Maximum Permissible Exposure Report

For

SHENZHEN JUNLAN ELECTRONIC LTD

No. 277 PingKui Road, Shijing Community, Pingshan

Street, Pingshan New District, Shenzhen, China

FCC ID: OKUSBB-61250

FCC Rule(s):	FCC 47CFR Part 1.1310
Product Description:	CH BLUETOOTH SOUNDBAR SPEAKER
Tested Model:	SBB-61250
Report No.:	HCT18AR016E-2
Sample Receipt Date:	2018-02-07
Tested Date:	2018-02-08 to 2018-02-27
Issued Date:	2018-02-28
Tested By:	Jason Su / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager
Prepared By:	

Shenzhen SEM Test Technology Co. Ltd
1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road,
Bao'an District, Shenzhen, 518101,China
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

TABLE OF CONTENTS

1. GENERAL INFORMATION 3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 3
1.2 TEST STANDARDS 3
1.3 GENERAL DESCRIPTION OF TEST 3
1.4 HUMAN EXPOSURE ASSESSMENT RESULTS 4

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	SHENZHEN JUNLAN ELECTRONIC LTD
Address of applicant:	No. 277 PingKui Road, Shijing Community, Pingshan Street, Pingshan New District, Shenzhen, China
Manufacturer:	SHENZHEN JUNLAN ELECTRONIC LTD
Address of manufacturer:	No. 277 PingKui Road, Shijing Community, Pingshan Street, Pingshan New District, Shenzhen, China

General Description of EUT	
Product Name:	CH BLUETOOTH SOUNDBAR SPEAKER
Trade Name:	NAXA
Model No.:	SBB-61250
Adding Model(s):	NHS-2012
Rated Voltage:	DC 5.8V
Power Adapter Model:	GKYPS0200058US1 Input:AC100-240V~50/60Hz, 0.5A Output:DC5.8V/2000mA
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	2402-2480MHz
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, Pi/4 QDPSK, 8DPSK
Quantity of Channels:	79
Type of Antenna:	PCB
Antenna Gain:	0 dBi

1.2 Test Standards

The objective of the following report is used to demonstrate that EUT operated in a manner that ensures the public is not exposed to radio frequency energy levels in excess of the relative provisions of FCC 47CFR Part 1.1310

1.3 General Description of Test

Items	**Description**
EUT Frequency band	☐ FHSS: 2.400GHz ~ 2.483GHz ☐ WLAN: 2.400GHz ~ 2.483GHz ☐ WLAN: 5.150GHz ~ 5.250GHz

	☐ WLAN: 5.745GHz ~ 5825GHz ☒ Others: BT: 2402-2480MHz
Device category	☐ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☒ Others Fixed location (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2) ☐ Others: _____
Antenna diversity	☒ Single antenna ☐ Multiple antennas: ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	-5.967dBm = 0.25 mW
Antenna gain (Max)	0 dBi
Evaluation applied	☒MPE Evaluation ☐SAR Evaluation
Note: *1. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.*	

1.4 Human Exposure Assessment Results

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*100	6
3.0–30	1842/f	4.89/f	*900/f^2	6
30–300	61.4	0.163	1.0	6
300–1,500	.....	.....	f/300	6
1,500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*100	30
1.34–30	824/f	2.19/f	*180/f^2	30
30–300	27.5	0.073	0.2	30
300–1,500	.....	.....	f/1500	30
1,500–100,000	.....	.....	1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = *Field Strength in Volts / meter*
P = *Power in Watts*
G=*Numeric antenna gain*
d=*Distance in meters*
S=*Power Density in milliwatts / square centimeter*

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
*d (cm) =100 * d (m)*

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where d = *distance in cm*
P = *Power in mW*
G = *Numeric antenna gain*
S = *Power Density in* mW/cm^2

EUT parameter (data from the separate report)	
Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$	Where G: numerical gain of transmitting antenna; TP: Transmitted power in watt; d: distance from the transmitting antenna in meter
Exposure classification	S=1mW/cm^2
Minimum distance in meter (d) (from transmitting structure to the human body)	20cm (0.2m)
Yields $S = \frac{30xPxG}{3770d^2}$, d=0.2m=20cm P=0.00025W=0.25 mW, G = 1, S=0.00005mW/cm^2	

Conclusion:
$S=0.00005mW/cm^2$ is significant lower than the FCC 47CFR Part 1.1310 Limit $1mW/cm^2$.
(For mobile or fixed location transmitters, the maximum power density is 1.0 mW / cm^2 even if the calculation indicates that the power density would be larger.)