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§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 (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Average Time (minutes)
(A) Limits for Occupational/Control Exposures				
30 - 300	**61.4**	**0.163**	**1.0**	**6**
300 - 1500	--	--	f/300	6
(B) Limits for General Population/Uncontrolled Exposure				
30 - 300	**27.5**	**0.073**	**0.2**	**30**
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/cm2
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/cm2] = 1.0
MPE Limit for General Population/Uncontrolled Exposure, S [mW/cm2] = 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.