

FCC §15.407(f), §1.1310 & §2.1093 – RF EXPOSURE

Applicable Standard

According to §1.1310 and §2.1093, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ 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.

Measurement Result

| Mode | Frequency Range (MHz) | Target Output Power | | Minimum test separation distance required for the exposure conditions (mm) |
|------------|-----------------------|---------------------|------|--|
| | | (dBm) | (mW) | |
| BT3.0 | 2402-2480 | 6.0 | 3.98 | 5.00 |
| BLE | 2402-2480 | 3.0 | 2.00 | 5.00 |
| 2.4G Wi-Fi | 2412-2462 | 9.7 | 9.33 | 5.00 |
| 5G Wi-Fi | 5150-5250 | 3.4 | 2.19 | 5.00 |
| | 5725-5850 | 3.2 | 2.09 | 5.00 |

Note: 1. The target output power was declared by the manufacturer.

2. BT3.0, BLE, 2.4 GHz & 5 GHz Wi-Fi share a same antenna and can't transmit simultaneously.

Result:

For BT3.0: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 3.98/5 \cdot \sqrt{2.48} = 1.3 < 3.0$.

For BLE: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 2.00/5 \cdot \sqrt{2.48} = 0.6 < 3.0$

For 2.4G Wi-Fi: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 9.33/5 \cdot \sqrt{2.462} = 2.9 < 3.0$

For 5G Wi-Fi: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • $[\sqrt{f(\text{GHz})}] = 2.09/5 \cdot \sqrt{5.85} = 1.0 < 3.0$

So the stand-alone SAR evaluation is not necessary.