FCC §15.247(i) & §2.1091 - RF EXPOSURE INFORMATION

Applicable Standards

According to FCC §15.247(i)and subpart §1.1307(b)(1), systems 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, §2.1091)

(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;

MPE Calculation

MPE is calculated at a given distance

$$S = PG/4\pi R^2$$

Where: S= power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Radio Mode	**Frequency (MHz)**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
		(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
802.11b	2462	4.5	2.82	18.44	69.82	20	0.0392	1.0
802.11g	2412	4.5	2.82	15.26	33.57	20	0.0188	1.0

Radio Mode	**Frequency (MHz)**	**Antenna Port**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
			(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
802.11n-HT20	2462	1	4.5	2.82	15.33	34.12	20	0.034	1.0
		2	3.3	2.14	15.38	34.51			
802.11n-HT420	2452	1	4.5	2.82	15.41	34.75	20	0.034	1.0
		2	3.3	2.14	15.20	33.11			

Result: The device meets MPE limit at 20 cm distance.