ATTACHMENT

FCC ID: W9UMP100

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

1. The Peak radiated output power (EIRP) is calculated as follows:

Test Mode: 802.11b

CH 1.(2412MHz)	EIRP= P+G+2.15 EIRP= 25.88mW+(-3)dBi+2.15 EIRP= 25.03
CH 7.(2442MHz)	EIRP= P+G+2.15 EIRP= 33.04mW+(-3)dBi+2.15 EIRP= 32.19
CH 13.(2462MHz)	EIRP= P+G+2.15 EIRP= 28.97mW+(-3)dBi+2.15 EIRP= 28.12
Where, P= power input the antenna (mW) G=Power gain of the antenna	

Test Mode: 802.11g

CH 1.(2412MHz)	EIRP= P+G+2.15 EIRP= 37.50mW+(-3)dBi+2.15 EIRP= 36.65
CH 7.(2442MHz)	EIRP= P+G+2.15 EIRP= 44.06mW+(-3)dBi+2.15 EIRP= 43.21
CH 13.(2462MHz)	EIRP= P+G+2.15 EIRP= 42.17mW+(-3)dBi+2.15 EIRP= 41.32
Where, P= power input the antenna (mW) G=Power gain of the antenna	

2. Power Density at the specific separation:

Test Mode: 802.11b

CH 1.(2412MHz)	$S= PG/(4R^2\pi)$ $S= (25.88 * 0.50) / (4 * 20^2 * \pi)$ $S= 0.0026mW/cm^2$
CH 7.(2442MHz)	$S= PG/(4R^2\pi)$ $S= (33.04 * 0.50) / (4 * 20^2 * \pi)$ $S= 0.0033mW/cm^2$
CH 13.(2462MHz)	$S= PG/(4R^2\pi)$ $S= (28.97 * 0.50) / (4 * 20^2 * \pi)$ $S= 0.0029mW/cm^2$
Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the(20cm = limit for MPE)	

Test Mode: 802.11g

CH 1.(2412MHz)	$S= PG/(4R^2\pi)$ $S= (37.50 * 0.50) / (4 * 20^2 * \pi)$ $S= 0.0037mW/cm^2$
CH 7.(2442MHz)	$S= PG/(4R^2\pi)$ $S= (44.06 * 0.50) / (4 * 20^2 * \pi)$ $S= 0.0044mW/cm^2$
CH 13.(2462MHz)	$S= PG/(4R^2\pi)$ $S= (42.17 * 0.50) / (4 * 20^2 * \pi)$ $S= 0.0042mW/cm^2$
Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the(20cm = limit for MPE)	

3. Estimated safe separation:

Test Mode: 802.11b

CH 1.(2412MHz)	R= √(PG/4π) R= √(25.88 * 0.50 / 4 * π) R= 1.01 cm
CH 7.(2442MHz)	R= √(PG/4π) R= √(33.04 * 0.50 / 4 * π) R= 1.15 cm
CH 13.(2462MHz)	R= √(PG/4π) R= √(28.97 * 0.50 / 4 * π) R= 1.07 cm
Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the(20cm = limit for MPE)	

Test Mode: 802.11g

CH 1.(2412MHz)	R= √(PG/4π) R= √(37.50 * 0.50 / 4 * π) R= 1.22 cm
CH 7.(2442MHz)	R= √(PG/4π) R= √(44.06 * 0.50 / 4 * π) R= 1.32 cm
CH 13.(2462MHz)	R= √(PG/4π) R= √(42.17 * 0.50 / 4 * π) R= 1.30 cm
Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the(20cm = limit for MPE)	

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2. The power density at 20cm does not exceed the 1 mW/cm^2 limit. Therefore, the exposure condition is compliant with FCC rules.

The numeric gain (G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

$G = Log^{-1}$ (-3 / 10)

G = 0.50

4. SAR evaluation

Test Mode: 802.11b

Channel Frequency (MHz)	Average Output Power (mW)	Power Density	Limits (<60/f(GHz)mW)	Result
CH 1.(2412MHz)	12.53	R= √(PG/4π) R= √(12.53 * 0.50 / 4 * π) R= 0.71 cm	< 24.88 mW	Not required
CH 7.(2442MHz)	12.71	R= √(PG/4π) R= √(12.71 * 0.50 / 4 * π) R= 0.71 cm	< 24.57 mW	Not required
CH 13.(2462MHz)	11.38	R= √(PG/4π) R= √(11.38 * 0.50 / 4 * π) R= 0.67 cm	< 24.37 mW	Not required

Test Mode: 802.11g

Channel Frequency (MHz)	Average Output Power (mW)	Power Density	Limits (<60/f(GHz)mW)	Result
CH 1.(2412MHz)	16.00	R= √(PG/4π) R= √(16.00 * 0.50 / 4 * π) R= 0.80 cm	< 24.88 mW	Not required
CH 7.(2442MHz)	16.03	R= √(PG/4π) R= √(16.03 * 0.50 / 4 * π) R= 0.80 cm	< 24.57 mW	Not required
CH 13.(2462MHz)	14.32	R= √(PG/4π) R= √(14.32 * 0.50 / 4 * π) R= 0.75 cm	< 24.37 mW	Not required