

RF Exposure Evaluation Report

Product : We Bare Bears Collection 4.0 Wireless Speaker
Trade mark : MINISO
Model/Type reference : D99
Serial Number : N/A
Report Number : EED32N81239402
FCC ID : 2AUT6-D99
Date of Issue : Dec. 21, 2021
: 47 CFR Part 1.1307
Test Standards : 47 CFR Part 1.1310
: KDB447498D01 General RF Exposure Guidance v06
Test result : PASS

Prepared for:

SHENZHEN NARUI ELECTRONIC CO., LTD
4/F, Bldg#1, Xianyuxing Ind, the 4th zone, Yuhe Road, Gonghe
community, Shajing, Bao'an Dist, Shenzhen

Prepared by:

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2 Version

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4 General Information

4.1 Client Information

Applicant:	SHENZHEN NARUI ELECTRONIC CO., LTD
Address of Applicant:	4/F, Bldg#1, Xianyuxing Ind, the 4th zone, Yuhe Road, Gonghe community, Shajing , Bao'an Dist, Shenzhen
Manufacturer:	SHENZHEN NARUI ELECTRONIC CO., LTD
Address of Manufacturer:	4/F, Bldg#1, Xianyuxing Ind, the 4th zone, Yuhe Road, Gonghe community, Shajing , Bao'an Dist, Shenzhen
Factory:	SHENZHEN NARUI ELECTRONIC CO., LTD
Address of Factory:	4/F, Bldg#1, Xianyuxing Ind, the 4th zone, Yuhe Road, Gonghe community, Shajing , Bao'an Dist, Shenzhen

4.2 General Description of EUT

Product Name:	We Bare Bears Collection 4.0 Wireless Speaker
Test Model No.:	D99
Trade mark:	MINISO
Product Type:	☐ Mobile ☐ Portable ☒ Fix Location
Power Supply:	Battery 14500 400mAh 1.48Wh 3.7V
Test Voltage:	DC 3.7V
Sample Received Date:	Nov. 23, 2021
Sample tested Date:	Nov. 23, 2021 to Dec. 08 , 2021
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.

4.3 General Description of BT Classic

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
Antenna Type:	PCB Antenna
Antenna Gain:	1.9dBi
Test Power Grade:	Default
Test Software of EUT:	BT_Tool

4.4 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

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure

For BT Classic

Antenna Gain: 1.9dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.549 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

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)	0.71	0.5±0.5	1	1.259
Middle(2441MHz)	-0.63	-1.5±1	-0.5	0.891
Highest(2480MHz)	-2.02	-1.5±1	-0.5	0.891
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.09	1±0.5	1.5	1.413
Middle(2441MHz)	-0.13	-1±1	0	1
Highest(2480MHz)	-1.75	-1±1	0	1
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.46	1±0.5	1.5	1.413
Middle(2441MHz)	0.13	0.5±0.5	1	1.259
Highest(2480MHz)	-1.27	-1±1	0	1

The worst case:

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
1.413	1.9	0.0004	1.0	PASS

Note: 1) Refer to report No. EED32N81239401 for EUT test Max Conducted Peak Output Power value.

2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (1.413 * 1.549) / (4 * 3.1416 * 20^2) = 0.0004$.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N81239401 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 ***