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RF Exposure Evaluation Report

Report No. :	CQASZ20200400310E-02
Applicant:	Wonders Technology Co.,Ltd
Address of Applicant:	4/F, Tower A, 3rd Building, Tian'an Cloud Park, Bantian Avenue, Longgang District, Shenzhen 518129, China
Equipment Under Test (EUT):	
EUT Name:	Wireless Bluetooth Speaker
Model No.:	Cannonball MAX, WB-206
Test Model No.:	Cannonball MAX
Brand Name:	N/A
FCC ID:	WC2-WB206
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-04-27
Date of Test:	2020-04-27 to 2020-05-06
Date of Issue:	2020-05-06
Test Result :	**PASS***

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

Tested By: Tom Chen.

(Tom Chen)

Reviewed By: Sheek Luo

(Sheek Luo)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200400310E-02	Rev.01	Initial report	2020-05-06

2 Contents

3 General Information

3.1 Client Information

Applicant:	Wonders Technology Co.,Ltd
Address of Applicant:	4/F, Tower A, 3rd Building, Tian'an Cloud Park, Bantian Avenue, Longgang District, Shenzhen 518129, China
Manufacturer:	Wonders Technology Co.,Ltd
Address of Manufacturer:	4/F, Tower A, 3rd Building, Tian'an Cloud Park, Bantian Avenue, Longgang District, Shenzhen 518129, China

3.2 General Description of EUT

Product Name:	Wireless Bluetooth Speaker
Model No.:	Cannonball MAX, WB-206
Test Model No.:	Cannonball MAX
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	VER:1.2
Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	FCCAssist 2.4 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	-0.58dBi
Power Supply:	lithium battery: DC 3.7V, 2200mAh, Charge by DC 5.0V

Model No.: Cannonball MAX, WB-206

Only the model Cannonball MAX was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 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.

4.1.2 Limits

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

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 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

4.1.3 EUT RF Exposure

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.770	-5.5±1	-4.5	0.355
Middle(2441MHz)	-4.220	-5.0±1	-4.0	0.398
Highest(2480MHz)	-4.180	-5.0±1	-4.0	0.398
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.150	-5.0±1	-4.0	0.398
Middle(2441MHz)	-3.610	-4.5±1	-3.5	0.447
Highest(2480MHz)	-3.600	-4.5±1	-3.5	0.447

Worst case: π/4DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-4.150	-5.0±1	-4.0	0.398	0.123	3.0
Middle (2441MHz)	-3.610	-4.5±1	-3.5	0.447	0.140	
Highest (2480MHz)	-3.600	-4.5±1	-3.5	0.447	0.141	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200400310E-01