

Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT:

Pass

Test item	:	5TH WHEEL Electric Bicycle
Identification / Type No.	:	TDR01Z
FCC ID	:	FCC ID: 2A33ETDR01Z
Test standard	:	CFR47 FCC Part 2: Section 2.1093 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06

➤ Product Classification

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

Max 0.00 dBi

➤ Radio Frequency Exposure Limit

a) For 100 MHz to 6 GHz and *test separation distances* \leq 50 mm, the 1-g and 10-g *SAR test exclusion thresholds* are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR,}^{30} \text{ where}$$

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) 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 4.1 f) is applied to determine SAR test exclusion.

b) For 100 MHz to 6 GHz and *test separation distances* $>$ 50 mm, the 1-g and 10-g *SAR test exclusion thresholds* are determined by the following (also illustrated in Appendix B):³²

- 1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a}]] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f_{(\text{MHz})}/150)]\} \text{ mW, for 100 MHz to 1500 MHz}$
- 2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a}]] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\} \text{ mW, for } > 1500 \text{ MHz and } \leq 6 \text{ GHz}$

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):³³

- 1) For *test separation distances* > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by $[1 + \log(100/f_{(\text{MHz})})]$
- 2) For *test separation distances* ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz.

a) Evaluation for Standalone Transmission Operation

for FCC

Mode	Frequency [MHz]	Conducted Output Power [dBm]/[mW]	Antenna Gain [dBi]	E.I.R.P [dBm]/[mW]	Evaluation Distance [mm]	Max Allowed Power (1g SAR) [mW]
BLE	2480	5.226/3.331	0	5.226/3.331	5	9.525

Note:

1. BLE RF Output Power refer to, CN22NWGM 001

➤ **Conclusion**

According to the result, the transmitting device should keep a minimum distance of 5mm from human body to satisfy the SAR exclusions, and the distance of the transmitter from human body in normal using will be much higher than 5mm, so the device meet the SAR requirement.