Prediction of MPE Limit

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Equation from page 18

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

S= power density

P= power input to the antenna

G= power gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the center of radiation of the antenna

$$R = \sqrt{\frac{PG}{4\pi S}}$$

Choose

Occupational/Controlled ○

General Population/Uncontrolled ◉

Tx Frequency:	**928.00**	(MHz)
Maximum Peak Power at Antenna Input Terminal:	**22.650**	(dBm)
Antenna gain :	**4.00**	(dBi)

6.187 W/m^2

V/m of

48.295 limit for S

S= **0.6187** (mW/cm^2)

P= **184.0772** (mW)

G= **2.5119** (numeric)

R = 7.7120 (cm)

18.612 V/M (Efield/m)

S (mw/cm^2) at specific distance in cm 0.09188812

Enter distance desired in cm: 20

Electric Field to Power Conversion - Fundamental

From DA 00-705 – Alternative Test Procedures.

If antenna conducted tests cannot be performed on this device, radiated tests to show compliance with the peak output power limit specified in Section 15.247(b) and the spurious RF conducted emission limit specified in Section 15.247(c) are acceptable. As stated previously, a pre-amp, and, in the latter case, a high pass filter, are required for the following measurements.

1) Calculate the transmitter's peak power using the following equation:

$$E = \frac{\sqrt{30PG}}{d}$$

Where: E is the measured maximum fundamental field strength in V/m, utilizing a RBW ≥ the 20 dB bandwidth of the emission, VBW > RBW, peak detector function. Follow the procedures in C63.4-1992 with respect to maximizing the emission.

G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.

d is the distance in meters from which the field strength was measured.

P is the power in watts for which you are solving:

$$P = \frac{(E*d)^2}{30G}$$

In this case:

E = 123.9 dB/uV (from above Mid Channel axis 3) = 1.5668 V/m
D = 3 meters
G = 4 unknown

P = 0.1841 W

Limit from 15.247(b)(2) = .25W

Delta = 0.1841 - .25 = -0.0659W