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Report Template Version: V04

Report Template Revision Date: 2018-07-06

RF Exposure Evaluation Report

Report No. : CQASZ20200700662E-03
Applicant: Cosonic Intelligent Technologies Co.,Ltd.
Address of Applicant: Room 506, No1 Building, No.6, South Industrial Road, Songshan Lake National High-tech Industrial Development Zone, Dongguan City, Guangdong Province, P.R. China
Equipment Under Test (EUT):
EUT Name: WIRELESS HEADPHONES
Model No.: HA-A7T
Brand Name: JVC
FCC ID: 2ALVKHA-HAA7T
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2020-07-08
Date of Test: 2020-07-08 to 2020-07-28
Date of Issue: 2020-07-28
Test Result : **PASS***

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

Tested By:

Jun Li

(Jun Li)

Reviewed By:

Sheek, Luo

(Sheek Luo)

Approved By:

Jack Ai

(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200700662E-03	Rev.01	Initial report	2020-07-28

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3 General Information

3.1 Client Information

Applicant:	Cosonic Intelligent Technologies Co.,Ltd.
Address of Applicant:	Room 506, No1 Building, No.6, South Industrial Road, Songshan Lake National High-tech Industrial Development Zone, Dongguan City, Guangdong Province, P.R. China
Manufacturer:	Cosonic Intelligent Technologies Co.,Ltd.
Address of Manufacturer:	Room 506, No1 Building, No.6, South Industrial Road, Songshan Lake National High-tech Industrial Development Zone, Dongguan City, Guangdong Province, P.R. China
Factory:	Cosonic Electroacoustic Technology Co., Ltd
Address of Factory:	No.151, Shipai Section, Dongyuan Avenue, Shipai Town, Dongguan City, Guangdong Province, P.R. China

3.2 General Description of EUT

Product Name:	WIRELESS HEADPHONES	
Model No.:	HA-A7T	
Trade Mark:	JVC	
EUT Supports Radios application:	Bluetooth Dual mode 2402-2480MHz	
Hardware Version:	V05	
Software Version:	V0.15	
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location	
Power Supply:	Left ear:	lithium battery: DC 3.7V 55mAh, Charge by DC 5.0V
	Right ear:	lithium battery: DC 3.7V 55mAh, Charge by DC 5.0V

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	Non Signaling Test Tool (manufacturer declare)
Antenna Type:	Integral antenna
Antenna Gain:	0.5dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40

Test Software of EUT:	Non Signaling Test Tool (manufacturer declare)
Antenna Type:	Integral antenna
Antenna Gain:	0.5dBi

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

Left ear:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	6.820	6.5±1	7.5	5.623
Middle(2441MHz)	7.330	7.5±1	8.5	7.079
Highest(2480MHz)	7.940	7.5±1	8.5	7.079
$\pi/4$ DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	6.770	6.5±1	7.5	5.623
Middle(2441MHz)	7.330	7.5±1	8.5	7.079
Highest(2480MHz)	7.970	7.5±1	8.5	7.079
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	6.820	6.5±1	7.5	5.623
Middle(2441MHz)	7.350	7.5±1	8.5	7.079
Highest(2480MHz)	7.950	7.5±1	8.5	7.079

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)	6.770	6.5±1	7.5	5.623	1.743	3.0
Middle (2441MHz)	7.330	7.5±1	8.5	7.079	2.212	
Highest (2480MHz)	7.970	7.5±1	8.5	7.079	2.230	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200700662E-01

Measurement Data

Right ear:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	6.970	6.5±1	7.5	5.623
Middle(2441MHz)	7.380	7.5±1	8.5	7.079
Highest(2480MHz)	8.110	7.5±1	8.5	7.079
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	6.940	6.5±1	7.5	5.623
Middle(2441MHz)	7.320	7.5±1	8.5	7.079
Highest(2480MHz)	8.090	7.5±1	8.5	7.079
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	6.910	6.5±1	7.5	5.623
Middle(2441MHz)	7.300	7.5±1	8.5	7.079
Highest(2480MHz)	8.100	7.5±1	8.5	7.079

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	6.970	6.5±1	7.5	5.623	1.743	3.0
Middle (2441MHz)	7.380	7.5±1	8.5	7.079	2.212	
Highest (2480MHz)	8.110	7.5±1	8.5	7.079	2.230	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200700662E-01

2) For BLE

Measurement Data

Left ear:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.55	3.0±1	4.0	2.512
Middle(2440MHz)	4.01	3.5±1	4.5	2.818
Highest(2480MHz)	5.00	4.5±1	5.5	3.548

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	3.55	3.0±1	4.0	2.512	0.779	3.0
Middle (2440MHz)	4.01	3.5±1	4.5	2.818	0.880	
Highest (2480MHz)	5.00	4.5±1	5.5	3.548	1.118	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200700662E-02

Measurement Data

Right ear:

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.68	3.0±1	4.0	2.512
Middle(2440MHz)	3.15	3.5±1	4.5	2.818
Highest(2480MHz)	4.19	4.5±1	5.5	3.548

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.68	3.0±1	4.0	2.512	0.779	3.0
Middle (2440MHz)	3.15	3.5±1	4.5	2.818	0.880	
Highest (2480MHz)	4.19	4.5±1	5.5	3.548	1.118	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200700662E-02

BDR, EDR and BLE can not simultaneous transmitting at same time.