

RF exposure evaluation

§ 2.1093 Radiofrequency radiation exposure evaluation: Portable Devices.

According to § 15.247(i) and § 1.1307b(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidance.

The 1-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- When the minimum test separation distance is < 5 mm, a distance of 5 mm according is applied to determine SAR test exclusion.
- The result is rounded to one decimal place for comparison

For BDR+EDR:

Channel	Frequency (GHz)	Tune up Power (dBm)	Max. Tune up Power (dBm)	Max. Tune up Power (mW)
CH 00	2.402	7.28±1	8.28	6.73
CH 39	2.441	8.72±1	9.72	9.38
CH 78	2.480	8.66±1	9.66	9.25

For BLE:

Channel	Frequency (GHz)	Tune up Power (dBm)	Max. Tune up Power (dBm)	Max. Tune up Power (mW)
CH 00	2.402	8.55±1	9.55	9.02
CH 39	2.440	8.63±1	9.63	9.18
CH 78	2.480	8.49±1	9.49	8.89

For BDR+EDR:

Channel	Frequency (GHz)	Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 78	2.441	9.72	9.38	5	2.93	3.0

For BLE:

Channel	Frequency (GHz)	Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 39	2.440	9.63	9.18	5	2.87	3.0

Result:

Base on the calculation value, No SAR measurement is required.