



**TecNet International Inc.**  
1420 N.W. Vivion Road Suite 109 Kansas  
City Missouri United States

## **§1.1307 and §2.1093-RF EXPOSURE EVULATION**

### **1.1 Limit**

§ 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b).

#### **LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency Range<br>(MHz)                                | Electric Field Strength<br>(V/m) | Magnetic Field Strength<br>(A/m) | Power Density<br>(mW/cm <sup>2</sup> ) | Average Time<br>(minutes) |
|---------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| (A) Limits for Occupational/Control Exposures           |                                  |                                  |                                        |                           |
| <b>30 - 300</b>                                         | <b>61.4</b>                      | <b>0.163</b>                     | <b>1.0</b>                             | <b>6</b>                  |
| 300 - 1500                                              | --                               | --                               | f/300                                  | 6                         |
| (B) Limits for General Population/Uncontrolled Exposure |                                  |                                  |                                        |                           |
| <b>30 - 300</b>                                         | <b>27.5</b>                      | <b>0.073</b>                     | <b>0.2</b>                             | <b>30</b>                 |
| 300 - 1500                                              | --                               | --                               | f/1500                                 | 30                        |

Note: f is frequency in MHz

## 1.2 Method of Measurements

### Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi \cdot r^2} = \frac{EIRP}{4\pi \cdot r^2}$$

Where,

P: power input to the antenna in mW

EIRP: Equivalent (effective) isotropic radiated power.

S: power density mW/cm<sup>2</sup>

G: numeric gain of antenna relative to isotropic radiator

r: distance to centre of radiation in cm

$$r = \sqrt{\frac{PG}{4\pi \cdot S}} = \sqrt{\frac{EIRP}{4\pi \cdot S}}$$

FCC radio frequency exposure limits may be exceeded at distances closer than r cm from the antenna of this device.

## 1.3 Evaluation of RF Exposure Compliance Requirements

Maximum RF Power conducted, P [dBm] = 46.03

Maximum Antenna Gain, G[dBi] = 0

Maximum EIRP, P [dBm] = 46.03

User-based time-average for PTT = 50%

Peak EIRP = 46.03dBm + 0 dBi = 46.03 dBm = 40,120 mWatts (worst case)

Average EIRP = 50% \* EIRP = 20,060 mWatts

MPE Limit for Occupational/Controlled Exposure, S [mW/cm<sup>2</sup>] = 1.0

MPE Limit for General Population/Uncontrolled Exposure, S [mW/cm<sup>2</sup>] = 0.2

### **Calculation of Minimum RF Safety Distance Limits:**

Calculated RF Safety Distance for Occupational/Controlled Exposure,

r [cm] = 39.95

Calculated RF Safety Distance for General Population/Uncontrolled Exposure,

r [cm] = 89.34

**Results:** Manufacturer declares RF Safety Distance of 40 cm for Occupational/Controlled Exposure and 90 cm for General Population/Uncontrolled Exposure which met the FCC Limits. Please refer to Users Manual for details of RF Exposure Information.