

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

No. 1 Workshop, M-10, Middle section, Science & Technology Park,

Shenzhen, Guangdong, China 518057

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RF Exposure Evaluation Report

Application No.: SZEM1708009281CR
Applicant: VOXX Accessories Corp.

Address of Applicant: 3502 Woodview Trace, Suite 220, Indianapolis IN 46268, United States **Manufacturer:** Shenzhen Great Power Innovation And Technology Enterprise Co., Ltd

Address of Manufacturer: Building E, Xinxulong Industrial Area, Kukeng Village, Guanlan Town,

Longhua New District, Shenzhen, Guangdong 518110 China

Factory: Shenzhen Great Power Innovation And Technology Enterprise Co., Ltd

Address of Factory: Building E, Xinxulong Industrial Area, Kukeng Village, Guanlan Town,

Longhua New District, Shenzhen, Guangdong 518110 China

EUT Name: SMART SPEAKER

Model No.: SPPNAL2, SPAL2 *

Please refer to section 4 of this report which indicates which model was

actually tested and which were electrically identical.

FCC ID: VIXSPAL2

Trade mark: Project nursery, 808

Standards: 47 CFR Part 1.1307 (2016)

47 CFR Part 1.1310 (2016)

Date of Receipt: 2017-11-06

Date of Test: 2017-11-14 to 2017-11-23

Date of Issue: 2017-11-27

Test Result : PASS*



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. 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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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



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2 Version

Revision Record						
Version Chapter		Date	Modifier	Remark		
01		2017-11-27		Original		

Authorized for issue by:		
	Brix Chen	
	Bill Chen /Project Engineer	
	Eric Fu	
	Eric Fu /Reviewer	



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4 General Description of EUT

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Power supply:	AC Adapter:		
	Model:TPKB01200200-A0		
	Input:AC 100-240V 50/60Hz 750mA MAX		
	Output:DC 12V 2.0A		
Cable:	DC cable:180cm unshielded		
For BT:			
Operation Frequency:	2402MHz to 2480MHz		
Bluetooth Version:	2.1+EDR		
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)		
Modulation Type:	GFSK		
Number of Channel:	79		
Hopping Channel Type:	Adaptive Frequency Hopping systems		
Sample Type:	Fixed production		
Antenna Type:	Monopole		
Antenna Gain:	0dBi		
For 2.4G wifi:			
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz		
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n(HT20): 11 Channels IEEE 802.11n(HT40): 9 Channels		
Channel Separation:	5MHz		
Type of Modulation:	IEEE for 802.11b: DSSS (CCK, DQPSK, DBPSK)		
	IEEE for 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n (HT20 and HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)		
Sample Type:	Fixed production		
Antenna Type:	Monopole		
Antenna Gain:	0dBi		

Remark:

Model No.: SPPNAL2, SPAL2

Only the model SPAL2 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on color, pattern and finish.



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4.1 Test Location

All tests were performed at:

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

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.

4.2 Test Facility

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

· CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC

Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• 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 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 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.

Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.3 Deviation from Standards

None.

4.4 Abnormalities from Standard Conditions

None.

4.5 Other Information Requested by the Customer

None.



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5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

Table 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm²)	Averaging time (minutes)					
(A) Limits for Occupational/Controlled Exposures									
0.3–3.0	614 1842/f 61.4	1.63 4.89/f 0.163	*(100) *(900/f²) 1.0 f/300 5	6 6 6 6					
(B) Limits	for General Populati	on/Uncontrolled Exp	oosure						
0.3–1.34	614 824/f 27.5	1.63 2.19/f 0.073	*(100) *(180/f²) 0.2 f/1500 1.0	30 30 30 30 30					

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R²)

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



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5.1.3 EUT RF Exposure Evaluation

For BT

Antenna: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

•		•				
Channel	Frequency	Max Conducted	Output Power	Power Density	Limit	Result
	(MHz)	Peak Output	to Antenna	at R = 20 cm		
		Power (dBm)	(mW)	(mW/cm2)		
Lowest	2402	-0.01	0.998	0.0002	1.0	PASS

For 2.4G WIFI

Antenna: 0dBi;

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Output Power Peak Output to Antenna		Power Density at R = 20 cm	Limit	Result
	, ,	Power (dBm)	(mW)	(mW/cm²)		
Middle	2437	19.61	91.41	0.0182	1.0	PASS

The distancer (3RD column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

Remark:

BT and Wi-Fi can't emission at the same time.

Max Conducted Peak Output power including tune-up tolerance.

-End of Report-