

RF Exposure Evaluation Report

Product : Lightweight TWS Earphones
Trade mark : MINISO
Model/Type reference : X16
Serial Number : N/A
Report Number : EED32N80941102
FCC ID : 2AS5O-X16
Date of Issue : Oct. 28, 2021
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF
Exposure Guidance v06
Test result : PASS

Prepared for:

China Etech Groups Ltd
16/F, Block C, 2nd Phase of Central Avenue,
Haihong Industrial Area, Xixiang Road,
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Prepared by:

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Date:

Oct. 28, 2021

Check No.: 8310260921

1 Version

Version No.	Date	Description
00	Oct. 28, 2021	Original

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3 General Information

3.1 Client Information

Applicant:	China Etech Groups Ltd
Address of Applicant:	16/F, Block C, 2nd Phase of Central Avenue, Haihong Industrial Area, Xixiang Road, Baoan District, Shenzhen, China
Manufacturer:	China Etech Groups Ltd
Address of Manufacturer:	16/F, Block C, 2nd Phase of Central Avenue, Haihong Industrial Area, Xixiang Road, Baoan District, Shenzhen, China
Factory:	Dongguan China ETECH GROUPS CO.,LTD.
Address of Factory:	Room 501, Building 6, No.2 Hong Jin Road, Li Zhou Jiao Village, Hongmei Town, Dongguan City

3.2 General Description of EUT

Product Name:	Lightweight TWS Earphones
Model No.:	X16
Trade Mark:	MINISO
Bluetooth Version:	V5.0
Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	Lithium battery: DC 3.7V, Charge by DC 5.0V
Test Voltage:	DC 3.7V
Sample Received Date:	Sep. 27, 2021
Sample tested Date:	Sep. 27, 2021 to Oct. 12, 2021
Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified. Note: Since the RF parameters of the left and right earplugs are the same, only the left ear was tested in this report.	

3.3 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

3.4 Deviation from Standards

None.

3.5 Abnormalities from Standard Conditions

None.

3.6 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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$
$$f(\text{GHz}) \text{ is the RF channel transmit frequency in GHz}$$

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 BT Classic

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.25	0.5±1	1.5	1.413
Middle(2441MHz)	1.98	1.0±1	2.0	1.585
Highest(2480MHz)	1.84	1.0±1	2.0	1.585
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.49	0.5±1	1.5	1.413
Middle(2441MHz)	2.52	2.0±1	3.0	1.995
Highest(2480MHz)	2.42	1.5±1	2.5	1.778
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.79	1.0±1	2.0	1.585
Middle(2441MHz)	3.01	2.5±1	3.5	2.239
Highest(2480MHz)	2.83	2.0±1	3.0	1.995

Worst case: 8DPSK mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	1.79	1.0±1	2.0	1.585	0.491	3.0
Middle (2441MHz)	3.01	2.5±1	3.5	2.239	0.700	
Highest (2480MHz)	2.83	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.: EED32N80941101.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80941101 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***