

RF Exposure Evaluation for FCC ID: 2AHW7-VB3

Refer user manual this device is a Feiyu Vimble 3 3-Axis Handheld Gimbal for Smartphone, and this device was designed used in portable devices that the minimum distance between human's body is **5mm**. Based on the 47CFR 2.1093, this device belongs to portable device. The definition of the category as following:

Portable Derives:

CFR Title 47 §2.1093(b)

(b) For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

FCC KDB 447498 Derives:

According with FCC KDB 447498 D04, Appendix B, The SAR-based exemption formula applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). The following table shows the power threshold from 5mm to 50mm.

| Power Thresholds (mW) | | | | | |
|-----------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Frequency (MHz) | At separation distance of ≤5 mm | At separation distance of 10 mm | At separation distance of 15 mm | At separation distance of 20 mm | At separation distance of 25 mm |
| 300 | 39 mW | 65 mW | 88 mW | 110 mW | 129 mW |
| 450 | 22 mW | 44 mW | 67 mW | 89 mW | 112 mW |
| 835 | 9 mW | 25 mW | 44 mW | 66 mW | 90 mW |
| 1900 | 3 mW | 12 mW | 26 mW | 44 mW | 66 mW |
| 2450 | 3 mW | 10 mW | 22 mW | 38 mW | 59 mW |
| 3600 | 2 mW | 8 mW | 18 mW | 32 mW | 49 mW |
| 5800 | 1 mW | 6 mW | 14 mW | 25 mW | 40 mW |
| Frequency (MHz) | At separation distance of 30 mm | At separation distance of 35 mm | At separation distance of 40 mm | At separation distance of 45 mm | At separation distance of 50 mm |
| 300 | 148 mW | 166 mW | 184 mW | 201 mW | 217 mW |
| 450 | 135 mW | 158 mW | 180 mW | 203 mW | 226 mW |
| 835 | 116 mW | 145 mW | 175 mW | 207 mW | 240 mW |
| 1900 | 92 mW | 122 mW | 157 mW | 195 mW | 236 mW |
| 2450 | 83 mW | 111 mW | 143 mW | 179 mW | 219 mW |
| 3600 | 71 mW | 96 mW | 125 mW | 158 mW | 195 mW |
| 5800 | 58 mW | 80 mW | 106 mW | 136 mW | 169 mW |

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance among production units
2. Per KDB 447498 D04, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D04, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
4. Per KDB 447498 D04, for separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive), the threshold Pth (mW) is given by Following:

$$P_{th}(mW) = \begin{cases} ERP_{20cm}(d/20cm)^x & d \leq 20cm \\ ERP_{20cm} & 20cm < d \leq 40cm \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20cm}\sqrt{f}} \right)$$

- a. f(GHz) is the RF channel transmit frequency in GHz
- b. d is the separation distance (cm), The result is rounded to one decimal place for comparison
- c. ERP_{20cm} are determined by:

$$ERP_{20cm}(mW) = f(x) = \begin{cases} 2040f & 0.3GHz \leq f < 1.5GHz \\ 3060 & 1.5GHz \leq f \leq 6GHz \end{cases}$$

Test data

| Bluetooth | | | |
|--------------------|-------------|----------------|--------------|
| Mode | GFSK (BLE) | | |
| | Low Channel | Middle Channel | High Channel |
| Peak Power (dBm) | -7.41 | -6.14 | -6.09 |
| Antenna Gain (dBi) | -1.26 | | |
| EIRP/ERP | -8.67 | -7.40 | -7.35 |

Note: This report listed the worst case power value, please refer to RF test report for more details.

Turn-up power

| Mode | Conducted Power Range (dBm) |
|-----------|-----------------------------|
| Bluetooth | (-7.5) - (-6.0) |

RF Exposure Evaluation Result

| Mode | Distance (mm) | Calculation Frequency (MHz) | Tune-up limit power (dBm) | Tune-up limit power (mW) | Threshold Value(mW) | Verdict |
|-----------|---------------|-----------------------------|---------------------------|--------------------------|---------------------|------------|
| Bluetooth | 5 | 2480 | -6.0 | 0.25 | 2.72 | Compliance |

Conclusion:

RF exposure Evaluation Results: **Compliance**

--END OF REPORT--