RF Exposure Evaluation

According to FCC Part 1.1310: the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency radiation as specified in part 1.1307(b).

TABLE 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)
(A) 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
(B) 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

Friss Formula

Friss transmission formula: $Pd=(Pout*G)/(4*Pi*R^2)$

Where Pd=Power density in mW/cm^2

Pout=output power to antenna in mW

G=gain of antenna in linear scale

Pi=3.1416

R=distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/ cm 2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

EUT Operation condition

EUT was enable to transmit and receive at lowest, middle and highest channels.

Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual.

Measurement data

802.11b

Test channel	Output power (dBm)	Tune up tolerance(dBm)	Maximum tune-up power(dBm)
2412MHz	11.34	11±1	12
2437MHz	11.18	11±1	12
2462MHz	10.52	10±1	11

802.11g

Test channel	Output power (dBm)	Tune up tolerance(dBm)	Maximum tune-up power(dBm)
2412MHz	11.09	11±1	12
2437MHz	10.75	10.5±1	11.5
2462MHz	10.37	10.5±1	11.5

802.11n

Test channel	Output power (dBm)	Tune up tolerance(dBm)	Maximum tune-up power(dBm)
2412MHz	11.06	11±1	12
2437MHz	10.66	10.5±1	11.5
2462MHz	10.26	10.5±1	11.5

Antenna is 2.5dBi, gain of antenna in linear scale is 1.78, the maximum power is 12dBm, 15.85mW,

So $Pd=(15.85*1.78)/(4*3.1416*20^2)=0.0056<1$, it compliance the MPE requirement.