

RF Exposure Evaluation Declaration

Product Name : 802.11g Wireless ADSL2+ Router
Model No. : P-660W-T1 v2, P-660W-T3 v2, 401793
FCC ID : I88P660WTVX2

Applicant : ZyXEL Communications Corporation
Address : No. 6, Innovation Rd 2, Science-Based Industrial
Park, Hsin-Chu, Taiwan

Date of Receipt : 2008/03/24
Issued Date : 2008/04/09
Report No. : 084S013-RF-US

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by CNLA, NVLAP, NIST or any agency of the Government.

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Test Report Certification

Issued Date : 2008/04/09

Report No. : 084S013-RF-US




Product Name : 802.11g Wireless ADSL2+ Router
Applicant : ZyXEL Communications Corporation
Address : No. 6, Innovation Rd 2, Science-Based Industrial Park,
Hsin-Chu, Taiwan
Manufacturer : ZyXEL Communications (Wuxi) Corp.
Model No. : P-660W-T1 v2, P-660W-T3 v2, 401793
FCC ID : I88P660WTVX2
Rated Voltage : AC 120V/60Hz
EUT Voltage : Power by Adapter
Trade Name : ZyXEL
Applicable Standard : FCC OET 65
Test Result : Complied
Performed Location : SuZhou EMC laboratory
No.99 Hongye Rd., Suzhou Industrial Park Loufeng
Hi-Tech Development Zone., SuZhou, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: 800392

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Laboratory Information

We , **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

Taiwan R.O.C.	: BSMI, DGT, CNLA
Germany	: TUV Rheinland
Norway	: Nemko, DNV
USA	: FCC, NVLAP
Japan	: VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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

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	:	802.11g Wireless ADSL2+ Router
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-4
Test Mode	:	Mode 1: Transmit by 802.11b

Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.14 dBi or 1.64 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2412.00	82.9851	0.027023
06	2437.00	78.3430	0.025511
11	2462.00	70.3072	0.022894

Note:

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm².

Product	:	802.11g Wireless ADSL2+ Router
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-4
Test Mode	:	Mode 2: Transmit by 802.11g

Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.14 dBi or 1.64 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2412.00	63.5331	0.020689
06	2437.00	60.8135	0.019803
11	2462.00	60.5341	0.019712

Note:

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm².