



RF Exposure evaluation

According to KDB 447498 D01 General RF Exposure Guidance v06 and 47CFR part 2.1093.

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:

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

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

Here,

For BLE

Frequency (MHz)	Max power (dBm)	Maxpower (mW)	Min.distance (mm)	Calculation Value	Threshold Value
2440	4.04	2.54	5	1.56	3.0

For BT

Frequency (MHz)	Max power (dBm)	Maxpower (mW)	Min.distance (mm)	Calculation Value	Threshold Value
2441	4.36	2.73	5	1.56	3.0

For 2.4G WIFI

Frequency (MHz)	Max power (dBm)	Maxpower (mW)	Min.distance (mm)	Calculation Value	Threshold Value
2412	8.68	7.38	5	1.55	3.0

**For 5.2G WIFI**

Frequency (MHz)	Max power (dBm)	Maxpower (mW)	Min.distance (mm)	Calculation Value	Threshold Value
5180	8.92	7.80	5	2.28	3.0

For 5.8G WIFI

Frequency (MHz)	Max power (dBm)	Maxpower (mW)	Min.distance (mm)	Calculation Value	Threshold Value
5785	8.36	6.85	5	2.41	3.0

Operate simultaneously

BT: $(2.73\text{mW} / 5\text{mm}) * [\sqrt{2.441(\text{GHz})/7.5}] = 0.178 \text{ w/kg}$

BLE: $(2.54\text{mW} / 5\text{mm}) * [\sqrt{2.440(\text{GHz})/7.5}] = 0.165 \text{ w/kg}$

2.4GWIFI: $(7.38\text{mW} / 5\text{mm}) * [\sqrt{2.412(\text{GHz})/7.5}] = 0.475 \text{ w/kg}$

5.2GWIFI: $(7.80\text{mW} / 5\text{mm}) * [\sqrt{5.180(\text{GHz})/7.5}] = 1.077 \text{ w/kg}$

5.8GWIFI: $(6.85\text{mW} / 5\text{mm}) * [\sqrt{5.785(\text{GHz})/7.5}] = 1.057 \text{ w/kg}$

If BT+ 2.4G WIFI operate simultaneously, then $0.178+0.475=0.653<1.6\text{w/kg}$

If BT +5.2G WIFI operate simultaneously, then $0.178+1.077=1.255<1.6\text{w/kg}$

If BT + 5.8G WIFI operate simultaneously, then $0.178+1.057=1.235<1.6\text{w/kg}$

If BLE+ 2.4G WIFI operate simultaneously, then $0.165+0.475=0.640<1.6\text{w/kg}$

If BLE +5.2G WIFI operate simultaneously, then $0.165+1.077=1.242<1.6\text{w/kg}$

If BLE + 5.8G WIFI operate simultaneously, then $0.165+1.057=1.222<1.6\text{w/kg}$

So SAR test is not required