

RF Exposure Statement

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

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

NOTE 1: See Section 1 for discussion of exposure categories.

NOTE 2: The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirements for mobile and portable transmitters.

1. Standard Applicable

According to 1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a mobile device.

2. Measurement Result:

Using the formula:

$$S = (P \times G) / (4 \times \pi \times 20^2)$$

where:

S = power density

P = transmitter conducted power in (mW)

G = antenna numeric gain

d = distance to radiation center (cm²)

This is a mobile device and the max peak measured output power is 29.5 dBm (891.251 mW).
Numeric antenna gain = 1.64

FCC 2.1093 allows for “source-based” time averaging for Mobile transmitters for General Population/Uncontrolled Exposure environment.

Using “source-based” time averaging per FCC OET 65, Supplement B:

Multiply the peak power by the duty factor, then multiply that result by the worst-case ON time over 30 minutes (the averaging time for uncontrolled exposure).

$$891.251 \text{ mW} \times 1.64 \text{ (numeric gain of antenna)} = 1461.65 \text{ mW}$$

The worst-case ON time in 30 minutes is:

$$0.5 \text{ sec.} \times 2 \text{ repetitions} = 1.5 \text{ sec.}$$

These repetitions can repeat after one minute, so in 30 minutes:

$$1.5 \text{ sec.} \times 30 \text{ repetitions} = 45 \text{ sec.}$$

Therefore, the worst-case ON time in 30 minutes is 45 seconds.

$$30 \text{ minutes} = 1800 \text{ sec.}$$

Since this device transmits an AM modulated CW, the duty factor (while transmitting) is 100% = a duty factor of 1.

So, using “source-based” time averaging:

$$1461.65 \text{ mW} \times 1 \times (45/1800 \text{ sec}) = 36.54 \text{ mW}$$

Now, the MPE calculation $S = (P \times G) / (4 \times \pi \times 20^2)$

becomes: $S = (36.54 \text{ mW}) / (4 \times \pi \times 20^2) = 0.0073 \text{ mW/cm}^2$

This is well under the 0.2 mW/cm² limit.