RF Exposure Evaluation declaration

Product Name : 802.11bgn Module

Model No. : WL9217E

FCC ID : RK9-WL9217

Applicant : CastleNet Technology Inc.

Address : No.64,Chung-Shan Rd. Tu-Cheng Ciy, Taipei 236 Taiwan

Date of Receipt : May. 02, 2012

Date of Declaration : May. 23, 2012

Report No. : 125070R-RFUSP42V01

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 : 802.11bgn Module
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

(802.11b) Output Power Into Antenna & RF Exposure Evaluation Distance (4.2dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
01	2412.00	190.5461	0.099708
06	2437.00	194.9845	0.102031
11	2462.00	186.2087	0.097438

Power density in column 4 is much lower than the limit (1 mW/cm2).

(802.11g) Output Power Into Antenna & RF Exposure Evaluation Distance (4.2dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
01	2412.00	392.6449	0.205462
06	2437.00	399.0249	0.208800
11	2462.00	396.2780	0.207363

Power density in column 4 is much lower than the limit (1 mW/cm2).

(802.11n-20) Output Power Into Antenna & RF Exposure Evaluation Distance (4.2dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
01	2412.00	570.1643	0.298353
06	2437.00	535.7967	0.280369
11	2462.00	552.0774	0.288889

Power density in column 4 is much lower than the limit (1 mW/cm2).

(802.11n-40) Output Power Into Antenna & RF Exposure Evaluation Distance (4.2dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
03	2422.00	439.5416	0.230001
06	2437.00	489.7788	0.256289
09	2452.00	494.3107	0.258661

Power density in column 4 is much lower than the limit (1 mW/cm2).