

TUNet NC-2200 NETWORK CONTROLLER RF EXPOSURE INFORMATION

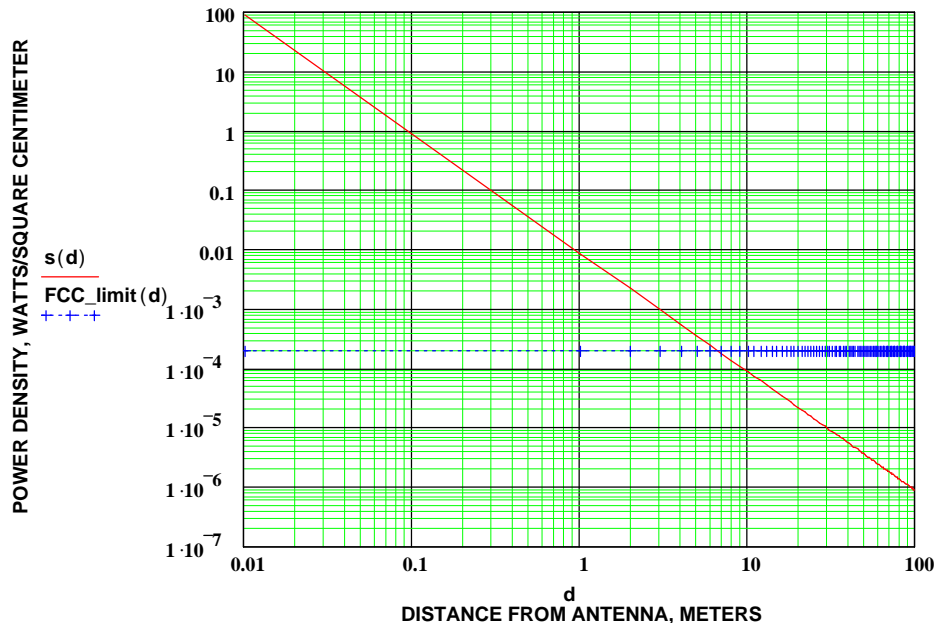
The publication from FCC Office of Engineering and Technology titled “OET Bulletin 65” is used as a guideline to determine compliance with the FCC RF exposure limit. The following analysis is performed using “worse case” transmitted power levels and equations that over-predict power density in the near field.

Analysis:

The average transmitter output power is 65 Watts. The gain of the antenna over that of a half wave dipole is 4, resulting in a ERP of approximately 260 Watts.

The power density limit for General Population/Uncontrolled Exposure is 0.2 mW/cm² in the frequency range from 30 to 300 MHz. The predicted power density at a distance d, in the same horizontal plane as the elevation of the antenna is calculated and graphed below:

$$\begin{aligned}
 &aa := 1 \quad \text{azimuth pattern power factor} \quad gd := 1.64 \quad \text{gain of dipole antenna} \quad erp_average := 260 \\
 &d := .01..100 \quad \text{distance from antenna in meters} \quad ar := 2.56 \quad \text{ground reflection constant} \\
 &s(d) := \frac{(ar \cdot aa \cdot gd \cdot erp_average)}{10000 \cdot 4 \cdot 3.14 \cdot d^2} \quad \text{power density, watts per square centimeter} \quad FCC_limit(d) := 200 \cdot 10^{-6} \cdot d^0
 \end{aligned}$$



From the graph it is shown that at a distance greater than approximately 7 meters from the antenna the power density is below the FCC limit. In a typical installation the antenna is mounted on a tower or pole where the base of the antenna is at a minimum height of 15 meters from the ground. From the graph it is shown that at a distance of 15 meters from the antenna the power density is less than 0.03 mW/cm². This exposure level is 15% of the allowable FCC exposure limit. A person standing directly underneath the antenna tower would be exposed less than this since the gain of the antenna is in the horizontal plane.