

RF Exposure / SAR / Health Hazard Statement

Requirement:

According to CFR 15 §1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy level in excess of the Commission’s guideline.

SAR Testing Exclusion:

Per FCC 447498 General RF Exposure Guidance v05, Section 4.3.1, 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 the following formula

$$SAR_{threshold} = \frac{Pc(mW)}{d(mm)} \sqrt{f_{GHz}}$$

where d = minimum test distance and Pc is the source-based time-averaged maximum conducted output power, or EIRP for a device without a removable antenna. The SAR threshold at a minimum test distance of 5 mm is thus computed to be:

SAR Threshold

Frequency (GHz)	EIRP (Pk) (mW)	dmin (mm)	Computed SAR Threshold (Pk)	1-g SAR Threshold (Avg)	10-g SAR Threshold (Avg)
2.402	1.48	5	0.5	3	7.5
2.441	1.48	5	0.5	3	7.5
2.480	1.48	5	0.5	3	7.5

Thus the EUT meets the test exclusion thresholds for both 1-g and 10-g SAR evaluation and complies with the regulation.

Health Hazard:

The following table summarizes the power density at a distance of 20 cm as calculated from FCC OET Bulletin 65, for reference.

Potential Health Hazard Radiation Level

Ant.	Ant.Gain Meas. (dBi)	Po Pk (mW)	EIRP Pk*(mW)	S (mW/cm ²)
PCB	-2.5	1.48	1.48	0.0003

* For negative antenna gain, EIRP = conducted power output is assumed.

The following equations were used in calculating power density (S).

$$EIRP(mW) = Po(mW) \cdot 10^{\frac{Gain(dB)}{10}}$$

$$S(mW / cm^2) = \frac{EIRP(mW)}{4 \cdot \Pi \cdot R(cm)^2}, R = 20 \text{ cm}$$