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RF Exposure Evaluation Report

Report No. : CQASZ20190800799E-02
Applicant: Shenzhen Yuangu Technology Co.,Ltd
Address of Applicant: 701 Building 1 1970 Science and Technology Park Minzhi Community, Longhua, Shenzhen, China
Equipment Under Test (EUT):
EUT Name: Wireless Headphones
All Model No.: EA10, A1, A2, A3, A4, A5, EA5, EA6, EA7, EA8, EA9
Test Model No.: EA10
Brand Name: N/A
FCC ID: 2ATWG-YGA1
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2019-08-27
Date of Test: 2019-08-27 to 2019-08-29
Date of Issue: 2019-08-29
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

(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190800799E-02	Rev.01	Initial report	2019-08-29

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Yuangu Technology Co.,Ltd
Address of Applicant:	701 Building 1 1970 Science and Technology Park Minzhi Community, Longhua, Shenzhen, China
Manufacturer:	Dongguan Shangyuan Electronics Co,Ltd.
Address of Manufacturer:	Fourth building, Comprehensive development Zone, Hengli Town, Dongguan, Guangdong, China

3.2 General Description of EUT

Product Name:	Wireless Headphones
All Model No.:	EA10, A1, A2, A3, A4, A5, EA5, EA6, EA7, EA8, EA9
Test Model No.:	EA10
Trade Mark:	N/A
Hardware Version:	HB528-main-V1.1
Software Version:	HB528_MAIN_AC6936D_V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	FCC Assist 1.0.1.2 (manufacturer declare)
Antenna Type:	Integral antenna
Antenna Gain:	2.96dBi
Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

Note: 1. Since the left and right earbud have identical RF parameter, we tested only the left ear.

2. All model: EA10, A1, A2, A3, A4, A5, EA5, EA6, EA7, EA8, EA9

Only the model EA10 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color.

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:

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

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

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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)	-3.970	-4.5±1	-3.5	0.447
Middle(2441MHz)	-3.130	-4.0±1	-3.0	0.501
Highest(2480MHz)	-2.340	-3.0±1	-2.0	0.631
$\pi/4$ DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.170	-4.0±1	-3.0	0.501
Middle(2441MHz)	-2.370	-3.0±1	-2.0	0.631
Highest(2480MHz)	-1.560	-2.0±1	-1.0	0.794

Worst case: $\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-3.170	-4.0±1	-3.0	0.501	0.155	3.0
Middle (2441MHz)	-2.370	-3.0±1	-2.0	0.631	0.197	
Highest (2480MHz)	-1.560	-2.0±1	-1.0	0.794	0.250	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190800799E-01