

# FCC TEST REPORT

according to

## FCC Rules and Regulations

### Part 15 Subpart C

|            |                                                                |
|------------|----------------------------------------------------------------|
| Applicant  | Netgear Inc.                                                   |
| Address    | 4500 Great America Parkway Santa Clara California<br>95054 USA |
| Equipment  | RangeMax™ NEXT Wireless Router                                 |
| Model No.  | WNR834B                                                        |
| FCC ID     | PY306100032                                                    |
| Trade Name | NETGEAR                                                        |

Laboratory Accreditation



1332

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of **Exclusive Certification Corp.** the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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# CERTIFICATE OF COMPLIANCE

according to

## FCC Rules and Regulations

### Part 15 Subpart C

|           |                                                                |
|-----------|----------------------------------------------------------------|
| Applicant | Netgear Inc.                                                   |
| Address   | 4500 Great America Parkway Santa Clara<br>California 95054 USA |
| Equipment | RangeMax™ NEXT Wireless Router                                 |
| Model No. | WNR834B                                                        |
| FCC ID    | PY306100032                                                    |

#### I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4** The equipment was ***passed*** the test performed according to **FCC Rules and Regulations Part 15 Subpart C (2003)**.

The test was carried out on Apr. 05, 2005 at ***Exclusive Certification Corp.***

Signature



Eric Chan / Manager

## 1. Report of Measurements and Examinations

### 1.1 List of Measurements and Examinations

| FCC Rule                             | Description of Test                        | Result |
|--------------------------------------|--------------------------------------------|--------|
| 15.203                               | . Antenna Requirement                      | Pass   |
| 15.207                               | . Conducted Emission                       | Pass   |
| 15.209                               | . Radiated Emission                        | Pass   |
| 15.247(a)(2)                         | . 6dB Bandwidth                            | Pass   |
| 15.247(b)                            | . Maximum Peak Output Power                | Pass   |
| 15.247(c)                            | . 100kHz Bandwidth of Frequency Band Edges | Pass   |
| 15.247(d)                            | . Power Spectral Density                   | Pass   |
| 1.1307<br>1.1310<br>2.1091<br>2.1093 | . RF Exposure Compliance                   | Pass   |

Test engineer: \_\_\_\_\_

Jerry

## 2. Test Configuration of Equipment under Test

### 2.1 Feature of Equipment under Test

- 802.11b/g wireless networking, with the ability to operate in EWC mimo Auto 130 Mbps and auto 270 Mbps mode,
- EWC auto 130 Mbps , EWC auto 270 Mbps, and 802.11b+g modes
- A powerful, true firewall
- Easy, Web-based setup for installation and management
- Extensive Internet protocol support
- Content filtering
- Auto Sensing and Auto Uplink™ LAN Ethernet connections

### 2.2 RF Specifications

|                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------|
| Spreading<br>802.11b: DSSS, CCK, QPSK, BPSK<br>802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)                               |
| Frequency Range<br>802.11b/g: 2.4 ~ 2.472 GHz                                                                         |
| Number of Channels<br>USA, Canada and Taiwan: 1 ~ 11<br><br>Most European Countries: 1 ~ 13                           |
| Data Rate<br>802.11b: 11, 5.5, 2, 1 Mbs<br>802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps<br>802.11g MIMO: 6.5 ~ 270 Mbps |
| Modulation<br>802.11g: OFDM<br>802.11b: CCK, DQPSK, DBPSK                                                             |
| Antenna<br>Dipole Antenna<br>Peak gain: 1.8 dBi                                                                       |
| Transmit Power<br>FCC:<br>802.11b: 20 dBm<br>802.11g: 20 dBm<br>802.11g MIMO : 23 dBm                                 |

## 2.3 Test Mode and Test Software

The following test mode and test software was performed for conduction and radiation test:

- 802.11b (CH LO: 2412MHz) • 802.11b (CH MID: 2437MHz) • 802.11b (CH HI: 2462MHz)
- 802.11g (CH LO: 2412MHz) • 802.11g (CH MID: 2437MHz) • 802.11g (CH HI: 2462MHz)
- 802.11g MIMO, EWC (auto 130 Mbps):  
CH LO: 2412MHz, CH MID: 2437MHz, CH HI: 2462MHz
- 802.11g MIMO, EWC (auto 270 Mbps):  
CH LO: 2422MHz, CH MID: 2437MHz, CH HI: 2452MHz
- An executive programs, "NetIQ Chariot V5.0" Application under WIN XP.
- Test mode 1: 802.11b (11Mbps)
- Test mode 2: 802.11g (6 Mbps)
- Test mode 3: 802.11g MIMO, EWC (auto 130 Mbps)
- Test mode 4: 802.11g MIMO, EWC (auto 270 Mbps)

Note: All the transmitter rates had been pre-tested, and the test data is worst case

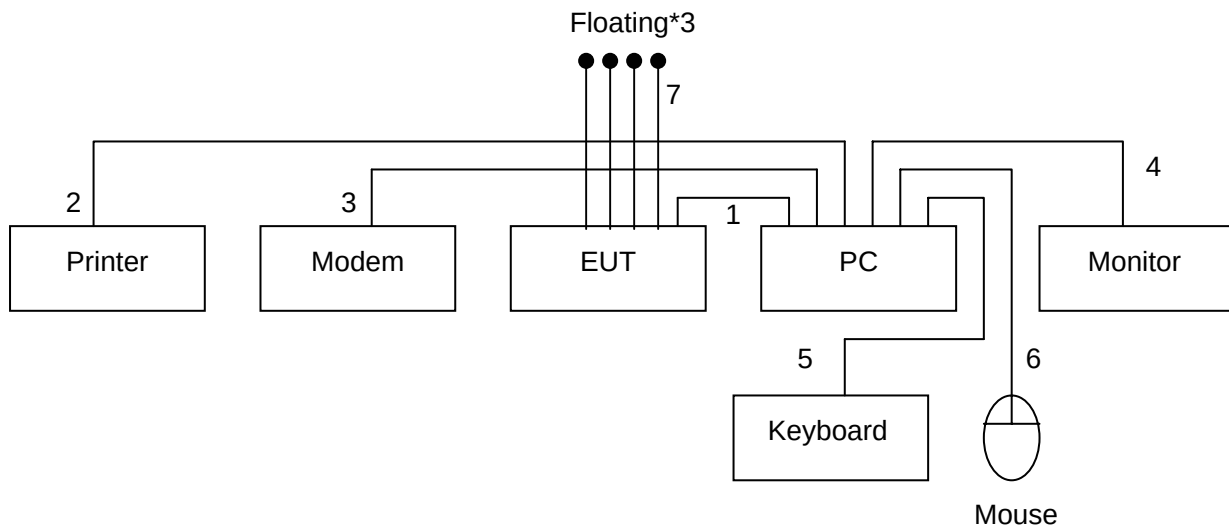
## 2.4 Description of Test System

| Device   | Manufacturer | Model No.   | Description                                                                  |
|----------|--------------|-------------|------------------------------------------------------------------------------|
| PC       | IBM          | IGV         | Power Cable, Unshielding 1.8 m                                               |
| Monitor  | SlimAGE      | 510A        | Power Cable, Adapter Unshielding 1.8 m<br>Data Cable, VGA shielding 1.35 m   |
| Keyboard | IBM          | KB-0225     | Data Cable, PS2 shielding 1.85 m                                             |
| Mouse    | IBM          | MO28VO      | Data Cable, USB shielding 1.85 m                                             |
| Modem    | ACEXX        | DM-1414     | Power Cable, Adapter Unshielding 1.8 m<br>Data Cable, RS232 shielding 1.35 m |
| Printer  | HP           | Desk Jet400 | Power Cable, Adapter Unshielding 1.8 m<br>Data Cable, PRINT shielding 1.6 m  |

Use Cable:

| Cable   | Description       |
|---------|-------------------|
| RJ 45*1 | Unshielding, 1.5m |
| RJ 45*4 | Unshielding, 0.5m |

## 2.5 Connection Diagram of Test System



1. The RJ 45 cable is connected from PC to the EUT.
2. The I/O cable is connected from PC to the Printer.
3. The I/O cable is connected from PC to the Modem.
4. The I/O cable is connected from PC to the Monitor.
5. The I/O cable is connected from PC to the Mouse.
6. The I/O cable is connected from PC to the Keyboard.
7. These RJ 45 cables are floating.

## 2.6 General Information of Test

|                                |                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------|
| Test Site:                     | Exclusive Certification Corp.<br>4F-2, No. 28, Lane 78, Xing-Ai Rd. Nei-hu, Taipei City 114<br>Taiwan R.O.C. |
| Test Site Location (OATS1-SD): | No.68-1, Shihbachongsi, shihding Township,<br>Taipei City 223, Taiwan, R.O.C.                                |
| FCC Registration Number        | 632249                                                                                                       |
| Test Voltage:                  | AC 120V/ 60Hz                                                                                                |
| Test in Compliance with:       | ANSI C63.4-2003<br>FCC Part 15 Subpart C                                                                     |
| Frequency Range Investigated:  | Conducted: from 150kHz to 30 MHz<br>Radiation: from 30 MHz to 24620MHz                                       |
| Test Distance:                 | The test distance of radiated emission from antenna to EUT is<br>3 M.                                        |

## 2.7 History of this test report

ORIGINAL.

### 3. Antenna Requirements

#### 3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

#### 3.2 Antenna Construction and Directional Gain

Antenna type: Integral Dipole Antenna

Antenna Gain: 1.8dBi.

.

## 4. Test of Conducted Emission

### 4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

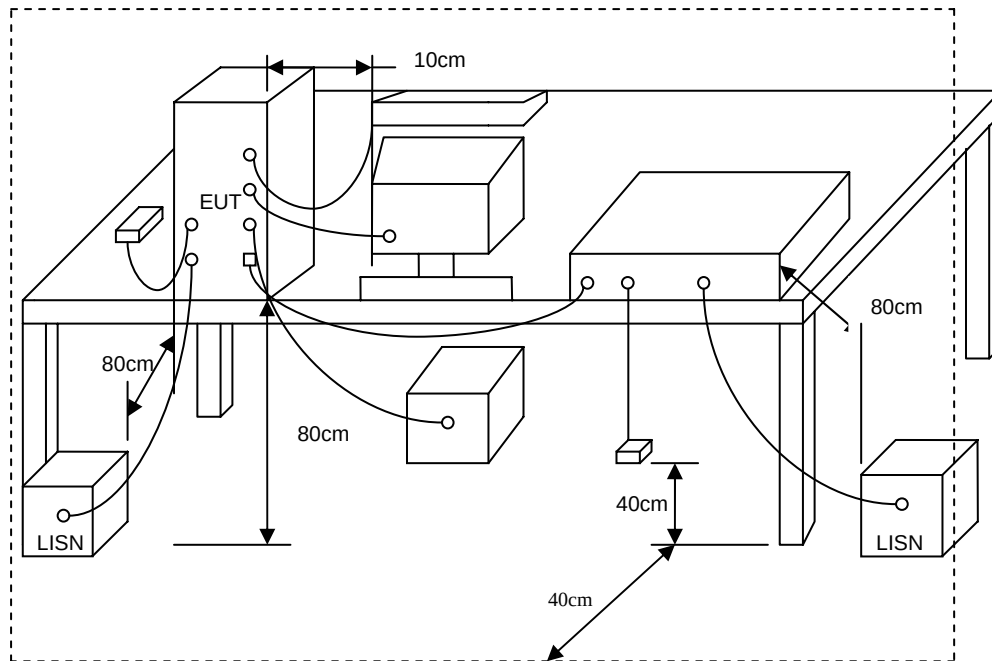
| Frequency (MHz) | Quasi Peak (dB $\mu$ V) | Average (dB $\mu$ V) |
|-----------------|-------------------------|----------------------|
| 0.15 – 0.5      | 66-56*                  | 56-46*               |
| 0.5 – 5.0       | 56                      | 46                   |
| 5.0 – 30.0      | 60                      | 50                   |

\*Decreases with the logarithm of the frequency.

### 4.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

### 4.3 Typical Test Setup



### 4.4 Measurement equipment

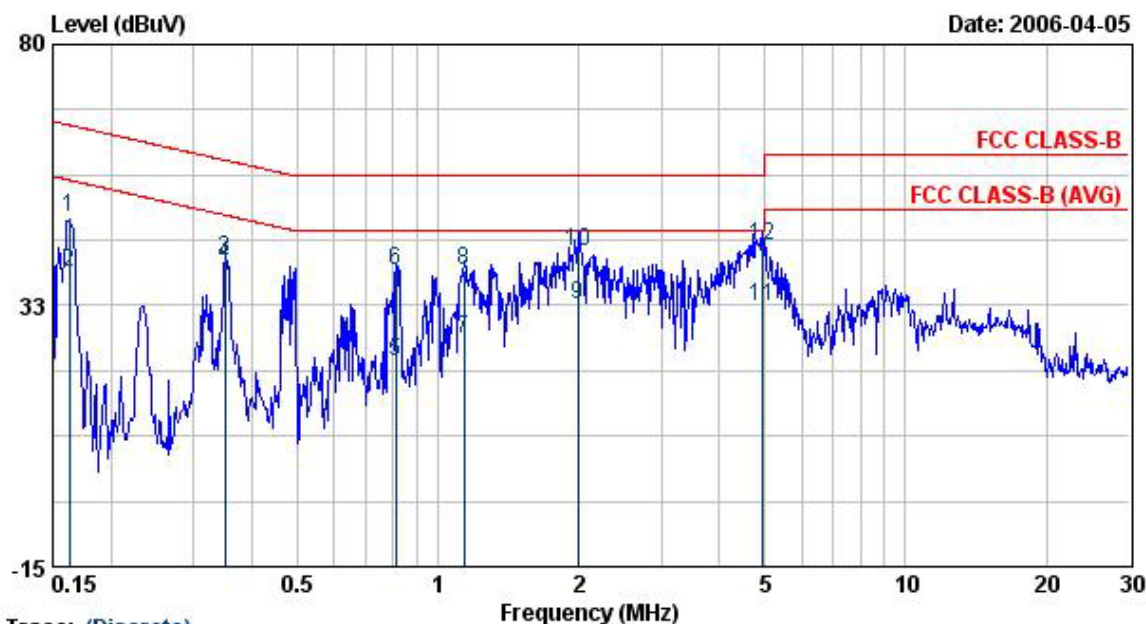
| Instrument | Manufacturer | Model No. | Serial No. | Next Cal. Date |
|------------|--------------|-----------|------------|----------------|
| Receiver   | Schaffner    | SCR3501   | 437        | 2006/11/03     |
| LISN       | MESS TEC     | NNB-2/16Z | 02/10191   | 2007/03/30     |
| LISN       | ROLF HEINE   | NNB-2/16Z | 03/10058   | 2006/05/01     |

## 4.5 Test Result and Data

Test Mode 1, 2:

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : 802.11g CH1  
 Memo : DSA-0131F-12 US 12

Pol/Phase : NEUTRAL  
 Temperature : 25 °C  
 Humidity : 65 %



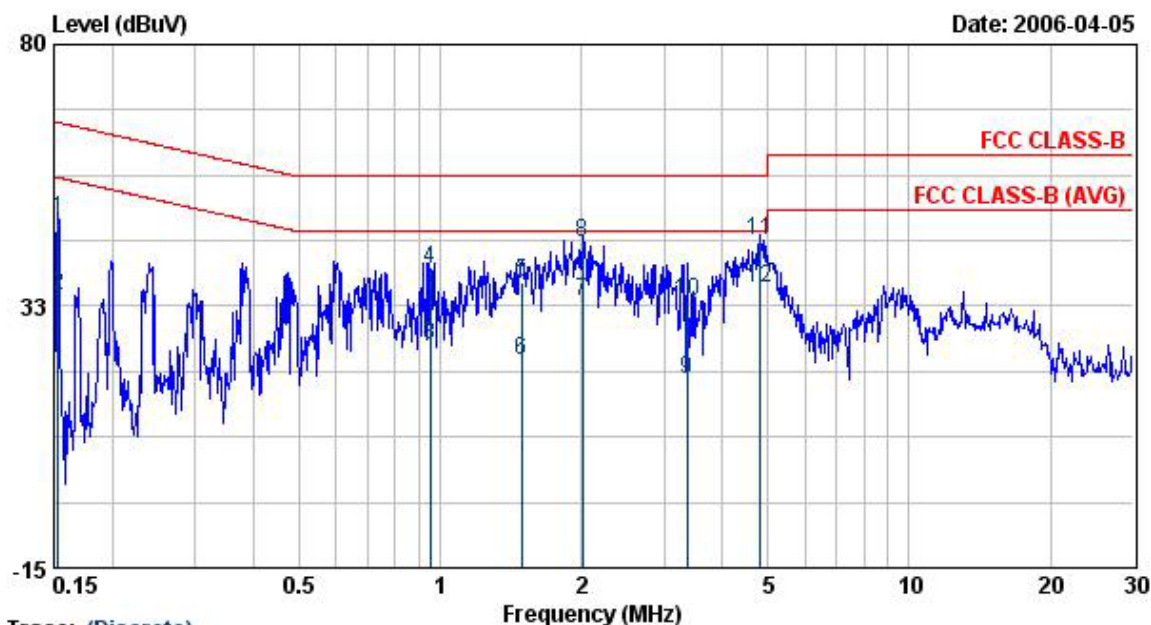
Trace: (Discrete)

| Freq | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|------|------------|--------|-------|-------|------------|---------|
| MHz  | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.16 | 48.25      | 0.29   | 48.54 | 65.33 | -16.79     | QP      |
| 0.16 | 38.23      | 0.29   | 38.52 | 55.33 | -16.81     | AVERAGE |
| 0.35 | 40.54      | 0.44   | 40.98 | 58.94 | -17.96     | QP      |
| 0.35 | 39.47      | 0.44   | 39.91 | 48.94 | -9.03      | AVERAGE |
| 0.81 | 21.79      | 0.50   | 22.29 | 46.00 | -23.71     | AVERAGE |
| 0.81 | 38.24      | 0.50   | 38.74 | 56.00 | -17.26     | QP      |
| 1.14 | 25.96      | 0.52   | 26.48 | 46.00 | -19.52     | AVERAGE |
| 1.14 | 38.45      | 0.52   | 38.97 | 56.00 | -17.03     | QP      |
| 1.99 | 32.01      | 0.60   | 32.61 | 46.00 | -13.39     | AVERAGE |
| 1.99 | 41.84      | 0.60   | 42.44 | 56.00 | -13.56     | QP      |
| 4.95 | 31.71      | 0.60   | 32.31 | 46.00 | -13.69     | AVERAGE |
| 4.95 | 42.95      | 0.60   | 43.55 | 56.00 | -12.45     | QP      |

- Remarks:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
  4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
  5. The data is worse case.

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : 802.11g CH1  
 Memo : DSA-0131F-12 US 12

Pol/Phase : LINE  
 Temperature : 25 ℃  
 Humidity : 65 %



Trace: (Discrete)

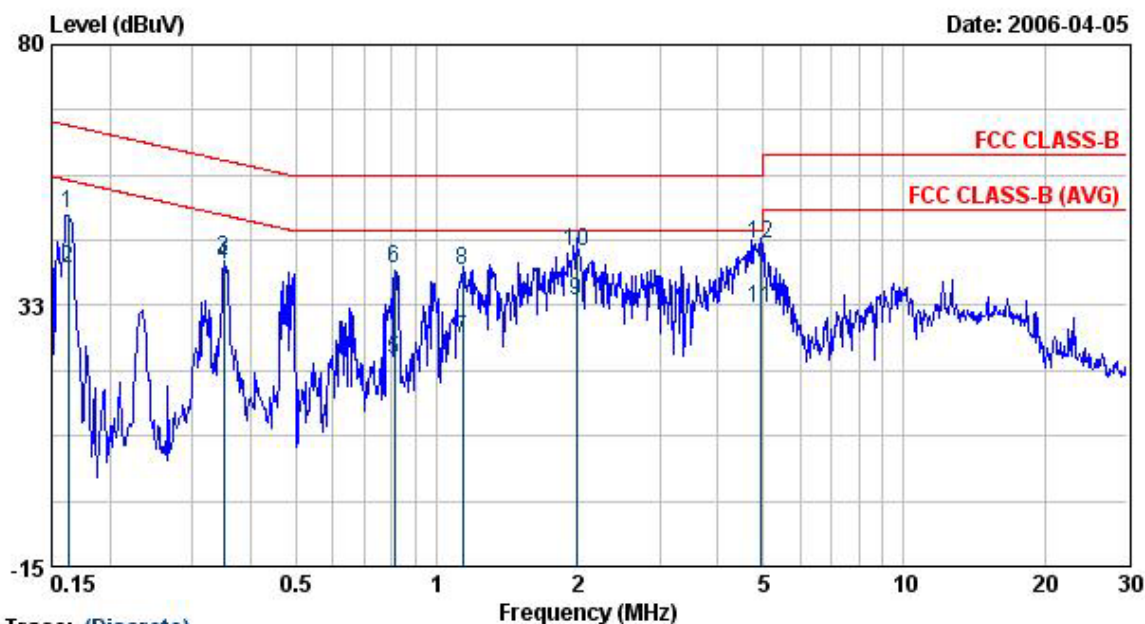
| Freq | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|------|------------|--------|-------|-------|------------|---------|
| MHz  | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.15 | 47.97      | 0.38   | 48.35 | 65.82 | -17.48     | QP      |
| 0.15 | 34.03      | 0.38   | 34.41 | 55.82 | -21.42     | AVERAGE |
| 0.95 | 24.94      | 0.51   | 25.45 | 46.00 | -20.55     | AVERAGE |
| 0.95 | 38.85      | 0.51   | 39.36 | 56.00 | -16.64     | QP      |
| 1.49 | 36.20      | 0.62   | 36.82 | 56.00 | -19.18     | QP      |
| 1.49 | 22.10      | 0.62   | 22.72 | 46.00 | -23.28     | AVERAGE |
| 2.01 | 32.59      | 0.70   | 33.29 | 46.00 | -12.71     | AVERAGE |
| 2.01 | 43.43      | 0.70   | 44.13 | 56.00 | -11.87     | QP      |
| 3.36 | 18.53      | 0.70   | 19.23 | 46.00 | -26.77     | AVERAGE |
| 3.36 | 32.52      | 0.70   | 33.22 | 56.00 | -22.78     | QP      |
| 4.80 | 43.60      | 0.68   | 44.28 | 56.00 | -11.72     | QP      |
| 4.80 | 34.99      | 0.68   | 35.67 | 46.00 | -10.33     | AVERAGE |

- Remarks:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
  4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
  5. The data is worse case.

## Test Mode 3:

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : 802.11MIMO CH1  
 Memo : DSA-0131F-12 US 12

Pol/Phase : NEUTRAL  
 Temperature : 25 °C  
 Humidity : 65 %



Trace: (Discrete)

| Freq | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|------|------------|--------|-------|-------|------------|---------|
| MHz  | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.16 | 48.97      | 0.29   | 49.26 | 65.33 | -16.07     | QP      |
| 0.16 | 38.96      | 0.29   | 39.25 | 55.33 | -16.08     | AVERAGE |
| 0.35 | 40.47      | 0.44   | 40.91 | 58.94 | -18.03     | QP      |
| 0.35 | 39.56      | 0.44   | 40.00 | 48.94 | -8.94      | AVERAGE |
| 0.81 | 21.99      | 0.50   | 22.49 | 46.00 | -23.51     | AVERAGE |
| 0.81 | 38.60      | 0.50   | 39.10 | 56.00 | -16.90     | QP      |
| 1.14 | 25.90      | 0.52   | 26.42 | 46.00 | -19.58     | AVERAGE |
| 1.14 | 38.40      | 0.52   | 38.92 | 56.00 | -17.08     | QP      |
| 1.99 | 32.66      | 0.60   | 33.26 | 46.00 | -12.74     | AVERAGE |
| 1.99 | 41.80      | 0.60   | 42.40 | 56.00 | -13.60     | QP      |
| 4.95 | 31.54      | 0.60   | 32.14 | 46.00 | -13.86     | AVERAGE |
| 4.95 | 43.14      | 0.60   | 43.74 | 56.00 | -12.26     | QP      |

Notes: 1. Level = Read Level + Factor

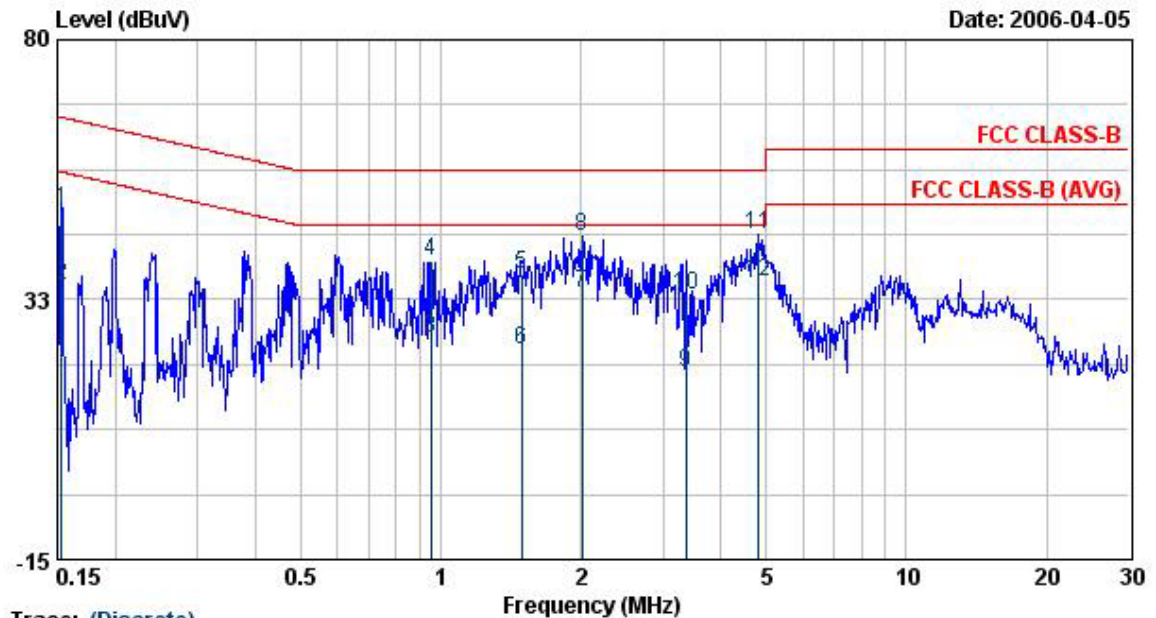
2. Factor = LISN(ISN) Factor + Cable Loss

3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.

4. The data is worse case.

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : 802.11MIMO CH1  
 Memo : DSA-0131F-12 US 12

Pol/Phase : LINE  
 Temperature : 25 °C  
 Humidity : 65 %



Trace: (Discrete)

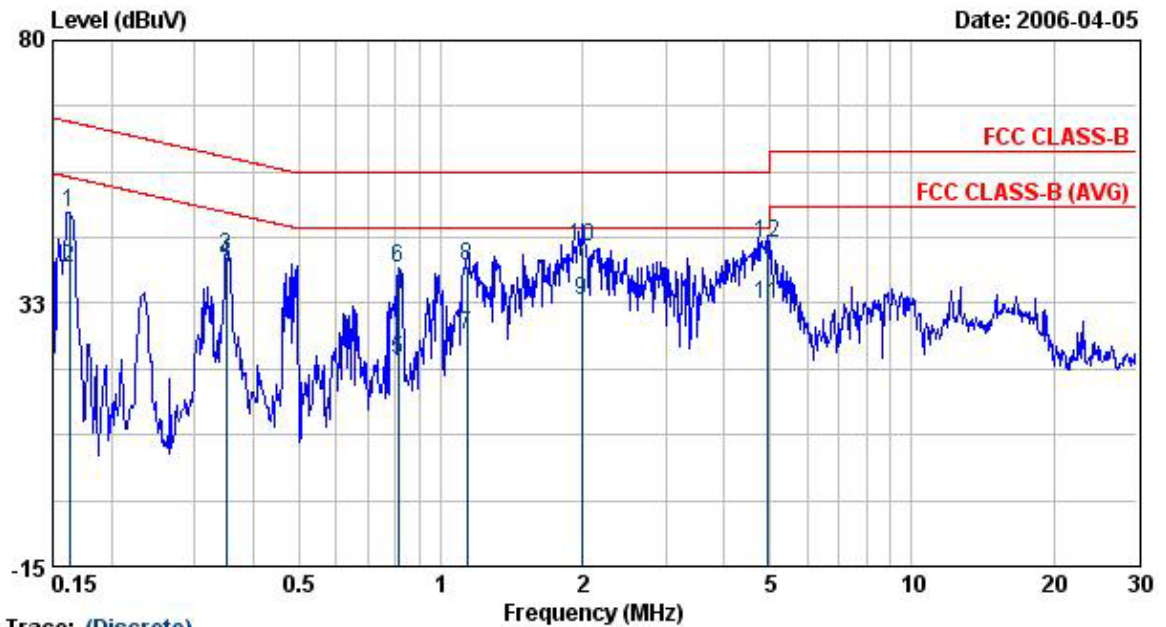
| Freq | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|------|------------|--------|-------|-------|------------|---------|
| MHz  | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.15 | 48.56      | 0.38   | 48.94 | 65.82 | -16.89     | QP      |
| 0.15 | 34.60      | 0.38   | 34.98 | 55.82 | -20.85     | AVERAGE |
| 0.95 | 24.90      | 0.51   | 25.41 | 46.00 | -20.59     | AVERAGE |
| 0.95 | 38.93      | 0.51   | 39.44 | 56.00 | -16.56     | QP      |
| 1.49 | 36.47      | 0.62   | 37.09 | 56.00 | -18.91     | QP      |
| 1.49 | 22.65      | 0.62   | 23.27 | 46.00 | -22.73     | AVERAGE |
| 2.01 | 32.90      | 0.70   | 33.60 | 46.00 | -12.40     | AVERAGE |
| 2.01 | 43.40      | 0.70   | 44.10 | 56.00 | -11.90     | QP      |
| 3.36 | 18.53      | 0.70   | 19.23 | 46.00 | -26.77     | AVERAGE |
| 3.36 | 32.52      | 0.70   | 33.22 | 56.00 | -22.78     | QP      |
| 4.80 | 43.67      | 0.68   | 44.35 | 56.00 | -11.65     | QP      |
| 4.80 | 35.23      | 0.68   | 35.91 | 46.00 | -10.09     | AVERAGE |

- Notes: 1. Level = Read Level + Factor  
 2. Factor = LISN(ISN) Factor + Cable Loss  
 3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1, 6, 11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.  
 4. The data is worse case.

## Test Mode 4:

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : 802.11MIMO+CB CH3  
 Memo : DSA-0131F-12 US 12

Pol/Phase : NEUTRAL  
 Temperature : 25 °C  
 Humidity : 65 %



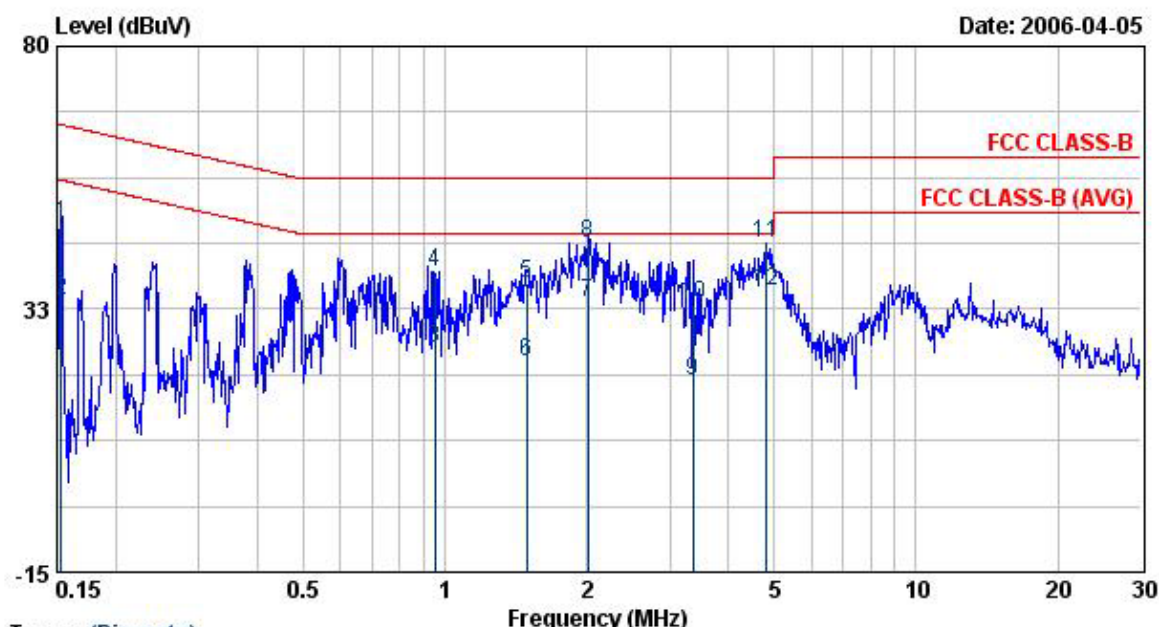
Trace: (Discrete)

| Freq | Read  | Factor | Level | Limit | Over   | Remark  |
|------|-------|--------|-------|-------|--------|---------|
| MHz  | dBuV  | dB     | dBuV  | dBuV  | dBuV   |         |
| 0.16 | 48.66 | 0.29   | 48.95 | 65.33 | -16.38 | QP      |
| 0.16 | 38.63 | 0.29   | 38.92 | 55.33 | -16.41 | AVERAGE |
| 0.35 | 40.50 | 0.44   | 40.94 | 58.94 | -18.00 | QP      |
| 0.35 | 39.56 | 0.44   | 40.00 | 48.94 | -8.94  | AVERAGE |
| 0.81 | 21.98 | 0.50   | 22.48 | 46.00 | -23.52 | AVERAGE |
| 0.81 | 38.32 | 0.50   | 38.82 | 56.00 | -17.18 | QP      |
| 1.14 | 26.14 | 0.52   | 26.66 | 46.00 | -19.34 | AVERAGE |
| 1.14 | 38.55 | 0.52   | 39.07 | 56.00 | -16.93 | QP      |
| 1.99 | 32.47 | 0.60   | 33.07 | 46.00 | -12.93 | AVERAGE |
| 1.99 | 41.98 | 0.60   | 42.58 | 56.00 | -13.42 | QP      |
| 4.95 | 31.71 | 0.60   | 32.31 | 46.00 | -13.69 | AVERAGE |
| 4.95 | 42.95 | 0.60   | 43.55 | 56.00 | -12.45 | QP      |

- Notes: 1. Level = Read Level + Factor  
 2. Factor = LISN(ISM) Factor + Cable Loss  
 3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 3, 6, 9 are almost the same below 1GHz, so that the channel 3 was chosen as representative in final test.  
 4. The data is worse case.

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : 802.11MIMO+CB CH3  
 Memo : DSA-0131F-12 US 12

Pol/Phase : LINE  
 Temperature : 25 °C  
 Humidity : 65 %



Trace: (Discrete)

| Freq | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|------|------------|--------|-------|-------|------------|---------|
| MHz  | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.15 | 47.41      | 0.38   | 47.79 | 65.82 | -18.04     | QP      |
| 0.15 | 33.85      | 0.38   | 34.23 | 55.82 | -21.60     | AVERAGE |
| 0.95 | 24.94      | 0.51   | 25.45 | 46.00 | -20.55     | AVERAGE |
| 0.95 | 38.85      | 0.51   | 39.36 | 56.00 | -16.64     | QP      |
| 1.49 | 36.47      | 0.62   | 37.09 | 56.00 | -18.91     | QP      |
| 1.49 | 22.36      | 0.62   | 22.98 | 46.00 | -23.02     | AVERAGE |
| 2.01 | 32.89      | 0.70   | 33.59 | 46.00 | -12.41     | AVERAGE |
| 2.01 | 43.67      | 0.70   | 44.37 | 56.00 | -11.63     | QP      |
| 3.36 | 18.99      | 0.70   | 19.69 | 46.00 | -26.31     | AVERAGE |
| 3.36 | 32.60      | 0.70   | 33.30 | 56.00 | -22.70     | QP      |
| 4.80 | 43.69      | 0.68   | 44.37 | 56.00 | -11.63     | QP      |
| 4.80 | 35.14      | 0.68   | 35.82 | 46.00 | -10.18     | AVERAGE |

- Notes:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 3, 6, 9 are almost the same below 1GHz, so that the channel 3 was chosen as representative in final test.
  4. The data is worse case.

Test engineer:

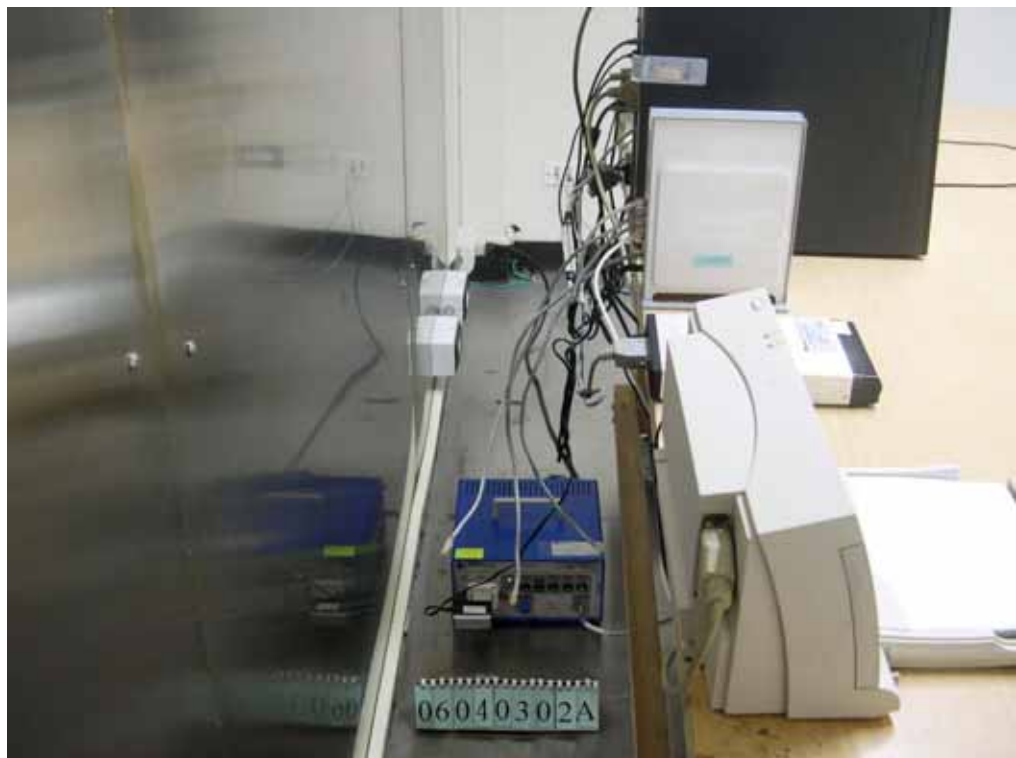
*Ben*

#### 4.6 Test Photographs

Front View



Rear View



## 5. Test of Radiated Emission

### 5.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions. For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency<br>(MHz) | Distance<br>Meters | Radiated<br>( $\mu$ V / M) | Radiated<br>(dB $\mu$ V / M) |
|--------------------|--------------------|----------------------------|------------------------------|
| 30-88              | 3                  | 100                        | 40.0                         |
| 88-216             | 3                  | 150                        | 43.5                         |
| 216-960            | 3                  | 200                        | 46.0                         |
| Above 960          | 3                  | 500                        | 54.0                         |

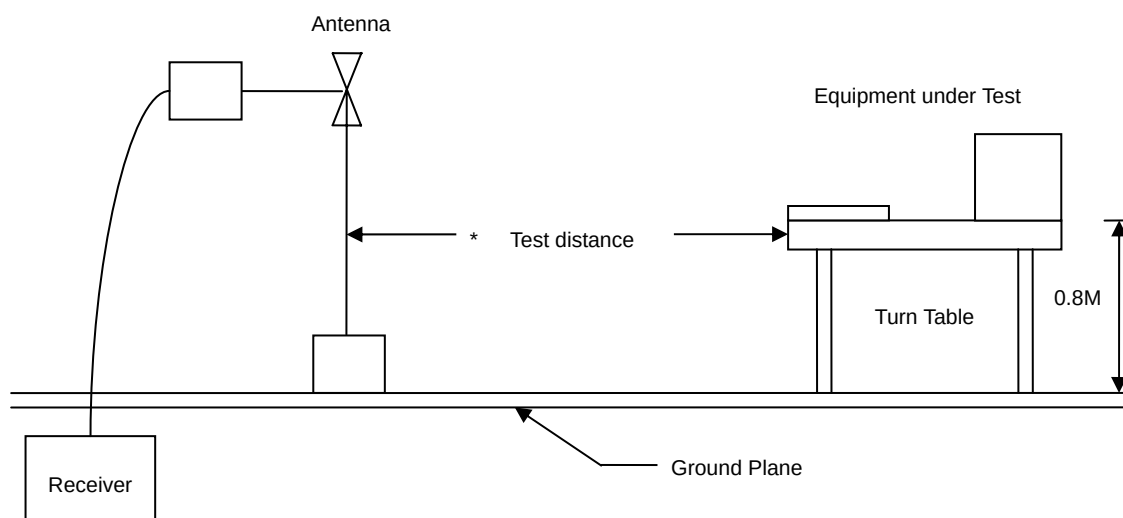
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

| Frequency<br>(MHz) | Distance<br>Meters | Radiated<br>(dB $\mu$ V / M) |
|--------------------|--------------------|------------------------------|
| 30-230             | 10                 | 30                           |
| 230-1000           | 10                 | 37                           |

## 5.2 Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

### 5.3 Typical Test Setup



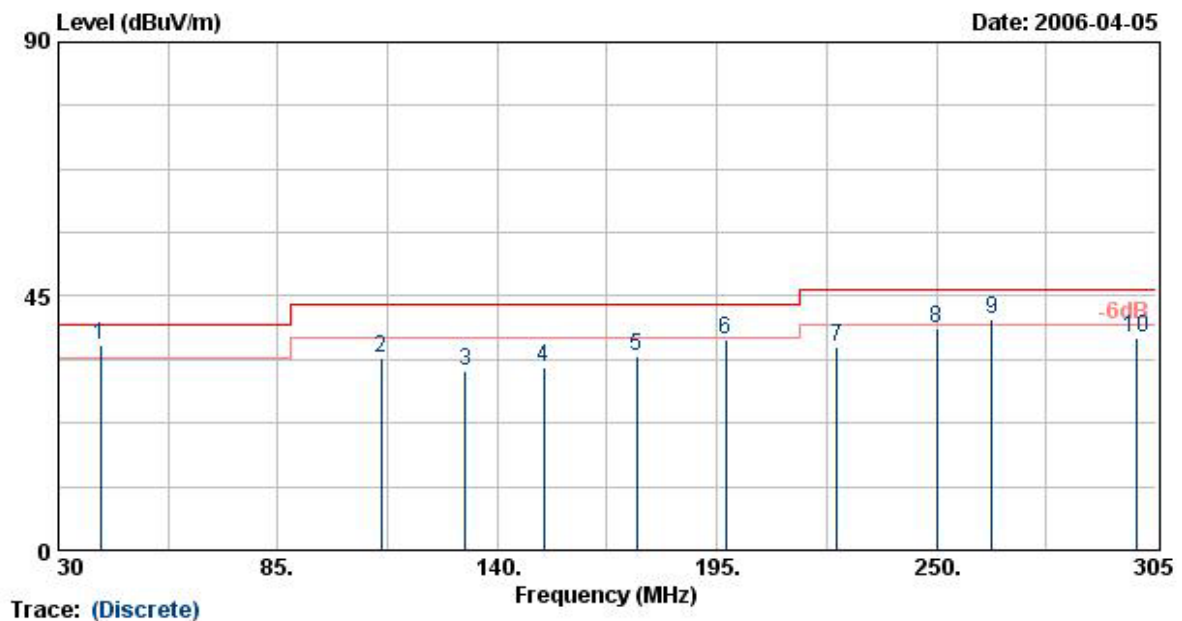
### 5.4 Measurement equipment

| Instrument/Ancillary | Type     | Manufacturer | Serial No. | Valid Date |
|----------------------|----------|--------------|------------|------------|
| EMI Receiver         | 8546A    | HP           | 3807A00454 | 2006/04/13 |
| Spectrum Analyzer    | FSP40    | R&S          | 10047      | 2007/01/16 |
| Horn Antenna         | 3115     | EMCO         | 31589      | 2007/02/12 |
| Horn Antenna         | 3116     | EMCO         | 31970      | 2007/02/09 |
| Bilog Antenna        | CBL6112B | Schaffner    | 2840       | 2006/04/11 |
| Amplifier            | 8449B    | Agilent      | 3008A01954 | 2007/01/08 |
| Amplifier            | 8447D    | Agilent      | 2944A10531 | 2006/08/09 |

## 5.5 Test Result and Data

Test Mode 1, 2:

|                   |                      |                      |              |
|-------------------|----------------------|----------------------|--------------|
| EUT               | : WNR834B            | Pol/Phase            | : HORIZONTAL |
| Power             | : AC 120V            | Temperature          | : 25 °C      |
| Test Mode         | : Transmit/Receive   | Humidity             | : 70 %       |
| Operation Channel | : 1                  | Atmospheric Pressure | : 1010 mmHg  |
| Modulation Type   | : 802.11g            |                      |              |
| Rate              | : 6 Mbps             |                      |              |
| Memo              | : DSA-0131F-12 US 12 |                      |              |



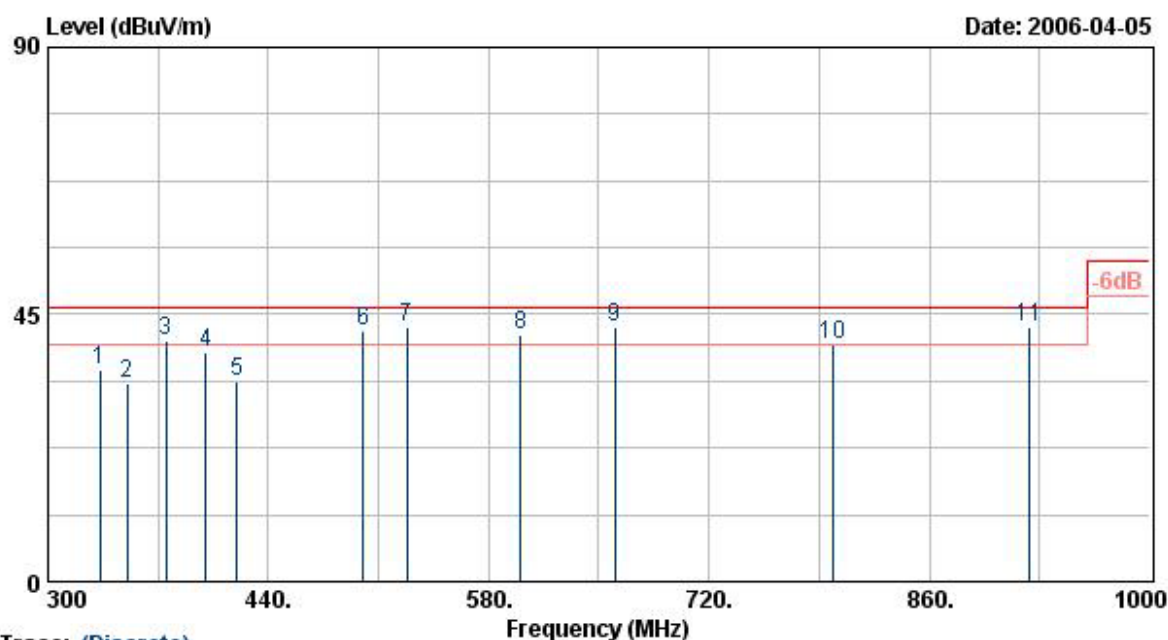
| Frequency (MHz) | Meter Reading (dBuV) | Corrected Factor (dBuV/m) | Result (dBuV/m) | Limit (dB) | Margin (dB) | Remark | Table Deg. | Ant High (cm) |
|-----------------|----------------------|---------------------------|-----------------|------------|-------------|--------|------------|---------------|
| 40.45           | 49.88                | -13.44                    | 36.44           | 40.00      | -3.56       | QP     | 63         | 200           |
| 110.78          | 50.41                | -16.42                    | 33.99           | 43.50      | -9.51       | Peak   | 147        | 200           |
| 132.00          | 47.65                | -15.75                    | 31.90           | 43.50      | -11.60      | Peak   | 88         | 200           |
| 151.54          | 48.74                | -16.43                    | 32.31           | 43.50      | -11.19      | Peak   | 88         | 200           |
| 175.01          | 52.00                | -17.79                    | 34.21           | 43.50      | -9.29       | Peak   | 360        | 200           |
| 197.10          | 55.26                | -17.94                    | 37.32           | 43.50      | -6.18       | Peak   | 360        | 200           |
| 225.00          | 53.14                | -17.07                    | 36.07           | 46.00      | -9.93       | Peak   | 242        | 200           |
| 250.00          | 53.45                | -14.03                    | 39.43           | 46.00      | -6.58       | Peak   | 193        | 200           |
| 264.00          | 53.88                | -12.98                    | 40.90           | 46.00      | -5.10       | QP     | 200        | 200           |
| 300.02          | 50.70                | -13.21                    | 37.49           | 46.00      | -8.51       | Peak   | 0          | 200           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
5. According to technical experiences, all spurious emission of 802.11g mode at channel 1, 6, 11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

EUT : WNR834B  
 Power : AC 120V  
 Test Mode : Transmit/Receive  
 Operation Channel: 1  
 Modulation Type : 802.11g  
 Rate : 6 Mbps  
 Memo : DSA-0131F-12 US 12

Pol/Phase : HORIZONTAL  
 Temperature : 25 °C  
 Humidity : 70 %  
 Atmospheric Pressure: 1010 mmHg



| Frequency (MHz) | Meter Reading (dBuV) | Corrected Factor (dBuV/m) | Result (dBuV/m) | Limit (dB) | Margin (dB) | Remark | Table Deg. | Ant High (cm) |
|-----------------|----------------------|---------------------------|-----------------|------------|-------------|--------|------------|---------------|
| 333.33          | 47.80                | -12.06                    | 35.74           | 46.00      | -10.26      | Peak   | 0          | 200           |
| 350.00          | 44.87                | -11.55                    | 33.32           | 46.00      | -12.68      | Peak   | 0          | 200           |
| 375.01          | 51.33                | -10.75                    | 40.58           | 46.00      | -5.42       | QP     | 66         | 200           |
| 400.02          | 48.67                | -10.12                    | 38.55           | 46.00      | -7.45       | Peak   | 100        | 200           |
| 420.00          | 42.99                | -9.24                     | 33.75           | 46.00      | -12.25      | Peak   | 32         | 200           |
| 500.00          | 48.72                | -6.58                     | 42.14           | 46.00      | -3.86       | QP     | 83         | 200           |
| 527.99          | 48.14                | -5.32                     | 42.82           | 46.00      | -3.18       | QP     | 83         | 200           |
| 600.01          | 45.49                | -3.79                     | 41.70           | 46.00      | -4.30       | QP     | 255        | 200           |
| 660.01          | 45.74                | -2.89                     | 42.85           | 46.00      | -3.15       | QP     | 300        | 200           |
| 798.50          | 41.30                | -1.53                     | 39.77           | 46.00      | -6.23       | Peak   | 360        | 200           |
| 924.03          | 42.32                | 0.64                      | 42.96           | 46.00      | -3.04       | QP     | 360        | 200           |

## Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
5. According to technical experiences, all spurious emission of 802.11g mode at channel 1, 6, 11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
6. The data is worse case.