

FCC ID: GDDJW-5000

According to §15.247(i) and §1.1307(b)(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 guidelines.

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:

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

The result is rounded to one decimal place for comparison;

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 is applied to determine SAR test exclusion.

We use 5mm as separation distance to calculate.

Maximum measured transmitter power:

Antenna Gain: 2.9 dBi

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	EIRP [dBm]	maximum power (dBm)	Result calculation	1-g SAR
BLE_1M	Ant1	2402	-0.75	2.15	3	0.618	3
		2440	-0.95	1.95	3	0.623	3
		2480	-0.64	2.26	3	0.628	3
BLE_2M	Ant1	2402	-0.72	2.18	3	0.618	3
		2440	-0.94	1.96	3	0.623	3
		2480	-0.66	2.24	3	0.628	3

Conclusion:

For the max result : $0.628 \leq 3.0$ for 1-g SAR extremity SAR, No SAR is required.

➤ Test Standards and Limits

1. According to KDB 447498 D01 v06, Section 4.3.1

2. FCC Radiofrequency radiation exposure limits:

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:

$[(\text{max power of channel})/(\text{min test separation distance})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

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 4.1 f) is applied to determine SAR test exclusion.

For 2.4G band device, the limit of worse case is

$$P_{\text{max}} \leq 3.0 \cdot D_{\text{min}} / f = 3.0 \cdot 5 / [\sqrt{2.474}] = 9.537 \text{ mW}$$

➤ Measurement and Calculation

1. Maximum transmit power

SRD 2.4G, Antenna Gain: 2.9 dBi

Operation Mode	Channel Number	Channel Frequency (MHz)	Emission Level(dBuV/m)	EIRP (dBm)
2.4G SRD	0	2402	90.84	-4.39
	19	2440	89.45	-5.78
	39	2480	91.28	-3.94
* $\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V}/\text{m}] + 20 \log(d[\text{meters}]) - 104.77$				

2. MPE Calculation

According to the formula. calculate the EIRP test result:

$$\text{EIRP} = 0.4 \text{ mW} < 9.525 \text{ mW}$$

So the SAR report is not required.

Signature:



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