

According to KDB 447498 D04 Interim General RF Exposure Guidance v01

1. SAR-based Exemption

A more comprehensive exemption, considering a variable power threshold that depends on both the separation distance and power, is provided in § 1.1307(b)(3)(i)(B). This exemption is applicable to the frequency range between 300 MHz and 6 GHz, with test separation distances between 0.5 cm and 40 cm, and for all RF sources in fixed, mobile, and portable device exposure conditions.

Accordingly, a RF source is considered an RF exempt device if its available maximum time-averaged (matched conducted) power or its effective radiated power (ERP), whichever is greater, are below a specified threshold. This exemption threshold was derived based on general population 1-g SAR requirements and is detailed in Appendix C.

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

2. RF Exposure Test Exemptions for Single Source

Mode	Frequency Range (MHz)	Minimum Separation Distance (cm)	Maximum Average Target Power (dBm)	Maximum Tune up (dB)	Maximum Average Output Power		Ant. Gain (dBi)	ERP		Limits ²⁾ P _{th} (mW)	Ratio ¹⁾	Result
					(dBm)	(mW)		(dBm)	(mW)			
Bluetooth Low Energy	2 402 ~ 2 480	0.5	3.5	1.0	4.5	2.818	2.98	7.48	5.598	6.969	0.803	Pass

Note ;

- ERP (dBm) = Maximum average power (dBm) + Antenna gain (dBi) -2.15
- Maximum average target power is the manufacturer's declared rated power.
- Maximum average output power = Maximum average target power (dBm) + Maximum tune up (dB).

1) A greater value between the ERP(dBm) and the Maximum average output power(dBm) is applied.

2) SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.

3. Conclusion: No SAR is required.