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 Stand

Model No.: AWC1102

Trade mark: ubiolabs

FCC ID: 2ATGY-AWC1102

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

Date of sample receipt: 05 Jan., 2021

Date of Test: 06 Jan., 2021 to 22 Jan., 2021

Date of report issue: 22 Feb., 2021

Test Result: PASS*

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

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 JYT 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	*27 Jan., 2021*	*Original*
01	*22 Feb., 2021*	*1. Update product name.* *2. Updated test data on page 11/12.* *3. Updated test setup of 9k~30MHz on page 9.* *4. Updated operation frequency on page 5.*

Tested By: Velen.Zhang ***Date:*** 22 Feb., 2021

Test Engineer

Reviewed By: ***Date:*** 22 Feb., 2021

Project Engineer

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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:

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).*

Test Method:	*ANSI C63.4-2014* *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
Manufacturer/Factory:	SHENZHEN LANNENGSHITONG ELECTRONICS CO.,LTD.
Address:	Floor3 No.40, Xinhe Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen City, Guangdong Province, China

5.2 General Description of E.U.T.

Product Name:	Wireless Charging Stand
Model No.:	AWC1102
Operation Frequency:	127.7kHz
Modulation type:	ASK
Antenna Type:	Coil Antenna
Power supply (Wireless Charger):	Model: AWC1102 Input: DC 15V, 2.5A Output USB A: DC 5V, 2.4A 12W Output Wireless: 15W/ 10W/ 7.5W/ 5W
AC Adapter:	Model: CHG1151SG Input: AC 110-240V, 50-60 Hz0.8A Output: 15V / 2.5A
Test Sample Condition:	The test samples were provided in good working order with no visibled efects.

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation

Remark:
Pre-scan input: 15V/2.5A, output Wireless: 15W, 10W, 7.5W, 5W of the Power supply, output Wireless: 15W was worse case mode. So the report only reflects the worse mode.

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

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 150kHz)	±1.60 dB
Conducted Emission (150kHz ~ 30MHz)	±2.20 dB
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.40 dB
Radiated Emission (1GHz ~ 18GHz)	±5.20 dB
Radiated Emission (18GHz ~ 26.5GHz)	±4.80 dB

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Laboratory Facility

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

●FCC - Designation No.: CN1279

Jianyan Testing Group Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 892155.

●ISED – CAB identifier.: CN0102

Jianyan Testing Group Co., Ltd. has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with ISED#:26114.

● A2LA - Registration No.: 5568.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/5568-01.pdf

5.8 Laboratory Location

JianYan Testing Group Co., Ltd.
Address: No.760, Fengling Road, Tong'an District, Xiamen, Fujian, China
Tel: +86-592-2273071, Fax:+86-592-2273700
Email: quality@xmabr.com, Website: http://www.lets.com/

5.9 Test Instruments list

Spurious emissions:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	BOST	CHC-966	966-1#	2019-12-27	2022-12-26
3m SAC	BOST	CHC-966	966-2#	2019-12-27	2022-12-26
EMI Test Receiver	Rohde & Schwarz	ESR 3	102330	2020-08-05	2021-08-04
EMI Test Receiver	Rohde & Schwarz	ESR 3	102329	2020-08-06	2021-08-05
EMI Test Receiver	Rohde & Schwarz	ESR 7	102259	2020-04-12	2021-04-11
Spectrum Analyzer	Agilent	E4407B	MY45115531	2020-12-27	2021-12-26
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102175	2020-04-15	2021-04-14
BiConiLog Antenna	SCHWARZBECK	VULB 9163	1105	2020-12-20	2021-12-19
BiConiLog Antenna	SCHWARZBECK	VULB 9168	1066	2020-04-11	2021-04-10
Horn Antenna	SCHWARZBECK	BBHA 9120 D	911	2020-04-01	2021-03-31
Pre-amplifier	SCHWARZBECK	BBV9743	00009	2020-08-06	2021-08-05
Pre-amplifier	SCHWARZBECK	BBV9744	162	2020-12-22	2021-12-21
Pre-amplifier	SCHWARZBECK	BBV9718C	00014	2020-04-08	2021-04-07
EMI Test Software	Farad	EZ-EMC	Version: V.EMCE-3A1		

Conducted Emssion:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
EMI Test Receiver	Rohde & Schwarz	ESR 3	102330	2020-08-05	2021-08-04
EMI Test Receiver	Rohde & Schwarz	ESR 3	102329	2020-08-06	2021-08-05
EMI Test Receiver	Rohde & Schwarz	ESR 7	102259	2020-04-12	2021-04-11
LISN	Rohde & Schwarz	ENV 216	102240	2020-08-05	2021-08-04
Voltage probe	Schwarzbeck	TK9420+VT9420	814	2020-08-05	2021-08-04
ISN	Schwarzbeck	CAT3 8158	95	2020-08-05	2021-08-04
EMI Test Software	Farad	EZ-EMC	Version: V.EMCE-3A1		

20dB Bandwidth:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
Spectrum Analyzer	Agilent	E4407B	MY45115531	2020-12-27	2021-12-26
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102175	2020-04-15	2021-04-14

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:	

6.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209
TestFrequency 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:

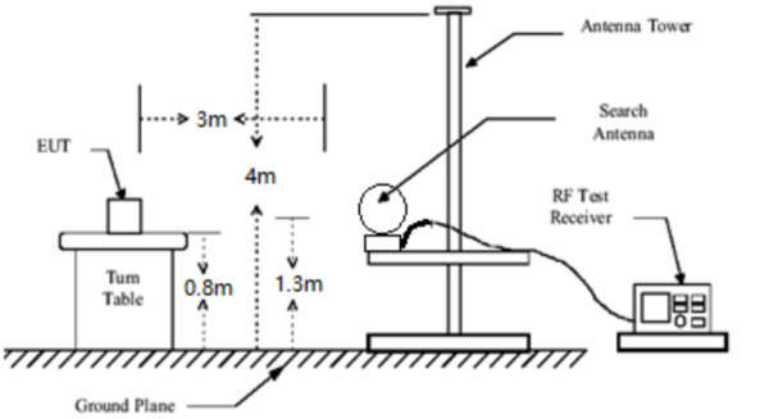
Frequency (MHz)	Limit (uV/m @3m)	Distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 1GHz	500	3

Test Procedure:

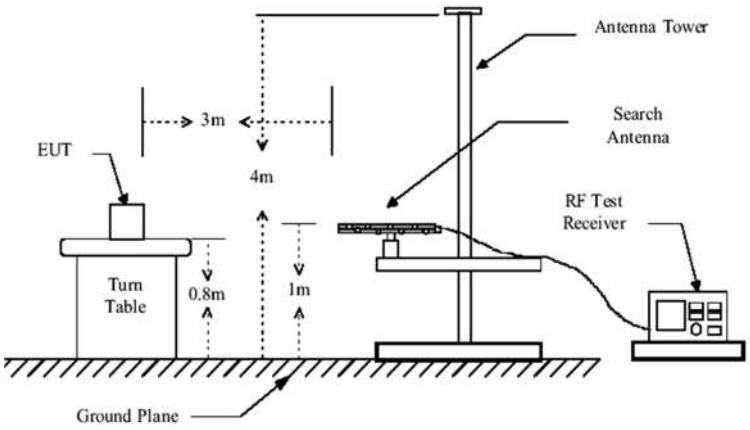
a. The EUT was placed on the top of a rotating table 0.8 meters above the groundat a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top 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 thenthe 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.
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 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 bere-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:

9kHz-30MHz



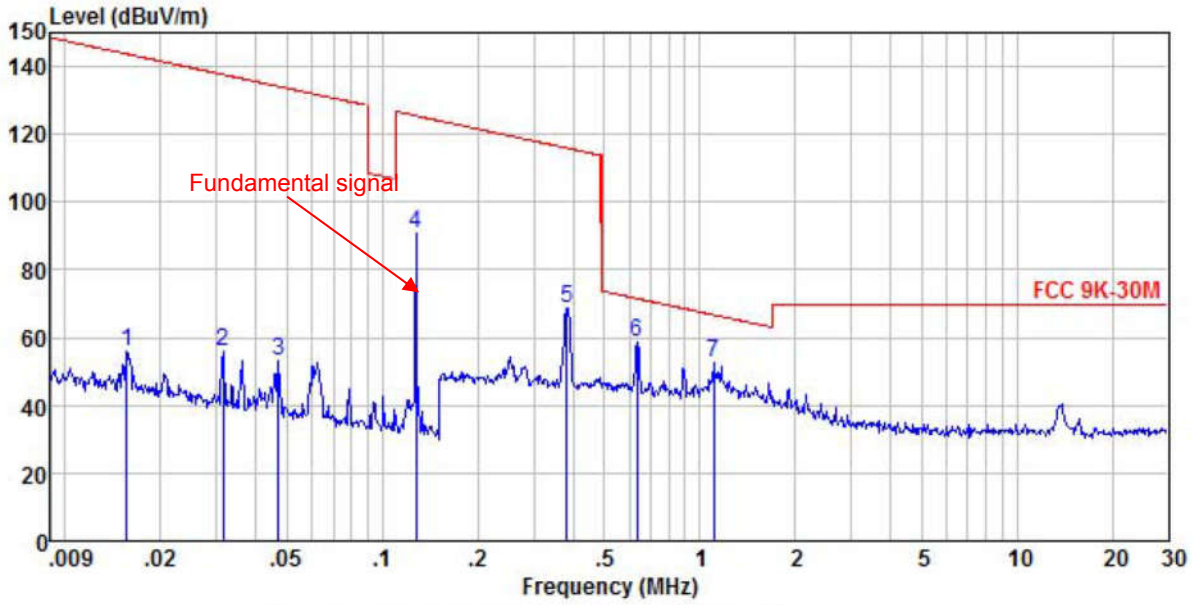
30MHz-1GHz

	
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:

Below 1GHz:

Product Name:	Wireless Charging Stand	**Product Model:**	AWC1102
Test By:	Miles Chen	**Test mode:**	Charing mode
Test Frequency:	9kHz~30MHz	**Polarization:**	Coxial
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

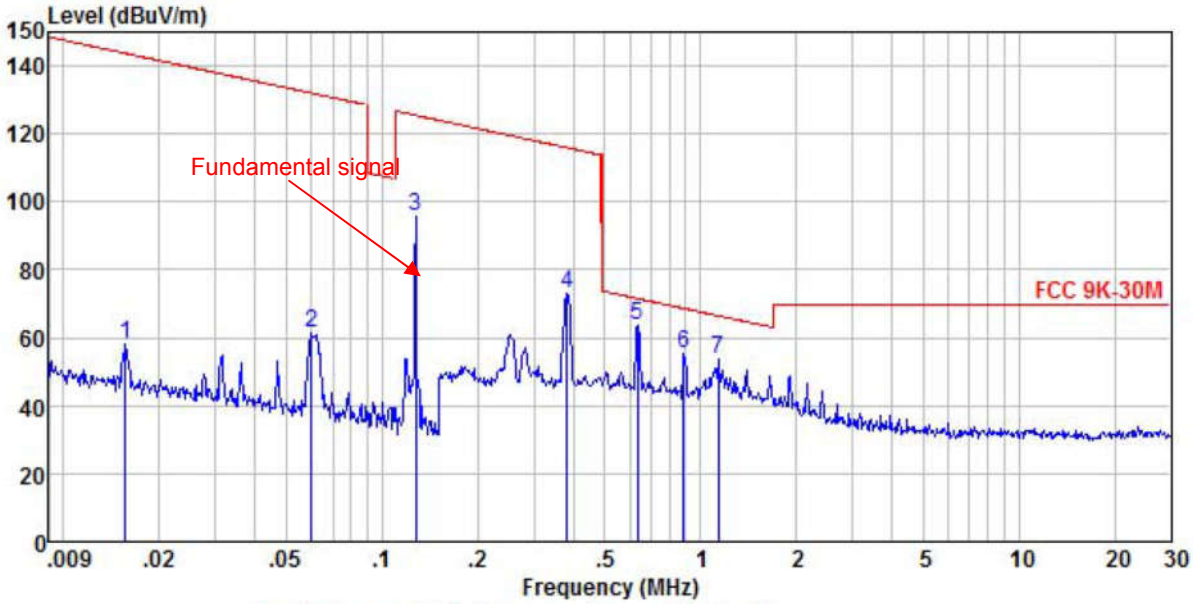


	Freq	Level	Read Factor	Antenna Factor	Cable Loss	Preamp Factor	Aux Factor	Limit Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m		dB	
1	0.016	35.54	20.38	0.01	0.00	0.00	55.93	143.71		-87.78	Peak
2	0.031	35.39	20.24	0.02	0.00	0.00	55.65	137.65		-82.00	Peak
3	0.047	32.43	20.56	0.02	0.00	0.00	53.01	134.13		-81.12	Peak
4	0.128	70.78	19.94	0.03	0.00	0.00	90.75	125.50		-34.75	Peak
5	0.382	48.00	20.67	0.06	0.00	0.00	68.73	115.97		-47.24	Peak
6	0.636	37.61	20.70	0.09	0.00	0.00	58.40	71.54		-13.14	Peak
7	1.105	32.02	20.49	0.17	0.00	0.00	52.68	66.76		-14.08	Peak

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 Stand	**Product Model:**	AWC1102
Test By:	Miles Chen	**Test mode:**	Charing mode
Test Frequency:	9kHz~30MHz	**Polarization:**	Coplanar
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

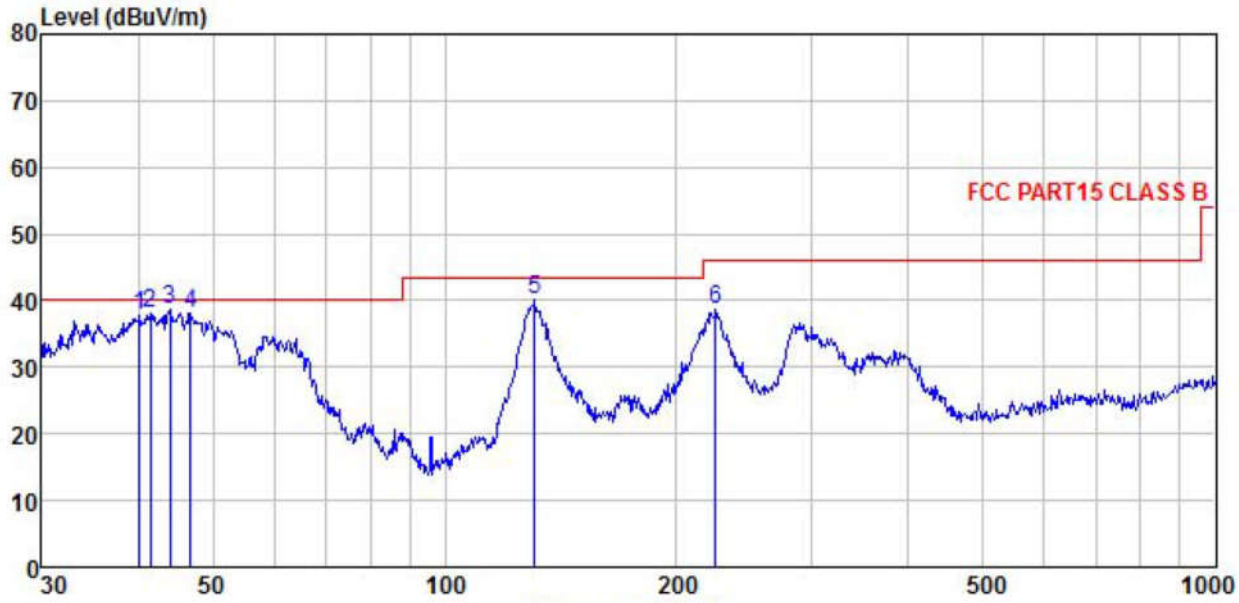


	Freq	Level	Read Factor	Antenna Factor	Cable Loss	Preamp Factor	Aux Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	0.016	37.60	20.38	0.01	0.00	0.00		57.99	143.71	-85.72	Peak
2	0.060	40.69	20.55	0.02	0.00	0.00		61.26	132.01	-70.75	Peak
3	0.128	75.60	19.94	0.03	0.00	0.00		95.57	125.50	-29.93	Peak
4	0.382	52.55	20.67	0.06	0.00	0.00		73.28	115.97	-42.69	Peak
5	0.636	42.89	20.70	0.09	0.00	0.00		63.68	71.54	-7.86	Peak
6	0.888	34.78	20.55	0.11	0.00	0.00		55.44	68.65	-13.21	Peak
7	1.141	33.07	20.49	0.17	0.00	0.00		53.73	66.48	-12.75	Peak

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 Stand	**Product Model:**	AWC1102
Test By:	Miles Chen	**Test mode:**	Charing mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Vertical
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

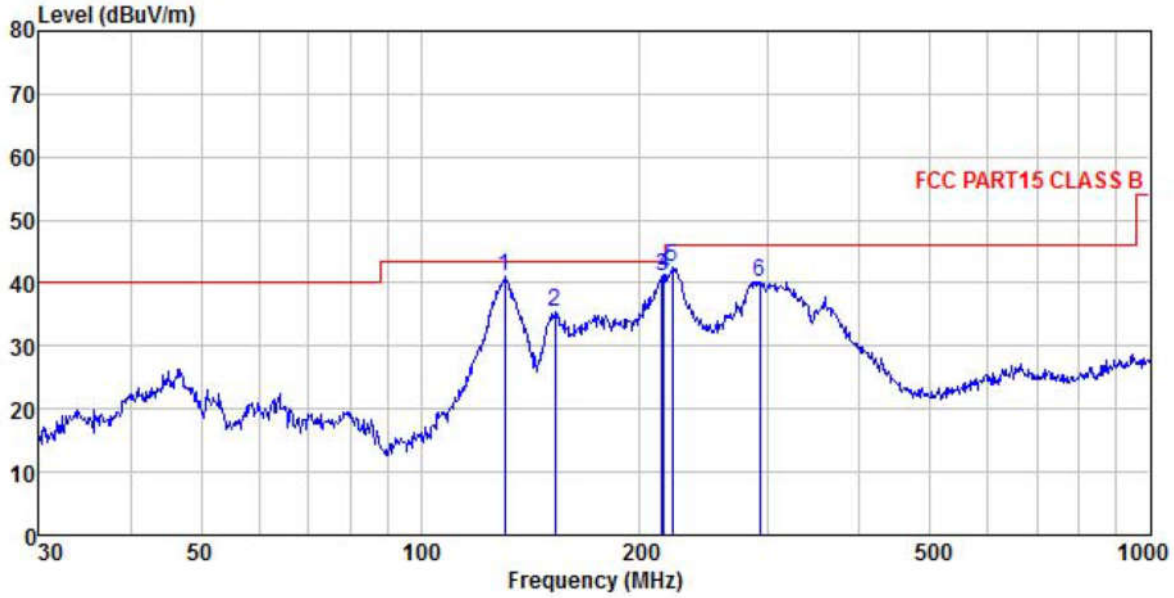


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	40.135	54.58	12.80	0.35	0.00	29.90	37.83	40.00	-2.17	QP
2	41.422	54.66	12.83	0.36	0.00	29.89	37.96	40.00	-2.04	QP
3	43.966	55.24	12.88	0.37	0.00	29.87	38.62	40.00	-1.38	QP
4	46.830	54.41	13.01	0.38	0.00	29.85	37.95	40.00	-2.05	QP
5	130.837	56.80	12.11	0.59	0.00	29.32	40.18	43.50	-3.32	QP
6	224.519	48.18	18.40	0.74	0.00	28.68	38.64	46.00	-7.36	QP

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

Product Name:	Wireless Charging Stand	**Product Model:**	AWC1102
Test By:	Miles Chen	**Test mode:**	Charing mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Horizontal
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

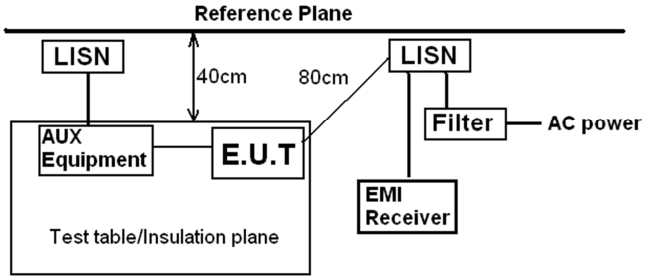


	Freq	ReadLevel	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	130.379	57.87	11.95	0.59	0.00	29.33	41.08	43.50	-2.42	QP
2	152.664	49.61	14.36	0.62	0.00	29.20	35.39	43.50	-8.11	QP
3	214.514	50.58	18.36	0.73	0.00	28.74	40.93	43.50	-2.57	QP
4	215.268	51.09	18.37	0.74	0.00	28.73	41.47	43.50	-2.03	QP
5	221.392	51.98	18.39	0.74	0.00	28.70	42.41	46.00	-3.59	QP
6	292.058	49.19	18.67	0.85	0.00	28.46	40.25	46.00	-5.75	QP

Remark:

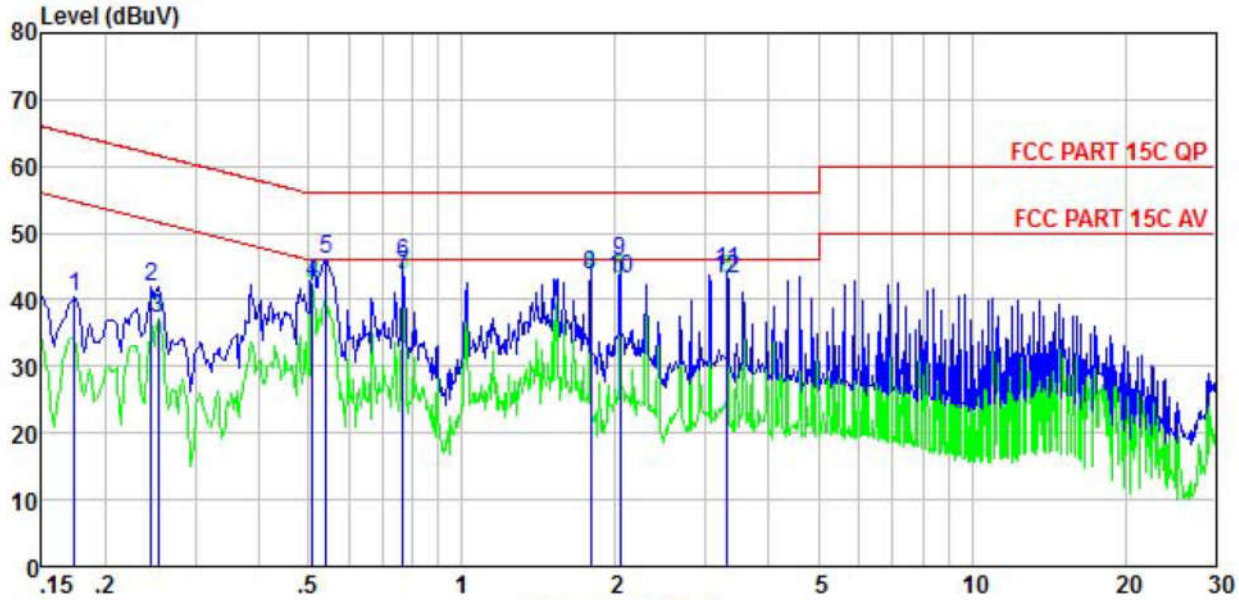
1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

6.3 Conducted Emission

Test Requirement:	FCC Part15 B Section 15.207		
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:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence 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:

Product name:	Wireless Charging Stand	**Product Model:**	AWC1102
Test by:	Miles Chen	**Test mode:**	Charing mode
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Line
Test voltage:	AC 120 V/60 Hz	**Environment:**	Temp: 22.5℃ Huni: 55%

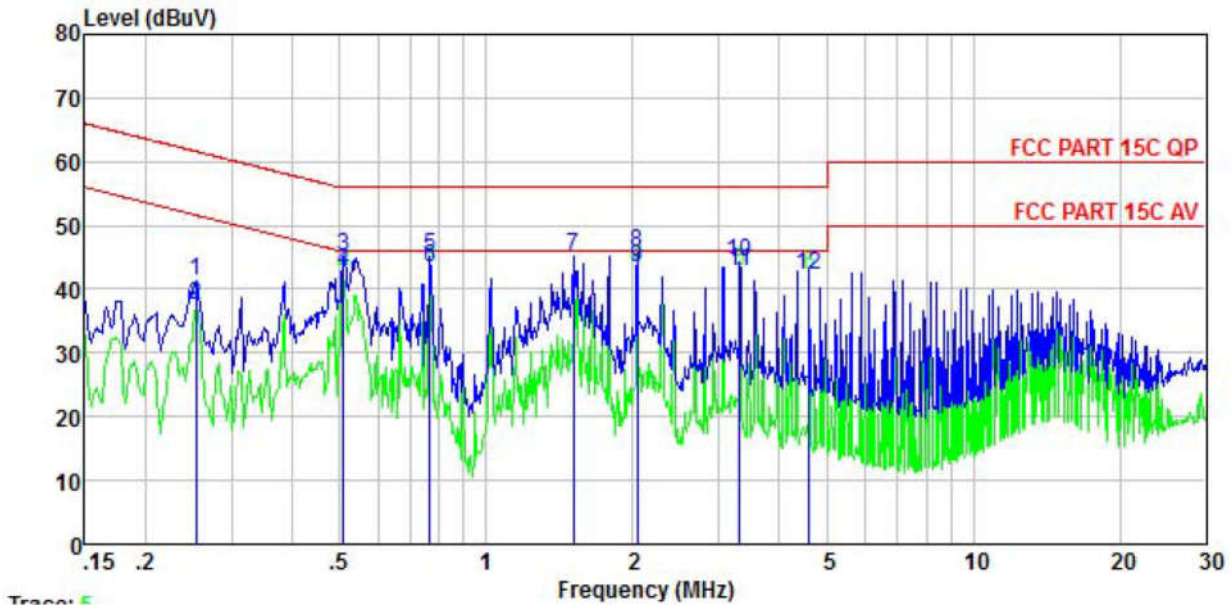


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.174	30.42	-0.58	-0.11	10.77	40.50	64.77	-24.27	QP
2	0.246	32.09	-0.57	-0.21	10.75	42.06	61.91	-19.85	QP
3	0.253	27.31	-0.57	-0.22	10.75	37.27	51.64	-14.37	Average
4	0.510	32.52	-0.44	-0.35	10.76	42.49	46.00	-3.51	Average
5	0.541	36.11	-0.45	-0.36	10.76	46.06	56.00	-9.94	QP
6	0.767	35.28	-0.55	-0.19	10.80	45.34	56.00	-10.66	QP
7	0.767	33.74	-0.55	-0.19	10.80	43.80	46.00	-2.20	Average
8	1.790	33.39	-0.53	-0.20	10.95	43.61	46.00	-2.39	Average
9	2.044	35.63	-0.51	-0.31	10.96	45.77	56.00	-10.23	QP
10	2.044	33.02	-0.51	-0.31	10.96	43.16	46.00	-2.84	Average
11	3.310	34.02	-0.42	-0.15	10.91	44.36	56.00	-11.64	QP
12	3.310	32.71	-0.42	-0.15	10.91	43.05	46.00	-2.95	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 Stand	Product Model:	AWC1102
Test by:	Miles Chen	Test mode:	Charing mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%

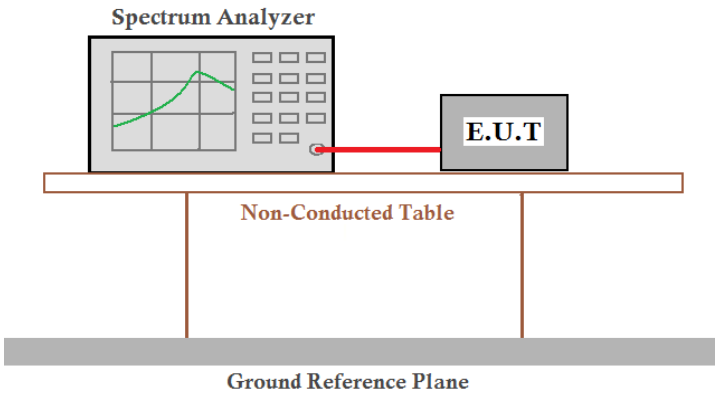


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.253	31.38	-0.67	0.01	10.75	41.47	61.64	-20.17	QP
2	0.253	27.43	-0.67	0.01	10.75	37.52	51.64	-14.12	Average
3	0.510	35.03	-0.65	0.03	10.76	45.17	56.00	-10.83	QP
4	0.510	32.69	-0.65	0.03	10.76	42.83	46.00	-3.17	Average
5	0.767	35.05	-0.65	0.05	10.80	45.25	56.00	-10.75	QP
6	0.767	33.12	-0.65	0.05	10.80	43.32	46.00	-2.68	Average
7	1.511	34.91	-0.70	0.13	10.92	45.26	56.00	-10.74	QP
8	2.044	35.41	-0.71	0.18	10.96	45.84	56.00	-10.16	QP
9	2.044	33.07	-0.71	0.18	10.96	43.50	46.00	-2.50	Average
10	3.310	33.66	-0.65	0.38	10.91	44.30	56.00	-11.70	QP
11	3.310	32.27	-0.65	0.38	10.91	42.91	46.00	-3.09	Average
12	4.598	31.34	-0.64	0.61	10.86	42.17	46.00	-3.83	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.*

6.4 20dB Bandwidth

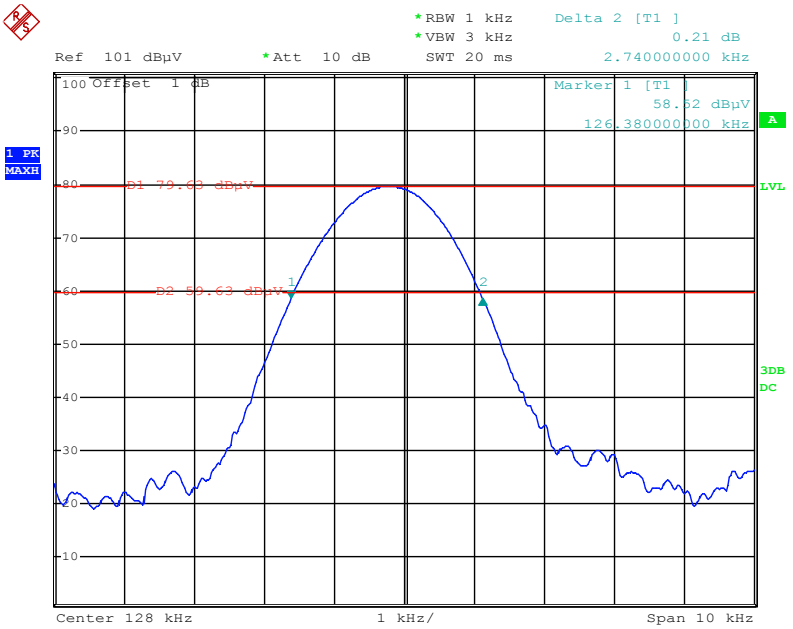
Test Requirement:	FCC Part15 C Section 15.215 (c)
Receiver setup:	RBW=1 kHz, VBW=3 kHz, detector: Peak
Limit:	The fundamental emission be kept within at least the central 80% of the permitted band
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial 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:	
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)	99% bandwidth (kHz)	Limits
2.74	2.30	N/A
Remark: For report purpose only.		

Test plot as follows:

20dB bandwidth



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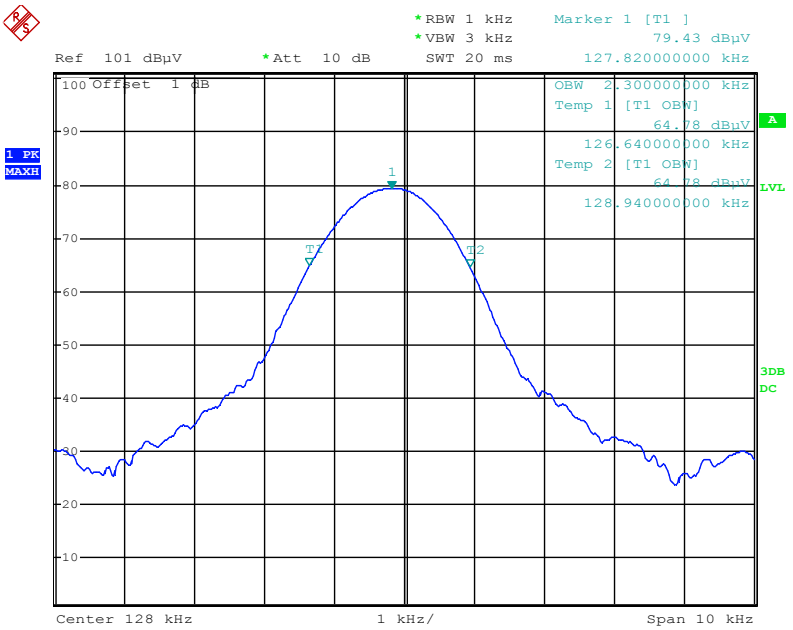
99% bandwidth



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