

FCC ID: 2BN2L-GEN2S3

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)	Tolerance (dB)	Maximum Average Output Power		Ant. Gain (dBi)	ERP		Limits P_{th} (mW)	Ratio ¹⁾	Result
					(dBm)	(mW)		(dBm)	(mW)			
Zigbee	2 425 ~ 2 475	10	2	0.3	2.3	1.70	-0.47	-0.32	0.929	817.43	0.002	Pass

Note ;

- Maximum average target power is the manufacturer's declared rated power.
- $ERP(dBm) = \text{Maximum average output power}(dBm) + \text{Antenna gain}(dBi) - 2.15$

1) A greater value between the ERP(dBm) and the Maximum Average Output Power(dBm) is applied.

3. Conclusion: No SAR is required.