

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.: AWC1062SG, AWC1062NA

Trade mark: ubiolabs

FCC ID: 2ATGY-AWC1062

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 25 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.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

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

Prepared By:

Carrey Chen

Report Clerk

Date:

26 Dec., 2019

Check By:

Winner Zhang

Project Engineer

Date:

26 Dec., 2019

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 INSTRUMENTSLIST.....	7
6 TEST RESULTS ANDMEASUREMENT DATA	8
6.1 ANTENNA REQUIREMENT	8
6.2 RADIATED EMISSION	9
6.3 CONDUCTED EMISSION	20
6.4 BANDWIDTH	25
7 TEST SETUP PHOTOS.....	28
8 EUT CONSTRUCTIONAL DETAILS	31

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
Remark: <i>1. Pass: The EUT complies with the essential requirements in the standard.</i> <i>2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).</i>		
Test Method:	ANSI C63.10-2013	

5 General Information

5.1 Client Information

Applicant:	UBIO LABS, INC.
Address:	2821 Northup Way, Suite 250, Bellevue, WA 98004, USA
Manufacture:	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.:	AWC1062SG, AWC1062NA
Operation Frequency:	110kHz ~ 205kHz
Modulation type:	ASK
Antenna Type:	Coil Antenna
Power supply (Wireless Charger):	Input: DC 5V, 2.4A Qi Inductive Output: 5W Magnetic Charge Output: 5W
Test Sample Condition:	The test samples were provided in good TX order with no visible defects.
Remark:	The Model No.: AWC1062SG, AWC1062NA 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
--------------------	---

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
APPLE	I watch	Series 5	N/A	FCC ID

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>

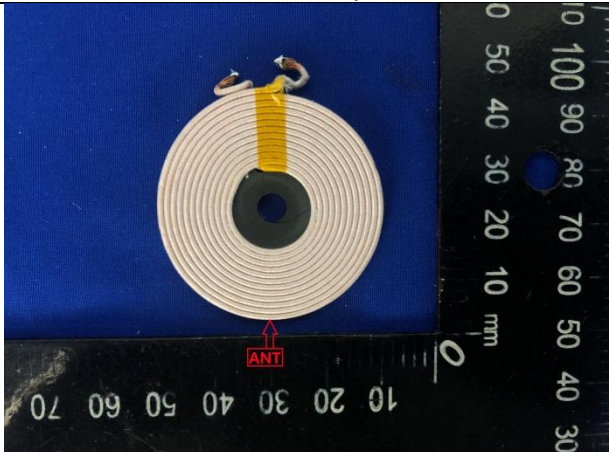
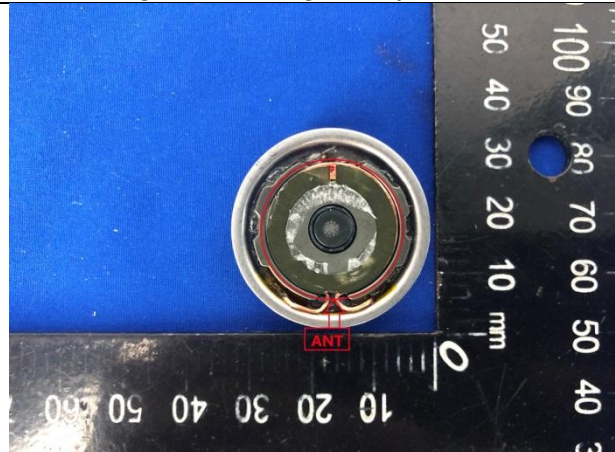
5.9 Test Instrumentslist

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

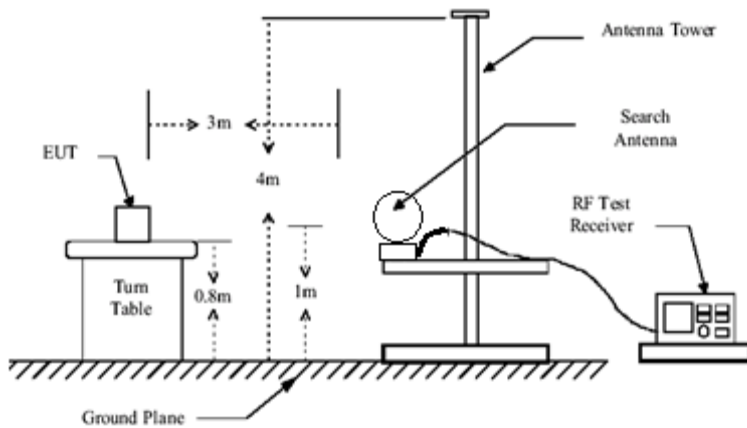
Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2019	03-06-2020
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2019	03-06-2020
LISN	CHASE	MN2050D	1447	03-19-2019	03-18-2020
LISN	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		

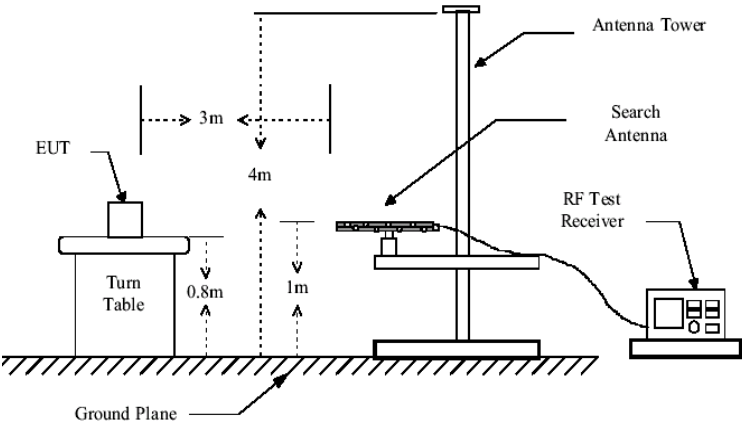
6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	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.		
E.U.T Antenna:		
Qi Inductive Output - ANT		Magnetic Charge Output - ANT
		

6.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.4:2014				
TestFrequencyRange:	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:	a. 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. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. 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. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limits 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.				
Test setup:	9kHz-30MHz  30MHz-1GHz				

	 The diagram illustrates the test setup. An EUT (Equipment Under Test) is placed on a Turn Table at a height of 0.8m from the Ground Plane. A Search Antenna is mounted on an Antenna Tower at a height of 1m from the Ground Plane. The horizontal distance between the EUT and the Search Antenna is 3m. The vertical distance between the EUT and the Search Antenna is 4m. An RF Test Receiver is connected to the Search Antenna.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass
Remark:	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****Qi Inductive Output:**

Peak value				
Test Polarization	Frequency (kHz)	H-field@3m (dBμV)	Limit@3m (dBμV)	Result
Horizontal	125.00	51.36	125.67	Pass
Vertical	125.00	51.08	125.67	Pass
Average value				
Test Polarization	Frequency (kHz)	H-field@3m (dBμV)	Limit@3m (dBμV)	Result
Horizontal	125.00	41.12	105.67	Pass
Vertical	125.00	40.83	105.67	Pass

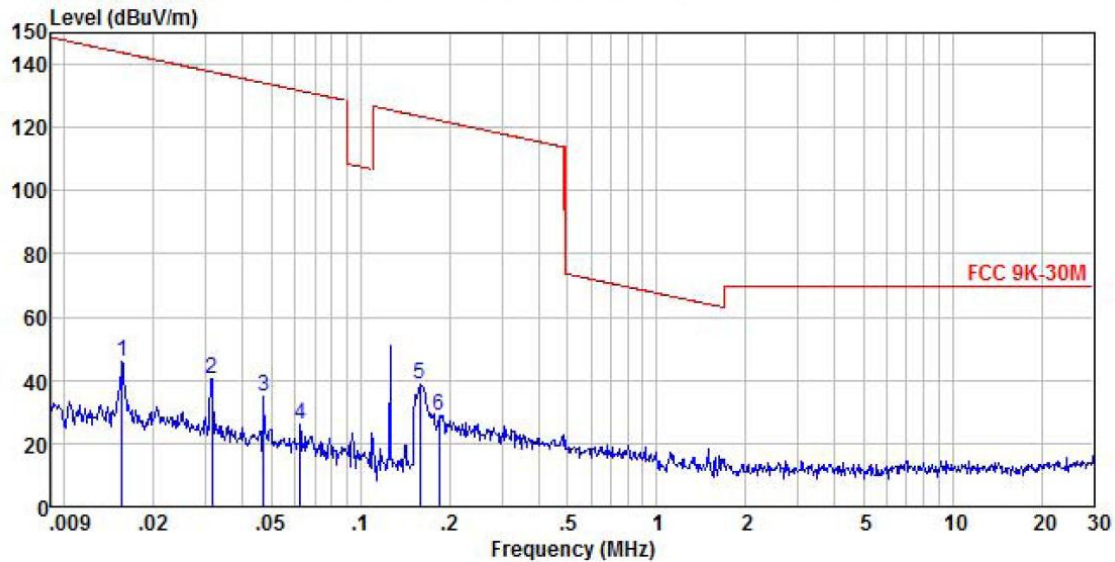
Magnetic Charge Output:

Peak value				
Test Polarization	Frequency (kHz)	H-field@3m (dBμV)	Limit@3m (dBμV)	Result
Horizontal	125.00	49.32	125.67	Pass
Vertical	125.00	48.29	125.67	Pass
Average value				
Test Polarization	Frequency (kHz)	H-field@3m (dBμV)	Limit@3m (dBμV)	Result
Horizontal	125.00	39.83	105.67	Pass
Vertical	125.00	38.72	105.67	Pass

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

Qi Inductive Output:

Product name:	wireless charging pad	Product model:	AWC1062SG
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 Humi: 55%

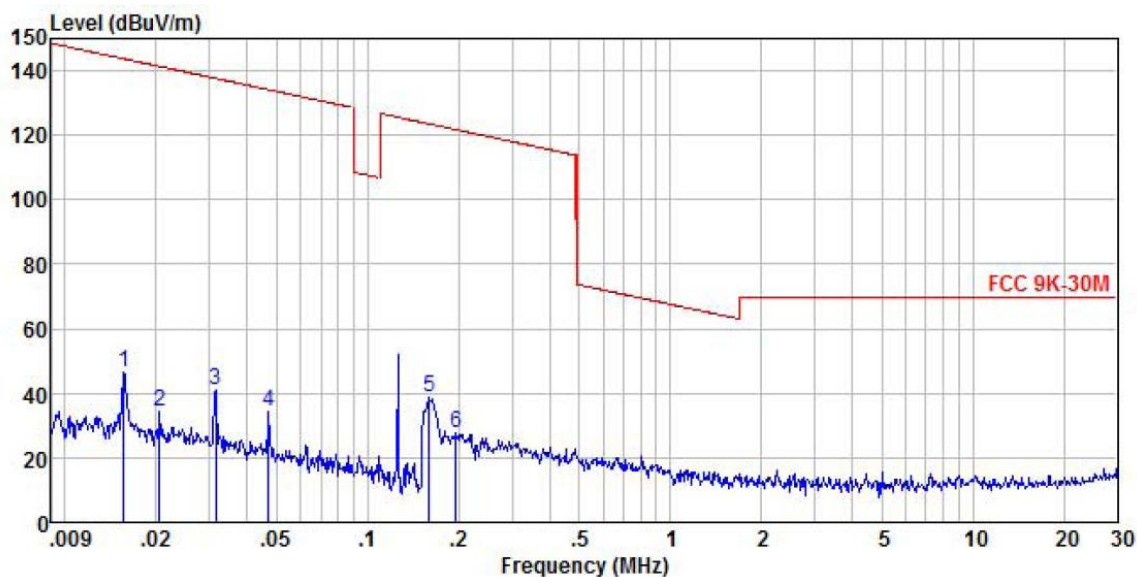


	Read Freq	Antenna Level	Cable Factor	Preamp Loss	Preamp Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.016	37.73	-25.86	0.05	17.50	45.92	143.71	-97.79	Peak
2	0.031	32.43	-25.95	0.12	17.50	40.60	137.65	-97.05	Peak
3	0.047	26.69	-25.99	0.17	17.50	34.87	134.13	-99.26	Peak
4	0.063	17.84	-26.03	0.19	17.50	26.00	131.66	-105.66	Peak
5	0.159	30.82	-26.17	0.28	17.50	38.93	123.60	-84.67	Peak
6	0.184	20.67	-26.19	0.31	17.50	28.79	122.32	-93.53	Peak

Notes:

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.

Product name:	wireless charging pad	Product model:	AWC1062SG
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 Humi: 55%



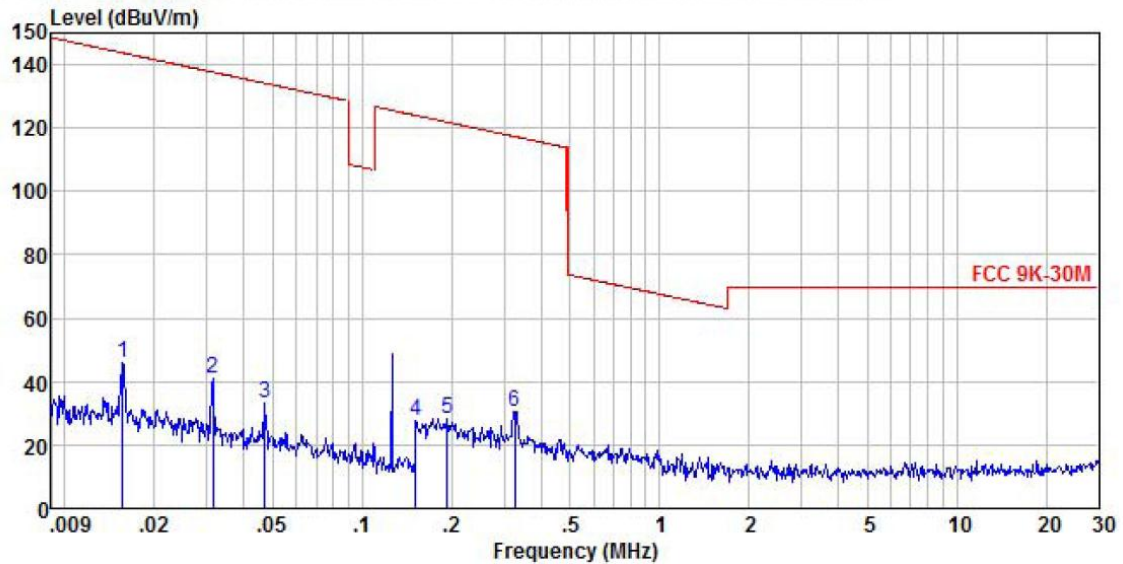
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.016	38.35	-25.86	0.05	17.50	46.54	143.71	-97.17	Peak
2	0.021	25.93	-25.90	0.06	17.50	34.09	141.31	-107.22	Peak
3	0.031	32.97	-25.95	0.12	17.50	41.14	137.65	-96.51	Peak
4	0.047	25.91	-25.99	0.17	17.50	34.09	134.13	-100.04	Peak
5	0.160	30.58	-26.17	0.28	17.50	38.69	123.52	-84.83	Peak
6	0.196	19.78	-26.20	0.33	17.50	27.91	121.76	-93.85	Peak

Notes:

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.

Magnetic Charge Output:

Product name:	wireless charging pad	Product model:	AWC1062SG
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℃ Humi: 55%

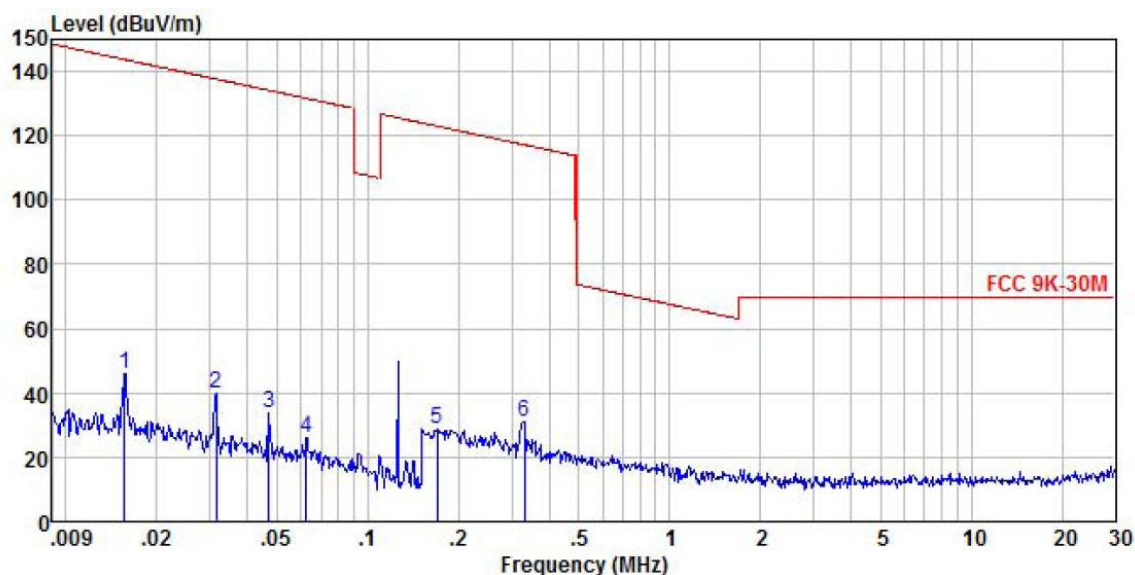


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.016	37.54	-25.86	0.05	17.50	45.73	143.71	-97.98	Peak
2	0.031	32.56	-25.95	0.12	17.50	40.73	137.65	-96.92	Peak
3	0.047	25.13	-25.99	0.17	17.50	33.31	134.13	-100.82	Peak
4	0.151	19.62	-26.16	0.27	17.50	27.73	124.02	-96.29	Peak
5	0.193	20.17	-26.20	0.32	17.50	28.29	121.90	-93.61	Peak
6	0.327	22.50	-26.25	0.36	17.50	30.61	117.31	-86.70	Peak

Notes:

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.

Product name:	wireless charging pad	Product model:	AWC1062SG
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 Humi: 55%



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.016	37.97	-25.86	0.05	17.50	46.16	143.71	-97.55	Peak
2	0.031	31.92	-25.95	0.12	17.50	40.09	137.65	-97.56	Peak
3	0.047	25.62	-25.99	0.17	17.50	33.80	134.13	-100.33	Peak
4	0.063	17.86	-26.03	0.19	17.50	26.02	131.66	-105.64	Peak
5	0.170	20.54	-26.18	0.29	17.50	28.65	123.03	-94.38	Peak
6	0.330	23.13	-26.25	0.36	17.50	31.24	117.24	-86.00	Peak

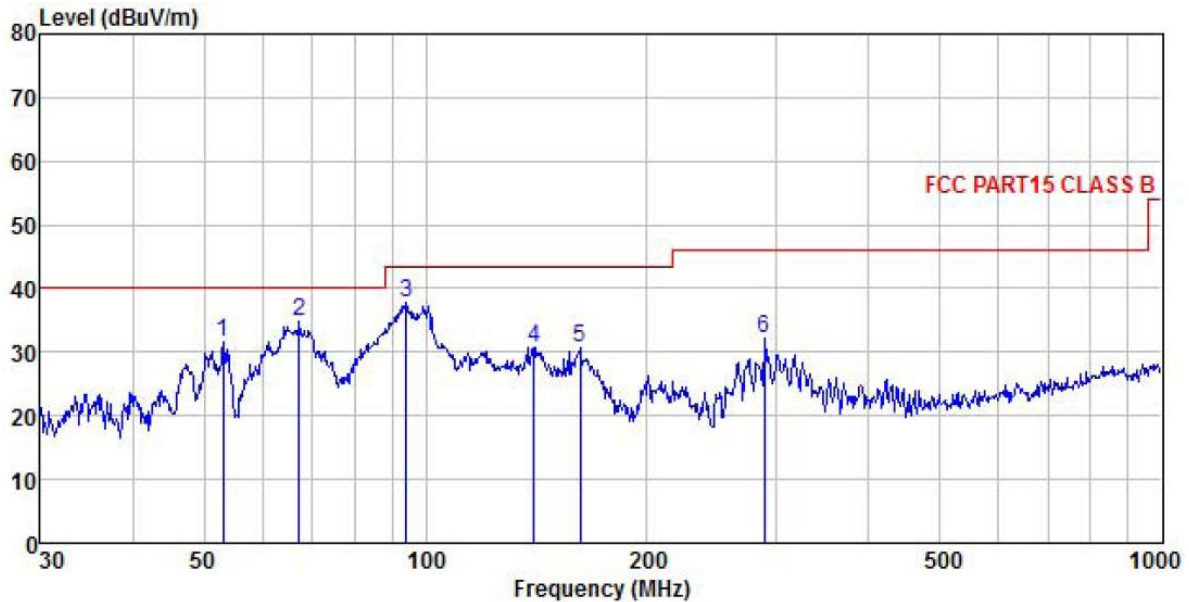
Notes:

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.

Radiated spurious (By 30 MHz ~ 1 GHz):

Qi Inductive Output:

Product Name:	wireless charging pad	Product Model:	AWC1062SG
Test By:	Carey	Test mode:	TX mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

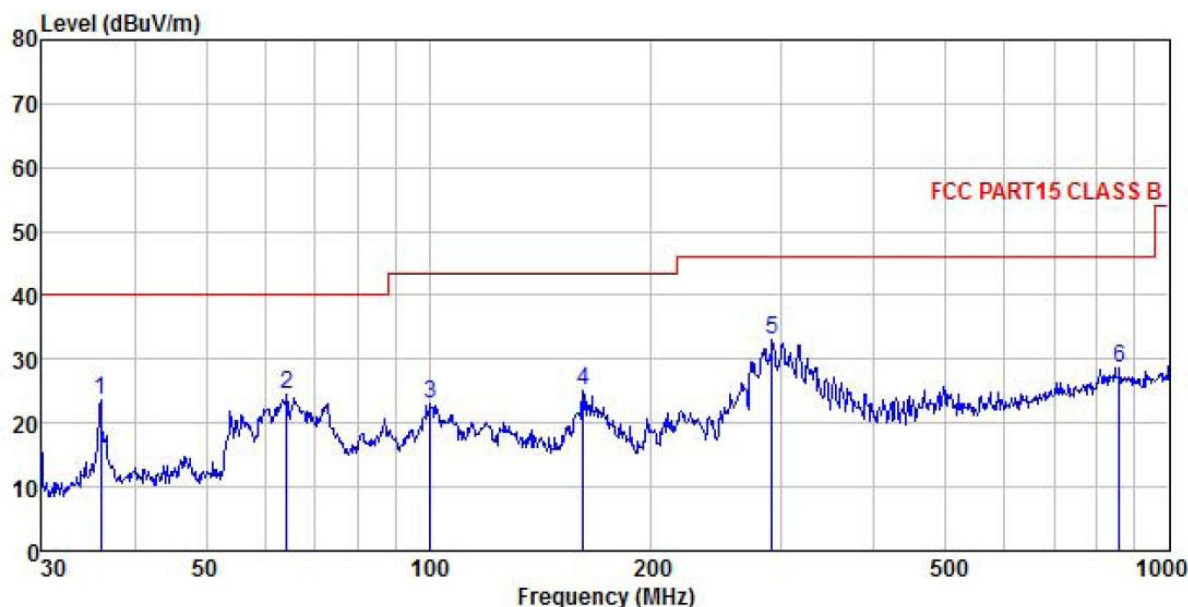


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	53.131	48.42	11.78	1.32	29.81	31.71	40.00	-8.29	QP
2	67.438	53.95	9.05	1.44	29.74	34.70	40.00	-5.30	QP
3	94.098	54.22	11.08	2.01	29.55	37.76	43.50	-5.74	QP
4	140.342	48.15	9.50	2.41	29.27	30.79	43.50	-12.71	QP
5	162.041	47.90	9.37	2.60	29.12	30.75	43.50	-12.75	QP
6	287.990	44.46	13.41	2.91	28.47	32.31	46.00	-13.69	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.

Product Name:	wireless charging pad	Product Model:	AWC1062SG
Test By:	Carey	Test mode:	TX mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Humi: 57%



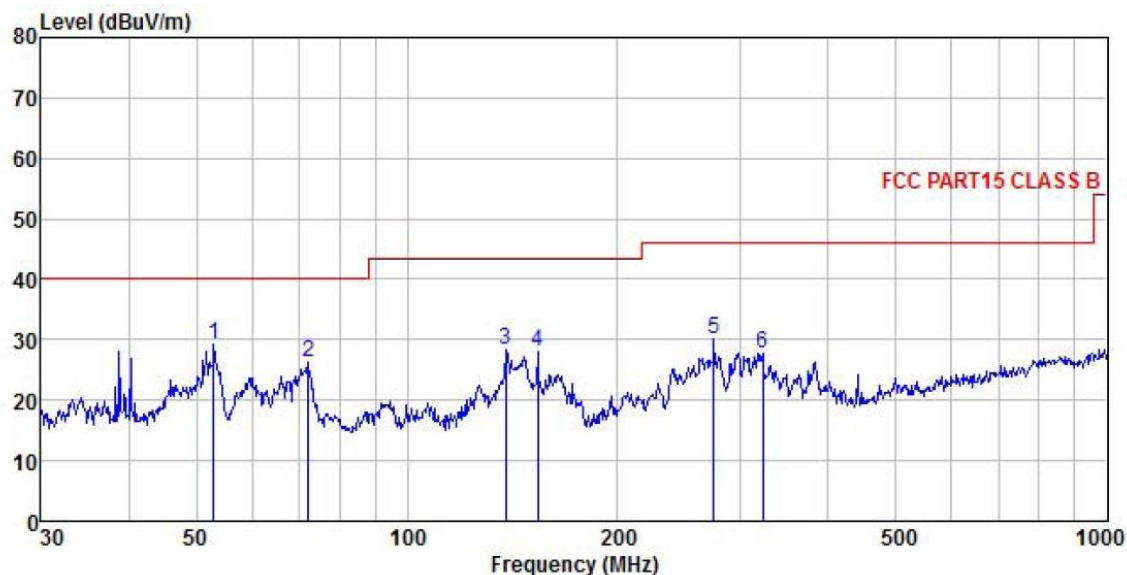
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Line	Limit	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	36.001	41.00	11.43	1.07	29.94	23.56	40.00	-16.44 QP
2	64.208	42.87	9.88	1.38	29.76	24.37	40.00	-15.63 QP
3	100.581	38.15	12.46	1.94	29.52	23.03	43.50	-20.47 QP
4	161.474	42.22	9.34	2.60	29.12	25.04	43.50	-18.46 QP
5	291.036	45.16	13.45	2.92	28.47	33.06	46.00	-12.94 QP
6	857.025	30.03	22.59	4.12	27.99	28.75	46.00	-17.25 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.

Magnetic Charge Output:

Product Name:	wireless charging pad	Product Model:	AWC1062SG
Test By:	Carey	Test mode:	TX mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Humi: 57%

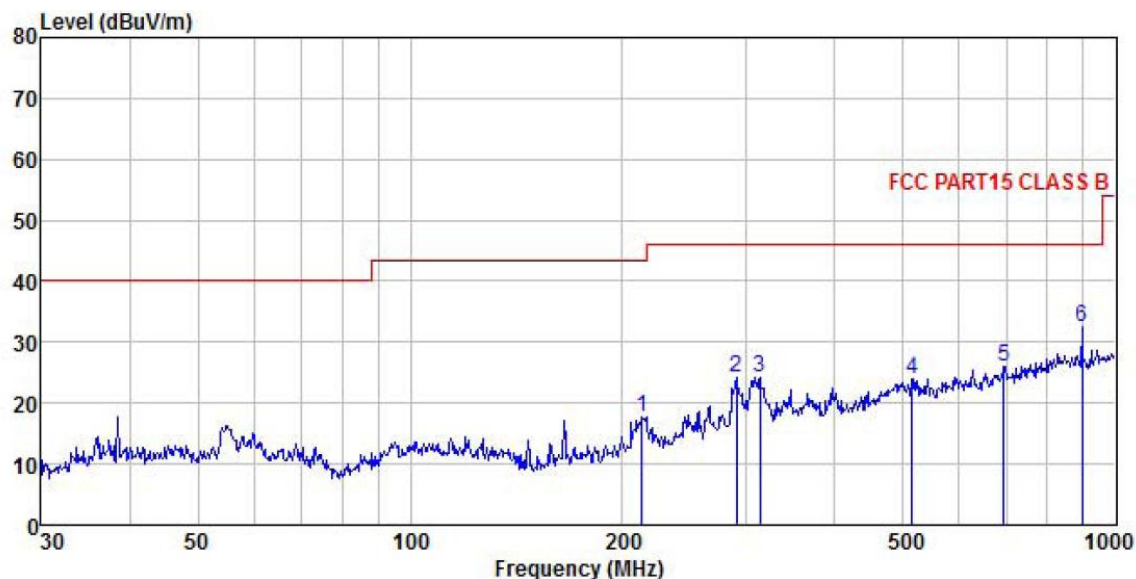


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	52.945	45.92	11.80	1.32	29.81	29.23	40.00	-10.77	QP
2	72.338	46.37	8.15	1.56	29.70	26.38	40.00	-13.62	QP
3	138.387	45.70	9.61	2.38	29.28	28.41	43.50	-15.09	QP
4	153.739	45.59	9.05	2.54	29.19	27.99	43.50	-15.51	QP
5	274.194	42.44	13.16	2.87	28.50	29.97	46.00	-16.03	QP
6	322.189	39.22	14.06	3.01	28.50	27.79	46.00	-18.21	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.

Product Name:	wireless charging pad	Product Model:	AWC1062SG
Test By:	Carey	Test mode:	TX mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Humi: 57%

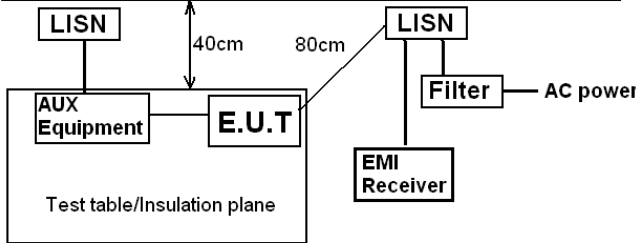


	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	213.015	32.38	11.19	2.85	28.75	17.67	43.50 -25.83
2	290.017	36.19	13.43	2.91	28.47	24.06	46.00 -21.94
3	313.276	35.85	13.90	2.98	28.48	24.25	46.00 -21.75
4	513.633	30.86	18.25	3.69	28.99	23.81	46.00 -22.19
5	694.417	30.15	20.32	4.14	28.68	25.93	46.00 -20.07
6	896.997	34.04	22.51	3.74	27.89	32.40	46.00 -13.60

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.

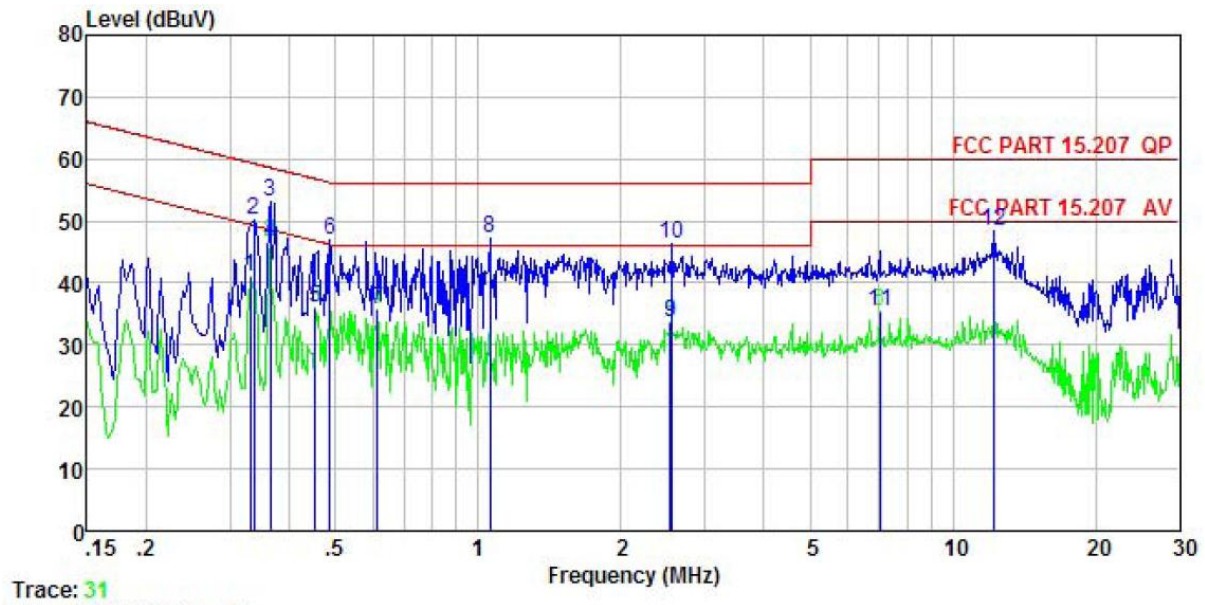
6.3 Conducted Emission

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 (dBμV)				
		Quasi-peak		Average		
	0.15-0.5	66 to 56*		56 to 46*		
	0.5-5	56		46		
	0.5-30	60		50		
* Decreases with the logarithm of the frequency.						
Test setup:	Reference Plane  <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m					
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. 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.					
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:

Qi Inductive Output:

Product name:	wireless charging pad	Product model:	AWC1062SG
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℃ Humi: 55%

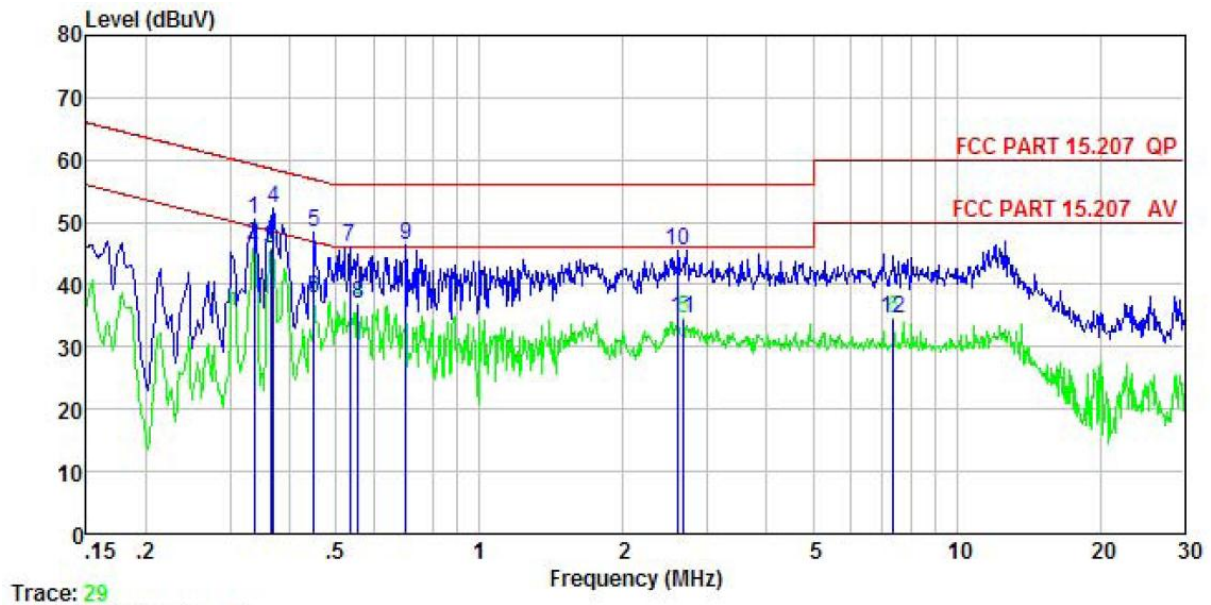


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.330	30.73	-0.38	-0.03	10.73	41.05	49.44	-8.39	Average
2	0.337	39.87	-0.38	0.02	10.73	50.24	59.27	-9.03	QP
3	0.365	42.60	-0.38	0.21	10.73	53.16	58.61	-5.45	QP
4	0.365	36.02	-0.38	0.21	10.73	46.58	48.61	-2.03	Average
5	0.454	25.71	-0.38	-0.01	10.74	36.06	46.80	-10.74	Average
6	0.486	36.76	-0.39	-0.26	10.76	46.87	56.23	-9.36	QP
7	0.614	25.81	-0.38	-0.38	10.77	35.82	46.00	-10.18	Average
8	1.060	36.47	-0.38	0.40	10.88	47.37	56.00	-8.63	QP
9	2.540	23.28	-0.43	-0.25	10.94	33.54	46.00	-12.46	Average
10	2.567	35.98	-0.43	-0.25	10.94	46.24	56.00	-9.76	QP
11	7.025	23.72	-0.53	1.33	10.80	35.32	50.00	-14.68	Average
12	12.188	35.52	-0.64	2.75	10.92	48.55	60.00	-11.45	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.

Product name:	wireless charging pad	Product model:	AWC1062SG
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 Humi: 55%



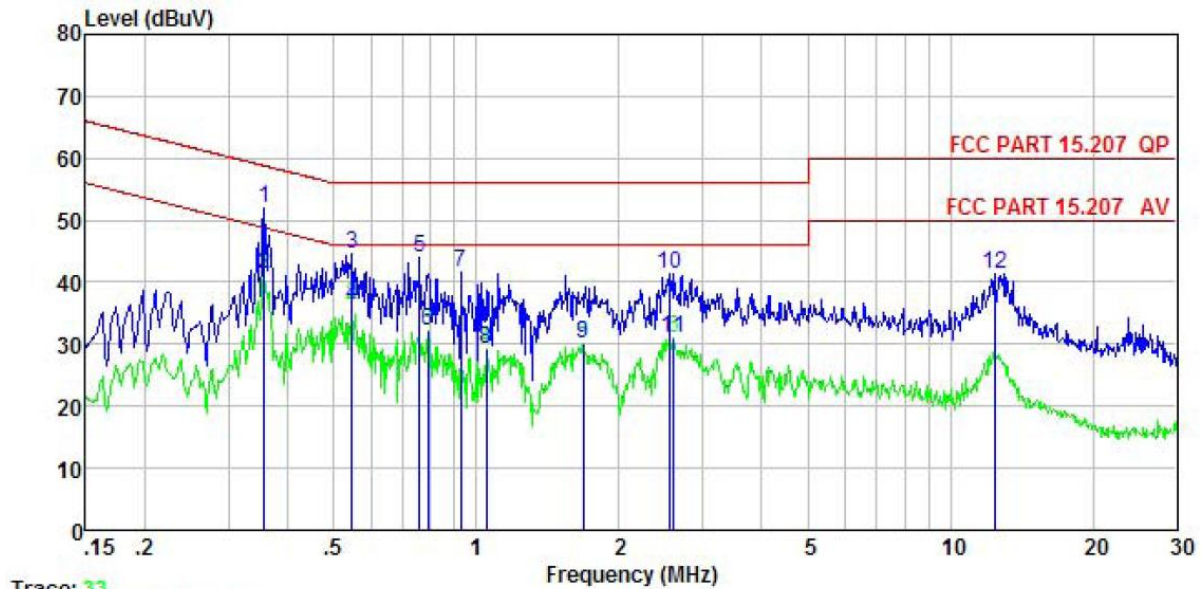
	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.337	40.42	-0.63	-0.02	10.73	50.50	59.27	-8.77	QP
2	0.337	36.17	-0.63	-0.02	10.73	46.25	49.27	-3.02	Average
3	0.365	35.85	-0.64	-0.04	10.73	45.90	48.61	-2.71	Average
4	0.369	42.32	-0.64	-0.04	10.73	52.37	58.52	-6.15	QP
5	0.449	38.24	-0.65	-0.01	10.74	48.32	56.89	-8.57	QP
6	0.449	27.56	-0.65	-0.01	10.74	37.64	46.89	-9.25	Average
7	0.535	35.79	-0.65	0.03	10.76	45.93	56.00	-10.07	QP
8	0.555	26.82	-0.65	0.03	10.76	36.96	46.00	-9.04	Average
9	0.701	36.14	-0.64	0.04	10.77	46.31	56.00	-9.69	QP
10	2.608	35.06	-0.67	0.26	10.93	45.58	56.00	-10.42	QP
11	2.678	23.87	-0.67	0.27	10.93	34.40	46.00	-11.60	Average
12	7.368	23.60	-0.76	0.92	10.82	34.58	50.00	-15.42	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.

Magnetic Charge Output:

Product name:	wireless charging pad	Product model:	AWC1062SG
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 Humi: 55%

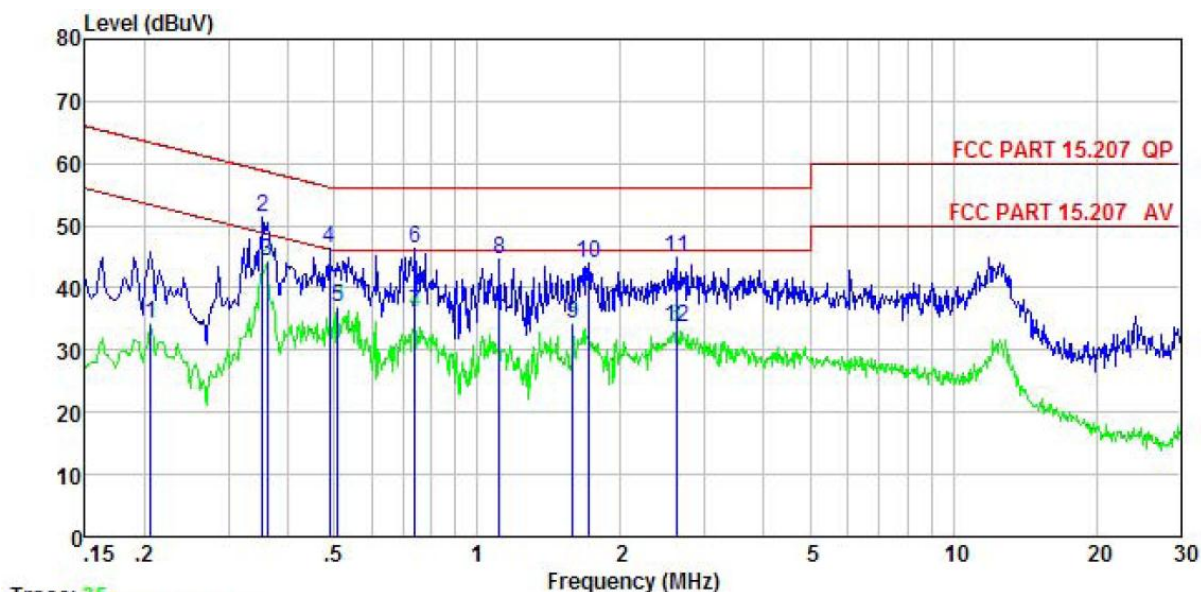


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.358	41.33	-0.38	0.16	10.73	51.84	58.78	-6.94	QP
2	0.358	30.72	-0.38	0.16	10.73	41.23	48.78	-7.55	Average
3	0.546	34.50	-0.39	-0.36	10.76	44.51	56.00	-11.49	QP
4	0.546	26.40	-0.39	-0.36	10.76	36.41	46.00	-9.59	Average
5	0.759	33.71	-0.38	-0.20	10.80	43.93	56.00	-12.07	QP
6	0.792	21.84	-0.38	-0.11	10.81	32.16	46.00	-13.84	Average
7	0.928	30.74	-0.38	0.28	10.85	41.49	56.00	-14.51	QP
8	1.049	18.43	-0.38	0.40	10.88	29.33	46.00	-16.67	Average
9	1.680	19.62	-0.40	-0.13	10.94	30.03	46.00	-15.97	Average
10	2.554	30.96	-0.43	-0.25	10.94	41.22	56.00	-14.78	QP
11	2.608	20.69	-0.43	-0.25	10.93	30.94	46.00	-15.06	Average
12	12.384	28.31	-0.65	2.81	10.92	41.39	60.00	-18.61	QP

Notes:

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

Product name:	wireless charging pad	Product model:	AWC1062SG
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℃ Humi: 55%



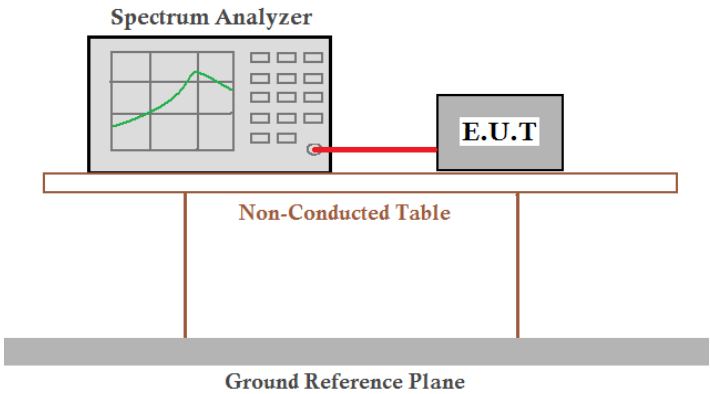
Trace: 35

	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.206	24.24	-0.69	0.00	10.76	34.31	53.36	-19.05	Average
2	0.354	41.22	-0.64	-0.03	10.73	51.28	58.87	-7.59	QP
3	0.361	34.21	-0.64	-0.03	10.73	44.27	48.69	-4.42	Average
4	0.489	36.09	-0.65	0.02	10.76	46.22	56.19	-9.97	QP
5	0.510	26.69	-0.65	0.03	10.76	36.83	46.00	-9.17	Average
6	0.739	36.17	-0.64	0.05	10.79	46.37	56.00	-9.63	QP
7	0.739	25.82	-0.64	0.05	10.79	36.02	46.00	-9.98	Average
8	1.111	34.22	-0.64	0.09	10.88	44.55	56.00	-11.45	QP
9	1.585	23.71	-0.66	0.14	10.93	34.12	46.00	-11.88	Average
10	1.716	33.53	-0.66	0.15	10.94	43.96	56.00	-12.04	QP
11	2.622	34.22	-0.67	0.27	10.93	44.75	56.00	-11.25	QP
12	2.622	23.07	-0.67	0.27	10.93	33.60	46.00	-12.40	Average

Notes:

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

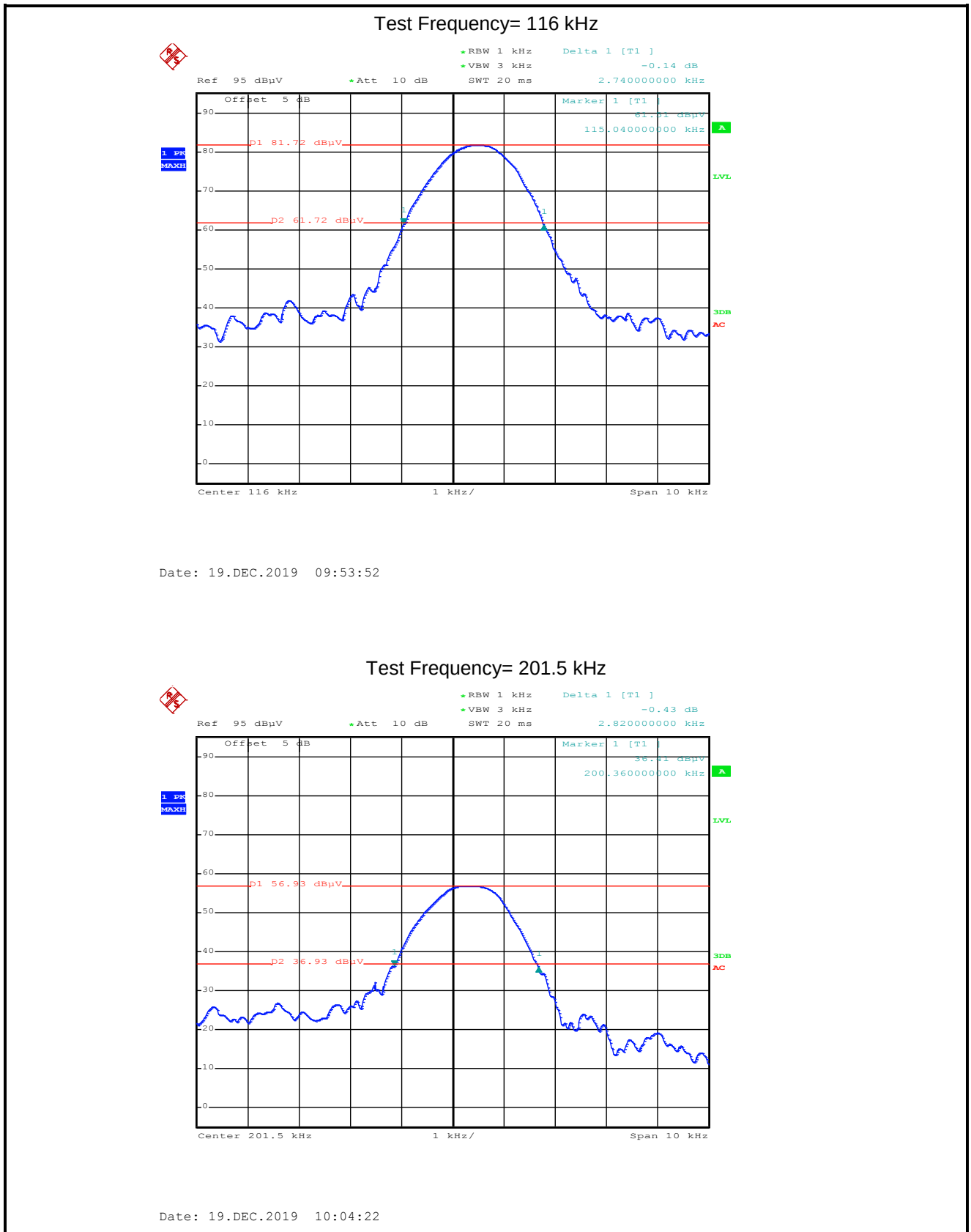
6.4 Bandwidth

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 fundamentelemission be kept within atleast the central 80% of the permittedband
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

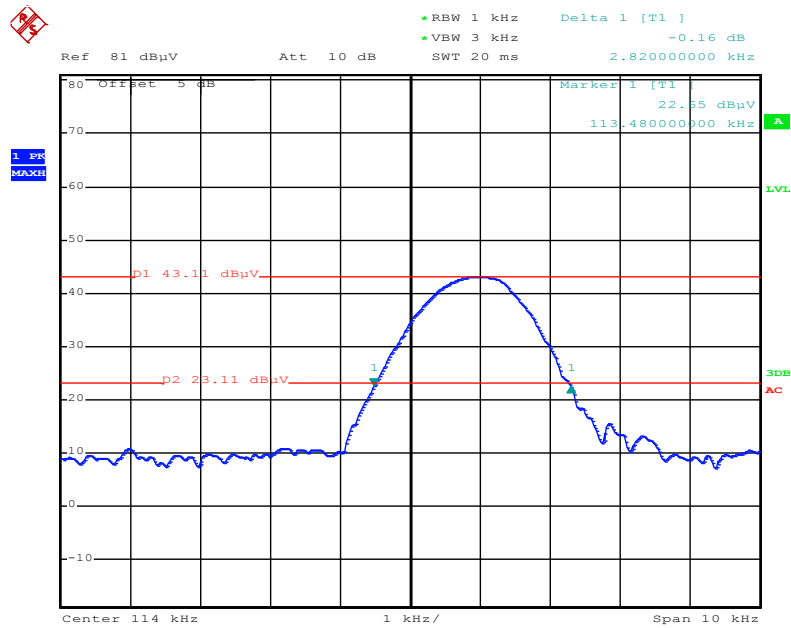
Output Mode	Test Frequency	20dB bandwidth (kHz)	Limits
Qi Inductive Output	116.0 kHz	2.74	N/A
	201.5 kHz	2.82	
Magnetic Charge Output	114.0 kHz	2.82	
	196.0 kHz	2.70	
Remark: For report purpose only.			

Test plot as follows:
Qi Inductive Output:



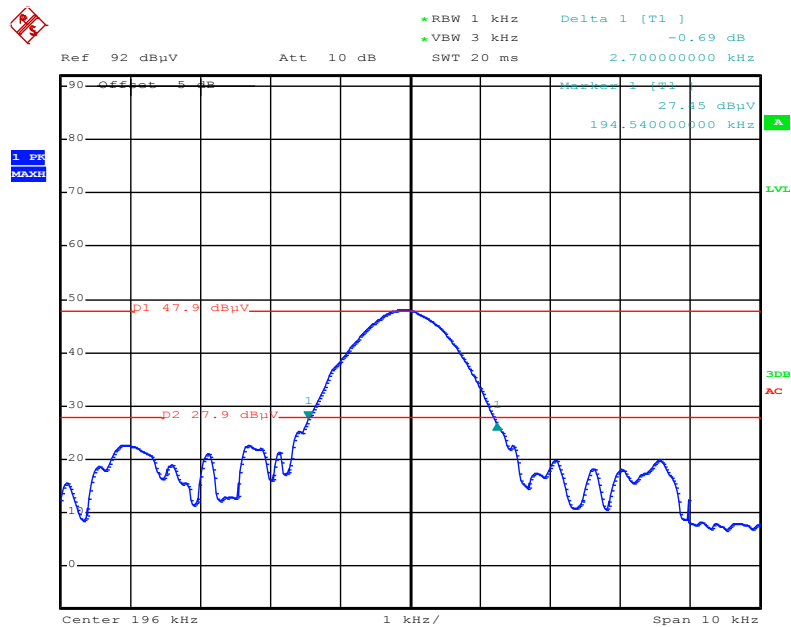
Magnetic Charge Output:

Test Frequency= 114 kHz



Date: 25.DEC.2019 10:06:09

Test Frequency= 196 kHz



Date: 25.DEC.2019 10:01:34