



# Human Exposure Report

**Application No.:** SZEM1912020776CR  
**Applicant:** Voxx Accessories Corp.  
**Address of Applicant:** 3502 Woodview Trace suite 220, Indianapolis, Indiana, 46268, United States  
**Manufacturer:** Shenzhen Great Power Innovation and Technology Enterprise Co., Ltd  
**Address of Manufacturer:** No. 331, No. 335, Guiyue Road, Dafu Community, Guanlan Street, Longhua District, Shenzhen, China  
**Factory:** Shenzhen Great Power Innovation and Technology Enterprise Co., Ltd  
**Address of Factory:** No. 331, No. 335, Guiyue Road, Dafu Community, Guanlan Street, Longhua District, Shenzhen, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Wireless Charging Speaker  
**Model No.:** SPQ820, ARQ820 ♣  
 ♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Trade mark:** 808 AR(Acoustic Research)  
**FCC ID:** VIXSPQ820  
 47 CFR PART 1.1310  
**Standards:** 47 CFR PART 2.1093  
 KDB447498D01 General RF exposure Guidance v06  
**Date of Receipt:** 2019-12-02  
**Date of Test:** 2019-12-03 to 2019-12-11  
**Date of Issue:** 2019-12-13

<b>Test Result :</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above

Keny Xu  
 EMC Laboratory Manager



<i>Revision Record</i>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2019-12-13		Original

<b>Authorized for issue by:</b>			
			
		<hr/> <b>Calvin Weng /Project Engineer</b>	
			
		<hr/> <b>Eric Fu /Reviewer</b>	



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## 2 General Information

### 2.1 Details of E.U.T.

Power Supply:	DC3.7V by li-ion battery Recharge input: DC5V/2A via USB port Wireless output: 5W
Cable:	USB cable: 0.6m unshielded cable without ferrite core
For BT:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	5.0
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Antenna Type:	PCB antenna
Antenna Gain:	0 dBi
For WPC:	
Antenna Type:	Loop Antenna
Modulation Type:	Load Modulation
Operation Frequency:	113.78kHz to 139.10kHz
Remark:	This device has been tested the worst status of full load and the device has been tested with load at 5W.

#### Remark:

Model No.: SPQ820, ARQ820

Only the model SPQ820 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on trade mark and packaging for marketing purpose.



## 2.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	SAMSUNG	EP-TA200	R37J8YA7W71DK3
Mobile Phone	SAMSUNG	SM-G9500	R28J9140LPB



## 2.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

## 2.4 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

## 2.5 Deviation from Standards

None.

## 2.6 Abnormalities from Standard Conditions

None.



### 3 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Due date
1	Electric and Magnetic Field Analyzer	Narda	EHP-50F	EMC092	2020-02-06



## 4 RF Exposure Results

### 4.1 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310

Measurement Distance: 15cm

Limit:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

F=frequency in MHz  
\*=Plane-wave equivalent power density  
RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

### 4.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C Humidity: 52% RH Atmospheric Pressure: 1015 mbar

EUT Operation:

This device has been tested the worst status of full load and the device has been tested with mobile phone at zero charge, intermediate charge, and full charge.





**4.1.2 Measurement Data**

The max output power =5W;

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
118 kHz	15	Side 1	0.0656	0.815
		Side 2	0.0396	0.815
		Side 3	0.0623	0.815
		Side 4	0.0335	0.815
		Top	0.0412	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			zero charge	intermediate charge	full charge	
118 kHz	15	Side 1	0.0744	0.0629	0.0595	0.815
		Side 2	0.0485	0.0340	0.0297	0.815
		Side 3	0.0714	0.0557	0.0520	0.815
		Side 4	0.0436	0.0299	0.0252	0.815
		Top	0.0539	0.0379	0.0328	0.815



## 4.2 RF Exposure Compliance Requirement

### 4.2.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

#### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

### 4.2.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot \sqrt{f(\text{GHz})} \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

$f(\text{GHz})$  is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion

### 4.2.3 EUT RF Exposure

For BT:

The Max. power (including tune-up tolerance) **3.42** dBm on the lowest channel **2.402** GHz (\*)  
3.42 dBm logarithmic terms convert to numeric result is nearly 2.20 mW

According to the formula, calculate the test exclusion thresholds:

$$\text{General RF Exposure} = \frac{(\text{Max. Power of channel, including tune-up tolerance, mW}) * \sqrt{f(\text{GHz})}}{(\text{min. test separation distance, mm})}$$

$$\text{General RF Exposure} = (2.20 \text{ mW} / 5 \text{ mm}) * \sqrt{2.402 \text{ GHz}} = 0.68 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

(1) < (2)

So the SAR report is not required.

(\*) Max. power refer to Report No.: SZEM191202077602



### 4.3 RF Simultaneous Exposure Requirement

1. For Bluetooth continuous transmitting when WPC's working simultaneously, Bluetooth RF power is still the same, without any power drift.
2. For WPC works with Bluetooth continuous transmitting, the magnetic strength from WPC has little fluctuation:
3. As transmitting power for WPC is so low that even when it's working with Bluetooth, is still exempt from SAR testing.

#### Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
118 kHz	15	Side 1	0.0652	0.815
		Side 2	0.0402	0.815
		Side 3	0.0621	0.815
		Side 4	0.0339	0.815
		Top	0.0415	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

#### Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			zero charge	intermediate charge	full charge	
118 kHz	15	Side 1	0.0763	0.0624	0.0587	0.815
		Side 2	0.0477	0.0351	0.0303	0.815
		Side 3	0.0705	0.0568	0.0519	0.815
		Side 4	0.0443	0.0311	0.0264	0.815
		Top	0.0551	0.0383	0.0342	0.815





## 5 Photographs

### 5.1 Test setup photos

Please refer to RF Exposure Setup Photos.

- End of the Report -

