

5. RF EXPOSURE EVALUATION

5.1 Applicable Standard

According to §1.1307(b)(3)(i)

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

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

Where

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

and

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

d = the separation distance (cm);

5.1.1 Measurement Result

Frequency (MHz)	Distance (mm)	P_{th} (mW)	Maximum EIRP (dBm)	Maximum ERP		SAR-Based Exemption
				dBm	mW	
2420-2465	5	2.72	1.35	-0.8	0.83	Compliant

Note:

1. Chose the maximum power to do MPE analysis.
2. This device maximum E-Field level is 96.55 dB μ V/m at 3m, so the EIRP power is 1.35dBm.
3. Pout EIRP(dBm)=Field Strength of Fundamental(dBuV/m)-95.2 (dB)

Result: The device compliant the SAR-Based Exemption at 5mm distances.