

Maximum Permissible Exposure

RF Exposure Limit

According to § 1.1310(e)(1) :

Table 1 to § 1.1310(e)(1) sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

Table 1 to § 1.1310(e)(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)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) 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.

RF Exposure Measurement Result

For this device:

Frequency : 13.56 MHz

Maximum Field strength Level : 45.01 dBμV/m @ 3 m

Minimum separation distance : 20 cm

$$\text{EIRP} = 10\log(((\text{Test Distance} \times 10^{((45.01 \text{ dB}\mu\text{V/m}[\text{Measured value}] - 120)/20)})^2 / 30) / 10^{-3}) = -50.22 \text{ dBm}$$

$$\text{Power density} = ((10^{(-50.22[\text{EIRP}]/10)}) / 1000) / (4\pi \times (20 \text{ cm} [\text{Minimum separation distance}] / 100)^2)$$

$$\text{Measured Power density} = 0.000000019 \text{ mW/cm}^2$$

- Result

Power density Limit = 0.9789 mW/cm²

Measured Power density = 0.000000019 mW/cm²