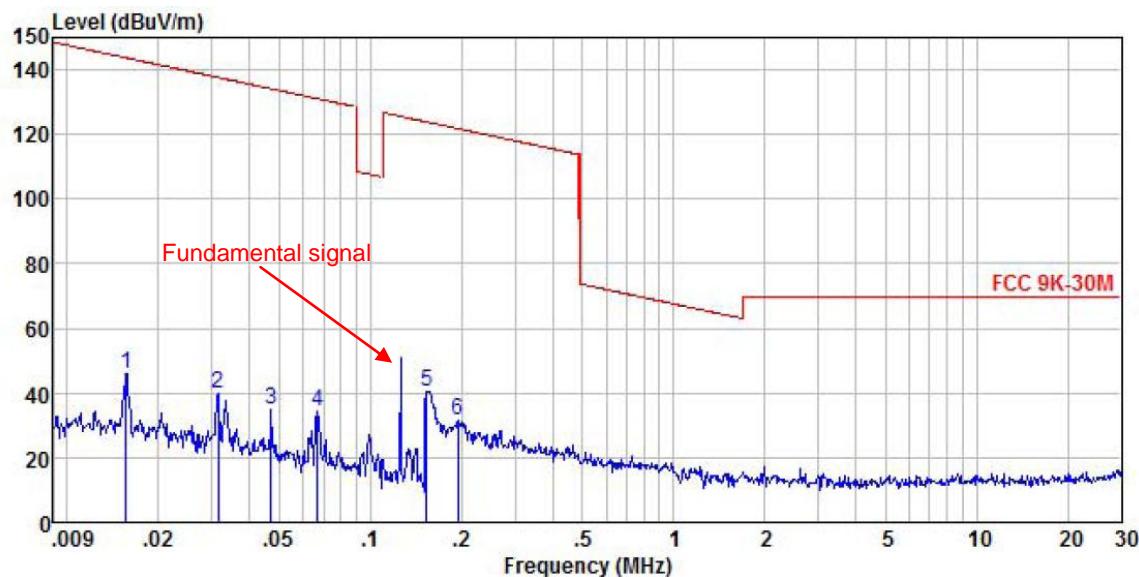
Product name:	wireless charging pad		Product Model:	AWC1058SG	
Test by:	Carey		Test mode:	TX mode	
Test frequency:	9 kHz ~ 30 MHz		Phase:	Horizontal	
Test voltage:	AC 120 V/60 Hz		Environment:	Temp: 22.5°C	Huni: 55%

Freq MHz	Read		Antenna		Cable		Preamp		Limit Line dB	Over Line Limit dB	Over Limit Remark
	Antenna Level dBuV	Factor dB/m	Cable Loss Factor	Preamp Level dB	dB	dBuV/m	dBuV/m				
0.016	36.95	-25.87	0.05	17.50	45.13	143.64	-98.51	Peak			
0.031	32.72	-25.95	0.12	17.50	40.89	137.65	-96.76	Peak			
0.047	26.04	-25.99	0.17	17.50	34.22	134.13	-99.91	Peak			
0.066	25.12	-26.04	0.19	17.50	33.27	131.17	-97.90	Peak			
0.155	32.53	-26.16	0.28	17.50	40.65	123.81	-83.16	Peak			
0.198	23.39	-26.20	0.33	17.50	31.52	121.69	-90.17	Peak			

## Notes:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product name:	wireless charging pad	Product model:	AWC1058SG
Test by:	Carey	Test mode:	TX mode
Test frequency:	9 kHz ~ 30 MHz	Phase:	Vertical
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%



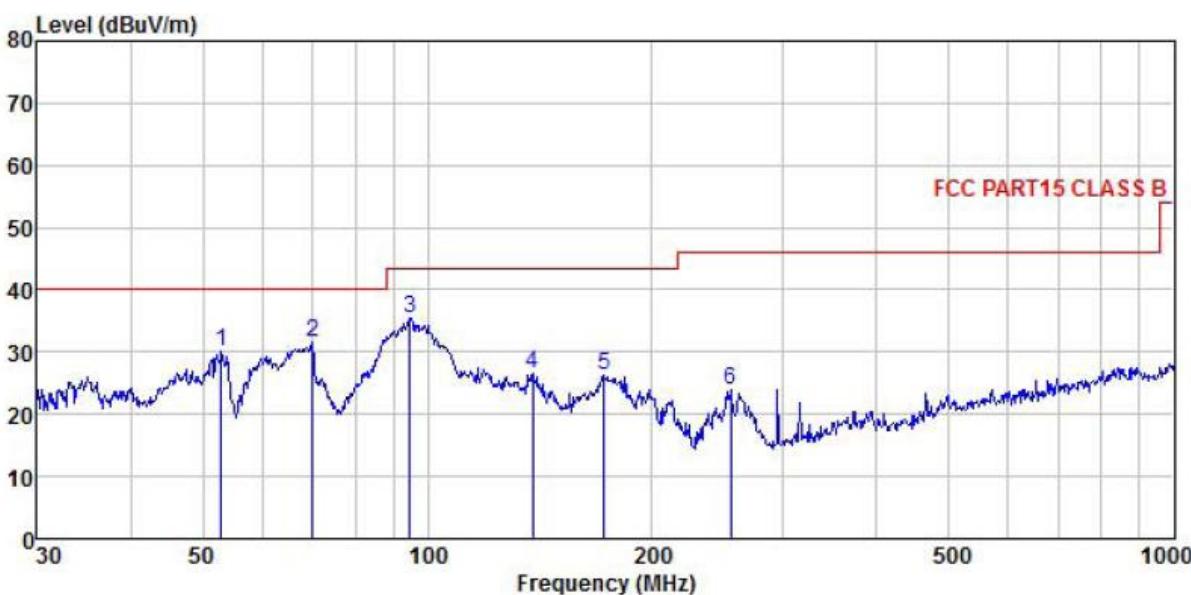
Freq MHz	Read Level dBuV	Antenna Factor dB/m	Cable Loss Factor dB	Preamp Level dB	Limit Line dBuV/m	Over Line dBuV/m	Over Limit dB	Remark
1	0.016	37.85	-25.86	0.05	17.50	46.04	143.71	-97.67 Peak
2	0.031	31.94	-25.95	0.12	17.50	40.11	137.65	-97.54 Peak
3	0.047	26.82	-25.99	0.17	17.50	35.00	134.13	-99.13 Peak
4	0.067	25.94	-26.04	0.19	17.50	34.09	131.10	-97.01 Peak
5	0.154	32.40	-26.16	0.27	17.50	40.51	123.88	-83.37 Peak
6	0.195	23.22	-26.20	0.32	17.50	31.34	121.83	-90.49 Peak

## Notes:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

## Radiated spurious (By 30 MHz ~ 1 GHz):

<b>Product Name:</b>	wireless charging pad		<b>Product Model:</b>	AWC1058SG	
<b>Test By:</b>	Carey		<b>Test mode:</b>	TX mode	
<b>Test Frequency:</b>	30 MHz ~ 1 GHz		<b>Polarization:</b>	Vertical	
<b>Test Voltage:</b>	AC 120/60Hz		<b>Environment:</b>	Temp: 24°C Huni: 57%	

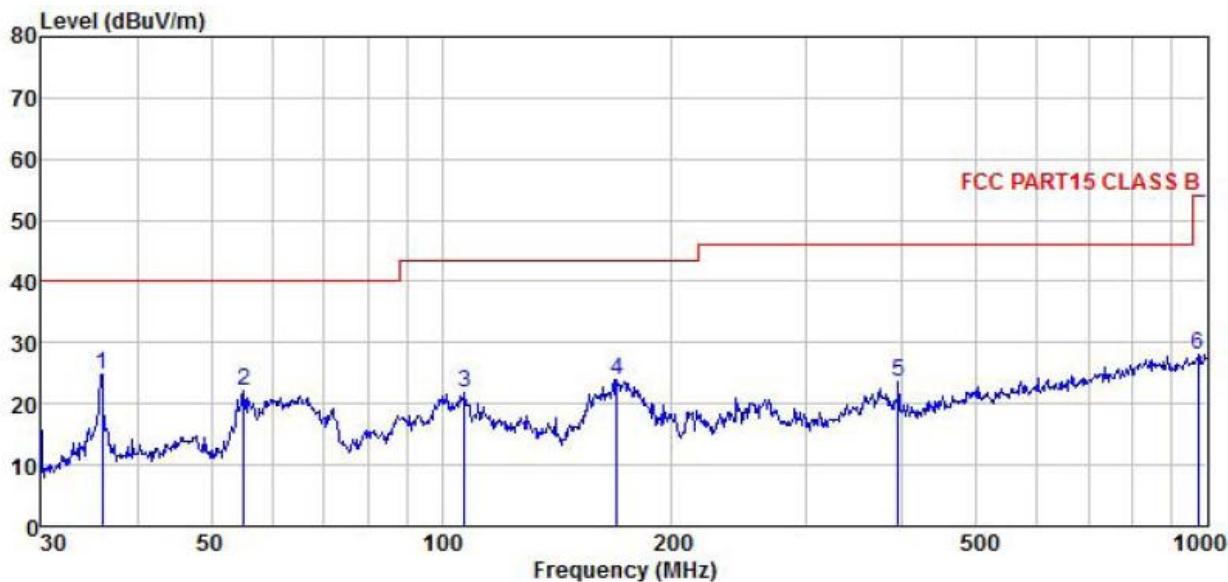
Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Line Limit	Over Line Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	52.945	46.69	11.80	1.32	29.81	30.00	40.00	-10.00 QP
2	70.090	51.29	8.50	1.52	29.72	31.59	40.00	-8.41 QP
3	94.760	51.58	11.30	2.01	29.55	35.34	43.50	-8.16 QP
4	138.387	43.75	9.61	2.38	29.28	26.46	43.50	-17.04 QP
5	172.599	42.79	9.74	2.68	29.03	26.18	43.50	-17.32 QP
6	254.728	36.91	12.78	2.82	28.53	23.98	46.00	-22.02 QP

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

<b>Product Name:</b>	wireless charging pad	<b>Product Model:</b>	AWC1058SG
<b>Test By:</b>	Carey	<b>Test mode:</b>	TX mode
<b>Test Frequency:</b>	30 MHz ~ 1 GHz	<b>Polarization:</b>	Horizontal
<b>Test Voltage:</b>	AC 120/60Hz	<b>Environment:</b>	Temp: 24°C Huni: 57%

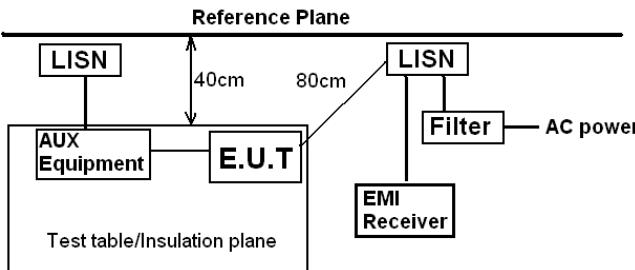


Freq	Read	Antenna	Cable	Preamp	Limit	Over	Line	Limit	Over
	Freq	Level	Antenna	Cable	Preamp	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB
1	36.001	42.33	11.43	1.07	29.94	24.89	40.00	-15.11	QP
2	55.221	38.88	11.59	1.36	29.80	22.03	40.00	-17.97	QP
3	107.134	37.28	11.90	2.02	29.48	21.72	43.50	-21.78	QP
4	169.599	40.78	9.61	2.66	29.05	24.00	43.50	-19.50	QP
5	394.855	34.16	15.23	3.08	28.76	23.71	46.00	-22.29	QP
6	972.337	28.71	22.74	4.33	27.59	28.19	54.00	-25.81	QP

## Remark:

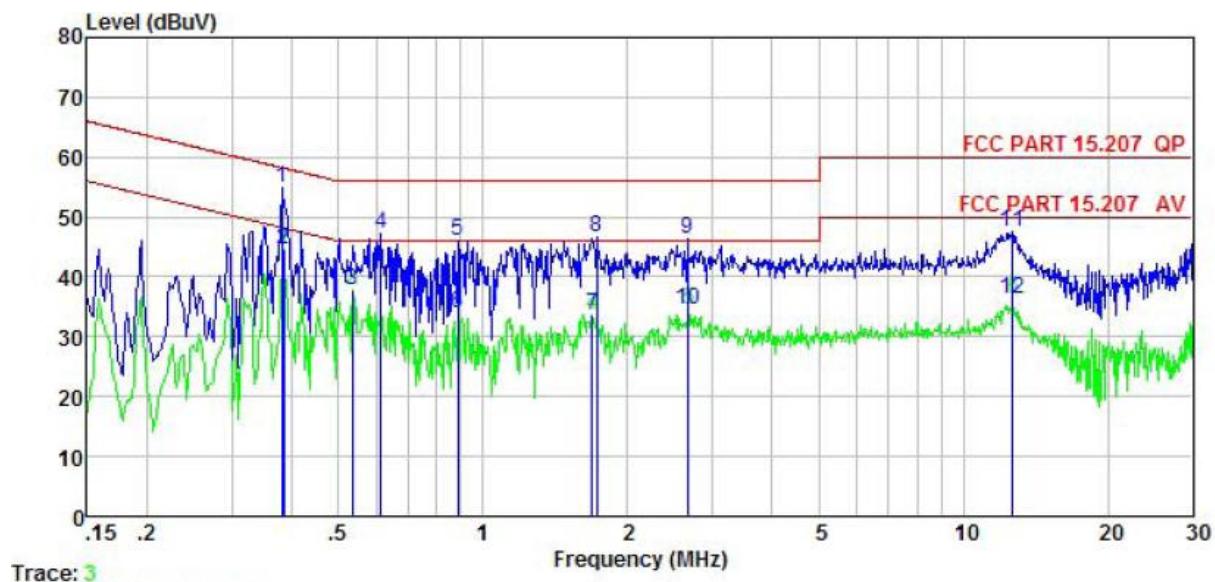
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

### 6.3 Conducted Emission

Test Requirement:	FCC Part 15 B Section 15.107					
Test Method:	ANSI C63.4:2014					
Test Frequency Range:	150kHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9kHz, VBW=30kHz					
Limit:	Frequency range (MHz)	Limit (dB $\mu$ V)				
		Quasi-peak	Average			
		0.15-0.5	66 to 56*			
		0.5-5	56			
		0.5-30	46			
	* Decreases with the logarithm of the frequency.					
Test setup:	 <p><i>Remark:</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>					
Test procedure	<ol style="list-style-type: none"> <li>The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). They provide a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>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).</li> <li>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 C63.4: 2014 on conducted measurement.</li> </ol>					
Test environment:	Temp.:	23 °C	Humid.:	56%	Press.:	101kPa
Test Instruments:	Refer to section 5.9 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

## Measurement Data:

Product name:	wireless charging pad	Product Model:	AWC1058SG
Test by:	Carey	Test mode:	TX mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%

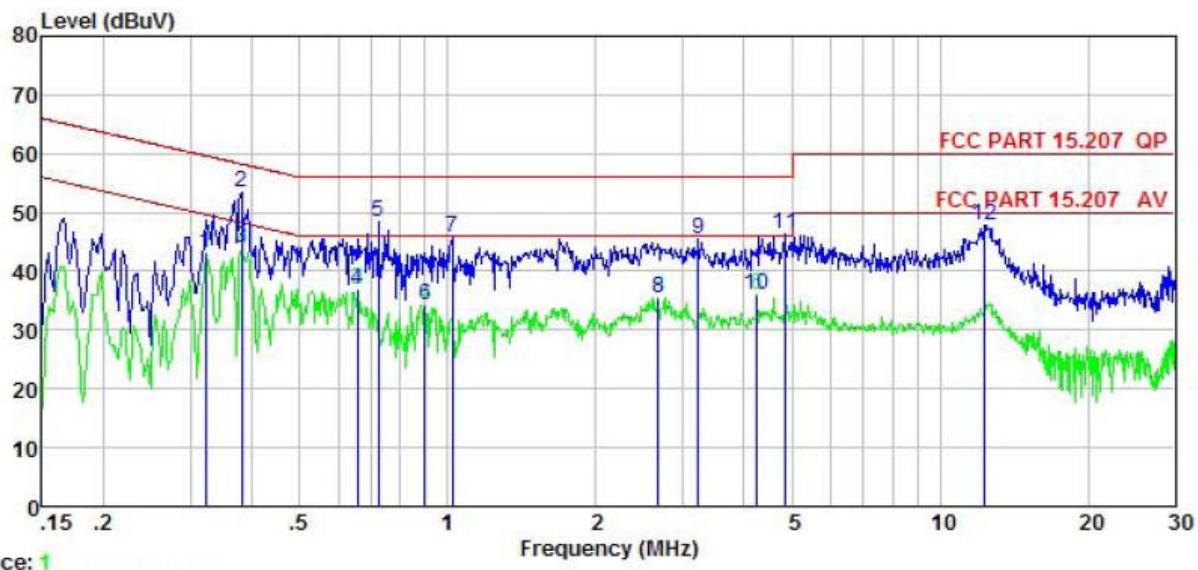


Freq MHz	Read Level dBuV	LISN Factor dB	Aux Factor dB	Cable Loss dB	Level dBuV	Limit Line dBuV	Over Limit dB	Over Limit Remark
	MHz	dBuV	dB	dB	dBuV	dB	dB	
1	0.381	44.37	-0.37	0.31	10.72	55.03	58.25	-3.22 QP
2	0.385	33.84	-0.37	0.33	10.72	44.52	48.17	-3.65 Average
3	0.535	27.84	-0.39	-0.36	10.76	37.85	46.00	-8.15 Average
4	0.614	37.29	-0.38	-0.38	10.77	47.30	56.00	-8.70 QP
5	0.885	35.49	-0.38	0.17	10.84	46.12	56.00	-9.88 QP
6	0.885	23.47	-0.38	0.17	10.84	34.10	46.00	-11.90 Average
7	1.689	23.21	-0.40	-0.13	10.94	33.62	46.00	-12.38 Average
8	1.725	36.13	-0.40	-0.15	10.94	46.52	56.00	-9.48 QP
9	2.664	36.09	-0.43	-0.24	10.93	46.35	56.00	-9.65 QP
10	2.678	24.19	-0.43	-0.24	10.93	34.45	46.00	-11.55 Average
11	12.649	34.43	-0.65	2.91	10.92	47.61	60.00	-12.39 QP
12	12.649	23.00	-0.65	2.91	10.92	36.18	50.00	-13.82 Average

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss.

Product name:	wireless charging pad	Product Model:	AWC1058SG
Test by:	Carey	Test mode:	TX mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%

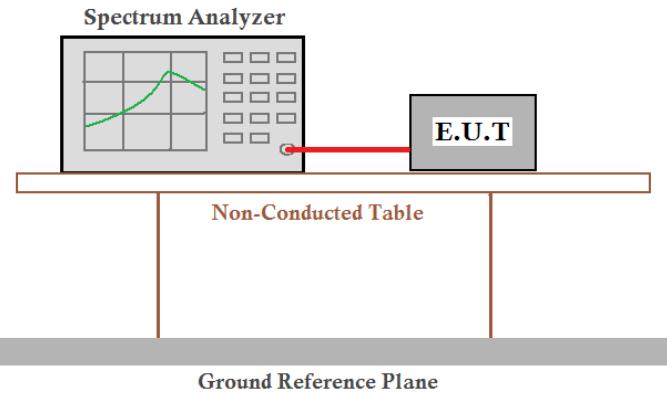


Freq MHz	Read Level dBuV	LISN Factor dB	Aux Factor dB	Cable Loss dB	Level dBuV	Limit Line dBuV	Over Limit dB	Over Limit Remark
1	0.322	32.97	-0.63	-0.01	10.74	43.07	49.66	-6.59 Average
2	0.381	43.48	-0.64	-0.05	10.72	53.51	58.25	-4.74 QP
3	0.381	34.07	-0.64	-0.05	10.72	44.10	48.25	-4.15 Average
4	0.654	26.62	-0.64	0.04	10.77	36.79	46.00	-9.21 Average
5	0.724	38.31	-0.64	0.04	10.78	48.49	56.00	-7.51 QP
6	0.899	23.85	-0.63	0.07	10.84	34.13	46.00	-11.87 Average
7	1.021	35.36	-0.63	0.08	10.87	45.68	56.00	-10.32 QP
8	2.678	25.04	-0.67	0.27	10.93	35.57	46.00	-10.43 Average
9	3.224	34.88	-0.68	0.36	10.91	45.47	56.00	-10.53 QP
10	4.247	25.34	-0.70	0.56	10.88	36.08	46.00	-9.92 Average
11	4.822	35.67	-0.72	0.65	10.86	46.46	56.00	-9.54 QP
12	12.253	35.51	-0.80	2.26	10.92	47.89	60.00	-12.11 QP

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss.

## 6.4 Bandwidth

Test Requirement:	FCC Part15 C Section 15.215 (c)
Test Method:	ANSI C63.4:2009
Receiver setup:	RBW=1 kHz, VBW=3 kHz, detector: Peak
Limit:	The fundamental emission be kept within atleast the central 80% of the permitted band
Test Procedure:	<ol style="list-style-type: none"> <li>1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>2. Set the EUT to proper test channel.</li> <li>3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.</li> <li>4. Read 20dB bandwidth.</li> </ol>
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

### Measurement Data

20dB bandwidth (kHz)	Limits
2.80	N/A
2.80	

Remark: For report purpose only.

Test plot as follows:

