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RF Exposure Evaluation Report

Report No.:	CQASZ20200901136E-03
Applicant:	HONGKONG VIMAI TECHNOLOGY CO., LIMITED
Address of Applicant:	FLAT/RM H29, 1/F PHASE 2 KWAI SHING IND BLDG NO.42-46, TAI LIN PAI ROAD KWAI CHUNG, HONG KONG
Equipment Under Test (EUT):	
EUT Name:	True wireless Earbuds
Model No.:	EP029, PRO-ANC, JR-TA2
Test Model No.:	EP029
Brand Name:	N/A
FCC ID:	2AVLI-EP030
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-09-29
Date of Test:	2020-10-10 to 2020-10-30
Date of Issue:	2020-10-30
Test Result:	**PASS***

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

Tested By: Tiny You

(Tiny You)

Reviewed By: Sheek Luo

(Sheek Luo)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200901136E-03	Rev.01	Initial report	2020-10-30

2 Contents

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3 General Information

3.1 Client Information

Applicant:	HONGKONG VIMAI TECHNOLOGY CO., LIMITED
Address of Applicant:	FLAT/RM H29, 1/F PHASE 2 KWAI SHING IND BLDG NO.42-46, TAI LIN PAI ROAD KWAI CHUNG, HONG KONG
Manufacturer:	SHEN ZHEN VIMAI TECHNOLOGY CO.,LTD
Address of Manufacturer:	Floor 3, building B, no. 5 huating road, tongsheng community, dalang street, longhua district, shenzhen
Factory:	SHEN ZHEN VIMAI TECHNOLOGY CO.,LTD
Address of Factory:	Floor 3, building B, no. 5 huating road, tongsheng community, dalang street, longhua district, shenzhen

3.2 General Description of EUT

Product Name:	True wireless Earbuds
Model No.:	EP029, PRO-ANC, JR-TA2
Test Model No.:	EP029
Trade Mark:	N/A
EUT Supports Radios application:	Bluetooth Dual mode 2402-2480MHz
Hardware Version:	EP029-62F-ANC-2020-09-16-V1.1
Software Version:	Weimai-EP029-Ven1.2-AB1662F-dem01.0-too1.1.1.1-V0.3-0819-Ledoff
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	lithium battery:DC3.7V, Charge by DC5V

3.3 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Software of EUT:	AB1562 Lab Test Tool (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	2dBi

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps
Number of Channel:	40
Test Software of EUT:	AB1562 Lab Test Tool (manufacturer declare)
Antenna Type:	Ceramic antenna
Antenna Gain:	2dBi

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

1) For BT

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.150	-0.5±1	0.5	1.122
Middle(2441MHz)	1.670	1.0±1	2.0	1.585
Highest(2480MHz)	2.370	1.5±1	2.5	1.778
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.900	0±1	1.0	1.259
Middle(2441MHz)	2.170	1.5±1	2.5	1.778
Highest(2480MHz)	2.850	2.0±1	3.0	1.995
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.040	0.5±1	1.5	1.413
Middle(2441MHz)	2.240	1.5±1	2.5	1.778
Highest(2480MHz)	2.950	2.0±1	3.0	1.995

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	1.040	0.5±1	1.5	1.413	0.438	3.0
Middle (2441MHz)	2.240	1.5±1	2.5	1.778	0.556	
Highest (2480MHz)	2.950	2.0±1	3.0	1.995	0.628	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200901136E-02

2) For BLE

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.73	-2.5±1	-1.5	0.708
Middle(2440MHz)	-0.65	-1.5±1	-0.5	0.891
Highest(2480MHz)	0.28	-0.5±1	0.5	1.122

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)	-1.73	-2.5±1	-1.5	0.708	0.219	3.0
Middle (2440MHz)	-0.65	-1.5±1	-0.5	0.891	0.278	
Highest (2480MHz)	0.28	-0.5±1	0.5	1.122	0.353	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200901136E-01

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