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CNAS L5785

RF Exposure Evaluation Report

Report No.:	CQASZ20200901010E -02
Applicant:	Wicked Audio, Inc
Address of Applicant:	875 WEST 325 NORTH, LINDON, UT 84042, USA
Equipment Under Test (EUT):	
EUT Name:	True wireless earphones
Model No.:	WI-TW3050, WI-TW3051, WI-TW3052, WI-TW3053, WI-TW3054, WI-TW3055, WI-TW3050-CA, WI-TW3051-CA, WI-TW3052-CA, WI-TW3053-CA, WI-TW3054-CA, WI-TW3055-CA, 20TW01
Test Model No.:	WI-TW3050
Brand Name:	N/A
FCC ID:	2AFM7WI-TW305X
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-09-10
Date of Test:	2020-09-10 to 2020-09-25
Date of Issue:	2020-09-25
Test Result:	**PASS***

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

Tested By: Martin Lee
(Martin Lee)

Reviewed By: Sheek Luo
(Sheek Luo)

Approved By:
(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD
APPROVED

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200901010E-02	Rev.01	Initial report	2020-09-25

2 Contents

3 General Information

3.1 Client Information

Applicant:	Wicked Audio, Inc
Address of Applicant:	875 WEST 325 NORTH, LINDON, UT 84042, USA
Manufacturer:	Topway EM Enterprise Ltd.
Address of Manufacturer:	8F., Block B, Building 6, Baoneng Science and technology park, Qingxiang RD., Qinghu Industrial Park, Longhua New District, Shenzhen, GD, China 518109
Factory:	Shenzhen Jia Hua Li Dian Zi You Xian Gong Si
Address of Factory:	NO 101,201, BUILDING E, NEW INDUSTRIAL ZONE, SHENZHU ROAD, LIUYUE SHENKENG VILLAGE, HENGGANG, LONGGANG DISTRICT, SHENZHEN CHINA

3.2 General Description of EUT

Product Name:	True wireless earphones
Model No.:	WI-TW3050, WI-TW3051, WI-TW3052, WI-TW3053, WI-TW3054, WI-TW3055, WI-TW3050-CA, WI-TW3051-CA, WI-TW3052-CA, WI-TW3053-CA, WI-TW3054-CA, WI-TW3055-CA, 20TW01
Test Model No.:	WI-TW3050
Trade Mark:	N/A
Hardware Version:	V1.2
Software Version:	V1.3
EUT Power Supply:	Lithium battery: DC 3.7V, 50mAh, Charge by DC 5V
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
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
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	BT_Tool (manufacturer declare)
Antenna Type:	Chip antenna
Antenna Gain:	3.1dBi

Note:

1. Model No.: WI-TW3050, WI-TW3051, WI-TW3052, WI-TW3053, WI-TW3054, WI-TW3055, WI-TW3050-CA, WI-TW3051-CA, WI-TW3052-CA, WI-TW3053-CA, WI-TW3054-CA, WI-TW3055-CA, 20TW01

Only the model WI-TW3050 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.

2. Since the RF parameters of the left and right earplugs are the same, only the right ear was tested in this report.

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)	-3.330	-4±1	-3.0	0.501
Middle(2441MHz)	-3.180	-4±1	-3.0	0.501
Highest(2480MHz)	-3.620	-4±1	-3.0	0.501
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.100	-2±1	-1.0	0.794
Middle(2441MHz)	-0.870	-1.5±1	-0.5	0.891
Highest(2480MHz)	-1.220	-2±1	-1.0	0.794
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.770	-1.5±1	-0.5	0.891
Middle(2441MHz)	-0.560	-1.5±1	-0.5	0.891
Highest(2480MHz)	-0.870	-1.5±1	-0.5	0.891

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)	-0.770	-1.5±1	-0.5	0.891	0.276	3.0
Middle (2441MHz)	-0.560	-1.5±1	-0.5	0.891	0.278	
Highest (2480MHz)	-0.870	-1.5±1	-0.5	0.891	0.281	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200901010E-01