

Requirements and Test Results (con't)

RSS-102

RF Exposure Limits

Spread Spectrum Transmitters operating under RSS-247 must be operated in a manner that ensures the public is not exposed to RF energy levels in excess of the commission's guidelines. Based on the transmitter power and maximum antenna gain (see calculation below) the minimum separation distance was calculated to determine the distance for acceptable MPE power density levels to meet both the Occupational/Controlled Exposure and the General Population/Uncontrolled Exposure requirements of RSS-102. The calculation below uses the more stringent General Population MPE Limits.

$$S = \frac{PG}{4\pi D^2}$$

D = Minimum Separation Distance in cm

S = Max allowed Power Density in mW/cmsq

For the Frequency of 2400 MHz S = 1 mW/cmsq

Power = Max Power Input to Antenna = 58.75 mW

Gain = Max Power Gain of Antenna = 3.0 dBi = 1.985 numeric

$$1.0 \text{ mW/cmsq} = \frac{58.75 \times 1.985}{4 \times (3.14) \times D^2} = \frac{117.20}{12.56 \times D^2}$$

$$D^2 = \frac{117.20}{12.56 \times 1.0}$$

$$D = \sqrt{3.05} = 3.4 \text{ cm}$$

The calculation above uses the highest power level for the device in this band and the worst case (highest) antenna gain (internal antenna).



Retlif Testing Laboratories

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