CCIS

Prediction of MPE at a given distance

1. Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Frequency range (MHz)	Electric field strength (V/m rms)	Magnetic field strength (A/m rms)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3 –1.34	614	1.63	*(100)	30
1.34 –30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1	30

2. Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

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

R = distance to the centre of radiation of the antenna

3. Result

For 15 dBi antenna (all transmit signals are completely uncorrelated, directional antenna gain = 15 dBi)

Mode	Frequency (MHz)	Ant 0 power(dBm)	Ant 0 power(mW)	Ant 1 power(dBm)	Ant 1 power(mW)	Ant Gain (dBi)	Ant Gain (numeric)	EIRP (mW)
802.11n20	5745	26.51	447.71	26.77	475.34	15	31.62	29174.27

EIRP	S	Distance	Distance	Limit for controlled	Limit for public
mW	mW/cm^2	cm	Feet	mW/cm^2	mW/cm^2
29174.27	0.23	100	3.29	5	1
29174.27	0.29	90	2.96		
29174.27	0.36	80	2.63		
29174.27	0.47	70	2.30		
29174.27	0.64	60	1.97		
29174.27	0.93	50	1.65		
29174.27	1.45	40	1.32		
29174.27	2.58	30	0.99		
29174.27	3.7	25	0.82		

Remark:

: Distance for Population/Uncontrolled Exposure

: Distance for Occupational/Controlled Exposure