RF Exposure Evaluation declaration

Product Name : Bluetooth Module

Model No : UGPZ5

FCC ID. : MSQHD05UGPZ5

Applicant : ASUSTeK COMPUTER INC.

Address : 4FL., No. 150, Li-Te Rd., Peitou,
Taipei, Taiwan, R.O.C.

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Date of Declaration : May. 16, 2005

Report No. : 055L019FI

1. RF Exposure Evaluation

1.1. 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.

1.2. 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.

1.3. Test Result of RF Exposure Evaluation

Product : Bluetooth Module
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

Antenna Gain

Antenna Gain: The maximum Gain is 1.93dBi measured in fully anechoic chamber in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance (1.93dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	2402.00	1.9454	0.0006
39	2441.00	1.9498	0.0006
78	2480.00	1.9588	0.0006

The distance r (4th column) calculated from the Fries transmission formula is far shorter than 20 cm separation requirement.