

# Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCISE200609702V01

# **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 Speaker & Charging Hub

Model No.: WSP1000

Trade mark: ubiolabs

FCC ID: 2ATGY-WSP1000

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

Date of sample receipt: 24 Jun., 2020

**Date of Test:** 24 Jun., to 14 Jul., 2020

Date of report issue: 03 Aug., 2020

Test Result: PASS\*

#### 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 orfalsification 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.

<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.





## 2 Version

Version No.	Date	Description
00	15 Jul., 2020	Original
01	03 Aug., 2020	Update page 5, 10, 11, 12

Mike. DU

Test Engineer Tested By: Date: 03 Aug., 2020

Winner thang Reviewed By: Date: 03 Aug., 2020

**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.
- 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
Factory:	SHENZHEN JUNLAN ELECTRONIC LTD.
Address:	No.277 PingKui Road, Shijing Community, Pingshan Street, Pingshan New District, Shenzhen, China.

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

O.Z Ochicial Descript	01.01.1
Product Name:	Wireless Speaker & Charging Hub
Model No.:	WSP1000
Operation Frequency:	114.0kHz~205.0kHz
Modulation type:	ASK
Antenna Type:	Coil Antenna
Input:	DC 9.0V, 3000mA
Output (Wireless)	<ul> <li>5W, 7.5W, 10W</li> <li>10W Qi certified fast charging for Samsung Galaxy S6 and later, Samsung Note5 and later, Motorola, LG</li> <li>7.5W wireless charging for iPhone 8 and later</li> <li>5W wireless charging for compatible devices</li> </ul>
AC adapter:	Model: CHG1085 Input: AC110-240V, 50/60Hz, 0.7A Output: DC 9.0V, 3000mA
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

## 5.3 Test mode

TX 1 mode:	Keep the EUT in transmitting(Output 10W (Wireless)) mode with modulation
TX 2 mode:	Keep the EUT in transmitting(Output 7.5W (Wireless)) mode with modulation
TX 3 mode:	Keep the EUT in transmitting(Output 5W (Wireless)) mode with modulation
Remark	The EUT 5W, 7.5W, 10W output (Wireless) are all tested, found 10W output (Wireless) was worse case mode, the report only reflects the worst 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
Apple	Mobile phone	iPhone 11 Pro	MWDE2CH/A	Doc

## 5.5 Measurement Uncertainty

or measurement of the first	
Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB
Radiated Emission (18GHz ~ 26.5GHz)	±3.20 dB



### 5.6 Additions to, deviations, or exclusions from the method

Nο

## 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.

#### 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.110~116, Building B, Jinyuan Business Building, 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	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-07-2020	03-06-2021
Loop Antenna	SCHWARZBECK	FMZB 1519 B	00044	03-07-2020	03-06-2021
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	03-07-2020	03-06-2021
Pre-amplifier	CD	PAP-1G18	11804	03-07-2020	03-06-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-05-2020	03-04-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-05-2020	03-04-2021
Simulated Station	Anritsu	MT8820C	6201026545	03-07-2020	03-06-2021
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2020	03-06-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2020	03-06-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2020	03-06-2021

<b>Conducted Emission:</b>					
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	03-05-2020	03-04-2021
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-05-2020	03-04-2021
LISN	CHASE	MN2050D	1447	03-05-2020	03-04-2021
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2017	07-20-2020
Cable	HP	10503A	N/A	03-05-2020	03-04-2021
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A



## **6 Test results and Measurement Data**

## 6.1 Antenna requirement

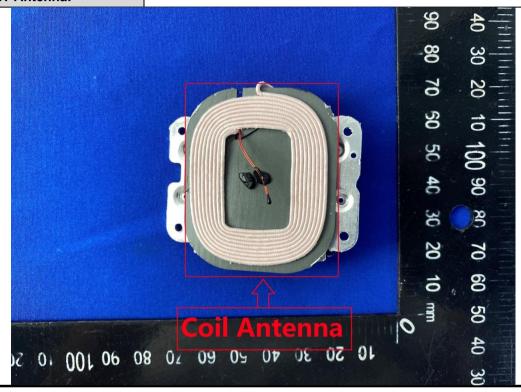
Standard requirement:

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:** 

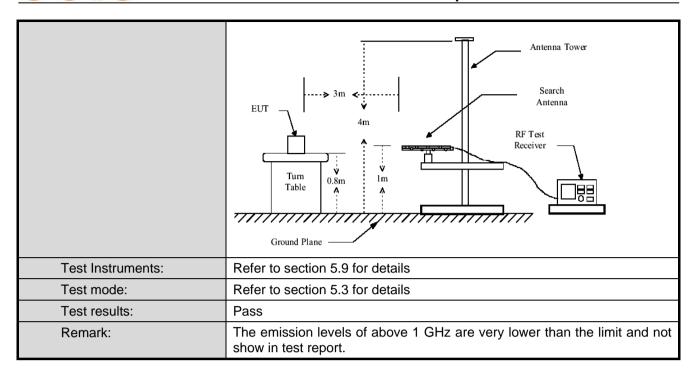




## 6.2 Radiated Emission

0.2 Radiated Ellission						
Test Requirement:	FCC Part15 C S	ection 15.209				
Test Frequency Range:	9kHz to 1000MH	łz				
Test site:	Measurement D	istance: 3m(S	emi-Anechoid	Chamb	ber)	
Receiver setup:	Frequency	Detector	RBW	VBV	٧	Remark
	9kHz-150kHz	Quasi-peak	200Hz	600H	Ηz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kH	Ηz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak		300kH		Quasi-peak Value
	Above 1GHz	Peak	1MHz	ЗМН	lz	Peak Value
Limit:	Frequency (M		nit (uV/m @3			Distance (m)
	0.009-0.49		2400/F(kHz)			300
	0.490-1.70		24000/F(kHz	)		30
	1.705-30		30			30
	30-88		100			3
	88-216		150			3
	216-960		200			3
Test Procedure:	Above 1GF		500	toble C	0 ~-	3 eters above the
Test setup:	degrees todel b. The EUT was whichwas mo c. The antennal to determine to vertical polari: d. For each susy thenthe anten rotatabletable reading. e. The test-recei SpecifiedBand f. If the emission limitspecified, wouldbe repo would bere-te specified and	unted on the top height is varied the maximum varied the maximum varied to extend emission and was turned from the total total the testing courted. Otherwise	tion of the high way from the ire of a variable-from one mete alue of the field of the na are set, the EUT was a heights from of degrees to set to Peak Dimum Hold Mould be stopped the emissions a using peak, of the company of the emissions are using peak, of the company of the emissions are using peak, of the emissions of the emissions are using peak, of the emissions of the emission of the emissions of the emission	nest radia terference height ar r to four I strength to make arrange 1 meter t 360 deg etect Fur ode. de was 1 and the that did	ation. ce-re ntenr mete h. Bo the re d to grees nctio  OdB peal not h	eceiving antenna, and tower. ers above the ground of the horizontal and measurement. its worst case and meters and the so to find the maximum on and
. SS. SS. SP.	9kHz-30MHz  EUT  Turn Table  Ground Plane  30MHz-1GHz	3m		RF T Rece	Sear Anter	



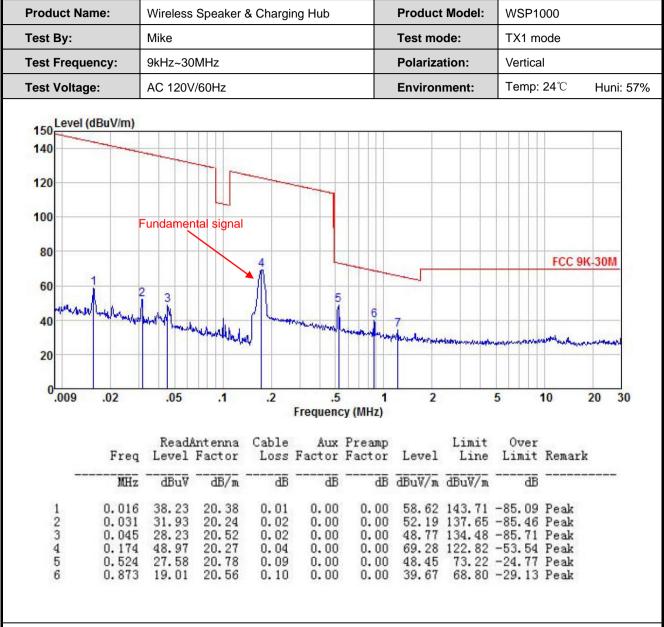




#### **Measurement Data:**

#### b) Radiated spurious:

#### **Below 1GHz:**



#### Remark:

<sup>1.</sup> Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

<sup>2.</sup> The emission levels of other frequencies are very lower than the limit and not show in test report.



Product Na	ame:	Wireless	Speaker 8	& Chargir	ng Hub	Pro	duct Mo	del:	WSP100	00		
Test By:		Mike				Tes	Test mode:		TX1 mod	de		
Test Frequ	uency:	9kHz~30	MHz		Polarization:		:	Horizontal				
Test Volta	ge:	AC 120V	/60Hz			En	vironmen	nt:	Temp: 2	4℃	Huni:	57%
150 Level	(dRuV/m)											
	(abarmi)							9 49	39			1
140		-										
420			T-									
120				-								
100												
37.5	F	undamer	ntal signal									
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40	.02	.05	.1	.2	.5 Frequence	1 cy (MHz)			Over			30
40	.02	.05	.1	.2	.5 Frequence	1 cy (MHz) Preamp Factor		Limit Line	Over	Remar		30
20 0.009	.02 Freq MHz 0.016	.05  Read! Level  dBuV  36.83	.1 Intenna Factor  dB/m 20.38	.2 Cable Loss dB	.5 Frequence Aux Factor dB 0.00	1 cy (MHz) Preamp Factor dB 0.00	Level dBuV/m 57.22	Limit Line	Over Limit	Remar		30
20 0.009	.02 Freq MHz 0.016 0.031	.05  Read! Level  dBuV  36.83 30.85	.1 Antenna Factor  dB/m 20.38 20.24	.2 Cable Loss dB 0.01 0.02	.5 Frequence Aux Factor dB 0.00 0.00	1 cy (MHz) Preamp Factor dB 0.00 0.00	Level dBuV/m 57.22 51.11	Limit Line dBuV/m 143.71 137.65	Over Limit dB -86.49	Remar  Peak Peak		30
20 0.009	.02 Freq MHz 0.016 0.031 0.099	.05  Read# Level  dBuV  36.83 30.85 23.30	.1 Antenna Factor	.2 Cable Loss dB 0.01 0.02 0.02	.5 Frequence Aux Factor dB 0.00 0.00 0.00 0.00	Preamp Factor  dB 0.00 0.00 0.00	Level  dBuV/m  57.22 51.11 43.83	Limit Line dBuV/m 143.71 137.65	Over Limit -86.49 -86.54 -63.84	Remar  Peak Peak Peak		30
40	.02 Freq MHz 0.016 0.031	.05  Read! Level  dBuV  36.83 30.85	.1 Antenna Factor  dB/m 20.38 20.24	.2 Cable Loss dB 0.01 0.02	.5 Frequence Aux Factor dB 0.00 0.00	Preamp Factor  dB 0.00 0.00 0.00	Level  dBuV/m  57.22 51.11 43.83 74.99	Limit Line dBuV/m 143.71 137.65 107.67 122.82	Over Limit -86.49 -86.54 -63.84	Remar Peak Peak Peak Peak		30

#### 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.



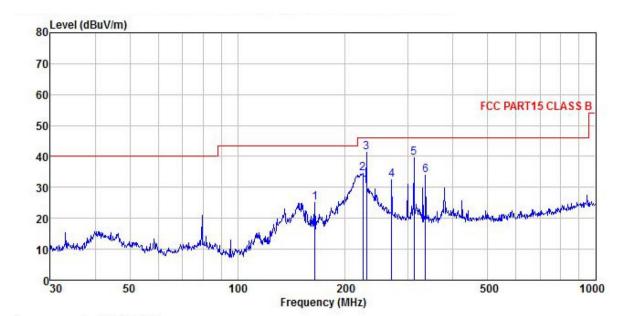
Product Name:	Wireless Speaker & Charging Hub	Product Model:	WSP1000		
Test By:	Mike	Test mode:	ode: TX1 mode		
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical		
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24°C Huni: 57%		
80 Level (dBuV/m)					
70					
10					
60			FCC PART15 CLASS B		
50					
401 3					
2 3	4	6			
30	4	Å Å			
30	JANA JANA		he who made many property		
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20	100	200	500 1000		
20 10 0 30 50	- adAntenna Cable Aux 1	200 Preamp Limit	500 1000 Over		
30 20 10 0 30 50	45 0	200 Preamp Limit			
30 20 10 0 30 50 Re Freq Lev	- adAntenna Cable Aux 1	200 Preamp Limit	Over		
20 10 030 50 Freq Lev MHz dB	adAntenna Cable Aux I el Factor Loss Factor I uV dB/m dB dB	Preamp Limit Factor Level Line  dB dBuV/m dBuV/m	Over Limit Remark ————————————————————————————————————		
30 10 030 50 Re Freq Lev MHz dB 1 30.317 55.	- adAntenna Cable Aux 1 el Factor Loss Factor 1  uV dB/m dB dB  81 11.85 0.40 0.00 11 12.81 0.35 0.00	200 Preamp Limit Factor Level Line	Over Limit Remark ————————————————————————————————————		
30 10 030 50 Re Freq Lev MHz dB 1 30.317 55.	adAntenna Cable Aux I el Factor Loss Factor I  uV dB/m dB dB  81 11.85 0.40 0.00 11 12.81 0.35 0.00 25 12.89 0.38 0.00 03 14.32 0.62 0.00	200 Preamp Limit Factor Level Line  29.98 38.08 40.00 29.90 35.37 40.00 29.86 36.66 40.00 29.21 34.76 43.50	Over Limit Remark ————————————————————————————————————		

#### 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 Speaker & Charging Hub	eless Speaker & Charging Hub Product Model:		
Test By:	Mike	Test mode:	TX1 mode	
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal	
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%	



	Freq		Antenna Factor					Limit Line	Over Limit	Remark
-	MHz	dBu∜	<u>dB</u> /π		<u>ab</u>	<u>dB</u>	$\overline{dBuV/m}$	dBuV/m	<u>q</u> B	
1	164.330	37.82	15.59	0.64	0.00	29.10	24.95	43.50	-18.55	QP
2	223.733	44.06	18.40	0.74	0.00	28.69	34.51	46.00	-11.49	QP
3	229.293	50.93	18.42	0.75	0.00	28.65	41.45	46.00	-4.55	QP
4	269.428	41.59	18.58	0.82	0.00	28.50	32.49	46.00	-13.51	QP
5	311.087	48.58	18.72	0.88	0.00	28.48	39.70	46.00	-6.30	QP
6	334.859	42.78	18.77	0.91	0.00	28.53	33.93	46.00	-12.07	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.



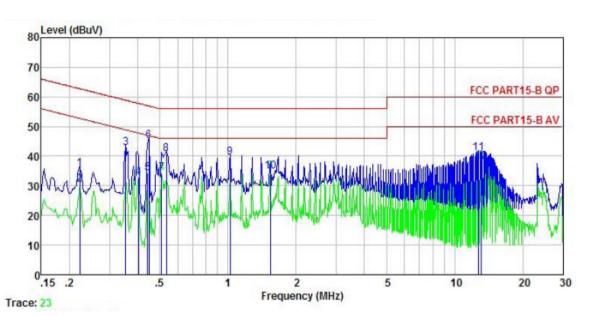
## 6.3 Conducted Emission

Test Requirement:	FCC Part 15 B Section 15.20	FCC Part 15 B Section 15.207						
Test Frequency Range:	150kHz to 30MHz							
Class / Severity:	Class B							
Receiver setup:	RBW=9kHz, VBW=30kHz							
Limit:	Fraguency range (MHz)	Limit	(dBµV)					
	Frequency range (MHz)	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 logarith	m of the frequency.						
Test setup:	Reference Plan  40cm 80c  AUX Equipment E.U.T  Test table/Insulation plane  Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m	EMI Receiver						
Test procedure	<ol> <li>The E.U.T and simulators line impedance stabilization 500hm/50uH coupling impedance.</li> <li>The peripheral devices are a LISN that provides a 500 termination. (Please refers photographs).</li> <li>Both sides of A.C. line are interference. In order to fir positions of equipment an according to ANSI C63.4:</li> </ol>	on network(L.I.S.N.). The pedance for the measure also connected to the ohm/50uH coupling imports to the block diagram are checked for maximum and the maximum emissed all of the interface care	he provide a ring equipment. e main power through pedance with 50ohm of the test setup and m conducted sion, the relative ables must be changed					
Test environment:	Temp.: 23 °C Hun	nid.: 56% Pr	ess.: 101kPa					
Test Instruments:	Refer to section 5.9 for detail	ls						
Test mode:	Refer to section 5.3 for detail	ls						
Test results:	Pass							



#### Measurement data:

Product name:	Wireless Speaker & Charging Hub	Product Model:	WSP1000
Test by:	Mike	Test mode:	TX1 mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%



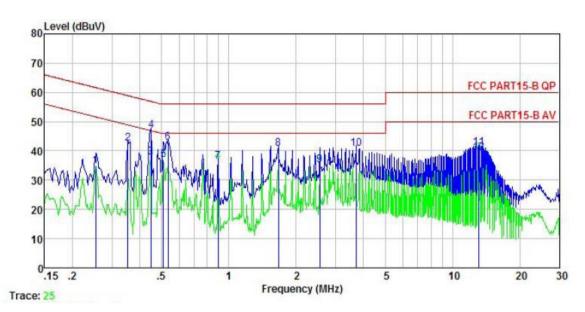
	Freq	Read Level	LISN Factor	Cable Loss	Aux Factor	Level	Limit Line	Over Limit	Remark
-	MHz	dBu∀	₫B	₫B	₫B	dBu₹	₫₿uѶ	dB	
1	0.222	25.73	-0.58	10.76	-0.19	35.72	62.74	-27.02	QP
2	0.222	20.54	-0.58	10.76	-0.19	30.53	52.74	-22.21	Average
3	0.354	32.54	-0.51	10.73	0.14	42.90	58.87	-15.97	QP
4	0.402	22.21	-0.48	10.72	0.42	32.87	47.81	-14.94	Average
5	0.442	23.78	-0.46	10.74	0.08	34.14			Average
6	0.447	34.89	-0.46	10.74	0.05	45.22	56.93	-11.71	QP
7	0.510	24.20	-0.44	10.76	-0.35	34.17	46.00	-11.83	Average
8	0.535	30.66	-0.45	10.76	-0.36	40.61	56.00	-15.39	QP
1 2 3 4 5 6 7 8 9	1.021	28.83	-0.62	10.87	0.44	39.52		-16.48	
10	1.535	24.60	-0.55	10.93		34.95	46.00	-11.05	Average
11	12.784	27.82	-0.71	10.92	2.95	40.98		-19.02	
12	13.057	24.99	-0.70	10.91	3.01	38.21			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 + Aux Factor + Cable Loss.



Product name:	Wireless Speaker & Charging Hub	Product Model:	WSP1000
Test by:	Mike	Test mode:	TX1 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	Cable Loss	Aux Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBu₹	₫B	₫B	<u>dB</u>	dBu₹	dBu∜		
1 2	0.253 0.354	24.60 32.54	-0.67 -0.65	10.75 10.73		34.69 42.59		-16.95 -16.28	Average QP
3	0.447 0.449	27.67 36.74	-0.64 -0.64	10.74 10.74	-0.02 -0.01	37.75 46.83	46.93		Average
5	0.510 0.535	26. 62 32. 60	-0.65 -0.65	10.76 10.76	0.03	36. 76 42. 74	46.00		Average
2 3 4 5 6 7 8 9	0.894	25.94	-0.67	10.84	0.07	36.18	46.00	-9.82	Average
9	1.662 2.554	30.38 24.71	-0.70 -0.67	10.94 10.94	0.15 0.25	40.77 35.23	46.00		Average
11	3.700 13.127	30.12 28.41	-0.65 -0.80	10.90 10.91	2.54	40.83 41.06	60.00	-15.17 -18.94	QP
12	13.127	26.62	-0.80	10.91	2.54	39.27	50.00	-10.73	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 + Aux 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 fundamentalemission be kept within atleast the central 80% of the permittedband			
Test Procedure:	<ol> <li>According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>Set the EUT to proper test channel.</li> <li>Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.</li> <li>Read 20dB bandwidth.</li> </ol>			
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  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**

20dB bandwidth (kHz)		99% band	lwidth (kHz)	Limits			
Lowest channel	Highest channel	Lowest channel	Highest channel	NI/Λ			
8.30	8.10	7.10	6.90	N/A			
Remark: For report purpose only.							



#### Test plot as follows:

