

RF Exposure Evaluation Report

Product : Fashion Speaker with Colorful Lights
Trade mark : MINISO
Model/Type reference : 590B
Serial Number : N/A
Report Number : EED32N80993703
FCC ID : 2AS5O-590B
Date of Issue : Oct. 26, 2021
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF
Exposure Guidance v06
Test result : PASS

Prepared for:

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Oct. 26, 2021

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1 Version

Version No.	Date	Description
00	Oct. 26, 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:	Fashion Speaker with Colorful Lights
Model No.:	590B
Trade Mark:	MINISO
EUT Supports Radios application:	Bluetooth 5.0 dual mode: 2402-2480MHz
Hardware Version:	1.0
Software Version:	5.0
Power Supply:	Lithium battery: DC 3.7V, Charge by DC 5.0V
Test Voltage:	DC 3.7V
Sample Received Date:	Oct. 11, 2021
Sample tested Date:	Oct. 11, 2021 to Oct. 21, 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.	

3.3 General Description of BLE

Bluetooth Version:	V5.0
Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	☒ 1Mbps ☐ 2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	-0.58dBi

3.4 General Description of BT Classic

Bluetooth Version:	V5.0
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
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	-0.58dBi

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

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.83	-4.5±1	-3.5	0.447
Middle(2440MHz)	-3.21	-4.0±1	-3.0	0.501
Highest(2480MHz)	-2.61	-3.5±1	-2.5	0.562

Worst case: GFSK mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-3.83	-4.5±1	-3.5	0.447	0.138	3.0
Middle (2440MHz)	-3.21	-4.0±1	-3.0	0.501	0.157	
Highest (2480MHz)	-2.61	-3.5±1	-2.5	0.562	0.177	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32N80993701.

2) 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)	-3.83	-4.5±1	-3.5	0.447
Middle(2441MHz)	-3.17	-4.0±1	-3.0	0.501
Highest(2480MHz)	-2.62	-3.5±1	-2.5	0.562
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-2.95	-3.5±1	-2.5	1.778
Middle(2441MHz)	-2.31	-3.0±1	-2.0	0.631
Highest(2480MHz)	-1.71	-2.5±1	-1.5	0.708

Worst case: $\pi/4$ DQPSK mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-2.95	-3.5±1	-2.5	1.778	0.551	3.0
Middle (2441MHz)	-2.31	-3.0±1	-2.0	0.631	0.197	
Highest (2480MHz)	-1.71	-2.5±1	-1.5	0.708	0.223	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32N80993702.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80993701 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 ***