

## RF Exposure / MPE Calculation

### § 15.247(i) Maximum Permissible Exposure

**RF Exposure Requirements:** §1.1307(b)(1) and §1.1307(b)(2): 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 levels in excess of the Commission's guidelines.

**RF Radiation Exposure Limit:** §1.1310: As specified in this section, the Maximum Permissible Exposure (MPE) Limit shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1093 of this chapter.

Test Results:

#### Bluetooth Low Energy (2.4 GHz)

Frequency (MHz)	Con. Pwr. (dBm)	Tuneup tolerance (dB)	Con. Pwr. Including Tuneup Tolerance (mW)	Calculated SAR Threshold	1.0-g SAR Limit	Margin	Separation Distance Declared (mm)	Result
2440	-1.62	1.0	1.95	0.609	3.0	-2.391	5	Pass

**Figure 1: RF Human Exposure, Test Results**

Per KDB 447498, Section 4.3.1 (a), applicable for 100 MHz to 6 GHz and test separation distances  $\leq 50$  mm:

$$\frac{\text{max. power of channel, including tuneup tolerance [mW]}}{\text{min. test separation distance [mm]}} * \sqrt{f \text{ [GHz]}} \leq 3.0 \text{ (1 - g SAR Limit)}$$

$$\frac{1.95 \text{ mW}}{5 \text{ mm}} * \sqrt{2.440} = 0.609 \leq 3.0 \text{ (1 - g SAR)}$$

The safe distance where Power Density is less than the MPE Limit listed above was found to be 5 mm.