



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.

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Revision History

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

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1. General Information

1.1. Applicant

Edifier International Limited

P.O. Box 6264 General Post Office Hong Kong

1.2. Manufacturer

Edifier International Limited

P.O. Box 6264 General Post Office Hong Kong

1.3. Test Facility

☐	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 FCC: CN1166 VCCL: ☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104 CNAS: L10551 ISED: CN0001
☒	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 FCC: CN1284 CNAS: L10551 ISED: CN0105
☐	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 $\leq$ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}]$$
$$\leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before 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 $\leq$ 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