

§ 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.

Peak Conducted Power of 28dBi antenna= 12.62dBm = 18.28mW

28dBi antenna gain in terms of linear value= 630.95

The limit for maximum RF exposure for 5.8GHz device is 1mW/cm²

The formula for calculating RF exposure is given as $S = \frac{PG}{4\pi R^2}$

P=18.28mW, G= 630.95 & R=20cm, then S comes out to be 2.295mW/cm² which was over the limit specified in 1.1310

Distance R at which S= 1mW/cm² are given as under:

$$R = (PG/4\pi S)^{0.5}$$

By inserting all the values in right hand side of above equation we get R=30.30cm