

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

F= Frequency in MHz

4.1. Friis Formula

Friis 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/cm². 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.

4.2. EUT Operation condition

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

Page: 14 of 47 Version:1.0



4.3. Test Result of RF Exposure Evaluation

Product : WLAN PC Card

Test Item : RF Exposure Evaluation Data

Test Site : No.1 OATS

Test Mode : Normal Operation

4.3.1 Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1dBi or 1.26 in linear scale.

4.3.2 Output Power Into Antenna & RF Exposure Evaluation Distance

Channel	Channel Frequency (MHz)	Output Power to Antenna	Minimum Allowable
		(mW)	Distance ® From Skin(cm)
1 (1Mbps)	2413.10	11.67	1.08
1 (11Mbps)	2413.20	12.56	1.12
6 (1Mbps)	2437.90	10.72	1.04
6 (11Mbps)	2438.20	10.91	1.05
11 (1Mbps)	2463.00	8.75	0.94
11 (11Mbps)	2463.20	8.77	0.94

The distance r (4th column) calculated from the Friis transmission formula is far shorter than 20 cm separation requirement. So, RF exposure limit warning or SAR test are not required.