4. RF Exposure Evaluation

4.1. Limits

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 (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

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/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.

4.2. Test Procedure

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

The temperature and related humidity: 18   and 78   RH.

4.3.   Test Result of RF Exposure Evaluation

Product   :   802.11b WLAN Mini-USB Adaptor
Test Item   :   RF Exposure Evaluation
Test Site   :   No.3 OATS
Test Mode   :   Normal Operation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.25dBi or 1.51 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Minimum Allowable Distance ®From Skin(cm)
1 (1Mbps)	2410.9	48.41724	2.3329
1 (11Mbps)	2411.0	46.66594	2.2903
6 (1Mbps)	2436.0	44.87454	2.2459
6 (11Mbps)	2436.0	44.15704	2.2279
11 (1Mbps)	2461.0	51.76068	2.2412
11 (11Mbps)	2460.9	49.20395	2.3518

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