

RF Exposure Evaluation declaration

Product Name : Wireless 802.11n 4 Ports ADSL2/2+ Router

Model No. : PTI-8511N, PTI-8511NU, 8520-R1

FCC ID : YHYPTI-8511N

Applicant : PARADIGM TECHNOLOGY INC.

Address : 8F., No.580, Rueiguang Rd., Nei-Hu, Taipei 114, Taiwan, R.O.C.

Date of Receipt : May 11, 2010

Date of Declaration : May. 21, 2010

Report No. : 105213R-RFUSP42V01

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: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm²

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 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 802.11n 4 Ports ADSL2/2+ Router
 Test Item : RF Exposure Evaluation
 Test Site : No.3 OATS

802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (2.0dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	80.3526	0.025336
6	2437.00	77.9830	0.024588
11	2462.00	76.7361	0.024195

The RF exposure at 20 cm is below limit.

802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (2.0dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	215.7744	0.068035
6	2437.00	228.0342	0.071900
11	2462.00	218.7762	0.068981

The RF exposure at 20 cm is below limit.

802.11n-20MHz_14.4Mbps

Output Power Into Antenna & RF Exposure Evaluation Distance (2.0dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2412.00	207.4914	0.065423
06	2437.00	201.8366	0.063640
11	2462.00	216.2719	0.068192

The RF exposure at 20 cm is below limit.

802.11n-40MHz_30Mbps**Output Power Into Antenna & RF Exposure Evaluation Distance (2.0dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2422.00	160.3245	0.050551
04	2437.00	148.9361	0.046960
07	2452.00	178.2379	0.056199

The RF exposure at 20 cm is below limit.