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CNAS L5785

RF Exposure Evaluation Report

Report No.: CQASZ20210300246E-02
Applicant: Wicked Audio, Inc
Address of Applicant: 875 WEST 325 NORTH, LINDON, UT 84042, USA
Equipment Under Test (EUT):
EUT Name: True wireless earbuds
Model No.: WI-TW3550, WI-TW3551, WI-TW3552, WI-TW3553, WI-TW3554, WI-TW3555, WI-TW3550-CA, WI-TW3551-CA, WI-TW3552-CA, WI-TW3553-CA, WI-TW3554-CA, WI-TW3555-CA, 20TW06
Test Model No.: WI-TW3550
Brand Name: N/A
FCC ID: 2AFM7WI-TW355X
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-3-9
Date of Test: 2021-3-9 to 2021-4-1
Date of Issue: 2021-4-1
Test Result: PASS*

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

Tested By: Jun Li
(Jun Li)

Reviewed By: Ares Liu
(Ares Liu)

Approved By: Sheek Luo
(Sheek Luo)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210300246E-02	Rev.01	Initial report	2021-4-1

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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 earbuds
Model No.:	WI-TW3550, WI-TW3551, WI-TW3552, WI-TW3553, WI-TW3554, WI-TW3555, WI-TW3550-CA, WI-TW3551-CA, WI-TW3552-CA, WI-TW3553-CA, WI-TW3554-CA, WI-TW3555-CA, 20TW06
Test Model No.:	WI-TW3550
Trade Mark:	N/A
Hardware Version:	V2.0
Software Version:	V2.1
EUT Power Supply:	lithium battery:DC3.7V, 60mAh, Charge by DC5.0V 0.5A Charger case:DC 5V 0.2A
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
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:	FCC_assist_1.0.2.2
Antenna Type:	PCB antenna
Antenna Gain:	4dBi

Note:

All model:WI-TW3550, WI-TW3551, WI-TW3552, WI-TW3553, WI-TW3554, WI-TW3555, WI-TW3550-CA, WI-TW3551-CA, WI-TW3552-CA, WI-TW3553-CA, WI-TW3554-CA, WI-TW3555-CA, 20TW06

Only the model WI-TW3550 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.

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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

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)	-0.700	-1.5±1	-0.5	0.891
Middle(2441MHz)	1.080	0±1	1	1.259
Highest(2480MHz)	1.960	1±1	2	1.585
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.110	-1±1	0	1.000
Middle(2441MHz)	1.790	1±1	2	1.585
Highest(2480MHz)	2.660	2±1	3	1.995

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)	-0.110	-1±1	0	1.000	0.310	3.0
Middle (2441MHz)	1.790	1±1	2	1.585	0.495	
Highest (2480MHz)	2.660	2±1	3	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.: CQASZ20210300246E-01