

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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ 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	-2±1	-1	0.79
CH 39	2.441	-1±1	0	1.00
CH 78	2.480	-1±1	0	1.00

Channel	Frequency (GHz)	Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 78	2.48	-0.33	0.93	5	0.29	3.0

For BLE:

Channel	Frequency (GHz)	Tune up Power (dBm)	Max. Tune up Power (dBm)	Max. Tune up Power (mW)
CH 00	2.402	7±1	8	6.31
CH 19	2.440	7±1	8	6.31
CH 39	2.480	7±1	8	6.31

Channel	Frequency	Power	Max.	Test	Result	exclusion
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	(GHz)	(dBm)	Power (mW)	distance (mm)		thresholds for 1-g SAR
CH 39	2.48	7.35	5.43	5	1.71	3.0

For WIFI:

Channel	Frequency (GHz)	Tune up Power (dBm)	Max. Tune up Power (dBm)	Max. Tune up Power (mW)
CH 1	2.412	8.7±1	9.7	9.33
CH 6	2.437	8.4±1	9.4	8.71
CH 11	2.462	7.2±1	8.2	6.61

Channel	Frequency (GHz)	Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 1	2.412	9.69	9.31	5	2.89	3.0

For Ull:

Channel	Frequency (GHz)	Tune up Power (dBm)	Max. Tune up Power (dBm)	Max. Tune up Power (mW)
CH36	5180	6±1	7	5.01
CH40	5200	6±1	7	5.01
CH48	5240	5±1	6	3.98
CH149	5745	6±1	7	5.01
CH157	5785	5.2±1	6.2	4.17
CH165	5825	5±1	6	3.98

Channel	Frequency (GHz)	Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 36	5.18	6.32	4.29	5	1.95	3.0

Result:

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

