

# MPE Test Report

*of*

**802.11g Wireless Cable Residential Gateway**  
(with Wireless 802.11g Minipci Card, Model: WM1260 inside)

*Model*

**CBW500,CBW501**

**(Brand:CastleNet)**

*Applied by:*

CastleNet Technology Inc.  
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Taiwan R. O. C.



*Test Performed by:*

**International Standards Laboratory**

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**Report Number: 04LR014MPE**

**Test Date: 2004/03/02**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178  
LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

**Contents of Report**

- 1. . General ..... 1
  - 1.1 Certification of Accuracy of Test Data ..... 1
- 2. Description of Equipment Under Test ..... 2
  - 2.1 General Test Conditions ..... 3
- 3. RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)] ..... 4
  - 3.1 Applied Standards ..... 4
  - 3.2 Test Procedure ..... 4
  - 3.3 Test Setup ..... 4
  - 3.4 Calculation for Maximum Permissible Exposure (MPE) ..... 4
- 4. Appendix : Test Equipment ..... 6
  - 4.1 Test Equipment List ..... 6

# 1. . General

## 1.1 Certification of Accuracy of Test Data

The test results contained in this report accurately represent the measurements of the Electrical Field characteristics and the energy generated by sample equipment under test at the time of the test.

**Equipment Tested:** 802.11g Wireless Cable Residential Gateway  
Model: CBW500, CBW501  
Applied by: CastleNet Technology Inc.

**Sample received Date:** 2004/02/20

**Final test Date :** 2004/03/02

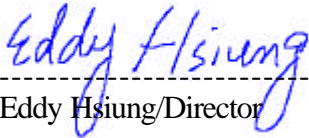
**Test Site:** Chamber 02, Conduction 02

Temperature 221° C(Conduction Test); 23° C (Radiation Test)  
Humidity: 51% (Conduction Test); 52% (Radiation Test)

**Test Engineer:** Jerry Chiou

The results show that the sample equipment tested as described in this report is in compliance with the FCC Section 15.247(b)(5) & 1.1307(b)(1) MPE.

Approve & Signature



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Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 8 pages, including 1 cover page, 1 contents page, and 6 pages for the test description. This report must not be use to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard. International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

## 2. Description of Equipment Under Test

|                               |   |
|-------------------------------|---|
| Description:                  | 802.11g Wireless Cable Residential Gateway  |
| Model No.:                    | CBW500, CBW501  |
| FCC ID:                       | RK9-CBW500  |
| Brand:                        | CastleNet   |
| Frequency Range 802.11b/g:    | 2400-2483.5 MHz   |
| Support channel:<br>802.11b/g | 11 Channels   |
| Modulation Skill:<br>802.11b  | DBPSK(1Mbps), DQPSK(2Mbps),<br>CCK(5.5/11Mbps)  |
| 802.11g                       | OFDM (6M - 54Mbps)  |
| Antennas Type:                | Dipole<br>made by ADVANCED-CONNECTEK INC.   |
| Antenna Connected:            | The antenna is connected to the RF connector of<br>the WLAN adapter, and the user is not possible<br>to change the antenna without disassembling the<br>EUT |
| Antenna peak Gain:            |   |
| Main (p/n:ADA3I-3K52203)      | 1 dBi   |
| Aux (p/n:ADA3I-3K52202)       | 1 dBi   |
| WLAN Power Type :             | 3.3V DC from the EUT  |
| Power Adaptor:                | DVE (Model:DSA-0131F-12 EU 12)2-pin<br>DVE(Model:DSA-0131F-12 US 12)2-pin<br>OEM (Model: AD-121ANB)   |
| Power Cord:                   | Non-shielded, Detachable  |
| RJ-45 Port:                   | four 8 pin (10 Mbps / 100 Mbps)   |
| USB Port:                     | one 4-pins  |
| Cable In Jack:                | one   |
| Power In Jack:                | one   |

The Wireless cable residential gateway is a broadband gateway product combining Ethernet network and wireless lan.

This WLAN device is a 802.11b+g wireless lan adapter, and its operation frequency is from 2400MHz to 2483.5MHz. There are 11 channels for data communication.

| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 01      | 2412           | 07      | 2442           |
| 02      | 2417           | 08      | 2447           |
| 03      | 2422           | 09      | 2452           |
| 04      | 2427           | 10      | 2457           |
| 05      | 2432           | 11      | 2462           |
| 06      | 2437           |         |                |

The main difference between CBW500 and CBW501 is that the CBW500 has four RJ-45 Ports and the CBW501 has one RJ-45 Port only. All types of LAN Speed, USB Mode and Power Adapter have been tested, we present the worst case test data in the report.

## 2.1 General Test Conditions

1. During the test, the EUT was set in continuously transmitting mode with a duty cycle of 100%.
2. The channel 1,6, 11 of of 802.11b/g of EUT were all tested.

### 3. RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

#### 3.1 Applied Standards

**FCC PART 1.1307, 1.1310, 2.1091, 2.1093 RF EXPOSURE**

#### 3.2 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer through an attenuator.

#### 3.3 Test Setup



#### 3.4 Calculation for Maximum Permissible Exposure (MPE)

From FCC 1.1310 Table 1B, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm<sup>2</sup>. The actual power density for the EUT with the antenna is calculated as shown below.

$$S = (P \times G) / (4 \times \pi \times d^2)$$

where:

S = power density

P = transmitter conducted power in (W)

G = antenna numeric gain

d = distance to radiation center (m)

|     | Antenna Manufacturer   | Antenna Type | Gain (dBi) | Numeric Gain | Power (dBm) | Power (mW) | Separation Distance (cm) | Power Density (W/m <sup>2</sup> ) | Power Density (mW/cm <sup>2</sup> ) |
|-----|------------------------|--------------|------------|--------------|-------------|------------|--------------------------|-----------------------------------|-------------------------------------|
| 11b | ADVANCED-CONNECTEK INC | Dipole       | 1          | 1.2589       | 15.443      | 35.02      | 20                       | 0.0877                            | 0.00877                             |
| 11g | (p/n:ADA3I-3K52203)    |              |            |              | 18.412      | 69.37      | 20                       | 0.1737                            | 0.01737                             |

**WARNING:**

It is the responsibility of the installer to ensure that the EUT is a notebook PC with a WLAN card and a specified antenna inside. Only the specified antenna listed above may be used. The use of any other antenna is expressly forbidden in accordance with FCC rules CFR 47 part 15.204.

**NOTICE:**

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits for an uncontrolled environment when installed as directed. This equipment should be installed and operated with ADVANCED-CONNECTEK INC Dipole antenna p/n:ADA3I-3K52203 in a fixed-mount configuration, installed with a maximum of 18.412dBm of radiated output power during normal operation

## 4. Appendix : Test Equipment

### 4.1 Test Equipment List

**Equipment Name:** Spectrum Analyzer 08  
**Brand:** Advantest  
**Model:** R3132  
**S/N:** 111000867  
**Last Cal. Date:** 11/21/2003  
**Next Cal. Date:** 11/21/2004

Note: Calibration traceable to NIST or national or international standards.