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:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(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)] • [√f(GHz)]= 3.98/5*√2.48=1.3 <3.0.

For BLE: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)]= 2.00/5*√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)] • [√f(GHz)]= 9.33/5*√2.462=2.9<3.0

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

So the stand-alone SAR evaluation is not necessary.