

EXPOSURE LIMITS FOR ELECTROMAGNETIC RADIATION

Referenced Documents	Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (up to 300GHz) ICNIRP Guidelines, Health Physics 74 (4); 1998
	FCC Part 47 of CFR, 1 October 2004, paragraph 1.1307
	IEEE C95.1-2005 IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz -Description Table 8 and Table 9
	EN 50392:2002

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$$d = \frac{2.D^2}{\lambda} \quad P_d = \frac{t.x.P.G}{4.\pi.R^2}$$

$$\Rightarrow R = \sqrt{\frac{t.x.P.G}{4.\pi.P_d}}$$

t = time exposure correction factor (referenced to 3.5 minutes)

near/far field boundary	d	1.40	m
Transmission Frequency		173.075	MHz
Wavelength	λ	1.733352593	m
maximum dimension of the antenna	D	1.1	m
Transmit Power	P	2	W
Maximum Duty Cycle correction factor	x	0.10	
Mean Tx Power (inc. duty cycle)		0.20	W
Gain of Antenna	G	1	dBi
Linear Gain of Antenna		1.258925412	
Exposure Limit		2	W/m ²
Power Density @ d (d=R)	P_d	0.0010	mW/cm ²
Safety margin @d		89.9	dB
Exposure Limit in near field see note 1		0.6667	W/m ²
		0.0667	mW/cm ²
Safe Distance from Antenna	R	0.17	m

x = 200ms burst every 2 seconds in Track mode

ref 47 CFR §1.1310 Table 1 (Limits for MPE, General Population/Uncontrolled Exposure, 30-300MHz)

Note 1: Applies 300% uncertainty factor for calculations in near field

Worst case scenario - Track Mode