

RF Exposure Evaluation declaration

Product Name : Wireless LAN Adaapter and Digital / Analog
TV / FM Radio Tuner PCI Card

Model No. : WIFI-TV

FCC ID MSQWIFI-TV

Applicant : ASUSTeK COMPUTER INC.

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

Date of Receipt : Apr. 11, 2005

Date of Declaration : Apr. 18, 2005

Report No. : 054L081FI

The declaration results relate only to the samples calculated.

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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: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is 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.

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 °C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product : Wireless LAN Adaapter and Digital / Analog TV / FM Radio Tuner PCI Card
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.3dBi in linear scale.

802.11b

Output Power Into Antenna & RF Exposure Evaluation Distance (2.28dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	37.2392	0.0125
6	2437.00	24.6604	0.0083
11	2462.00	23.5505	0.0079

802.11g

Output Power Into Antenna & RF Exposure Evaluation Distance (2.28dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	51.4044	0.0173
6	2437.00	53.7032	0.0181
11	2462.00	61.2350	0.0206

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

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.54dBi in linear scale.

802.11a

Output Power Into Antenna & RF Exposure Evaluation Distance (2.37dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
5150-5250MHz CH1	5180.00	12.1339	0.0042
5150-5250MHz CH3	5220.00	14.2233	0.0049
5150-5250MHz CH4	5240.00	17.2187	0.0059
5250-5350MHz CH1	5260.00	17.2187	0.0059
5250-5350MHz CH3	5300.00	19.0985	0.0066
5250-5350MHz CH4	5320.00	19.6336	0.0067
5725-5825MHz CH1	5745.00	3.7325	0.0013
5725-5825MHz CH3	5785.00	3.4198	0.0012
5725-5825MHz CH4	5805.00	2.0512	0.0007

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