

4.11 Maximum Permissible Exposure(MPE)

LIMIT

According to subpart 15.247(i) and subpart §1.1310, system operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure(MPE) (§1.1310, §2.1093)

(B) Limits for General Population/uncontrolled Exposure				
Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Averaging Time(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

According to §1.1310, §2.1093 RF exposure is calculated.

Calculated Formulary:

Prediction of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²) ;

P=power input to the antenna(in appropriate units, e.g., mW);

G=power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna(appropriate units, e.g., cm)

TEST RESULT

Mode	Frequency band (MHz)	Antenna Gain		Target Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		dBi	numeric	dBm	mW			
802.11 b	2412-2462	3.0	2.0	17.0	50.12	20	0.0199	1
802.11 g	2412-2462	3.0	2.0	15.0	31.62	20	0.0189	1
802.11n HT20	2412-2462	3.0	2.0	14.0	25.12	20	0.0150	1
802.11n HT40	2422-2452	3.0	2.0	14.0	25.12	20	0.0150	1
Result: Compliance								

Note:

The target power(Average): 802.11b:16dB±1dBm

802.11g:14dB±1dBm

802.11n:13dB±1dBm

which declared by the Manufacturer.

