

Maximum Public Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (e)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S** as per the respective limits in Table 1 below, at a distance, d, of 20 cm (Mobile condition) from the EUT.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Therefore, for:

MPE for 2400 MHz – 2483.5 MHz

Limit: 1.0 mW/cm²
 Peak Power (dBm) = 20.5 dBm
 Peak Power (Watts) = 0.112 W
 Gain of Transmit Antenna = 7.4 dB_i = 5.5, numeric
 d = Distance = 20 cm = 0.2 m

$$\begin{aligned}
 S &= (PG/ 4\pi d^2) = EIRP/4A = 0.112(5.50)/4*\pi*0.2*0.2 \\
 &= 0.6160/0.5030 = 1.225 \text{ W/m}^2 \\
 &= (1.225 \text{ W/m}^2) (1\text{m}^2/\text{W}) (0.1 \text{ mW/cm}^2) \\
 &= 0.1225 \text{ mW/cm}^2
 \end{aligned}$$

which is << less than S = 1.0 mW/cm²