



RF Exposure Evaluation Declaration

FCC ID: Z9G-EDF161
Applicant: Edifier International Limited
Address: P.O. Box 6264 General Post Office Hong Kong

Application Type: Certification
Product: Active Speaker
Model No.: EDF100040, EDF100041
Brand Name: EDIFIER
FCC Rule Part(s): FCC Part 2 (Section 2.1091)
Test Date: December 10, 2021

Reviewed By:

Sunny Sun

Approved By:

Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Shenzhen) Co., Ltd.

Revision History

| Report No. | Version | Description | Issue Date | Note |
|---------------|---------|----------------|------------|-------|
| 2111RSU101-U3 | Rev. 01 | Initial Report | 01-16-2022 | Valid |
| | | | | |

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1.1. Applicant

P.O. Box 6264 General Post Office Hong Kong

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1.3. Test Facility

| | |
|-------------------------------------|--|
| <input type="checkbox"/> | Test Site – MRT Suzhou Laboratory Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China Laboratory Accreditations A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: <input type="checkbox"/> R-20025 <input type="checkbox"/> G-20034 <input type="checkbox"/> C-20020 <input type="checkbox"/> T-20020 <input type="checkbox"/> R-20141 <input type="checkbox"/> G-20134 <input type="checkbox"/> C-20103 <input type="checkbox"/> T-20104 |
| <input checked="" type="checkbox"/> | Test Site – MRT Shenzhen Laboratory Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China Laboratory Accreditations A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105 |
| <input type="checkbox"/> | Test Site – MRT Taiwan Laboratory Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) Laboratory Accreditations TAF: L3261-190725 FCC: 291082, TW3261 ISED: TW3261 |

1.4. Product Information

| | |
|--|---|
| Product Name | Active Speaker |
| Model No. | EDF100040, EDF100041 |
| Test Device Label No. | 20211127Sample#02 (for Conducted) 20211127Sample#03 (for Radiated) |
| Operating Temp. | 0 ~ 45°C |
| Rated Input | 100-240Vac, 50/60Hz, 500mA |
| Bluetooth Specification | V5.1 Single mode, BR/EDR only |
| Accessory | |
| Remote Controller | Power Type: Button Battery for EDF100040; AAA Battery for EDF100041 Infrared Radiation |
| Remarks: | |
| 1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer. | |
| 2. The test model is EDF100040, and the only difference between EDF100040 and EDF100041 is different color. | |
| 3. The two models are shipped with different infrared remote controller. | |

1.5. Radio Specification

| | |
|---------------------|---|
| Operating Frequency | 2402 ~ 2480MHz |
| Channel Number | 79 |
| Type of modulation | GFSK, $\pi/4$ DQPSK, 8DPSK |
| Data Rate | 1Mbps (GFSK), 2Mbps ($\pi/4$ DQPSK), 3Mbps (8DPSK) |
| Antenna Type | Multilayer Chip Antenna |
| Antenna Gain | 2.50dBi |

1.6. Applied Standards

KDB 447498 D01v06

2. RF Exposure Evaluation

2.1. Test Limit

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation

Distances are illustrated in the following Table. The equation and threshold in Note 1 must be applied to determine SAR test exclusion.

| MHz | 5 | 10 | 15 | 20 | 25 | mm |
|------|-----|-----|-----|-----|-----|--|
| 150 | 39 | 77 | 116 | 155 | 194 | SAR Test Exclusion Threshold (mW) |
| 300 | 27 | 55 | 82 | 110 | 137 | |
| 450 | 22 | 45 | 67 | 89 | 112 | |
| 835 | 16 | 33 | 49 | 66 | 82 | |
| 900 | 16 | 32 | 47 | 63 | 79 | |
| 1500 | 12 | 24 | 37 | 49 | 61 | |
| 1900 | 11 | 22 | 33 | 44 | 54 | |
| 2450 | 10 | 19 | 29 | 38 | 48 | |
| 3600 | 8 | 16 | 24 | 32 | 40 | |
| 5200 | 7 | 13 | 20 | 26 | 33 | |
| 5400 | 6 | 13 | 19 | 26 | 32 | |
| 5800 | 6 | 12 | 19 | 25 | 31 | |
| MHz | 30 | 35 | 40 | 45 | 50 | mm |
| 150 | 232 | 271 | 310 | 349 | 387 | SAR Test Exclusion Threshold (mW) |
| 300 | 164 | 192 | 219 | 246 | 274 | |
| 450 | 134 | 157 | 179 | 201 | 224 | |
| 835 | 98 | 115 | 131 | 148 | 164 | |
| 900 | 95 | 111 | 126 | 142 | 158 | |
| 1500 | 73 | 86 | 98 | 110 | 122 | |
| 1900 | 65 | 76 | 87 | 98 | 109 | |
| 2450 | 57 | 67 | 77 | 86 | 96 | |
| 3600 | 47 | 55 | 63 | 71 | 79 | |
| 5200 | 39 | 46 | 53 | 59 | 66 | |
| 5400 | 39 | 45 | 52 | 58 | 65 | |
| 5800 | 37 | 44 | 50 | 56 | 62 | |

Note: 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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] * [\sqrt{f(\text{GHz})}]$$

 ≤ 3.0 for 1-g SAR and ≤ 7.5 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 calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

2.2. Test Result

| | |
|-----------|------------------------|
| Product | Active Speaker |
| Test Item | RF Exposure Evaluation |

| Test Mode | Frequency Band (MHz) | Maximum Output Power (dBm) | Tune Up Power (dBm) | Tune Up Power (mW) | SAR Test Exclusion Threshold (mW) @ 5mm |
|-----------|----------------------|----------------------------|---------------------|--------------------|---|
| Bluetooth | 2402 ~ 2480 | 3.88 | 4.00 | 2.51 | 10 |

Note: Per FCC KDB 447498 D01v06, the SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency (GHz)}} \leq 3.0$$

Based on the maximum conducted power of Bluetooth and the antenna to use separation distance, Bluetooth SAR was not required;

For Bluetooth-LE, $(2.51 / 5) * \sqrt{2.480} = 0.79 < 3.00$

So SAR test exclusion can be applied for Active Speaker.

_____ The End _____