RF Exposure Evaluation declaration

Product Name	ADSL2/2+ 11n Wireless Router
Model No.	ASW915N+, M505N
FCC ID	RK9-ASW915N

Applicant	CastleNet Technology Inc.
Address	No.64, Chung-Shan Rd. Tu-Cheng City, Taipei 236 Taiwan

Date of Receipt	July 20, 2009
Date of Declaration	Aug. 24, 2009
Report No.	097337R-RFUSP05V01

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 : ADSL2/2+ 11n Wireless Router
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.62 dBi in logarithm scale.

802.11b

Output Power Into Antenna & RF Exposure Evaluation Distance (1.62 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	2412.00	83.3681	0.024084
6	2437.00	82.4138	0.023808
11	2462.00	78.3430	0.022632

802.11g

Output Power Into Antenna & RF Exposure Evaluation Distance (1.62 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	2412.00	52.1195	0.015057
6	2437.00	51.4044	0.014850
11	2462.00	45.1856	0.013054

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

802.11n-20M

Output Power Into Antenna & RF Exposure Evaluation Distance (1.62 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	2412.00	285.1018	0.082363
6	2437.00	100.6932	0.029089
11	2462.00	292.4152	0.084475

802.11n-40M

Output Power Into Antenna & RF Exposure Evaluation Distance (1.62 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	2422.00	95.7194	0.027652
4	2437.00	134.8963	0.038970
7	2452.00	143.2188	0.041374

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