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## §1.1310 & §2.1093 – RF EXPOSURE

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### Applicable Standard

According to §2.1093 and §1.1307(b)(1), 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:

For 100 MHz to 6 GHz and test separation distances  $\leq 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- 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
- When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion

### Measurement Result

**For worst case**

Mode	Frequency Range (MHz)	Frequency (MHz)	Tune-up Conducted Power		Calculated Distance (mm)	Calculated Value	Threshold (1-g)	SAR Test Exclusion
			(dBm)	(mW)				
Bluetooth	2402-2480	2480	2.00	1.58	5.00	0.50	3.00	Yes
BLE	2402-2480	2480	4.00	2.51	5.00	0.79	3.00	Yes
802.11b	2412~2462	2462	9.50	8.91	5.00	2.80	3.00	Yes
802.11g	2412~2462	2462	5.50	3.55	5.00	1.11	3.00	Yes
802.11n20	2412~2462	2462	8.00	6.31	5.00	1.98	3.00	Yes
802.11a	5150~5250	5250	6.00	3.98	5.00	1.82	3.00	Yes
	5725~5850	5850	6.50	4.47	5.00	2.16	3.00	Yes
802.11ac20	5150~5250	5250	6.50	4.47	5.00	2.05	3.00	Yes
	5725~5850	5850	7.00	5.01	5.00	2.42	3.00	Yes
802.11n20	5150~5250	5250	7.50	5.62	5.00	2.58	3.00	Yes
	5725~5850	5850	7.90	6.17	5.00	2.98	3.00	Yes
802.11ac40	5150~5250	5250	6.50	4.47	5.00	2.05	3.00	Yes
	5725~5850	5850	7.00	5.01	5.00	2.42	3.00	Yes
802.11n40	5150~5250	5250	7.50	5.62	5.00	2.58	3.00	Yes
	5725~5850	5850	7.90	6.17	5.00	2.98	3.00	Yes
802.11ac80	5210	5210	7.00	5.01	5.00	2.29	3.00	Yes
	5775	5775	7.00	5.01	5.00	2.41	3.00	Yes

**Note:** 1. The tune-up output power was declared by the manufacturer.

2. Bluetooth, BLE, 2.4 GHz & 5 GHz Wi-Fi can't transmit simultaneously.

3. For 802.11b, 802.11g, 802.11a, the Tune-up power is based on SISO mode

For 802.11n20/ac20/n40/ac40/ac80, the Tune-up power is based on MIMO mode

**So the stand-alone SAR evaluation is not necessary**