

RF Exposure Evaluation Report

Product : TWS EARPHONES
Trade mark : MINISO
Model/Type reference : TS37
Serial Number : N/A
Report Number : EED32O81632403
FCC ID : 2ART4TS37
Date of Issue : Nov. 14, 2022
: 47 CFR Part 1.1307
: 47 CFR Part 2.1093
Test Standards : KDB447498D01 General RF
Exposure Guidance v06
Test result : PASS

Prepared for:

Miniso Corporation

**Room 2501, No. 486 Heye Square Kangwang Middle Road,
Liwan District, GuangZhou, Guangdong, China**

Prepared by:

**Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China**

TEL: +86-755-3368 3668

FAX: +86-755-3368 3385

Compiled by:

mark.chen

Reviewed by:

Tom Chen

Mark Chen

Tom Chen

Approved by:

Aaron Ma

Date:

Nov. 14, 2022

Aaron Ma

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1 Version

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3 General Information

3.1 Client Information

Applicant:	MINISO Corporation
Address of Applicant:	Room 2501, No. 486 Heye Square Kangwang Middle Road, Liwan District, Guangzhou, Guangdong, China
Manufacturer:	Shenzhen Roman Technology Co., Ltd.
Address of Manufacturer:	Suite 201, No.7 Building, 66 Tongli Road, Tongxin Community, Baolong, Longgang District, Shenzhen City
Factory:	Shenzhen Roman Technology Co., Ltd.
Address of Factory:	Suite 201, No.7 Building, 66 Tongli Road, Tongxin Community, Baolong, Longgang District, Shenzhen City

3.2 General Description of EUT

Product Name:	TWS EARPHONES
Model No.(EUT):	TS37
Trade mark:	MINISO
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Power Supply:	Battery DC 3.7V
Test Voltage:	DC 3.7V
Sample Received Date:	Oct. 17, 2022
Sample tested Date:	Oct. 17, 2022 to Nov. 04, 2022
Remark:	Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified. During the test, the data was showed in all modes, only the worst case left ear was recorded in the report.

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	☒ 1Mbps ☒ 2Mbps
Number of Channel:	40
Antenna Type:	Chip Antenna
Antenna Gain:	3.4dBi

3.4 General Description of BT Classic

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Antenna Type:	Chip Antenna
Antenna Gain:	3.4dBi

3.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.6 Deviation from Standards

None.

3.7 Abnormalities from Standard Conditions

None.

3.8 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
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.

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

4.1.2 EUT RF Exposure

1) For BLE

Measurement Data:

The Ear L for 1M of data is worst, only the worst case is recorded in the report.

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.72	2.0±1	3.0	1.995
Middle(2440MHz)	-1.83	2.0±1	3.0	1.995
Highest(2480MHz)	-2.19	2.0±1	3.0	1.995

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)	1.75	2.0±1	3.0	1.995	0.62	3.0
Middle (2440MHz)	1.8	2.0±1	3.0	1.995	0.62	
Highest (2480MHz)	1.88	2.0±1	3.0	1.995	0.62	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32O81632401.

2) For BT Classic

Measurement Data

The Ear L of data is worst, only the worst case is recorded in the report.

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.4	0±1	1.0	1.259
Middle(2441MHz)	-0.32	0±1	1.0	1.259
Highest(2480MHz)	-0.64	0±1	1.0	1.259
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.32	0±1	1.0	1.259
Middle(2441MHz)	0.47	0±1	1.0	1.259
Highest(2480MHz)	0.2	0±1	1.0	1.259

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)	0.32	0±1	1.0	1.259	0.397	3.0
Middle (2441MHz)	0.47	0±1	1.0	1.259	0.397	
Highest (2480MHz)	0.2	0±1	1.0	1.259	0.397	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32O81632402.

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*** End of Report ***