MPE EVALUATION

FCC 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).

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm²)	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/f²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

Calculation Method of RF Safety Distance:

$$S = PG/4\Pi r^2 = EIRP/4\Pi r^2 \implies r = \sqrt{PG/4\Pi S} = \sqrt{EIRP/4\Pi S}$$

Where: P: power input to the antenna in mW
     EIRP: Equivalent (effective) isotropic radiated power.
     S: power density mW/cm^2
     G: numeric gain of antenna relative to isotropic radiator
     r: distance to center of radiation in cm

EIRP = 35.8 dBm = 3802 mW (max. eirp measured at 901 MHz)
S = 896/1500 mW/cm^2 (limits for general population/uncontrolled exposure)

$$r = \sqrt{EIRP/4\Pi S} = \sqrt{3802/(4\Pi(896/1500))} = 22.5 \text{ cm}$$

The minimum safety distance is approximately 23 cm. In the user manual, RF exposure statement will specified a safety distance of 30 cm.

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