

RF exposure evaluation

According to 447498 D01 General RF Exposure Guidance v05r02 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

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

Worse case for 2.4GWi-Fi as below:

[2412MHz: 8.37dBm (6.87 mW) output power]

$(6.87 \text{ mW} / 5\text{mm}) \cdot [\sqrt{2.412(\text{GHz})}] = 2.13 < 3.0$ for 1-g SAR

So, SAR evaluation for 2.4GWi-Fi as below is not required

Worse case for BLE as below:

[2442MHz: 6.73dBm (4.71 mW) output power]

$(4.71 \text{ mW} / 5\text{mm}) \cdot [\sqrt{2.442(\text{GHz})}] = 1.47 < 3.0$ for 1-g SAR

So, SAR evaluation for BLE as below is not required

Worse case for Bluetooth as below:

[2420MHz: 5.91dBm (3.90 mW) output power]

$(3.90 \text{ mW} / 5\text{mm}) \cdot [\sqrt{2.420(\text{GHz})}] = 1.21 < 3.0$ for 1-g SAR

So, SAR evaluation for Bluetooth as below is not required