



EN 62311 TEST REPORT

Issued Date : Jan. 19, 2010
Report No. : 0909C206
Equipment : 3G Portable Router with Battery
Model Name : 3G-6210N; 3G-210N
Applicant : EDIMAX TECHNOLOGY CO., LTD.
Address : No. 3, Wu Chuan 3rd Road, Wu-Ku
Industrial Park. Taipei Hsien, Taiwan

Tested by:
Neutron Engineering Inc. EMC Laboratory

Date of Test:
Nov. 13, 2009 ~ Nov. 24, 2009

Testing Engineer : _____
(Rush Kao)

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1. CERTIFICATION

Equipment : 3G Portable Router with Battery
Brand Name : EDIMAX
Model Name : 3G-6210N; 3G-210N
Applicant : EDIMAX TECHNOLOGY CO., LTD.
Date of Test : Nov. 13, 2009 ~ Nov. 24, 2009
Standards : EN 62311:2008

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-ETSP-2-0909C206) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	3G Portable Router with Battery
Trade Name	EDIMAX
Model Name	3G-6210N; 3G-210N
OEM Brand/Model Name	Airlive/Traveler 3G Intellinet/524803 PCI/ CQW-MRB
Model Difference	Models' differences between each other only the changes of model name which do not affect the EMI performance. Model 3G-6210N was used for final testing and collecting test data included in this report.
Product Description	The EUT is 3G Portable Router with Battery.
	Operation Frequency: 2412~2472 MHz
	Modulation Type: 802.11b:CCK, DQPSK, DBPSK 802.11g:OFDM 802.11n:OFDM(1 TX & 1 RX)
	Bit Rate of Transmitter: 802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n up to +150 Mbps
	Number Of Channel Please see Note 2.
	Antenna Designation: Please see Note 3.
	Antenna Gain(Peak) Please see Note 3.
	EIRP Power: 802.11b: 19.48 dBm (Max.) 802.11g: 19.59 dBm (Max.) 802.11n(20MHz): 19.63 dBm (Max.) 802.11n(40MHz): 19.71 dBm (Max.)
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
	Power Source
Power Rating	Battery: DC 3.7V, 1800mAh, 6.7Wh AC/DC adapter: I/P: AC 100-240V~300mA, 50-60Hz, 21-28VA / O/P: DC 5V, 2A MAX.
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	Battery: TPZLIB-100 AC/DC adapter: PSAA10R-050(ED)-R

Note :

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



- 2. CH 01 – CH 13 for 802.11b, 802.11g, 802.11n(20MHz)
CH 03 – CH 11 for 802.11n(40MHz)

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	06	2437	11	2462
02	2417	07	2442	12	2467
03	2422	08	2447	13	2472
04	2427	09	2452		
05	2432	10	2457		

- 3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Printed	N/A	3.00



3. MAXIMUM PERMISSIBLE EXPOSURE

3.1 Applicable Standard

According to its specifications, the EUT must comply with the requirements of the following standards:

EN 62311 –Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)

LIMIT

For frequency range 10 MHz to 10 GHz

The basic restriction at frequencies between 10 MHz and 100 GHz is on localized SAR in the head. Any device with output power below 20 mW cannot produce an exposure exceeding this restriction under the most pessimistic exposure conditions. The basic restriction is 2 W/kg so any unit which supplies less than 20 mW ($=2/100W$) from its antenna port, averaged over 6 minutes, will meet the basic restriction.

For frequency range 10 GHz to 300 GHz

The most conservative assumption is that all the transmitted power is absorbed within the specified area, therefore any device which supplies less than 20 mW will meet the basic restriction. The average time is equal to $68/f-1.05$ minutes (where f is in GHz) In the frequency range 10 GHz to 300 GHz, the basic restriction is 10 Wm⁻² averaged over any 20 cm² of exposed area with a spatial maximum of 200 Wm⁻² averaged over 1 cm²

2 MPE Calculation Method

$$E (V/m) = (30 \cdot P \cdot G) / d$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

From the peak EUT RF output power, the minimum mobile separation distance, $d=0.2m$, as well as the gain of the used antenna, the RF power density can be obtained.



4. CALCULATED RESULT AND LIMIT

802.11 b mode (Max.)

Antenna Gain (dBi)	Peak output Power (dBm)	Peak output Power (W)	Electric Field (V/m)	Limit of Electric Field (V/m)	Result
1.85	19.44	0.0879	8.12	61	Pass

802.11 g mode (Max.)

Antenna Gain (dBi)	Peak output Power (dBm)	Peak output Power (W)	Electric Field (V/m)	Limit of Electric Field (V/m)	Result
1.85	18.62	0.0728	7.39	61	Pass

802.11 n(20MHz) mode (Max.)

Antenna Gain (dBi)	Peak output Power (dBm)	Peak output Power (W)	Electric Field (V/m)	Limit of Electric Field (V/m)	Result
1.85	18.78	0.0755	7.53	61	Pass

802.11 n(40MHz) mode (Max.)

Antenna Gain (dBi)	Peak output Power (dBm)	Peak output Power (W)	Electric Field (V/m)	Limit of Electric Field (V/m)	Result
1.85	18.15	0.0653	7.00	61	Pass

RF exposure assessment has been performed below to prove that this unit will not generate the harmful EM emission above the reference level as specified in EC Council Recommendation (1999/519/EC)