RF EXPOSURE EVALUATION

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b) LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time
(A) Limits for Occupational / Control Exposures				
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300-1,500	--	--	F/1500	6
1,500-100,000	--	--	1	30

Friis Formula

Friis transmission formula : $P_d = (P_{out}*G)/(4*p_i*r^2)$
Where

P_d = power density in mW/cm^2
P_{out} = output power to antenna in mW
G = gain of antenna in linear scale
P_i = 3.1416
r = distance between observation point and center of the radiator in cm

P_d is 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 Operating Condition

A software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

Test Result of RF Exposure Evaluation

Test Item ： RF Exposure Evaluation Data
Test Mode ： Normal Operation

Antenna Gain

(1) Antenna Gain (5GHz)：The maximum Gain measured in fully anechoic chamber is 1.24dBi linear scale.
(2) Antenna Gain (2.4GHz)：The maximum Gain measured in fully anechoic chamber is 1.37dBi linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain	Power Density at 20cm (mW/cm2)	LIMITS (mW/cm^2)
Low	5745	21.03	1.24	0.033553	1
Middle	5785	25.51	1.24	0.094130	1
High	5825	22.49	1.24	0.046960	1

Note : 1. For normal 802.11a Mode (6Mbps)
2. The power density Pd (4th column) at a distance of 20cm calculated from the fries transmission formula is far below the limit of 1 mW/cm^2 . The EUT is classified as mobile product. So, RF exposure limit warning or SAR test are not required.

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain	Power Density at 20cm (mW/cm2)	LIMITS (mW/cm^2)
CH1	2412.00	20.01	1.37	0.027336	1
CH6	2437.00	21.63	1.37	0.039694	1
CH11	2462.00	21.07	1.37	0.034892	1

Note : 1. For 802.11b Mode (11Mbps)
2. The power density Pd (4th column) at a distance of 20cm calculated from the fries transmission formula is far below the limit of 1 mW/cm^2 . The EUT is classified as mobile product. So, RF exposure limit warning or SAR test are not required.

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain	Power Density at 20cm (mW/cm2)	LIMITS (mW/cm^2)
CH1	2412.00	20.26	1.37	0.028955	1
CH6	2437.00	20.91	1.37	0.03363	1
CH11	2462.00	20.65	1.37	0.031676	1

Note : 1. For 802.11g Mode (6Mbps)
2. The power density Pd (4th column) at a distance of 20cm calculated from the fries transmission formula is far below the limit of 1 mW/cm^2 . The EUT is classified as mobile product. So, RF exposure limit warning or SAR test are not required.

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain	Power Density at 20cm (mW/cm2)	LIMITS (mW/cm^2)
Low	5765	21.96	1.24	0.041565	1
High	5785	22.56	1.24	0.047723	1

Note : 1. For Super A Mode (108 Mbps)
2. The power density Pd (4th column) at a distance of 20cm calculated from the fries transmission formula is far below the limit of 1 mW/cm^2 . The EUT is classified as mobile product. So, RF exposure limit warning or SAR test are not required.

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Antenna Gain	Power Density at 20cm (mW/cm2)	LIMITS (mW/cm^2)
6	2437	21.99	1.37	0.043125	1

Note : 1. For Super G Mode (108 Mbps)
2. The power density Pd (4th column) at a distance of 20cm calculated from the fries transmission formula is far below the limit of 1 mW/cm^2 . The EUT is classified as mobile product. So, RF exposure limit warning or SAR test are not required.