



Test Report Class II Change

Product Name : USB Wireless Lan Card

Model No. : WLL013

FCC ID.: H8N-WLL013

Applicant : ASKEY COMPUTER CORP.

Address : 2/FL, No. 2, Lane 497 Chung Cheng Road, Hsin Tien,
Taipei, Taiwan, R.O.C.

Date of Receipt : Mar. 19, 2002

Date of Test : Apr 03, 2002

Report No. : 023H042FI

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Test Date : Apr 03, 2002

Report No. : 023H042FI



Accredited by NIST (NVLAP)
NVLAP Lab Code: 200347-0

Product Name : USB Wireless Lan Card

Applicant : ASKEY COMPUTER CORP.

Address : 2/FL, No. 2, Lane 497 Chung Cheng Road,
Hsin Tien, Taipei, Taiwan, R.O.C.

Manufacturer : ASKEY COMPUTER CORP.

Model No. : WLL013

FCC ID. : H8N-WLL013

Rated Voltage : DC 5V (Power by PC)

Trade Name : ASKEY

Measurement Standard : FCC Part 15 Subpart C Paragraph 15.247

Measurement Procedure : ANSI C63.4: 1992

Test Result : Complied



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(Ellie Cheng)

Tested By : Kenny Jwo
(Kenny Jwo)

Approved By : Kevin Wang
(Kevin Wang)

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name : USB Wireless Lan Card
 Trade Name : ASKEY
 FCC ID. : H8N-WLL013
 Model No. : WLL013
 Frequency Range : 2412MHz to 2462MHz
 Channel Number : 11
 Data Rate : 1Mbps, 2Mbps, 5.5Mbps, 11Mbps
 Type of Modulation : Direct Sequence Spread Spectrum
 Antenna type : Soldered on PCB
 Operator Selection of : By software
 Operating Frequency
 USB Cable : Shielded, 1.0m

Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|-------------|-----------|-------------|-----------|------------|-----------|
| Channel 1: | 2412 MHz | Channel 2: | 2417 MHz | Channel 3: | 2422 MHz |
| Channel 4: | 2427 MHz | Channel 5: | 2432 MHz | Channel 6: | 2437 MHz |
| Channel 7: | 2442 MHz | Channel 8: | 2447 MHz | Channel 9: | 2452 MHz |
| Channel 10: | 2457 MHz | Channel 11: | 2462 MHz | | |

Note:

1. This device is a 2.4GHz USB Wireless Lan Card included a 2.4GHz receiving function, a 2.4GHz transmitting function. Direct Sequence device with 11 channels.
2. Regards to the frequent band operation; two rate that were included the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
4. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 023H042F under Declaration of Conformity.
5. The class II change is owing to the change of chip and layout as attached photo.

1.2. Operational Description

EUT is an USB Wireless Lan Card with 11 channels. This device provided four kind of transmitting speed 1,2,5.5 and 11Mbps. The device of RF carrier is DQPSK, DB PSK and CCK.

The device adapts direct sequence spread spectrum modulation. The Soldered on PCB antenna provides diversity function to improve the receiving function. Data can be transmitted by the radio signal connect to the Internet or Local network.

This Wireless LAN Card is an IEEE 802.11b Wireless LAN USB adapter. It allows your computer to connect to a wireless network and to share resource, such as files or printers without being bound to the network wires. Operating in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the Wireless LAN Card transfers data at speeds up to 11Mbps. Both Ad-Hoc and Infrastructure mode are supported. For network security concern, 64/128-bit Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any 802.11b networks.

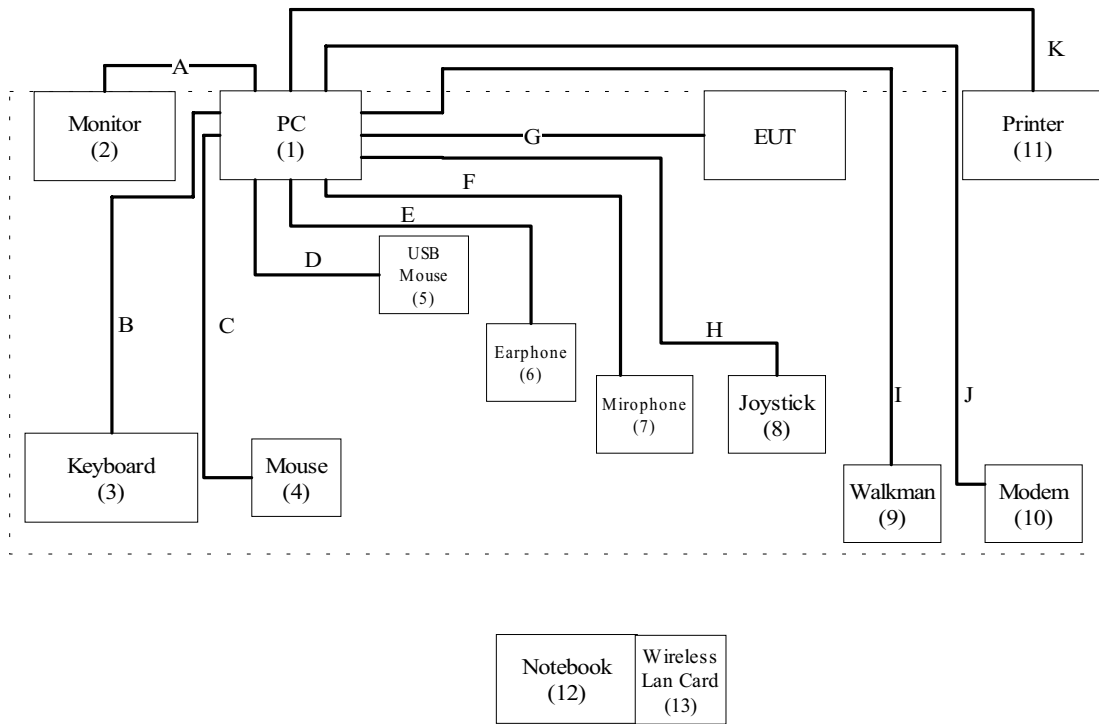
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| | Product | Manufacturer | Model No. | Serial No. | Power Cord |
|------|-------------------|--------------|---------------|-------------|-------------------|
| (1) | PC | HP | Pavilion8894 | -- | -- |
| (2) | Monitor | HP | Pavilion mx70 | -- | -- |
| (3) | Keyboard | HP | 5181 | BD12900515 | -- |
| (4) | Mouse | HP | P813I | K004627990 | -- |
| (5) | USB Mouse | Logitech | M-UE55 | LTC93813282 | -- |
| (6) | Earphone | BSD | N/A | N/A | -- |
| (7) | Microphone | AIWA | CD-8000 | N/A | -- |
| (8) | Joystick | Logitech | 863132-0000 | AE83700069 | -- |
| (9) | Walkman | TOBISHI | TB-1027 | TBS720101 | -- |
| (10) | Modem | ACEEX | 2814 | 960018054 | -- |
| (11) | Printer | HP | C2642A | MY75N1D2Y1 | Non-Shielded,0.7m |
| (12) | Notebook | IBM | Think Pad 570 | 27L8835 | Non-shielded,1.5m |
| (13) | Wireless LAN Card | W-Link | DWL-650 | -- | -- |

| | Signal Cable Type | Signal Cable Description |
|----|-------------------|--------------------------|
| A. | VGA Cable | Shielded, 1.8m |
| B. | Keyboard Cable | Shielded, 1.8m |
| C. | Mouse Cable | Shielded, 1.8m |
| D. | USB Mouse Cable | Shielded, 1.0m |
| E. | Earphone Cable | Non-shielded, 1.0m |
| F. | Microphone Cable | Non-shielded, 2.5m |
| G. | USB Cable | Shielded, 1.0m |
| H. | Joystick Cable | Shielded, 1.8m |
| I. | Walkman Cable | Non-shielded, 1.6m |
| J. | Modem Cable | Shielded, 1.7m |
| K. | Printer Cable | Shielded, 1.8m |

1.4. Configuration of tested System



1.5. EUT Exercise Software

- 1.5.1 Setup the EUT and simulators as shown on 1.4.
- 1.5.2 Turn on the power of all equipment.
- 1.5.3 Notebook PC reads data from disk.
- 1.5.4 Data will be transmitting through EUT.
- 1.5.5 The transmitted status will be shown on the monitor.
- 1.5.6 Repeat the above procedure 1.5.4 to 1.5.5

1.6. Test Facility

Ambient conditions in the laboratory:

| Items | Required (IEC 68-1) | Actual |
|----------------------------|---------------------|----------|
| Temperature (°C) | 15-35 | 20-35 |
| Humidity (%RH) | 25-75 | 50-65 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

Site Description: November 3, 1998 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2
August 30, 2001 Accreditation on NVLAP
NVLAP Lab Code: 200347-0



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2. Conducted Emission

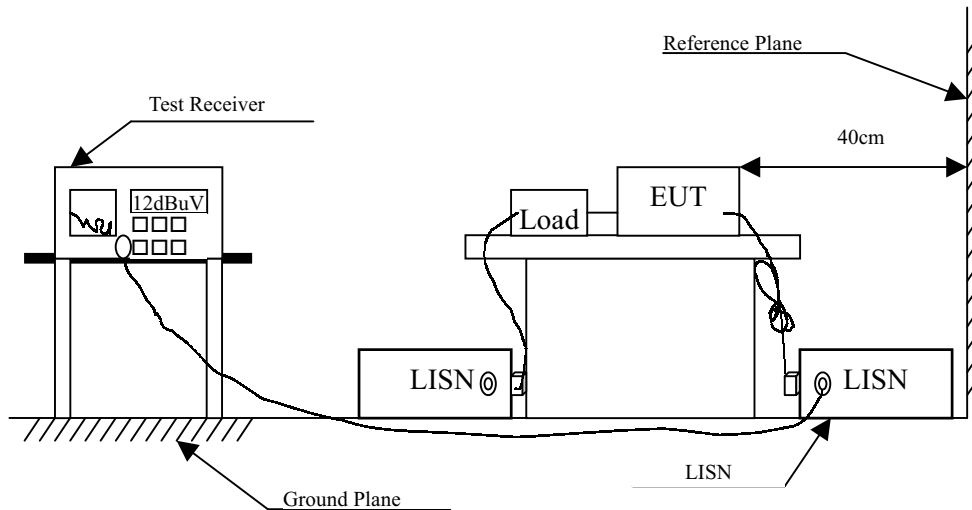
2.1. Test Equipment List

The following test equipment are used during the conducted emission test:

| Item | Instrument | Manufacturer | Type No./Serial No | Last Cal. | Remark |
|------|--------------------|--------------|--------------------|-----------|-------------|
| 1 | Test Receiver | R & S | ESCS 30/825442/17 | May, 2001 | |
| 2 | L.I.S.N. | R & S | ESH3-Z5/825016/6 | May, 2001 | EUT |
| 3 | L.I.S.N. | Kyoritsu | KNW-407/8-1420-3 | May, 2001 | Peripherals |
| 4 | Pulse Limiter | R & S | ESH3-Z2 | N/A | |
| 5 | No.2 Shielded Room | | | N/A | |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

| FCC Part 15 Paragraph 15.207 (dBuV) | | |
|-------------------------------------|--------|------|
| Frequency MHz | Limits | |
| | uV | dBuV |
| 0.45 - 30 | 250 | 48.0 |

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:1992 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.45MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Result of Conducted Emission

Product : USB Wireless Lan Card
 Test Item : Conducted Emission Test
 Test Mode : Normal Operation

| Frequency MHz | Cable Loss dB | LISN Factor dB | Reading Level dBuV | Emission Level dBuV | Limits dBuV |
|--------------------|---------------------|----------------------|-----------------------|------------------------|----------------|
| Line 1 | | | | | |
| Quasi-Peak: | | | | | |
| 3.491 | 0.18 | 0.40 | 23.89 | 24.46 | 48.00 |
| 3.934 | 0.18 | 0.41 | 20.41 | 21.00 | 48.00 |
| 5.174 | 0.2 | .43 | 24.39 | 25.03 | 48.00 |
| *6.845 | 0.23 | 0.46 | 28.28 | 28.98 | 48.00 |
| 19.61 | .35 | 0.56 | 22.51 | 23.42 | 48.00 |
| 28.153 | 0.39 | 0.59 | 26.62 | 27.61 | 48.00 |
| Line 2 | | | | | |
| Quasi-Peak: | | | | | |
| 0.466 | 0.06 | 0.21 | 29.55 | 29.82 | 48.00 |
| 0.528 | 0.07 | 0.22 | 26.36 | 26.65 | 48.00 |
| *3.915 | 0.18 | 0.41 | 29.31 | 29.90 | 48.00 |
| 7.266 | 0.24 | 0.47 | 23.82 | 24.53 | 48.00 |
| 14.567 | 0.32 | 0.53 | 23.50 | 24.35 | 48.00 |
| 28.673 | 0.39 | 0.60 | 28.29 | 29.28 | 48.00 |

Remarks:

1. All Readings below 1GHz are Quasi-Peak value.
2. “ * ” means that this data is the worst emission level.
3. Emission Level = Reading Level + LISN Factor + Cable loss

3. Peak Power Output

3.1. Test Equipment

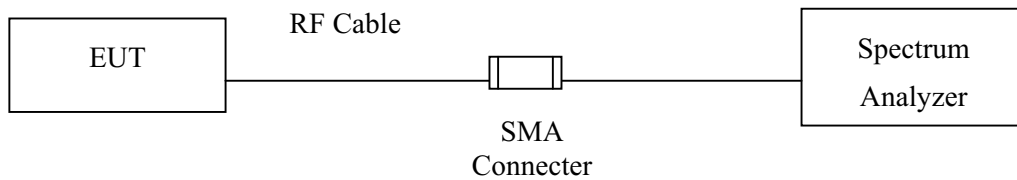
The following test equipments are used during the radiated emission tests:

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-----------|--------------|----------------------|-----------|
| X | Spectrum | Advantest | R3272 / 72421194 | May, 2001 |

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

3.2. Test Setup

Conduction Power Measurement



3.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

3.4. Minimum Standard

The maximum peak power shall be less 1 Watt.

3.5. Test Result of Peak Power Output

Product : USB Wireless Lan Card
Test Item : Peak Power Output Data
Test Site : No.1 OATS
Test Mode : Normal Operation

Data Speed: 1Mbps

| Channel No. | Frequency (MHz) | Measurement | Required Limit | Result |
|-------------|-----------------|-------------|----------------|--------|
| 1 | 2411.10 | 10.06 dBm | 1 Watt= 30 dBm | Pass |
| 6 | 2435.80 | 9.29 dBm | 1 Watt= 30 dBm | Pass |
| 11 | 2460.80 | 8.63 dBm | 1 Watt= 30 dBm | Pass |

Data Speed: 11Mbps

| Channel No. | Frequency (MHz) | Measurement | Required Limit | Result |
|-------------|-----------------|-------------|----------------|--------|
| 1 | 2410.70 | 10.17 dBm | 1 Watt= 30 dBm | Pass |
| 6 | 2435.80 | 9.22 dBm | 1 Watt= 30 dBm | Pass |
| 11 | 2461.00 | 8.64 dBm | 1 Watt= 30 dBm | Pass |

4. RF Exposure Evaluation

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

4.1. Friis Formula

$$\text{Friis transmission formula: } P_d = (P_{out} * G) / (4 * \pi * r^2)$$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d 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.

4.2. EUT Operation condition

A software is provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.3. Test Result of RF Exposure Evaluation

Product : USB Wireless Lan Card
 Test Item : RF Exposure Evaluation Data
 Test Site : No.1 OATS
 Test Mode : Normal Operation

4.3.1 Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.6dBi linear scale.

4.3.2 Output Power Into Antenna & RF Exposure Evaluation Distance

| Channel | Channel Frequency (MHz) | Output Power to Antenna (dBm) | Minimum Allowable Distance ® From Skin(cm) |
|-------------|-------------------------|-------------------------------|--|
| 1 (1Mbps) | 2411.10 | 10.06 | 1.08 |
| 1 (11Mbps) | 2410.70 | 10.17 | 1.09 |
| 6 (1Mbps) | 2435.80 | 9.29 | 0.99 |
| 6 (11Mbps) | 2435.80 | 9.22 | 0.98 |
| 11 (1Mbps) | 2460.80 | 8.63 | 0.92 |
| 11 (11Mbps) | 2461.00 | 8.64 | 0.92 |

The distance r (4th column) calculated from the Friis transmission formula is far shorter than 20 cm separation requirement. So, RF exposure limit warning or SAR test are not required.

5. Radiated Emission

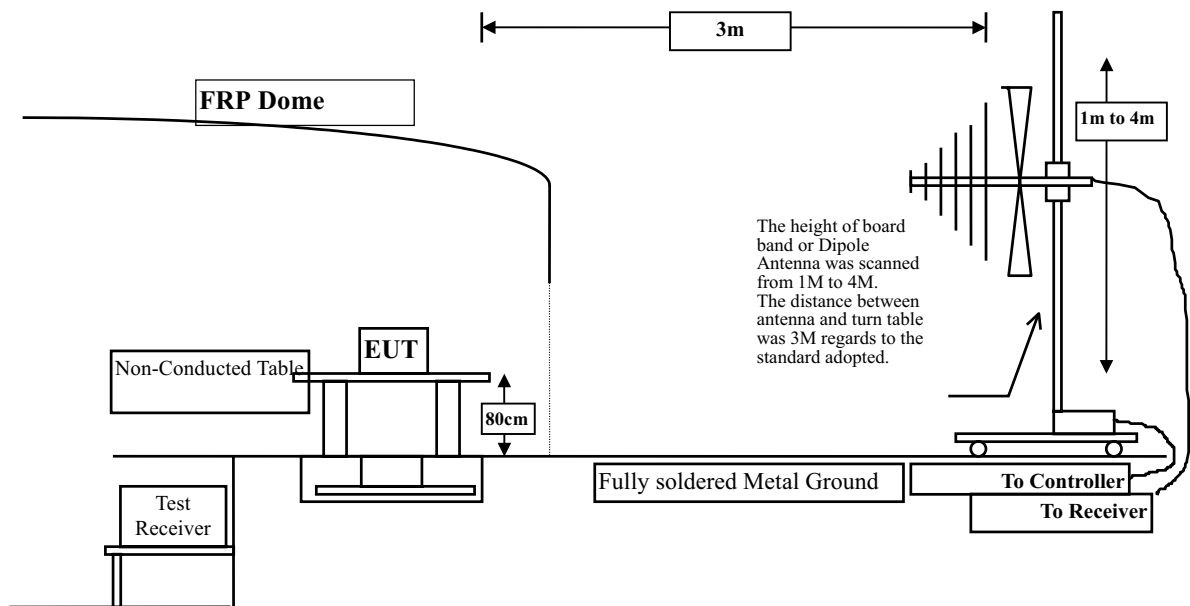
5.1. Test Equipment

The following test equipment are used during the radiated emission test:

| Test Site | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------|---------------------|--------------|----------------------|------------|
| Site # 1 | X Test Receiver | R & S | ESCS 30 / 825442/14 | May, 2001 |
| | X Spectrum Analyzer | Advantest | R3261C / 71720140 | May, 2001 |
| | X Pre-Amplifier | HP | 8447D/3307A01812 | May, 2001 |
| | X Bilog Antenna | Chase | CBL6112B / 12452 | Sep., 2001 |
| | X Horn Antenna | EM | EM6917 / 103325 | May, 2001 |
| Site # 2 | Test Receiver | R & S | ESCS 30 / 825442/17 | May, 2001 |
| | Spectrum Analyzer | Advantest | R3261C / 71720609 | May, 2001 |
| | Pre-Amplifier | HP | 8447D/3307A01814 | May, 2001 |
| | Bilog Antenna | Chase | CBL6112B / 2455 | Sep., 2001 |
| | Horn Antenna | EM | EM6917 / 103325 | May, 2001 |

- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

5.2. Test Setup



Spurious Emissions
(Band Edge Antenna Radiated)

5.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

5.4. Limits

► General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209(a) Limits | | |
|---|----------|-----------|
| Frequency MHz | uV/m @3m | dBuV/m@3m |
| 30-88 | 100 | 40 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| Above 960 | 500 | 54 |

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

5.5. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:1992 on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

The frequency range from 30MHz to 10th harmonics is checked.

5.6. Test Result of Radiated Emission

Product : USB Wireless Lan Card
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 1(1Mbps)

| Freq. | Cable Loss | Probe Factor | PreAMP Reading | Emission Margin | Limit | | |
|-------------------------|------------|--------------|----------------|-----------------|--------|-------|--------|
| MHz | dB | dB/m | dB | Level | Level | dB | dBuV/m |
| | | | | dBuV | dBuV/m | | |
| Horizontal | | | | | | | |
| Peak Detector | | | | | | | |
| 4824.074 | 6.28 | 33.50 | 34.68 | 43.18 | 48.28 | 25.72 | 74.00 |
| 7234.571 | 8.32 | 36.24 | 34.97 | 43.79 | 53.38 | 20.62 | 74.00 |
| 9648.174 | 10.17 | 37.43 | 35.10 | 38.43 | 50.93 | 23.07 | 74.00 |
| 12059.97 | 11.92 | 39.13 | 34.61 | 35.84 | 52.28 | 21.72 | 74.00 |
| 14471.97 | 13.52 | 40.82 | 33.85 | 24.03 | 44.52 | 29.48 | 74.00 |
| 16883.87 | 15.08 | 42.56 | 33.97 | 27.53 | 51.20 | 22.80 | 74.00 |
| 19295.77 | 15.76 | 47.30 | 33.80 | 22.87 | 52.13 | 21.87 | 74.00 |
| 21708.07 | 15.76 | 47.30 | 33.80 | 22.30 | 51.56 | 22.44 | 74.00 |
| 24119.87 | 15.76 | 47.30 | 33.80 | 23.63 | 52.89 | 21.11 | 74.00 |
| Vertical | | | | | | | |
| Peak Detector | | | | | | | |
| 4823.873 | 6.28 | 33.50 | 34.68 | 45.66 | 50.76 | 23.24 | 74.00 |
| 7234.470 | 8.32 | 36.24 | 34.97 | 47.05 | 56.64 | 17.36 | 74.00 |
| 9647.873 | 10.17 | 37.43 | 35.10 | 41.94 | 54.44 | 19.56 | 74.00 |
| 12060.07 | 11.92 | 39.13 | 34.61 | 35.85 | 52.29 | 21.71 | 74.00 |
| 14471.97 | 13.52 | 40.82 | 33.85 | 24.40 | 44.89 | 29.11 | 74.00 |
| 16883.97 | 15.08 | 42.56 | 33.97 | 26.79 | 50.46 | 23.54 | 74.00 |
| 19295.87 | 15.76 | 47.30 | 33.80 | 23.10 | 52.36 | 21.64 | 74.00 |
| 21708.07 | 15.76 | 47.30 | 33.80 | 22.86 | 52.12 | 21.88 | 74.00 |
| 24120.07 | 15.76 | 47.30 | 33.80 | 23.63 | 52.89 | 21.11 | 74.00 |
| Average Detector | | | | | | | |
| 7235.072 | 8.32 | 36.24 | 34.97 | 41.96 | 51.55 | 2.45 | 54.00 |
| 9647.973 | 10.17 | 37.43 | 35.10 | 37.33 | 49.83 | 4.17 | 54.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : USB Wireless Lan Card
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 6(1Mbps)

| Freq. | Cable Loss | Probe Factor | PreAMP Reading | Emission Margin | Limit |
|-------|------------|--------------|----------------|-----------------|--------|
| MHz | dB | dB/m | Level | Level | dB |
| | | | dB | dBuV | dB |
| | | | | dBuV/m | dBuV/m |

Horizontal

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4874.150 | 6.32 | 33.56 | 34.69 | 41.21 | 46.40 | 27.60 | 74.00 |
| 7309.446 | 8.38 | 36.31 | 34.99 | 41.04 | 50.74 | 23.26 | 74.00 |
| 9747.749 | 10.24 | 37.45 | 35.10 | 38.18 | 50.77 | 23.23 | 74.00 |
| 12184.94 | 12.00 | 39.18 | 34.48 | 34.07 | 50.77 | 23.23 | 74.00 |
| 14621.94 | 13.61 | 40.53 | 34.05 | 21.37 | 41.46 | 32.54 | 74.00 |
| 17058.94 | 15.17 | 42.86 | 33.89 | 28.01 | 52.16 | 21.84 | 74.00 |
| 19495.94 | 15.76 | 47.30 | 33.80 | 22.00 | 51.26 | 22.74 | 74.00 |
| 21932.94 | 15.76 | 47.30 | 33.80 | 23.72 | 52.98 | 21.02 | 74.00 |
| 24370.25 | 15.76 | 47.30 | 33.80 | 23.63 | 52.89 | 21.11 | 74.00 |

Vertical

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4873.849 | 6.32 | 33.56 | 34.69 | 44.36 | 49.55 | 24.45 | 74.00 |
| 7312.052 | 8.38 | 36.31 | 34.99 | 44.88 | 54.58 | 19.42 | 74.00 |
| 9748.150 | 10.24 | 37.45 | 35.10 | 39.19 | 51.78 | 22.22 | 74.00 |
| 12185.15 | 12.00 | 39.18 | 34.48 | 33.34 | 50.04 | 23.96 | 74.00 |
| 14621.16 | 13.61 | 40.53 | 34.05 | 21.29 | 41.38 | 32.62 | 74.00 |
| 17059.05 | 15.17 | 42.86 | 33.89 | 25.97 | 50.12 | 23.88 | 74.00 |
| 19495.85 | 15.76 | 47.30 | 33.80 | 22.21 | 51.47 | 22.53 | 74.00 |
| 21932.64 | 15.76 | 47.30 | 33.80 | 23.70 | 52.96 | 21.04 | 74.00 |
| 24369.94 | 15.76 | 47.30 | 33.80 | 24.19 | 53.45 | 20.55 | 74.00 |

Average Detector

| | | | | | | | |
|----------|------|-------|-------|-------|-------|------|-------|
| 7310.148 | 8.38 | 36.31 | 34.99 | 37.74 | 47.44 | 6.56 | 54.00 |
|----------|------|-------|-------|-------|-------|------|-------|

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : USB Wireless Lan Card
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 11(1Mbps)

| Freq. | Cable Loss | Probe Factor | PreAMP Reading | Reading Level | Emission Level | Margin | Limit |
|-------|------------|--------------|----------------|---------------|----------------|--------|--------|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |

Horizontal

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4923.849 | 6.36 | 33.61 | 34.69 | 38.21 | 43.48 | 30.52 | 74.00 |
| 7386.751 | 8.46 | 36.41 | 35.02 | 37.01 | 46.85 | 27.15 | 74.00 |
| 9847.849 | 10.31 | 37.46 | 35.10 | 36.21 | 48.89 | 25.11 | 74.00 |
| 12310.05 | 12.08 | 39.23 | 34.35 | 33.16 | 50.12 | 23.88 | 74.00 |
| 14771.94 | 13.73 | 40.13 | 34.31 | 25.34 | 44.90 | 29.10 | 74.00 |
| 17233.94 | 15.28 | 43.66 | 33.88 | 27.10 | 52.16 | 21.84 | 74.00 |
| 19696.35 | 15.76 | 47.30 | 33.80 | 22.39 | 51.65 | 22.35 | 74.00 |
| 22157.64 | 15.76 | 47.30 | 33.80 | 22.00 | 51.26 | 22.74 | 74.00 |
| 24620.75 | 15.76 | 47.30 | 33.80 | 24.15 | 53.41 | 20.59 | 74.00 |

Vertical

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4924.050 | 6.36 | 33.61 | 34.69 | 39.47 | 44.74 | 29.26 | 74.00 |
| 7385.248 | 8.46 | 36.41 | 35.02 | 40.90 | 50.74 | 23.26 | 74.00 |
| 9847.649 | 10.31 | 37.46 | 35.10 | 37.10 | 49.78 | 24.22 | 74.00 |
| 12310.05 | 12.08 | 39.23 | 34.35 | 33.28 | 50.24 | 23.76 | 74.00 |
| 14771.84 | 13.73 | 40.13 | 34.31 | 24.60 | 44.16 | 29.84 | 74.00 |
| 17234.35 | 15.28 | 43.66 | 33.88 | 25.50 | 50.56 | 23.44 | 74.00 |
| 19696.25 | 15.76 | 47.30 | 33.80 | 22.23 | 51.49 | 22.51 | 74.00 |
| 22157.85 | 15.76 | 47.30 | 33.80 | 23.51 | 52.77 | 21.23 | 74.00 |
| 24619.94 | 15.76 | 47.30 | 33.80 | 23.85 | 53.11 | 20.89 | 74.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : USB Wireless Lan Card
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 1(11Mbps)

| Freq. | Cable Loss | Probe Factor | PreAMP Reading | Reading Level | Emission Level | Margin | Limit |
|-------|------------|--------------|----------------|---------------|----------------|--------|--------|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |

Horizontal

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4823.973 | 6.28 | 33.50 | 34.68 | 43.49 | 48.59 | 25.41 | 74.00 |
| 7234.571 | 8.32 | 36.24 | 34.97 | 43.63 | 53.22 | 20.78 | 74.00 |
| 9647.873 | 10.17 | 37.43 | 35.10 | 38.29 | 50.79 | 23.21 | 74.00 |
| 12060.17 | 11.92 | 39.13 | 34.61 | 35.59 | 52.03 | 21.97 | 74.00 |
| 14471.87 | 13.52 | 40.82 | 33.85 | 23.57 | 44.06 | 29.94 | 74.00 |
| 16883.87 | 15.08 | 42.56 | 33.97 | 28.11 | 51.78 | 22.22 | 74.00 |
| 19295.67 | 15.76 | 47.30 | 33.80 | 23.19 | 52.45 | 21.55 | 74.00 |
| 21708.17 | 15.76 | 47.30 | 33.80 | 23.63 | 52.89 | 21.11 | 74.00 |
| 24119.27 | 15.76 | 47.30 | 33.80 | 24.20 | 53.46 | 20.54 | 74.00 |

Vertical

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4823.973 | 6.28 | 33.50 | 34.68 | 46.02 | 51.12 | 22.88 | 74.00 |
| 7236.875 | 8.32 | 36.24 | 34.97 | 47.48 | 57.07 | 16.93 | 74.00 |
| 9647.773 | 10.17 | 37.43 | 35.10 | 41.54 | 54.04 | 19.96 | 74.00 |
| 12060.07 | 11.92 | 39.13 | 34.61 | 34.91 | 51.35 | 22.65 | 74.00 |
| 14471.77 | 13.52 | 40.82 | 33.85 | 24.80 | 45.29 | 28.71 | 74.00 |
| 16883.87 | 15.08 | 42.56 | 33.97 | 28.20 | 51.87 | 22.13 | 74.00 |
| 19295.57 | 15.76 | 47.30 | 33.80 | 22.38 | 51.64 | 22.36 | 74.00 |
| 21707.87 | 15.76 | 47.30 | 33.80 | 23.19 | 52.45 | 21.55 | 74.00 |
| 24120.17 | 15.76 | 47.30 | 33.80 | 23.99 | 53.25 | 20.75 | 74.00 |

Average Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|------|-------|
| 7235.172 | 8.32 | 36.24 | 34.97 | 41.44 | 51.03 | 2.97 | 54.00 |
| 9647.973 | 10.17 | 37.43 | 35.10 | 37.43 | 49.93 | 4.07 | 54.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : USB Wireless Lan Card
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 6(11Mbps)

| Freq. | Cable Loss | Probe Factor | PreAMP Reading | Emission Margin | Limit |
|-------|------------|--------------|----------------|-----------------|--------|
| MHz | dB | dB/m | Level | Level | dB |
| | | | dBuV | dBuV/m | dBuV/m |

Horizontal

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4874.150 | 6.32 | 33.56 | 34.69 | 41.75 | 46.94 | 27.06 | 74.00 |
| 7309.146 | 8.38 | 36.31 | 34.99 | 41.32 | 51.02 | 22.98 | 74.00 |
| 9747.849 | 10.24 | 37.45 | 35.10 | 37.74 | 50.33 | 23.67 | 74.00 |
| 12185.15 | 12.00 | 39.18 | 34.48 | 34.26 | 50.96 | 23.04 | 74.00 |
| 14621.64 | 13.61 | 40.53 | 34.05 | 20.63 | 40.72 | 33.28 | 74.00 |
| 17058.94 | 15.17 | 42.86 | 33.89 | 27.50 | 51.65 | 22.35 | 74.00 |
| 19496.05 | 15.76 | 47.30 | 33.80 | 22.19 | 51.45 | 22.55 | 74.00 |
| 21932.54 | 15.76 | 47.30 | 33.80 | 23.43 | 52.69 | 21.31 | 74.00 |
| 24369.85 | 15.76 | 47.30 | 33.80 | 23.95 | 53.21 | 20.79 | 74.00 |

Vertical

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4874.250 | 6.32 | 33.56 | 34.69 | 44.16 | 49.35 | 24.65 | 74.00 |
| 7311.951 | 8.38 | 36.31 | 34.99 | 44.86 | 54.56 | 19.44 | 74.00 |
| 9747.649 | 10.24 | 37.45 | 35.10 | 39.49 | 52.08 | 21.92 | 74.00 |
| 12185.15 | 12.00 | 39.18 | 34.48 | 34.02 | 50.72 | 23.28 | 74.00 |
| 14622.05 | 13.61 | 40.53 | 34.05 | 20.49 | 40.58 | 33.42 | 74.00 |
| 17058.64 | 15.17 | 42.86 | 33.89 | 27.54 | 51.69 | 22.31 | 74.00 |
| 19496.05 | 15.76 | 47.30 | 33.80 | 23.15 | 52.41 | 21.59 | 74.00 |
| 21932.64 | 15.76 | 47.30 | 33.80 | 23.29 | 52.55 | 21.45 | 74.00 |
| 24370.35 | 15.76 | 47.30 | 33.80 | 23.90 | 53.16 | 20.84 | 74.00 |

Average Detector

| | | | | | | | |
|----------|------|-------|-------|-------|-------|------|-------|
| 7313.154 | 8.38 | 36.31 | 34.99 | 37.90 | 47.60 | 6.40 | 54.00 |
|----------|------|-------|-------|-------|-------|------|-------|

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : USB Wireless Lan Card
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 11(11Mbps)

| Freq. | Cable Loss | Probe Factor | PreAMP Reading | Emission Margin | Limit |
|-------|------------|--------------|----------------|-----------------|--------|
| MHz | dB | dB/m | dB | Level | Level |
| | | | Level | Level | Level |
| | | | dBuV | dBuV/m | dB |
| | | | | | dBuV/m |

Horizontal

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4924.250 | 6.36 | 33.61 | 34.69 | 37.96 | 43.23 | 30.77 | 74.00 |
| 7386.951 | 8.46 | 36.41 | 35.02 | 37.91 | 47.75 | 26.25 | 74.00 |
| 9847.749 | 10.31 | 37.46 | 35.10 | 35.98 | 48.66 | 25.34 | 74.00 |
| 12310.35 | 12.08 | 39.23 | 34.35 | 33.27 | 50.23 | 23.77 | 74.00 |
| 14771.64 | 13.73 | 40.13 | 34.31 | 25.87 | 45.43 | 28.57 | 74.00 |
| 17233.74 | 15.28 | 43.66 | 33.88 | 26.40 | 51.46 | 22.54 | 74.00 |
| 19696.35 | 15.76 | 47.30 | 33.80 | 21.97 | 51.23 | 22.77 | 74.00 |
| 22157.74 | 15.76 | 47.30 | 33.80 | 22.90 | 52.16 | 21.84 | 74.00 |
| 24619.85 | 15.76 | 47.30 | 33.80 | 23.99 | 53.25 | 20.75 | 74.00 |

Vertical

Peak Detector

| | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|
| 4923.849 | 6.36 | 33.61 | 34.69 | 40.03 | 45.30 | 28.70 | 74.00 |
| 7384.547 | 8.44 | 36.39 | 35.02 | 40.81 | 50.62 | 23.38 | 74.00 |
| 9847.549 | 10.31 | 37.46 | 35.10 | 36.71 | 49.39 | 24.61 | 74.00 |
| 12310.15 | 12.08 | 39.23 | 34.35 | 34.03 | 50.99 | 23.01 | 74.00 |
| 14771.64 | 13.73 | 40.13 | 34.31 | 24.77 | 44.33 | 29.67 | 74.00 |
| 17234.44 | 15.28 | 43.66 | 33.88 | 25.40 | 50.46 | 23.54 | 74.00 |
| 19696.15 | 15.76 | 47.30 | 33.80 | 22.90 | 52.16 | 21.84 | 74.00 |
| 22157.64 | 15.76 | 47.30 | 33.80 | 22.39 | 51.65 | 22.35 | 74.00 |
| 24619.85 | 15.76 | 47.30 | 33.80 | 23.93 | 53.19 | 20.81 | 74.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : USB Wireless Lan Card
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 1(1Mbps)

| Freq. | Cable | Probe | PreAMP | Reading | Emission | Margin | Limit |
|-------|-------|--------|--------|---------|----------|--------|--------|
| MHz | Loss | Factor | dB | Level | Level | dB | dBuV/m |
| | dB | dB/m | | dBuV | dBuV/m | | |

Horizontal:

| | | | | | | | |
|----------|------|-------|-------|-------|-------|-------|-------|
| 58.130 | 1.13 | 13.27 | 26.86 | 43.80 | 31.34 | 8.66 | 40.00 |
| 119.240 | 1.38 | 16.20 | 26.88 | 41.40 | 32.10 | 11.40 | 43.50 |
| *144.460 | 1.49 | 19.66 | 26.89 | 41.40 | 35.66 | 7.84 | 43.50 |
| 232.730 | 1.85 | 18.30 | 26.93 | 40.80 | 34.02 | 11.98 | 46.00 |
| 248.250 | 1.91 | 18.44 | 26.93 | 41.60 | 35.02 | 10.98 | 46.00 |
| 571.260 | 3.24 | 24.37 | 26.52 | 34.20 | 35.28 | 10.72 | 46.00 |

Vertical:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *57.160 | 1.13 | 13.30 | 26.86 | 47.20 | 34.76 | 5.24 | 40.00 |
| 144.460 | 1.49 | 19.66 | 26.89 | 40.80 | 35.06 | 8.44 | 43.50 |
| 248.250 | 1.91 | 18.44 | 26.93 | 35.80 | 29.22 | 16.78 | 46.00 |
| 296.750 | 2.11 | 18.88 | 26.95 | 34.40 | 28.44 | 17.56 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 32.60 | 30.13 | 15.87 | 46.00 |
| 572.230 | 3.24 | 24.38 | 26.52 | 33.40 | 34.50 | 11.50 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : USB Wireless Lan Card
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 6(1Mbps)

| Freq. | Cable | Probe | PreAMP | Reading | Emission | Margin | Limit |
|-------|-------|--------|--------|---------|----------|--------|--------|
| MHz | Loss | Factor | | Level | Level | | |
| | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |

Horizontal:

| | | | | | | | |
|----------|------|-------|-------|-------|-------|-------|-------|
| 58.130 | 1.13 | 13.27 | 26.86 | 43.40 | 30.94 | 9.06 | 40.00 |
| *143.490 | 1.48 | 19.53 | 26.89 | 42.60 | 36.72 | 6.78 | 43.50 |
| 232.730 | 1.85 | 18.30 | 26.93 | 40.60 | 33.82 | 12.18 | 46.00 |
| 248.250 | 1.91 | 18.44 | 26.93 | 40.80 | 34.22 | 11.78 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 32.60 | 30.13 | 15.87 | 46.00 |
| 570.290 | 3.24 | 24.35 | 26.52 | 33.00 | 34.06 | 11.94 | 46.00 |

Vertical:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *57.160 | 1.13 | 13.30 | 26.86 | 48.80 | 36.36 | 3.64 | 40.00 |
| 143.490 | 1.48 | 19.53 | 26.89 | 38.20 | 32.32 | 11.18 | 43.50 |
| 249.220 | 1.92 | 18.45 | 26.93 | 36.00 | 29.43 | 16.57 | 46.00 |
| 296.750 | 2.11 | 18.88 | 26.95 | 35.00 | 29.04 | 16.96 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 32.80 | 30.33 | 15.67 | 46.00 |
| 571.260 | 3.24 | 24.37 | 26.52 | 32.60 | 33.68 | 12.32 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : USB Wireless Lan Card
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 11(1Mbps)

| Freq. | Cable | Probe | PreAMP | Reading | Emission | Margin | Limit |
|-------|-------|--------|--------|---------|----------|--------|--------|
| MHz | Loss | Factor | dB | Level | Level | dB | dBuV/m |
| | dB | dB/m | | dBuV | dBuV/m | | |

Horizontal:

| | | | | | | | |
|----------|------|-------|-------|-------|-------|-------|-------|
| *143.490 | 1.48 | 19.53 | 26.89 | 42.40 | 36.52 | 6.98 | 43.50 |
| 231.760 | 1.84 | 18.29 | 26.92 | 40.00 | 33.21 | 12.79 | 46.00 |
| 248.250 | 1.91 | 18.44 | 26.93 | 40.80 | 34.22 | 11.78 | 46.00 |
| 264.740 | 1.98 | 18.59 | 26.94 | 37.60 | 31.23 | 14.77 | 46.00 |
| 426.730 | 2.64 | 21.61 | 26.75 | 33.00 | 30.50 | 15.50 | 46.00 |
| 572.230 | 3.24 | 24.38 | 26.52 | 32.80 | 33.90 | 12.10 | 46.00 |

Vertical:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *57.160 | 1.13 | 13.30 | 26.86 | 46.80 | 34.36 | 5.64 | 40.00 |
| 143.490 | 1.48 | 19.53 | 26.89 | 38.20 | 32.32 | 11.18 | 43.50 |
| 248.250 | 1.91 | 18.44 | 26.93 | 35.60 | 29.02 | 16.98 | 46.00 |
| 296.750 | 2.11 | 18.88 | 26.95 | 33.40 | 27.44 | 18.56 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 34.00 | 31.53 | 14.47 | 46.00 |
| 570.290 | 3.24 | 24.35 | 26.52 | 33.20 | 34.26 | 11.74 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : USB Wireless Lan Card
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 1(11Mbps)

| Freq. | Cable | Probe | PreAMP | Reading | Emission | Margin | Limit |
|-------|-------|--------|--------|---------|----------|--------|--------|
| MHz | Loss | Factor | | Level | Level | | |
| | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |

Horizontal:

| | | | | | | | |
|----------|------|-------|-------|-------|-------|-------|-------|
| *143.490 | 1.48 | 19.53 | 26.89 | 42.60 | 36.72 | 6.78 | 43.50 |
| 231.760 | 1.84 | 18.29 | 26.92 | 40.60 | 33.81 | 12.19 | 46.00 |
| 251.160 | 1.92 | 18.47 | 26.93 | 40.80 | 34.26 | 11.74 | 46.00 |
| 287.050 | 2.07 | 18.79 | 26.95 | 33.80 | 27.72 | 18.28 | 46.00 |
| 425.760 | 2.64 | 21.58 | 26.75 | 33.60 | 31.07 | 14.93 | 46.00 |
| 572.230 | 3.24 | 24.38 | 26.52 | 33.40 | 34.50 | 11.50 | 46.00 |

Vertical:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *57.160 | 1.13 | 13.30 | 26.86 | 47.60 | 35.16 | 4.84 | 40.00 |
| 143.490 | 1.48 | 19.53 | 26.89 | 38.80 | 32.92 | 10.58 | 43.50 |
| 248.250 | 1.91 | 18.44 | 26.93 | 35.60 | 29.02 | 16.98 | 46.00 |
| 299.660 | 2.12 | 18.90 | 26.95 | 34.80 | 28.87 | 17.13 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 34.00 | 31.53 | 14.47 | 46.00 |
| 570.290 | 3.24 | 24.35 | 26.52 | 33.60 | 34.66 | 11.34 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : USB Wireless Lan Card
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 6(11Mbps)

| Freq. | Cable | Probe | PreAMP | Reading | Emission | Margin | Limit |
|-------|-------|--------|--------|---------|----------|--------|--------|
| MHz | Loss | Factor | dB | Level | Level | dB | dBuV/m |
| | dB | dB/m | | dBuV | dBuV/m | | |

Horizontal:

| | | | | | | | |
|----------|------|-------|-------|-------|-------|-------|-------|
| 56.190 | 1.12 | 13.32 | 26.86 | 42.80 | 30.39 | 9.61 | 40.00 |
| *143.490 | 1.48 | 19.53 | 26.89 | 41.60 | 35.72 | 7.78 | 43.50 |
| 232.730 | 1.85 | 18.30 | 26.93 | 40.20 | 33.42 | 12.58 | 46.00 |
| 250.190 | 1.92 | 18.46 | 26.93 | 40.60 | 34.04 | 11.96 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 33.00 | 30.53 | 15.47 | 46.00 |
| 570.290 | 3.24 | 24.35 | 26.52 | 32.00 | 33.06 | 12.94 | 46.00 |

Vertical:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *56.190 | 1.12 | 13.32 | 26.86 | 47.00 | 34.59 | 5.41 | 40.00 |
| 143.490 | 1.48 | 19.53 | 26.89 | 38.40 | 32.52 | 10.98 | 43.50 |
| 247.280 | 1.91 | 18.43 | 26.93 | 36.40 | 29.81 | 16.19 | 46.00 |
| 296.750 | 2.11 | 18.88 | 26.95 | 34.00 | 28.04 | 17.96 | 46.00 |
| 427.700 | 2.65 | 21.63 | 26.75 | 33.20 | 30.73 | 15.27 | 46.00 |
| 571.260 | 3.24 | 24.37 | 26.52 | 33.40 | 34.48 | 11.52 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

Product : USB Wireless Lan Card
 Test Item : General Radiated Emission Data
 Test Site : No.1 OATS
 Test Mode : Channel 11(11Mbps)

| Freq. | Cable | Probe | PreAMP | Reading | Emission | Margin | Limit |
|-------|-------|--------|--------|---------|----------|--------|--------|
| MHz | Loss | Factor | dB | Level | Level | dB | dBuV/m |
| | dB | dB/m | | dBuV | dBuV/m | | |

Horizontal:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *57.160 | 1.13 | 13.30 | 26.86 | 45.80 | 33.36 | 6.64 | 40.00 |
| 156.100 | 1.54 | 20.03 | 26.90 | 35.20 | 29.87 | 13.63 | 43.50 |
| 166.770 | 1.58 | 19.54 | 26.90 | 35.40 | 29.62 | 13.88 | 43.50 |
| 230.790 | 1.84 | 18.28 | 26.92 | 33.80 | 27.00 | 19.00 | 46.00 |
| 295.780 | 2.11 | 18.87 | 26.95 | 32.20 | 26.23 | 19.77 | 46.00 |
| 567.380 | 3.22 | 24.31 | 26.53 | 32.20 | 33.20 | 12.80 | 46.00 |

Vertical:

| | | | | | | | |
|---------|------|-------|-------|-------|-------|-------|-------|
| *57.160 | 1.13 | 13.30 | 26.86 | 47.20 | 34.76 | 5.24 | 40.00 |
| 127.000 | 1.42 | 17.27 | 26.89 | 35.40 | 27.20 | 16.30 | 43.50 |
| 149.310 | 1.51 | 20.20 | 26.89 | 33.80 | 28.61 | 14.89 | 43.50 |
| 296.750 | 2.11 | 18.88 | 26.95 | 32.00 | 26.04 | 19.96 | 46.00 |
| 426.730 | 2.64 | 21.61 | 26.75 | 31.60 | 29.10 | 16.90 | 46.00 |
| 571.260 | 3.24 | 24.37 | 26.52 | 33.20 | 34.28 | 11.72 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss- Pre Amp.

6. Band Edge

6.1. Test Equipment

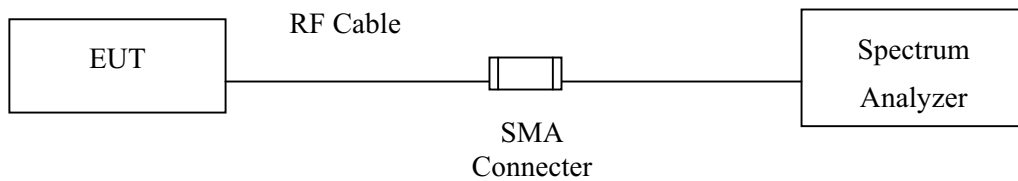
The following test equipments are used during the band edge tests:

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-------------------|--------------|----------------------|------------|
| X | Spectrum Analyzer | Advantest | R3272 / 72421194 | May, 2001 |
| X | Test Receiver | R & S | ESCS 30 / 825442/14 | May, 2001 |
| X | Spectrum Analyzer | Advantest | R3261C / 71720140 | May, 2001 |
| X | Pre-Amplifier | HP | 8447D/3307A01812 | May, 2001 |
| X | Bilog Antenna | Chase | CBL6112B / 12452 | Sep., 2001 |
| X | Horn Antenna | EM | EM6917 / 103325 | May, 2001 |

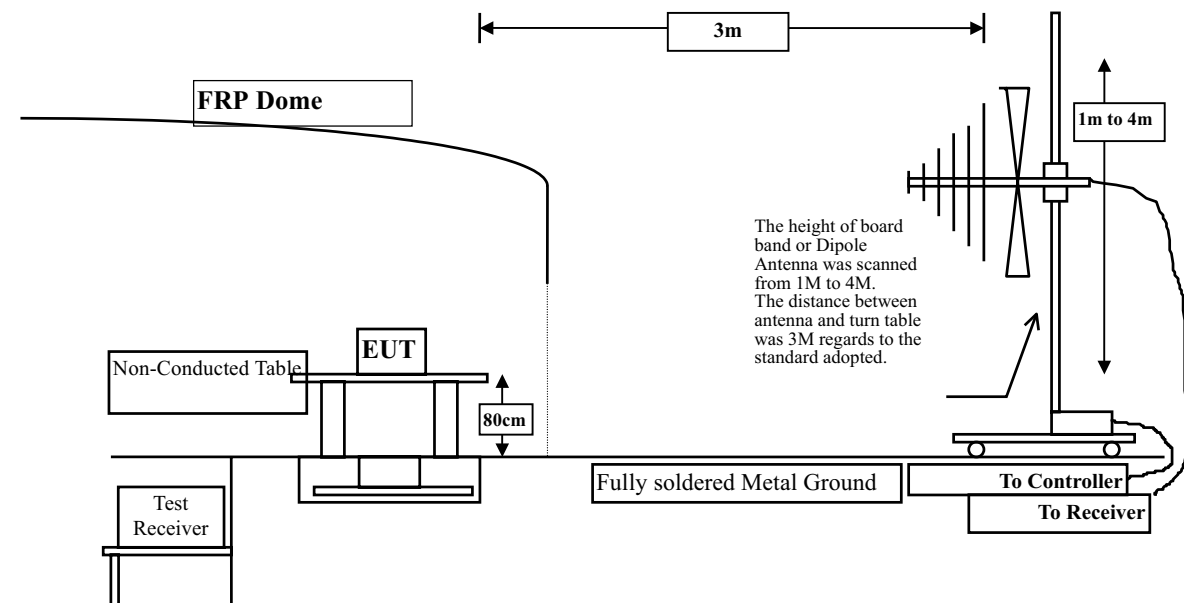
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



6.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

6.4. Standard Requirement

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.5. Test Result of Band Edge

Product : USB Wireless Lan Card
 Test Item : Band Edge Data
 Test Site : No.1 OATS
 Test Mode : Channel 1 (1Mbps)

RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|----------------|-----------------|----------------------|--------|
| 1 (Horizontal) | <2400 | >20 | Pass |
| 1 (Vertical) | <2400 | >20 | Pass |

Figure Channel 1: (Horizontal)

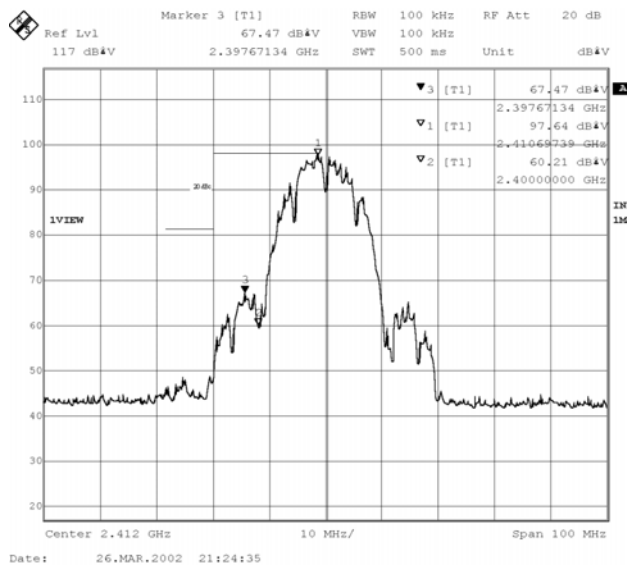
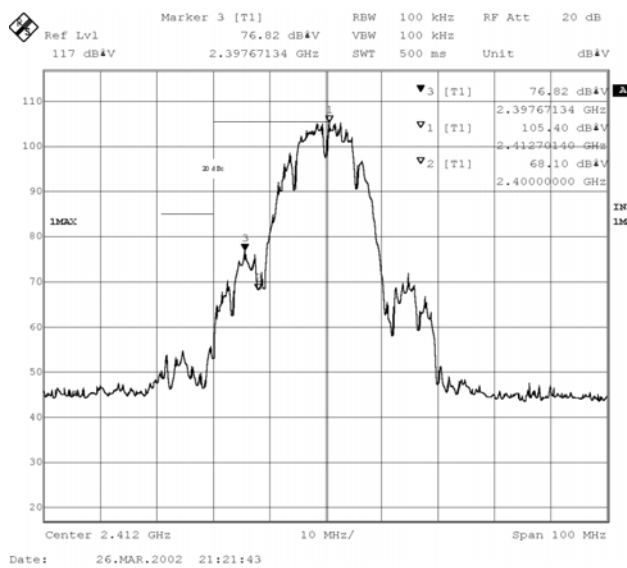


Figure Channel 1: (Vertical)



Product : USB Wireless Lan Card
 Test Item : Band Edge Data
 Test Site : No.1 OATS
 Test Mode : Channel 1 (11Mbps)

RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|----------------|-----------------|----------------------|--------|
| 1 (Horizontal) | <2400 | >20 | Pass |
| 1 (Vertical) | <2400 | >20 | Pass |

Figure Channel 1: (Horizontal)

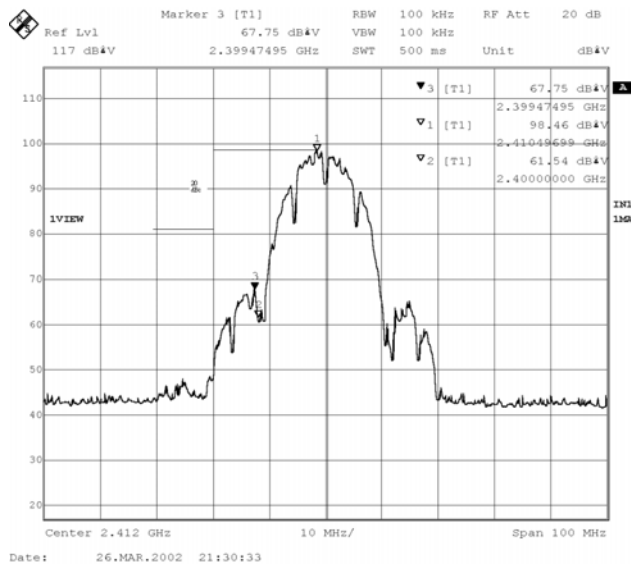
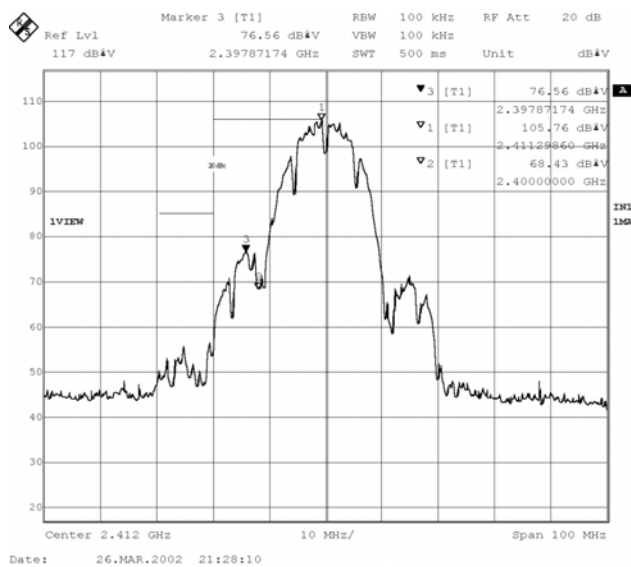


Figure Channel 1: (Vertical)



Product : USB Wireless Lan Card
 Test Item : Band Edge Data
 Test Site : No.1 OATS
 Test Mode : Channel 11 (1Mbps)

RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Reading Level (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Result |
|----------------|-----------------|----------------------|-------------------------|----------------|--------|
| 11(Horizontal) | 2486.34 | 51.78 | 50.23 | 54 | Pass |
| 11 (Vertical) | 2487.15 | 53.28 | 51.73 | 54 | Pass |

Figure Channel 11:

(Horizontal)

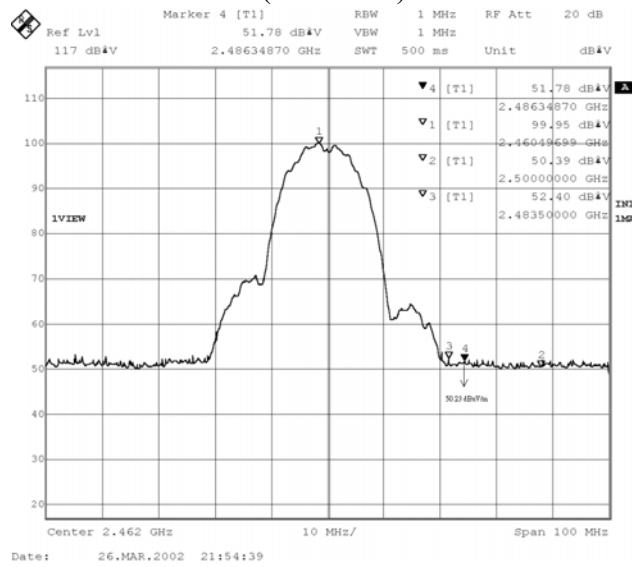
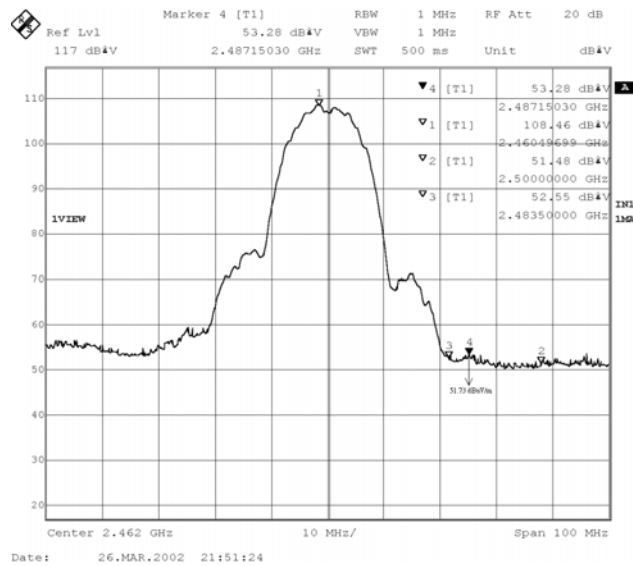


Figure Channel 11:

(Vertical)



Product : USB Wireless Lan Card
 Test Item : Band Edge Data
 Test Site : No.1 OATS
 Test Mode : Channel 11 (11Mbps)

RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Reading Level (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Result |
|----------------|-----------------|----------------------|-------------------------|----------------|--------|
| 11(Horizontal) | 2487.15 | 52.49 | 50.94 | 54 | Pass |
| 11(Vertical) | 2485.54 | 54.07 | 52.52 | 54 | Pass |

Figure Channel 11:

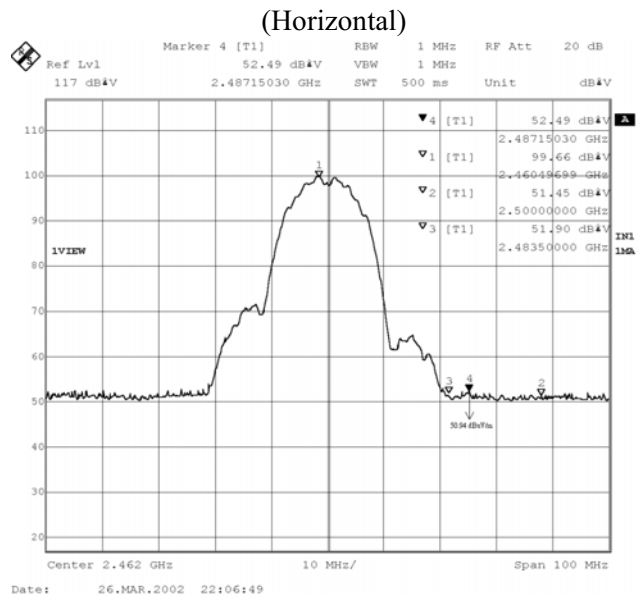
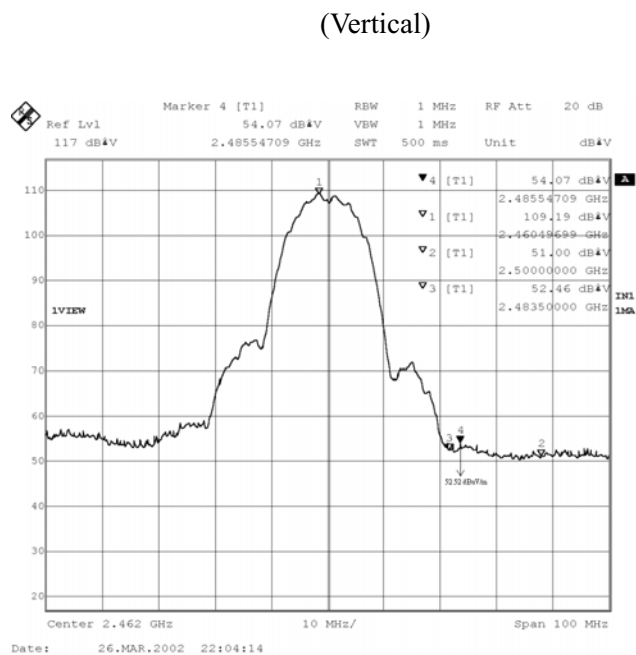


Figure Channel 11:



7. Occupied Bandwidth

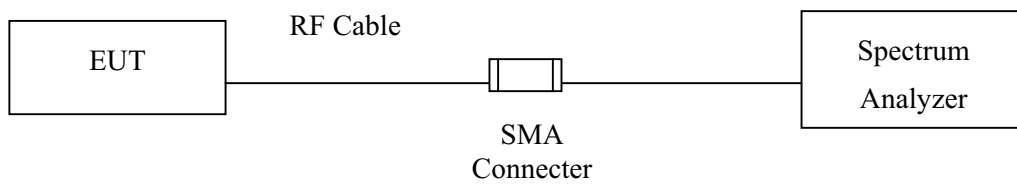
7.1. Test Equipment

The following test equipments are used during the radiated emission tests:

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-----------|--------------|----------------------|-----------|
| X | Spectrum | Advantest | R3272 / 72421194 | May, 2001 |

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

7.2. Test Setup



7.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

7.4. Standard Requirement

The minimum bandwidth shall be at least 500kHz.

7.5. Test Result of Occupied Bandwidth

Product : USB Wireless Lan Card
 Test Item : Occupied Bandwidth Data
 Test Site : No.1 OATS
 Test Mode : Channel 1

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 1 (1Mbps) | 2412.00 | 11100 | >500 | Pass |
| 1 (11Mbps) | 2412.00 | 11300 | >500 | Pass |

Figure Channel 1: 1Mbps

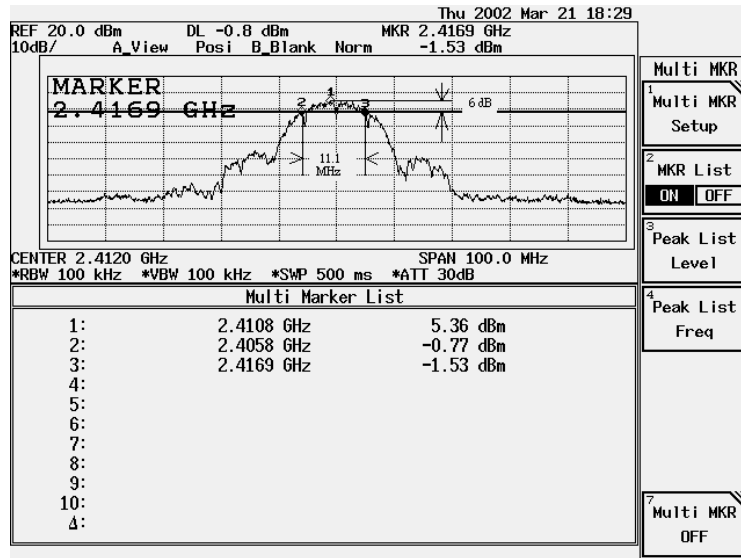
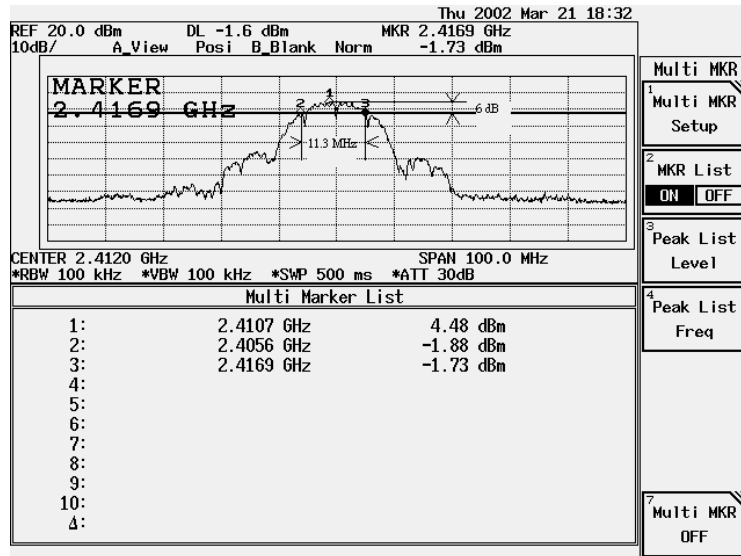


Figure Channel 1: 11Mbps



Product : USB Wireless Lan Card
 Test Item : Occupied Bandwidth Data
 Test Site : No.1 OATS
 Test Mode : Channel 6

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 6 (1Mbps) | 2437.00 | 11200 | >500 | Pass |
| 6 (11Mbps) | 2437.00 | 11100 | >500 | Pass |

Figure Channel 6: 1Mbps

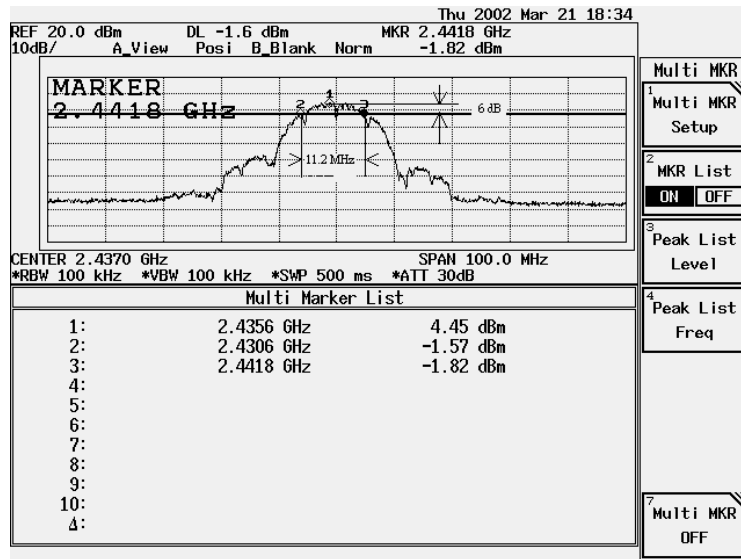
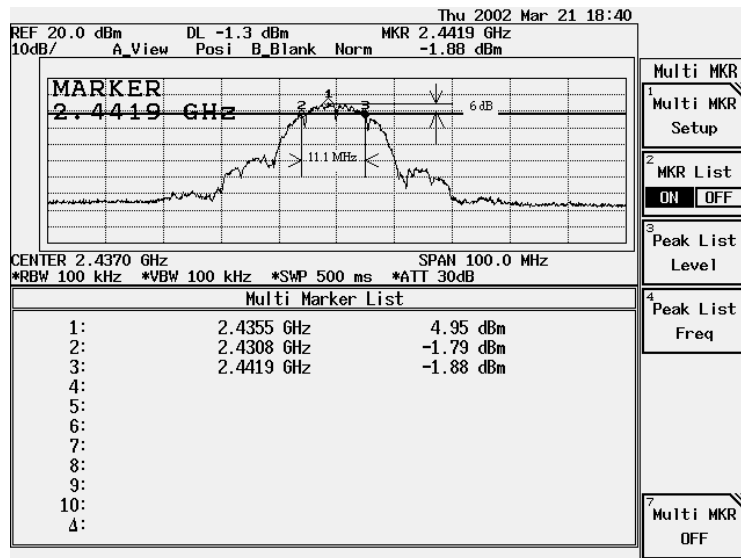


Figure Channel 6: 11Mbps



Product : USB Wireless Lan Card
 Test Item : Occupied Bandwidth Data
 Test Site : No.1 OATS
 Test Mode : Channel 11

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 11 (1Mbps) | 2462.00 | 10600 | >500 | Pass |
| 11 (11Mbps) | 2462.00 | 11100 | >500 | Pass |

Figure Channel 11: 1Mbps

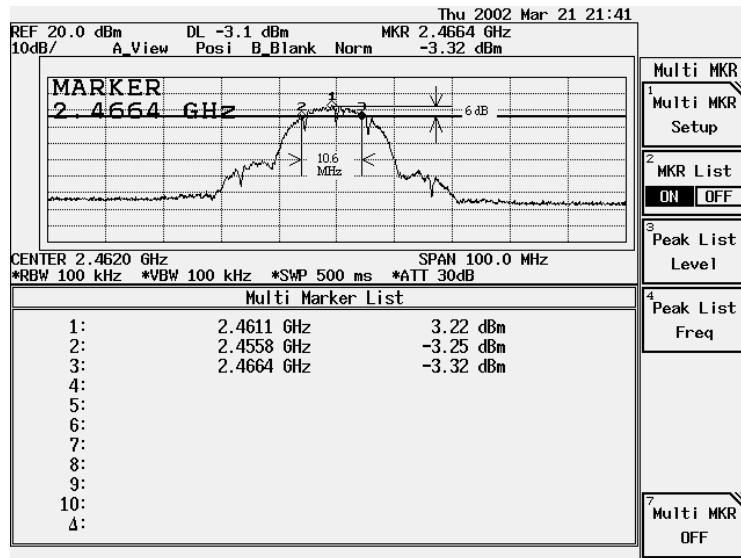
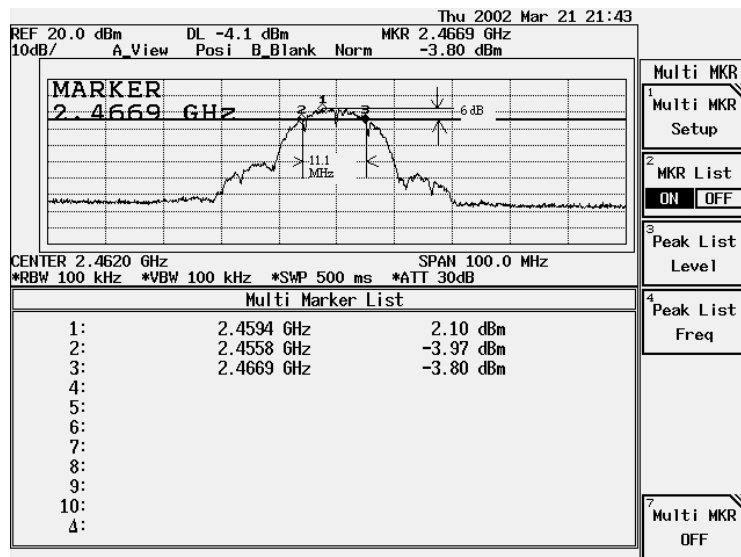


Figure Channel 11: 11Mbps



8. Transmitter Power Density

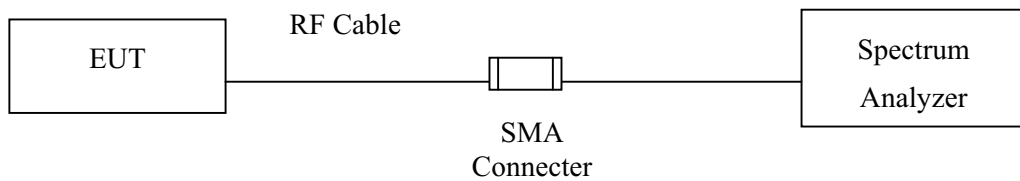
8.1. Test Equipment

The following test equipments are used during the radiated emission tests:

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|-----------|--------------|----------------------|-----------|
| X | Spectrum | Advantest | R3272 / 72421194 | May, 2001 |

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

8.2. Test Setup



8.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

8.4. Standard Requirement

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.5. Test Result of Transmitter Power Density

Product : USB Wireless Lan Card
 Test Item : Transmitter Power Density Data
 Test Site : No.1 OATS
 Test Mode : Channel 1

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 1 (1Mbps) | 2410.659 | -9.09 | < 8dBm | Pass |
| 1 (11Mbps) | 2411.283 | -9.30 | < 8dBm | Pass |

Figure Channel 1:

1Mbps

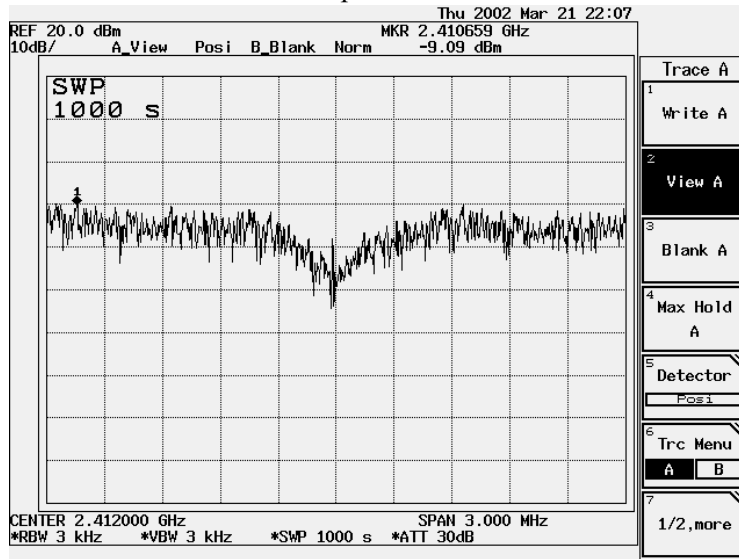
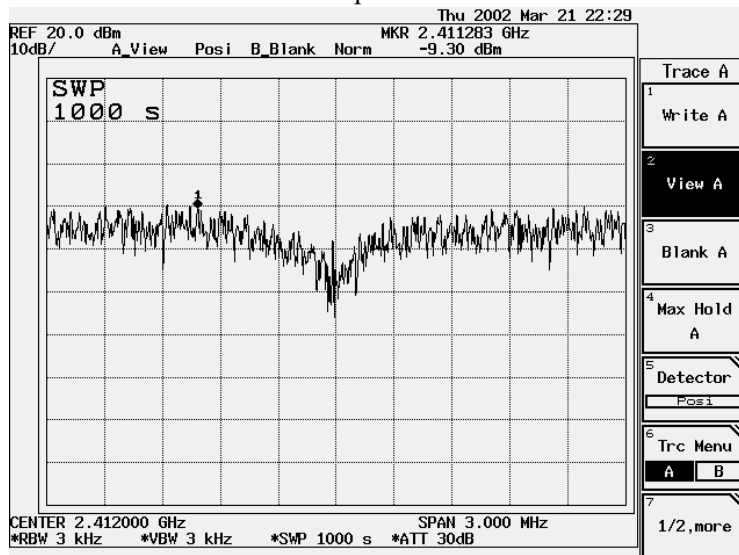


Figure Channel 1:

11Mbps



Product : USB Wireless Lan Card
 Test Item : Transmitter Power Density Data
 Test Site : No.1 OATS
 Test Mode : Channel 6

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 6 (1Mbps) | 2436.184 | -8.66 | < 8dBm | Pass |
| 6 (11Mbps) | 2435.833 | -10.46 | < 8dBm | Pass |

Figure Channel 6:

1Mbps

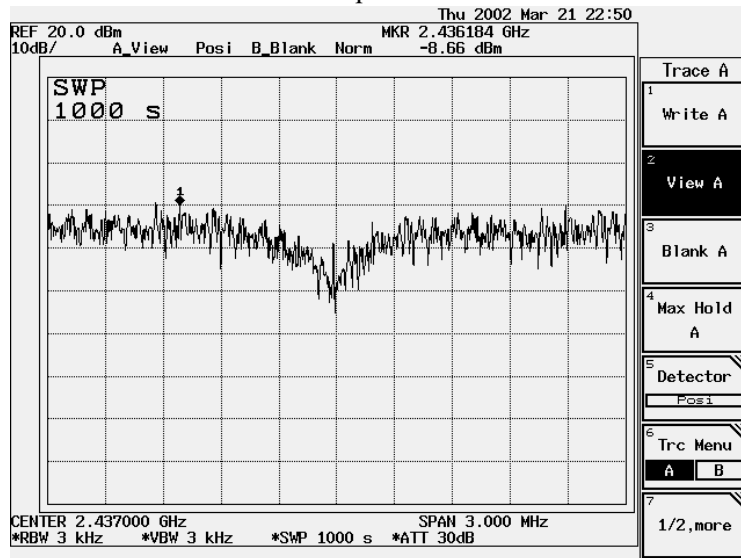
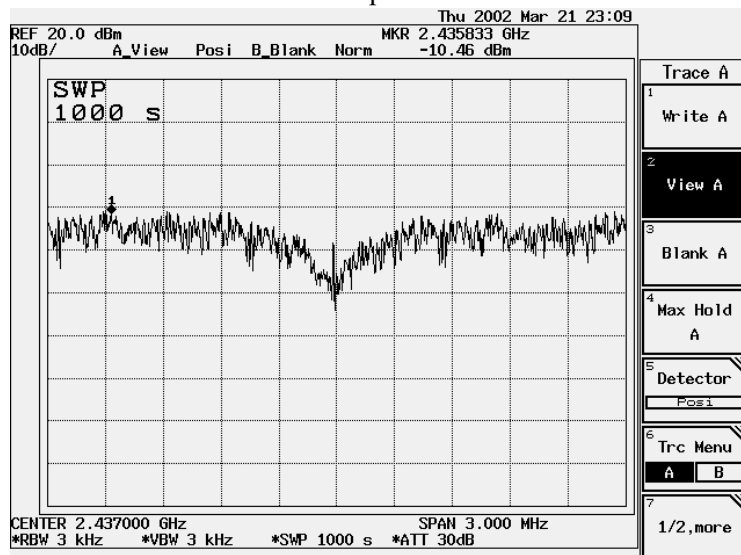


Figure Channel 6:

11Mbps



Product : USB Wireless Lan Card
 Test Item : Transmitter Power Density Data
 Test Site : No.1 OATS
 Test Mode : Channel 11

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 11 (1Mbps) | 2461.382 | -9.23 | < 8dBm | Pass |
| 11 (11Mbps) | 2461.193 | -11.61 | < 8dBm | Pass |

Figure Channel 11:

1Mbps

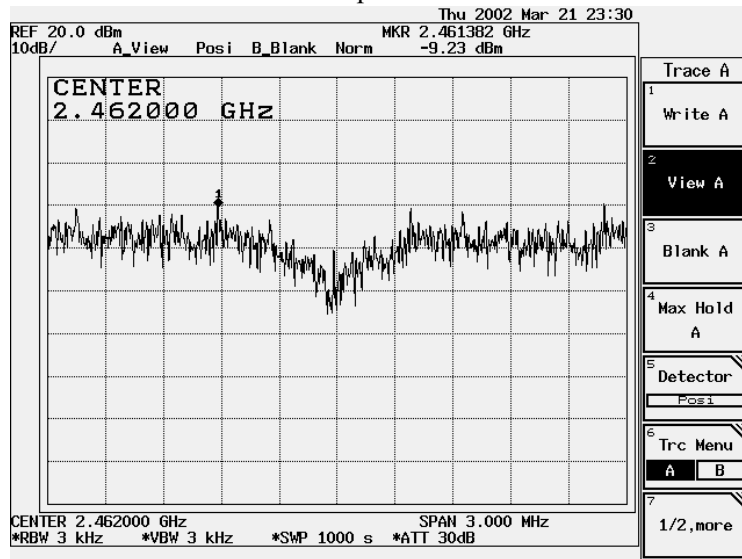
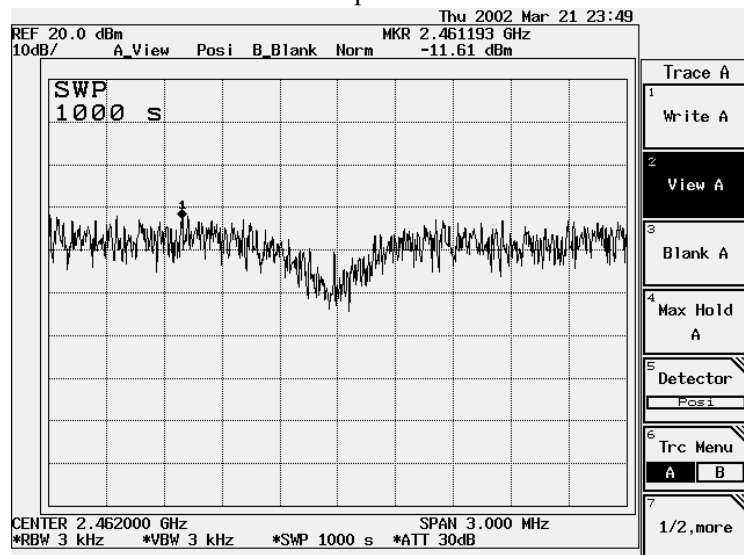


Figure Channel 11:

11Mbps



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs