



Test Report

| | |
|--------------|----------------------------|
| Product Name | SIP-Based Wireless Gateway |
| Model No. | SS38 |
| FCC ID | Q5S-SS38 |

| | |
|-----------|---|
| Applicant | Fi Win Inc. |
| Address | 8F, No.10, Prosperity Rd.1, Science Park, HsinChu, Taiwan 300 |

| | |
|-----------------|----------------------|
| Date of Receipt | March 31, 2006 |
| Issued Date | April 24, 2006 |
| Report No. | 064L037-RF-US-P05V01 |

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.
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Test Report Certification

Issued Date: April 24, 2006

Report No.: 064L037-RF-US-P05V01



Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

| | |
|---------------------|--|
| Product Name | SIP-Based Wireless Gateway |
| Applicant | Fi Win Inc. |
| Address | 8F, No.10, Prosperity Rd.1, Science Park, HsinChu, Taiwan 300 |
| Manufacturer | Fi Win Inc. |
| Model No. | SS38 |
| Rated Voltage | AC 120V/60Hz |
| Working Voltage | AC 120V/60Hz |
| Trade Name | Fi Win |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2005 CISPR 22 Edition 4.1: 2004 ANSI C63.4: 2003 |
| Test Result | Complied |



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Documented By : Rita Huang

(Rita Huang)



0914

Tested By : Tim Sung

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

| | |
|--------------------|--|
| Product Name | SIP-Based Wireless Gateway |
| Trade Name | Fi Win |
| Model No. | SS38 |
| FCC ID | Q5S-SS38 |
| Frequency Range | 2412 – 2462MHz |
| Channel Number | 11 |
| Data Speed | IEEE 802.11b – 1, 2, 5.5, 11Mbps IEEE 802.11g – 6, 9, 12, 18, 24, 36 48, 54Mbps |
| Type of Modulation | DSSS/OFDM |
| Antenna Type | Connector |
| Antenna Gain | Refer to the table “Antenna List” |
| Channel Control | Auto |

Antenna List

| No. | Manufacturer | Part No. | Peak Gain |
|-----|------------------|--------------|------------------|
| 1 | Omni-Directional | SAA04-050350 | 2dBi for 2.4 GHz |

Frequency of Each Channel:

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

Note:

1. The EUT is a SIP-Based Wireless Gateway with a built-in 2.4GHz transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 11Mbps and 802.11g is 6Mbps)
4. These tests are 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.
5. Part 15 Subpart B compliance for spread spectrum devices is shown on the report no. 064L037-RF-US-P01V02.

1.2. Operational Description

The EUT is a SIP-Based Wireless Gateway with 11 channels. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps. The device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b) or eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps. The device of RF carrier is OFDM (IEEE 802.11g).

The device adapts direct sequence spread spectrum modulation. The antenna was Connector provides diversity function to improve the receiving function.

This SIP-Based Wireless Gateway, compliant with IEEE 802.11b and IEEE 802.11g, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the SIP-Based Wireless Gateway Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11g network.

| | |
|-----------|-----------------------------|
| Test Mode | Mode 1: Transmitter 802.11b |
| | Mode 2: Transmitter 802.11g |

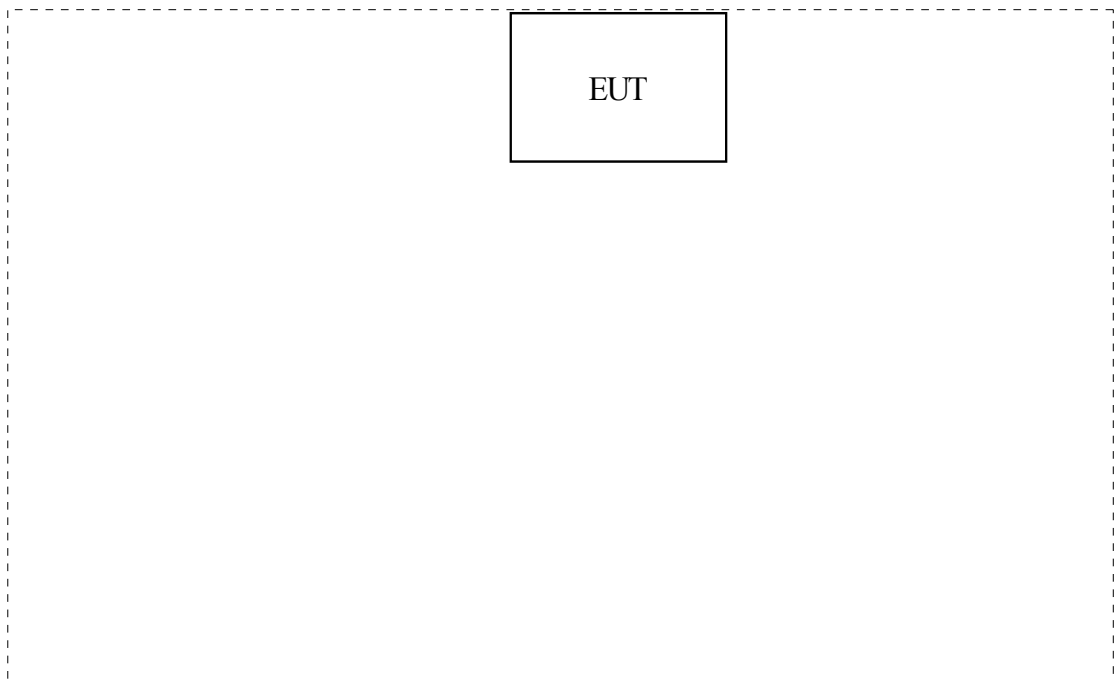
1.3. Tested System Details

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. | FCC ID | Power Cord |
|----|---------|--------------|-----------|------------|--------|------------|
| 1. | N/A | N/A | N/A | N/A | N/A | N/A |

| | Signal Cable Type | Signal cable Description |
|----|-------------------|--------------------------|
| A. | N/A | N/A |

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Connect the EUT to a notebook via Ethernet.
- (2) Setup the IP address / network mask of the notebook = 192.168.1.21 / 255.255.255.0.
- (3) Browser <http://192.168.1.1>.
- (4) Configure the test mode, the test channel, the data rate, and the power level.
- (5) Save the changes and reboot the EUT.
- (6) Verify that the EUT works properly.
- (7) Remove the notebook and start tests.

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: June 22, 2001 File on
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046
 Reference 31040/SIT1300F2



July 03, 2001 Accreditation on NVLAP
 NVLAP Lab Code: 200533-0



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 E-Mail : service@quietek.com



2. Conducted Emission

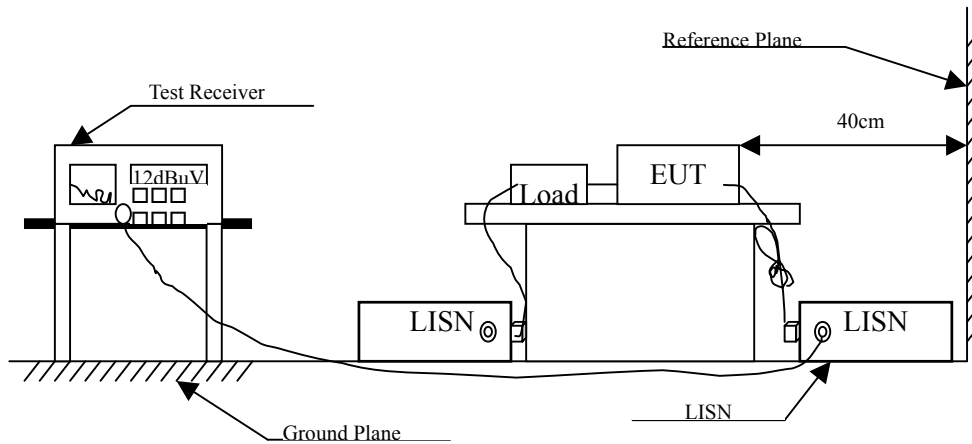
2.1. Test Equipment

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, 2005 | |
| 2 | L.I.S.N. | R & S | ESH3-Z5/825016/6 | May, 2005 | EUT |
| 3 | L.I.S.N. | Kyoritsu | KNW-407/8-1420-3 | May, 2005 | Peripherals |
| 4 | Pulse Limiter | R & S | ESH3-Z2 | May, 2005 | |
| 5 | No.1 Shielded Room | | | N/A | |

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit | | |
|---|----------------------|----------------------|
| Frequency MHz | Limits | |
| | uV | dBuV |
| 0.15 - 0.50 | 66-56 ^(註) | 56-46 ^(註) |
| 0.50-5.0 | 56 | 46 |
| 5.0 - 30 | 60 | 50 |

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 refers 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: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.02 dB

2.6. Test Result of Conducted Emission

Product : SIP-Based Wireless Gateway
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV | Margin dB | Limit dBuV |
|-------------------|-------------------------|--------------------------|------------------------------|--------------|---------------|
| LINE 1 | | | | | |
| Quasi-Peak | | | | | |
| 0.182 | 0.775 | 36.120 | 36.895 | -28.191 | 65.086 |
| 0.237 | 0.388 | 29.870 | 30.258 | -33.256 | 63.514 |
| 0.297 | 0.300 | 24.290 | 24.590 | -37.210 | 61.800 |
| 0.416 | 0.300 | 28.070 | 28.370 | -30.030 | 58.400 |
| 0.771 | 0.310 | 24.310 | 24.620 | -31.380 | 56.000 |
| 23.111 | 1.160 | 20.310 | 21.470 | -38.530 | 60.000 |
| Average | | | | | |
| 0.182 | 0.775 | 23.300 | 24.075 | -31.011 | 55.086 |
| 0.237 | 0.388 | 18.700 | 19.088 | -34.426 | 53.514 |
| 0.297 | 0.300 | 16.680 | 16.980 | -34.820 | 51.800 |
| 0.416 | 0.300 | 27.110 | 27.410 | -20.990 | 48.400 |
| 0.771 | 0.310 | 19.450 | 19.760 | -26.240 | 46.000 |
| 23.111 | 1.160 | 14.470 | 15.630 | -34.370 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : SIP-Based Wireless Gateway
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV | Margin dB | Limit dBuV |
|-------------------|-------------------------|--------------------------|------------------------------|--------------|---------------|
| LINE 2 | | | | | |
| Quasi-Peak | | | | | |
| 0.177 | 0.300 | 36.590 | 36.890 | -28.339 | 65.229 |
| 0.238 | 0.300 | 28.780 | 29.080 | -34.406 | 63.486 |
| 0.476 | 0.310 | 23.460 | 23.770 | -32.916 | 56.686 |
| 0.732 | 0.315 | 21.670 | 21.985 | -34.015 | 56.000 |
| 1.546 | 0.340 | 22.710 | 23.050 | -32.950 | 56.000 |
| 22.170 | 0.990 | 15.560 | 16.550 | -43.450 | 60.000 |
| Average | | | | | |
| 0.177 | 0.300 | 24.300 | 24.600 | -30.629 | 55.229 |
| 0.238 | 0.300 | 21.160 | 21.460 | -32.026 | 53.486 |
| 0.476 | 0.310 | 21.870 | 22.180 | -24.506 | 46.686 |
| 0.732 | 0.315 | 12.100 | 12.415 | -33.585 | 46.000 |
| 1.546 | 0.340 | 16.060 | 16.400 | -29.600 | 46.000 |
| 22.170 | 0.990 | 6.000 | 6.990 | -43.010 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : SIP-Based Wireless Gateway
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV | Margin dB | Limit dBuV |
|-------------------|-------------------------|--------------------------|------------------------------|--------------|---------------|
| LINE 1 | | | | | |
| Quasi-Peak | | | | | |
| 0.178 | 0.760 | 38.120 | 38.880 | -26.320 | 65.200 |
| 0.238 | 0.381 | 29.220 | 29.601 | -33.885 | 63.486 |
| 0.414 | 0.300 | 28.110 | 28.410 | -30.047 | 58.457 |
| 0.771 | 0.310 | 23.800 | 24.110 | -31.890 | 56.000 |
| 2.370 | 0.350 | 21.710 | 22.060 | -33.940 | 56.000 |
| 21.772 | 1.134 | 19.440 | 20.574 | -39.426 | 60.000 |
| Average | | | | | |
| 0.178 | 0.760 | 25.750 | 26.510 | -28.690 | 55.200 |
| 0.238 | 0.381 | 18.000 | 18.381 | -35.105 | 53.486 |
| 0.414 | 0.300 | 27.160 | 27.460 | -20.997 | 48.457 |
| 0.771 | 0.310 | 20.140 | 20.450 | -25.550 | 46.000 |
| 2.370 | 0.350 | 14.560 | 14.910 | -31.090 | 46.000 |
| 21.772 | 1.134 | 9.450 | 10.584 | -39.416 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : SIP-Based Wireless Gateway
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV | Margin dB | Limit dBuV |
|-------------------|-------------------------|--------------------------|------------------------------|--------------|---------------|
| LINE 2 | | | | | |
| Quasi-Peak | | | | | |
| 0.177 | 0.300 | 36.810 | 37.110 | -28.119 | 65.229 |
| 0.235 | 0.300 | 27.830 | 28.130 | -35.441 | 63.571 |
| 0.472 | 0.310 | 24.770 | 25.080 | -31.720 | 56.800 |
| 0.771 | 0.320 | 25.350 | 25.670 | -30.330 | 56.000 |
| 1.595 | 0.340 | 18.780 | 19.120 | -36.880 | 56.000 |
| 21.662 | 0.970 | 29.870 | 30.840 | -29.160 | 60.000 |
| Average | | | | | |
| 0.177 | 0.300 | 24.410 | 24.710 | -30.519 | 55.229 |
| 0.235 | 0.300 | 20.590 | 20.890 | -32.681 | 53.571 |
| 0.472 | 0.310 | 23.790 | 24.100 | -22.700 | 46.800 |
| 0.771 | 0.320 | 19.390 | 19.710 | -26.290 | 46.000 |
| 1.595 | 0.340 | 10.300 | 10.640 | -35.360 | 46.000 |
| 21.662 | 0.970 | 27.240 | 28.210 | -21.790 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Equipment

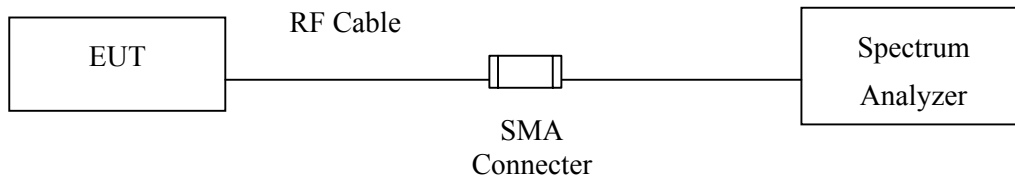
The following test equipments are used during the radiated emission tests:

| Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------------|--------------|-----------------------|-----------|
| X Test Receiver | R & S | ESI 26 / 838786 / 004 | May, 2005 |

- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

3.2. Test Setup

Conduction Power Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Uncertainty

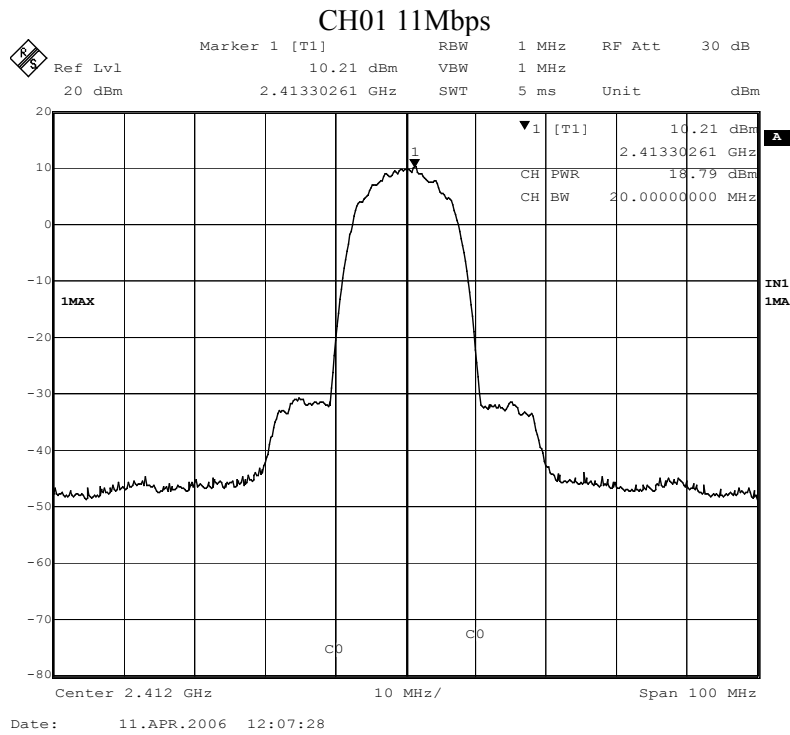
± 1.27 dB

3.5. Test Result of Peak Power Output

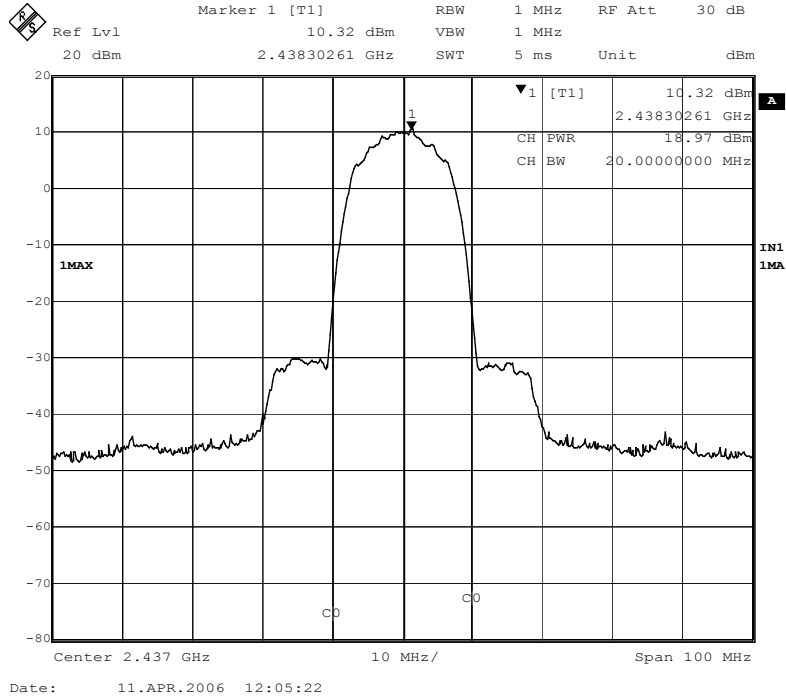
Product : SIP-Based Wireless Gateway
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

Data Speed: 11Mbps

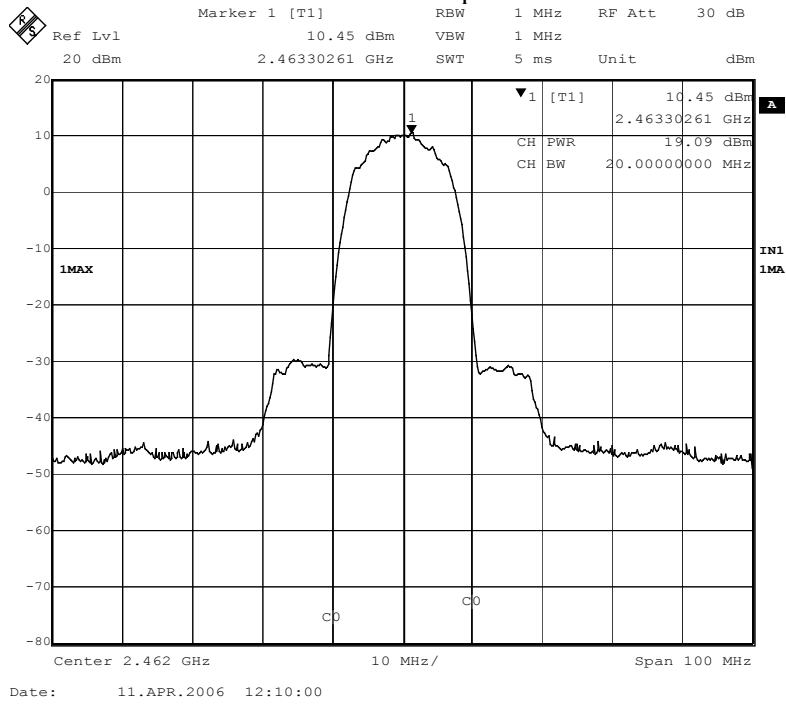
| Channel No. | Frequency (MHz) | Measurement | Required Limit | Result |
|-------------|-----------------|-------------|----------------|--------|
| 1 | 2412.00 | 18.79dBm | 1 Watt= 30 dBm | Pass |
| 6 | 2437.00 | 18.97dBm | 1 Watt= 30 dBm | Pass |
| 11 | 2462.00 | 19.09dBm | 1 Watt= 30 dBm | Pass |



CH06 11Mbps



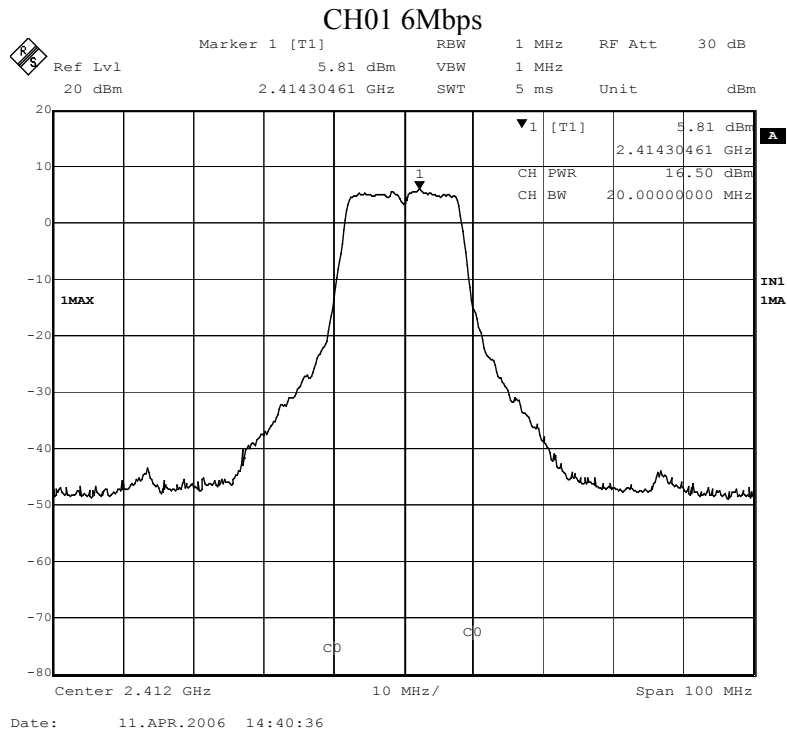
CH11 11Mbps



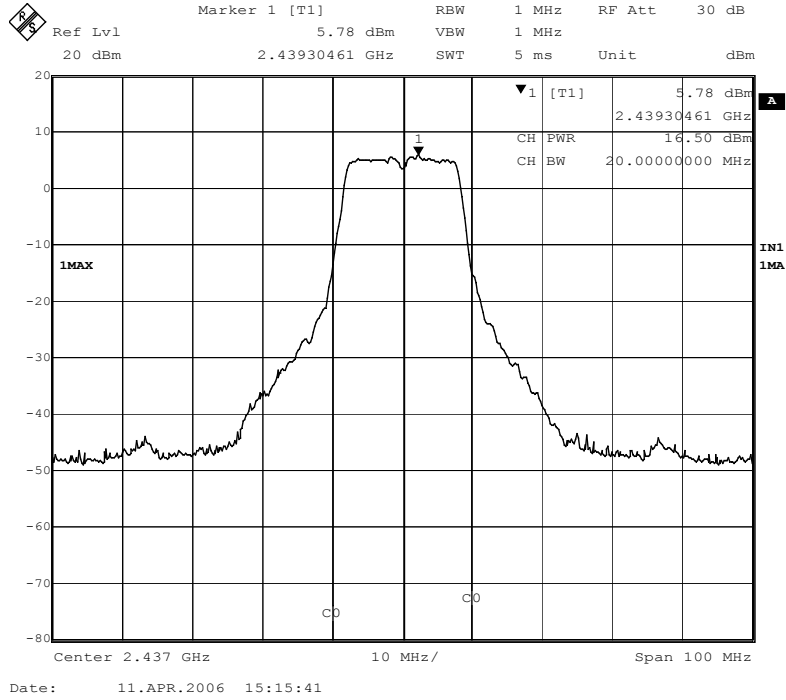
Product : SIP-Based Wireless Gateway
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

Data Speed: 54Mbps

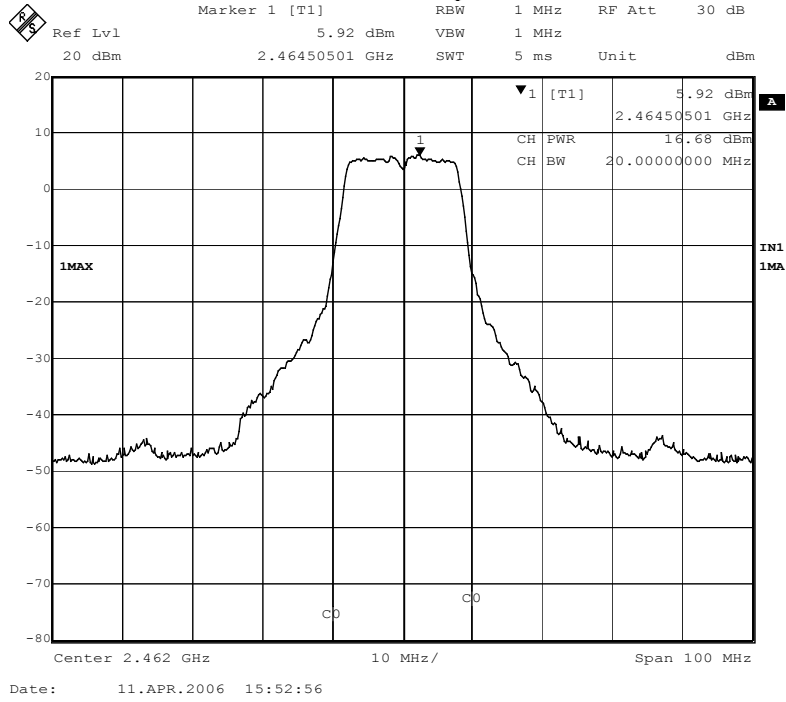
| Channel No. | Frequency (MHz) | Measurement | Required Limit | Result |
|-------------|-----------------|-------------|----------------|--------|
| 1 | 2412.00 | 16.50dBm | 1 Watt= 30 dBm | Pass |
| 6 | 2437.00 | 16.50dBm | 1 Watt= 30 dBm | Pass |
| 11 | 2462.00 | 16.68dBm | 1 Watt= 30 dBm | Pass |



CH06 6Mbps



CH11 6Mbps



4. Radiated Emission

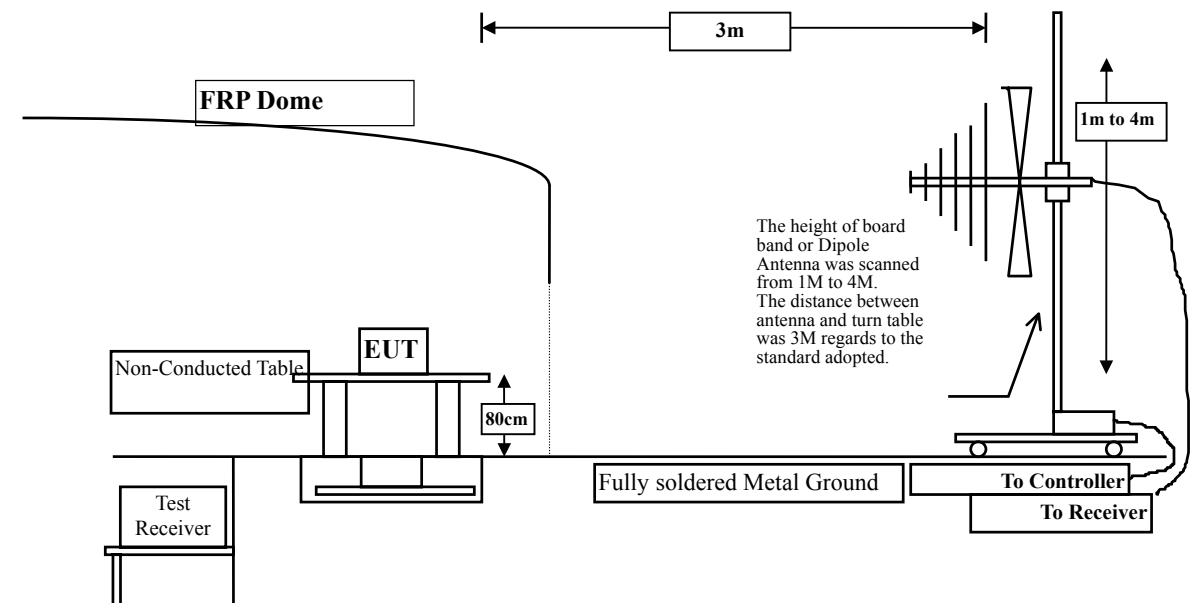
4.1. Test Equipment

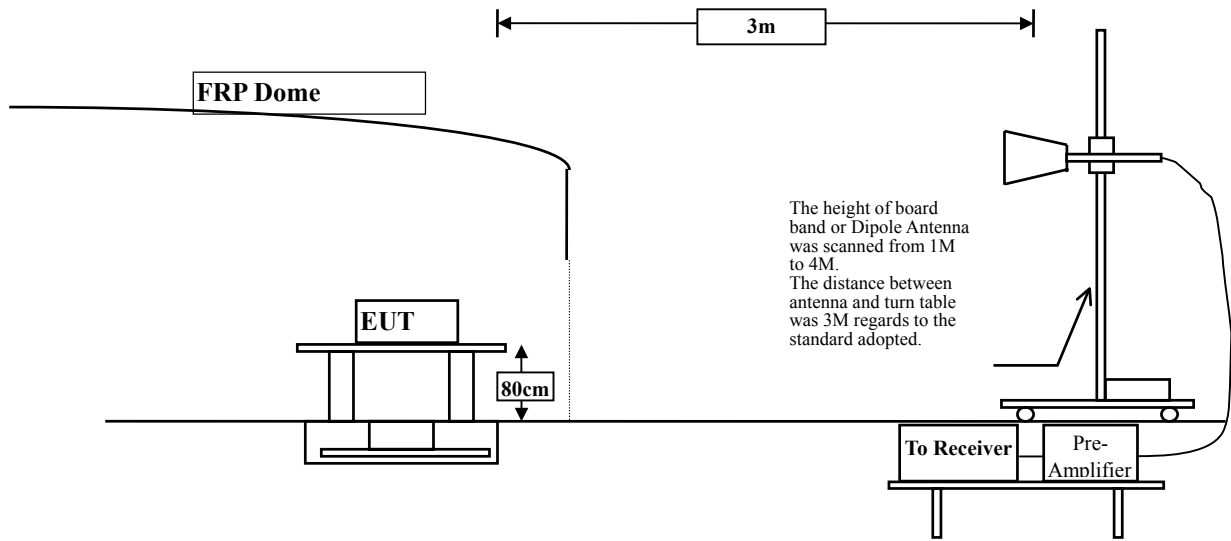
The following test equipment are used during the radiated emission test:

| Test Site | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------|---------------------|--------------|-----------------------|------------|
| Site # 1 | Test Receiver | R & S | ESCS 30 / 825442/14 | May, 2005 |
| | Spectrum Analyzer | Advantest | R3261C / 71720140 | May, 2005 |
| | Pre-Amplifier | HP | 8447D/3307A01812 | May, 2005 |
| | Bilog Antenna | Chase | CBL6112B / 12452 | Sep., 2005 |
| | Horn Antenna | EM | EM6917 / 103325 | May, 2005 |
| Site # 2 | Test Receiver | R & S | ESCS 30 / 825442/17 | May, 2005 |
| | Spectrum Analyzer | Advantest | R3261C / 71720609 | May, 2005 |
| | Pre-Amplifier | HP | 8447D/3307A01814 | May, 2005 |
| | Bilog Antenna | Chase | CBL6112B / 2455 | Sep., 2005 |
| | Horn Antenna | EM | EM6917 / 103325 | May, 2005 |
| Site # 3 | X Test Receiver | R & S | ESI 26 / 838786 / 004 | May, 2005 |
| | X Spectrum Analyzer | Advantest | R3162 / 100803480 | May, 2005 |
| | X Pre-Amplifier | QTK | QTK-AMP-03 / 0003 | May, 2005 |
| | X Bilog Antenna | SCHAFFNER | CBL6112B / 2697 | May, 2005 |
| | X Horn Antenna | ETS | 3115 / 0005-6160 | July, 2005 |
| | X Pre-Amplifier | QTK | QTK-AMP-01 / 0001 | July, 2005 |

- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

4.2. Test Setup





4.3. 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.

4.4. 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: 2003 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 is 120 kHz, above 1GHz are 1 MHz. The frequency range from 30MHz to 10th harmonics is checked.

4.5. Uncertainty

± 3.8 dB under 1GHz and ± 3.9 dB above 1GHz

4.6. Test Result of Radiated Emission

Product : SIP-Based Wireless Gateway
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|--------------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| Peak Detector: | | | | | |
| 4823.875 | 3.723 | 42.537 | 46.260 | -27.740 | 74.000 |
| 7235.875 | 9.439 | 39.068 | 48.506 | -25.494 | 74.000 |
| 9648.125 | 11.828 | 41.429 | 53.258 | -20.742 | 74.000 |
| Average Detector: | | | | | |
| -- | | | | | |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 4823.875 | 3.723 | 42.860 | 46.583 | -27.417 | 74.000 |
| 7236.000 | 9.439 | 38.892 | 48.331 | -25.669 | 74.000 |
| 9648.000 | 11.829 | 38.475 | 50.304 | -23.696 | 74.000 |
| Average Detector: | | | | | |
| -- | | | | | |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz ◦
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : SIP-Based Wireless Gateway
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2437 MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-----------|---------|---------|-------------|--------|--------|
| MHz | Factor | Level | Level | dB | dBuV/m |
| | dB | dBuV | dBuV/m | | |

Horizontal

Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4874.000 | 3.893 | 41.750 | 45.642 | -28.358 | 74.000 |
| 7311.000 | 9.624 | 37.743 | 47.367 | -26.633 | 74.000 |
| 9748.250 | 11.805 | 41.017 | 52.823 | -21.177 | 74.000 |

Average Detector:

--

Vertical

Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4874.000 | 3.893 | 42.168 | 46.060 | -27.940 | 74.000 |
| 7311.000 | 9.624 | 37.875 | 47.499 | -26.501 | 74.000 |
| 9748.000 | 11.805 | 38.962 | 50.768 | -23.232 | 74.000 |

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : SIP-Based Wireless Gateway
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2462 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
|------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|

Horizontal
Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4924.000 | 4.075 | 43.147 | 47.222 | -26.778 | 74.000 |
| 7386.000 | 9.812 | 37.729 | 47.541 | -26.459 | 74.000 |
| 9848.375 | 11.819 | 40.102 | 51.922 | -22.078 | 74.000 |

Average Detector:

--

Vertical
Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4923.875 | 4.075 | 42.758 | 46.832 | -27.168 | 74.000 |
| 7386.000 | 9.812 | 38.381 | 48.193 | -25.807 | 74.000 |
| 9848.000 | 11.819 | 40.368 | 52.187 | -21.813 | 74.000 |

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : SIP-Based Wireless Gateway
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3OATS
 Test Mode : Mode 2: Transmitter 802.11g (2412 MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-----------|---------|---------|-------------|--------|--------|
| MHz | Factor | Level | Level | dB | dBuV/m |
| | dB | dBuV | dBuV/m | | |

Horizontal

Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4824.375 | 3.725 | 41.646 | 45.370 | -28.630 | 74.000 |
| 7236.000 | 9.439 | 37.684 | 47.123 | -26.877 | 74.000 |
| 9648.000 | 11.829 | 40.101 | 51.930 | -22.070 | 74.000 |

Average Detector:

--

Vertical

Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4824.000 | 3.723 | 41.038 | 44.761 | -29.239 | 74.000 |
| 7236.000 | 9.439 | 38.219 | 47.658 | -26.342 | 74.000 |
| 9648.375 | 11.829 | 40.494 | 52.323 | -21.677 | 74.000 |

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : SIP-Based Wireless Gateway
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2437 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
|------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|

Horizontal
Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4874.500 | 3.894 | 42.692 | 46.586 | -27.414 | 74.000 |
| 7311.000 | 9.624 | 38.116 | 47.740 | -26.260 | 74.000 |
| 9748.000 | 11.805 | 40.698 | 52.504 | -21.496 | 74.000 |

Average Detector:

--

Vertical
Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4873.875 | 3.892 | 40.900 | 44.792 | -29.208 | 74.000 |
| 7311.000 | 9.624 | 38.433 | 48.057 | -25.943 | 74.000 |
| 9748.000 | 11.805 | 39.374 | 51.180 | -22.820 | 74.000 |

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : SIP-Based Wireless Gateway
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2462 MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-----------|---------|---------|-------------|--------|--------|
| MHz | Factor | Level | Level | dB | dBuV/m |
| | dB | dBuV | dBuV/m | | |

Horizontal
Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4924.000 | 4.075 | 41.658 | 45.733 | -28.267 | 74.000 |
| 7386.000 | 9.812 | 37.912 | 47.724 | -26.276 | 74.000 |
| 9848.000 | 11.819 | 41.344 | 53.163 | -20.837 | 74.000 |

Average Detector:

--

Vertical
Peak Detector:

| | | | | | |
|----------|--------|--------|--------|---------|--------|
| 4924.000 | 4.075 | 41.251 | 45.326 | -28.674 | 74.000 |
| 7386.000 | 9.812 | 37.290 | 47.102 | -26.898 | 74.000 |
| 9848.000 | 11.819 | 39.308 | 51.127 | -22.873 | 74.000 |

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : SIP-Based Wireless Gateway
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2412 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|-------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| 49.400 | 9.191 | 19.109 | 28.300 | -11.700 | 40.000 |
| 134.270 | 12.717 | 15.173 | 27.890 | -15.610 | 43.500 |
| 401.020 | 16.644 | 14.586 | 31.230 | -14.770 | 46.000 |
| 481.050 | 18.786 | 15.214 | 34.000 | -12.000 | 46.000 |
| 733.250 | 21.217 | 13.673 | 34.890 | -11.110 | 46.000 |
| 801.150 | 21.771 | 14.809 | 36.580 | -9.420 | 46.000 |
| Vertical | | | | | |
| 46.970 | 8.843 | 24.207 | 33.050 | -6.950 | 40.000 |
| 110.030 | 11.936 | 16.675 | 28.610 | -14.890 | 43.500 |
| 401.020 | 18.298 | 12.882 | 31.180 | -14.820 | 46.000 |
| 733.250 | 23.135 | 12.185 | 35.320 | -10.680 | 46.000 |
| 801.150 | 21.828 | 17.102 | 38.930 | -7.070 | 46.000 |
| 934.530 | 24.107 | 11.083 | 35.190 | -10.810 | 46.000 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “█” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : SIP-Based Wireless Gateway
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2437 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|-------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| 46.970 | 10.787 | 18.163 | 28.950 | -11.050 | 40.000 |
| 170.650 | 10.165 | 16.855 | 27.020 | -16.480 | 43.500 |
| 481.050 | 18.786 | 14.044 | 32.830 | -13.170 | 46.000 |
| 733.250 | 21.217 | 13.993 | 35.210 | -10.790 | 46.000 |
| 767.200 | 22.117 | 11.433 | 33.550 | -12.450 | 46.000 |
| 801.150 | 21.771 | 15.169 | 36.940 | -9.060 | 46.000 |
| Vertical | | | | | |
| 42.120 | 12.247 | 20.073 | 32.320 | -7.680 | 40.000 |
| 100.320 | 10.661 | 18.989 | 29.650 | -13.850 | 43.500 |
| 401.020 | 18.298 | 12.502 | 30.800 | -15.200 | 46.000 |
| 733.250 | 23.135 | 14.335 | 37.470 | -8.530 | 46.000 |
| 767.200 | 22.767 | 12.893 | 35.660 | -10.340 | 46.000 |
| 801.150 | 21.828 | 16.342 | 38.170 | -7.830 | 46.000 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : SIP-Based Wireless Gateway
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2462 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|-------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| 46.970 | 10.787 | 17.973 | 28.760 | -11.240 | 40.000 |
| 170.650 | 10.165 | 16.815 | 26.980 | -16.520 | 43.500 |
| 401.020 | 16.644 | 15.526 | 32.170 | -13.830 | 46.000 |
| 733.250 | 21.217 | 12.743 | 33.960 | -12.040 | 46.000 |
| 767.200 | 22.117 | 11.783 | 33.900 | -12.100 | 46.000 |
| 801.150 | 21.771 | 15.139 | 36.910 | -9.090 | 46.000 |
| Vertical | | | | | |
| 42.120 | 12.247 | 19.203 | 31.450 | -8.550 | 40.000 |
| 100.320 | 10.661 | 19.049 | 29.710 | -13.790 | 43.500 |
| 262.800 | 14.735 | 23.915 | 38.650 | -7.350 | 46.000 |
| 733.250 | 23.135 | 11.995 | 35.130 | -10.870 | 46.000 |
| 767.200 | 22.767 | 12.263 | 35.030 | -10.970 | 46.000 |
| 810.150 | 21.692 | 16.669 | 38.360 | -7.640 | 46.000 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “█” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : SIP-Based Wireless Gateway
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2412 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|-------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| 46.970 | 10.787 | 20.173 | 30.960 | -9.040 | 40.000 |
| 114.880 | 12.882 | 13.718 | 26.600 | -16.900 | 43.500 |
| 240.980 | 12.078 | 18.593 | 30.670 | -15.330 | 46.000 |
| 733.250 | 21.217 | 13.863 | 35.080 | -10.920 | 46.000 |
| 767.250 | 22.117 | 11.673 | 33.790 | -12.210 | 46.000 |
| 801.150 | 21.771 | 15.239 | 37.010 | -8.990 | 46.000 |
| Vertical | | | | | |
| 42.120 | 12.247 | 20.733 | 32.980 | -7.020 | 40.000 |
| 100.320 | 10.661 | 19.029 | 29.690 | -13.810 | 43.500 |
| 733.250 | 23.135 | 13.805 | 36.940 | -9.060 | 46.000 |
| 767.200 | 22.767 | 11.363 | 34.130 | -11.870 | 46.000 |
| 801.150 | 21.828 | 16.752 | 38.580 | -7.420 | 46.000 |
| 934.530 | 24.107 | 10.133 | 34.240 | -11.760 | 46.000 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “█” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : SIP-Based Wireless Gateway
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2437 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|-------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| 46.970 | 10.787 | 20.063 | 30.850 | -9.150 | 40.000 |
| 170.650 | 10.165 | 16.905 | 27.070 | -16.430 | 43.500 |
| 500.450 | 18.352 | 14.198 | 32.550 | -13.450 | 46.000 |
| 733.250 | 21.217 | 14.283 | 35.500 | -10.500 | 46.000 |
| 767.200 | 22.117 | 11.253 | 33.370 | -12.630 | 46.000 |
| 801.150 | 21.771 | 15.899 | 37.670 | -8.330 | 46.000 |
| Vertical | | | | | |
| 42.120 | 12.247 | 19.153 | 31.400 | -8.600 | 40.000 |
| 100.320 | 10.661 | 20.099 | 30.760 | -12.740 | 43.500 |
| 401.020 | 18.298 | 14.082 | 32.380 | -13.620 | 46.000 |
| 667.780 | 19.948 | 13.881 | 33.830 | -12.170 | 46.000 |
| 733.250 | 23.135 | 13.765 | 36.900 | -9.100 | 46.000 |
| 801.150 | 21.828 | 16.992 | 38.820 | -7.180 | 46.000 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “■” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : SIP-Based Wireless Gateway
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2462 MHz)

| Frequency MHz | Correct Factor dB | Reading Level dBuV | Measurement Level dBuV/m | Margin dB | Limit dBuV/m |
|-------------------|-------------------------|--------------------------|--------------------------------|--------------|-----------------|
| Horizontal | | | | | |
| 46.970 | 10.787 | 19.223 | 30.010 | -9.990 | 40.000 |
| 165.800 | 10.339 | 17.991 | 28.330 | -15.170 | 43.500 |
| 481.050 | 18.786 | 15.254 | 34.040 | -11.960 | 46.000 |
| 733.250 | 21.217 | 13.183 | 34.400 | -11.600 | 46.000 |
| 767.200 | 22.117 | 11.643 | 33.760 | -12.240 | 46.000 |
| 801.150 | 21.771 | 14.569 | 36.340 | -9.660 | 46.000 |
| Vertical | | | | | |
| 42.120 | 12.247 | 20.003 | 32.250 | -7.750 | 40.000 |
| 100.320 | 10.661 | 19.909 | 30.570 | -12.930 | 43.500 |
| 667.780 | 19.948 | 13.821 | 33.770 | -12.230 | 46.000 |
| 733.250 | 23.135 | 11.825 | 34.960 | -11.040 | 46.000 |
| 767.200 | 22.767 | 12.583 | 35.350 | -10.650 | 46.000 |
| 801.150 | 21.828 | 16.782 | 38.610 | -7.390 | 46.000 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “█” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

5. Band Edge

5.1. Test Equipment

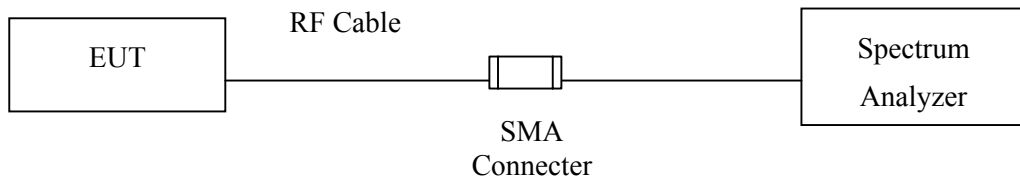
The following test equipments are used during the band edge tests:

| Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---------------------|--------------|----------------------|------------|
| X Spectrum Analyzer | HP | E4407B / US39440758 | May, 2005 |
| X Test Receiver | R & S | ESCS 30 / 825442/14 | May, 2005 |
| X Spectrum Analyzer | Advantest | R3261C / 71720140 | May, 2005 |
| X Pre-Amplifier | HP | 8447D/3307A01812 | May, 2005 |
| X Bilog Antenna | Chase | CBL6112B / 12452 | Sep., 2005 |
| X Horn Antenna | EM | EM6917 / 103325 | May, 2005 |

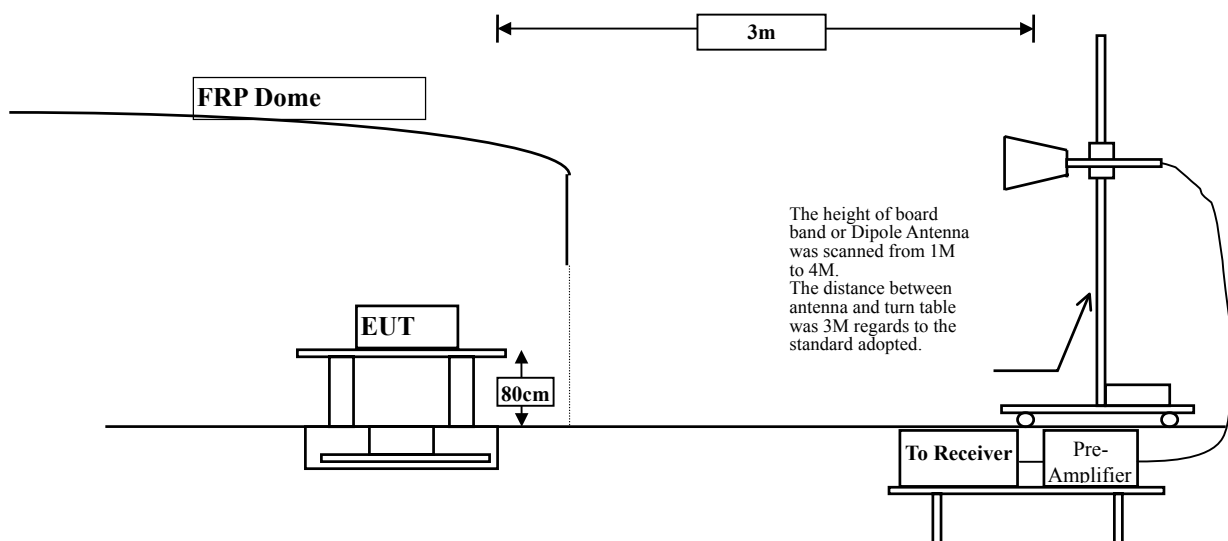
- Note: 1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.3. Limits

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)).

5.4. 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: 2003 on radiated 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.

5.5. Uncertainty

Conducted is ± 1 MHz and Radiated above 1GHz is ± 3.9 dB.

5.6. Test Result of Band Edge

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

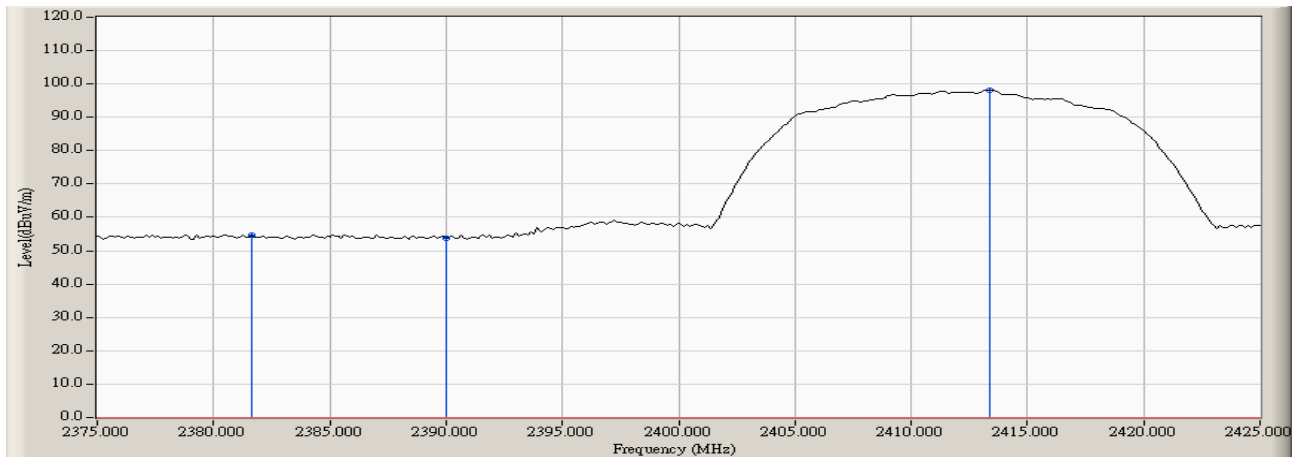
RF Radiated Measurement:

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

RF Radiated Measurement (Horizontal):

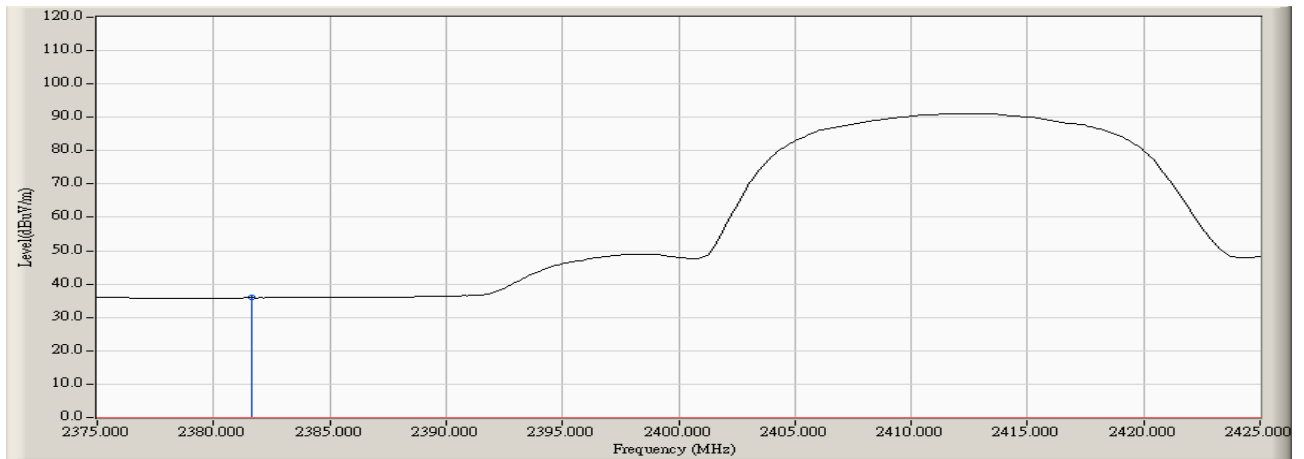
| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 1 (Peak) | 2381.620 | -2.418 | 57.258 | 54.840 | 74.00 | 54.00 | Pass |
| 1 (Average) | 2381.620 | -2418 | 38.308 | 35.890 | 74.00 | 54.00 | Pass |

Figure Channel 1: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 1: Horizontal (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

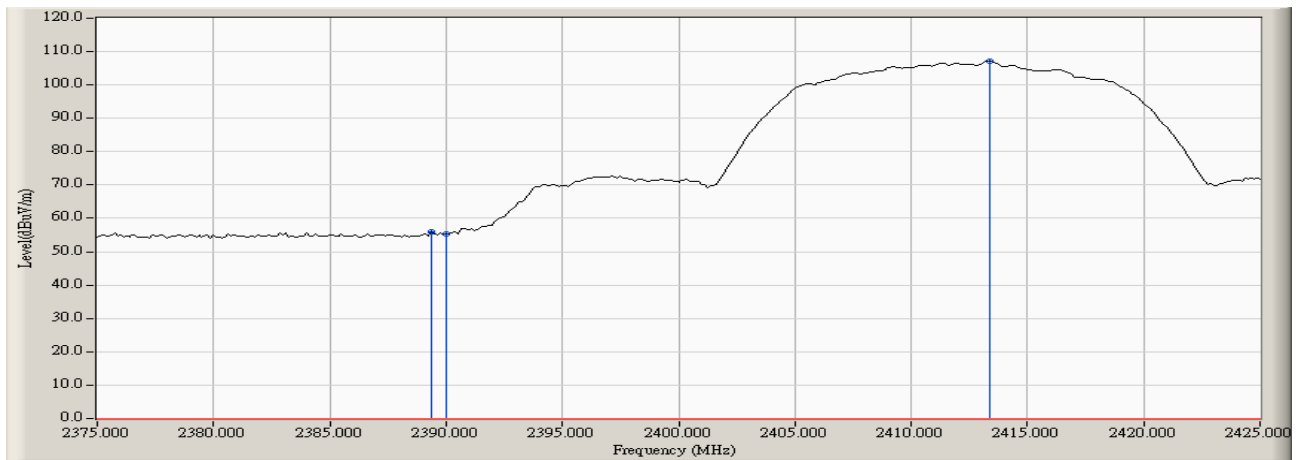
RF Radiated Measurement:

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

RF Radiated Measurement (Vertical):

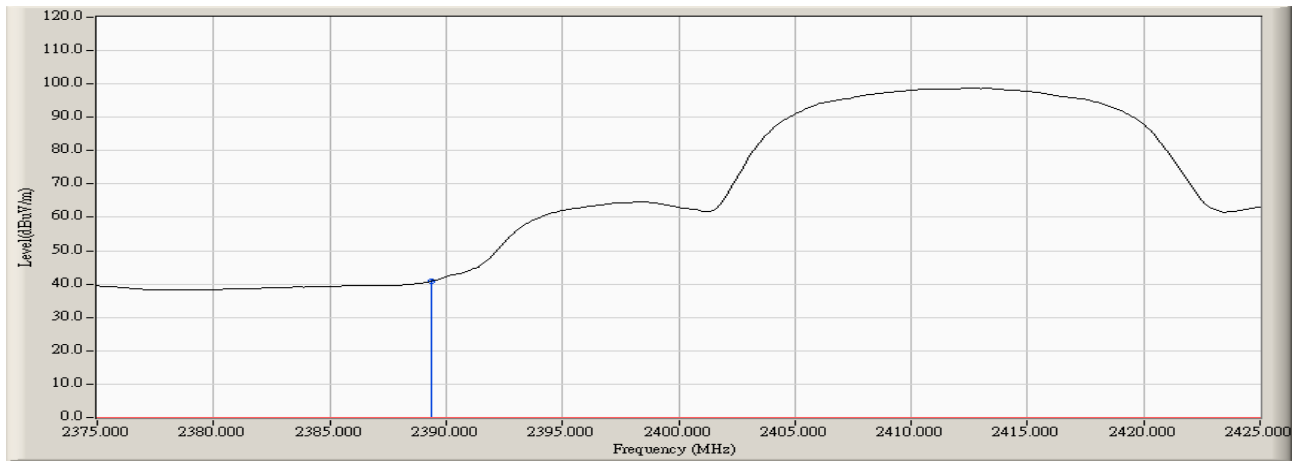
| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 1 (Peak) | 2389.380 | -2.380 | 58.510 | 56.130 | 74.00 | 54.00 | Pass |
| 1 (Average) | 2389.380 | -2.380 | 43.290 | 40.910 | 74.00 | 54.00 | Pass |

Figure Channel 1: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 1: Vertical (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

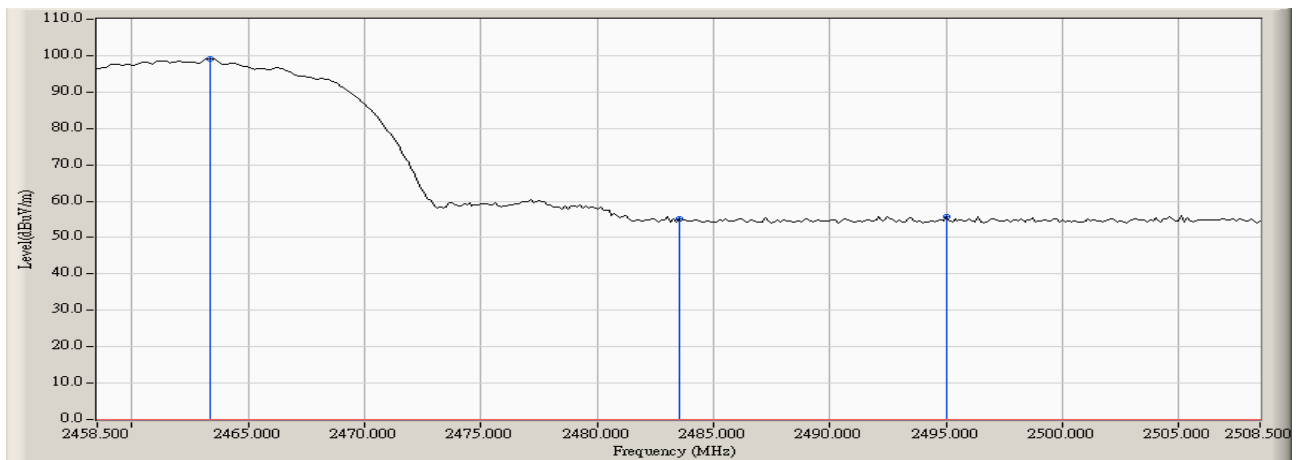
RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|-----------------|-----------------|----------------------|--------|
| 11 (Horizontal) | >2483.5 | >20 | Pass |

RF Radiated Measurement (Horizontal):

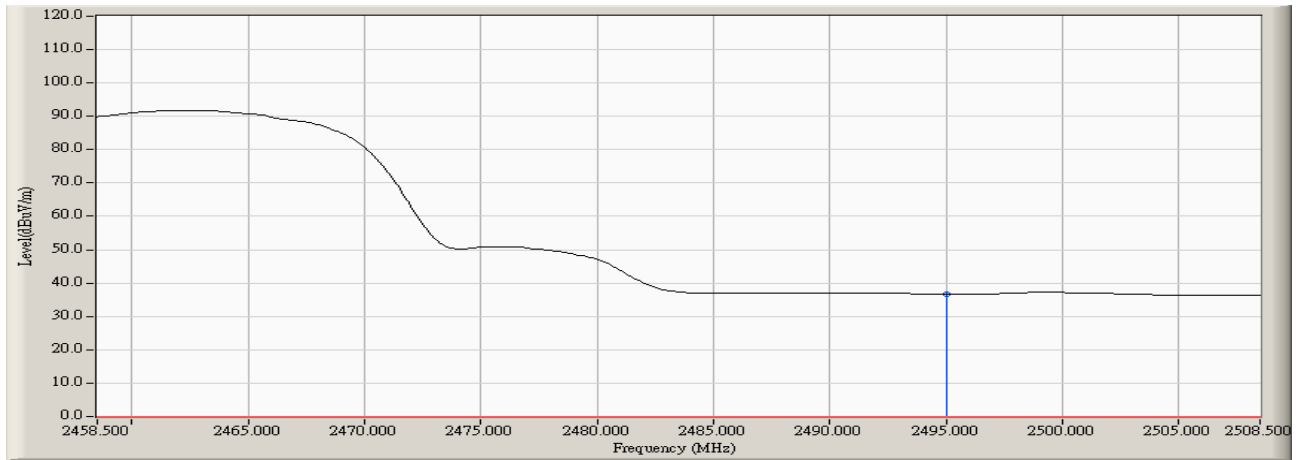
| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 11(Peak) | 2495.000 | -1.901 | 57.771 | 55.870 | 74.00 | 54.00 | Pass |
| 11(Average) | 2495.000 | -1.901 | 38.611 | 36.710 | 74.00 | 54.00 | Pass |

Figure Channel 11: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Horizontal (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

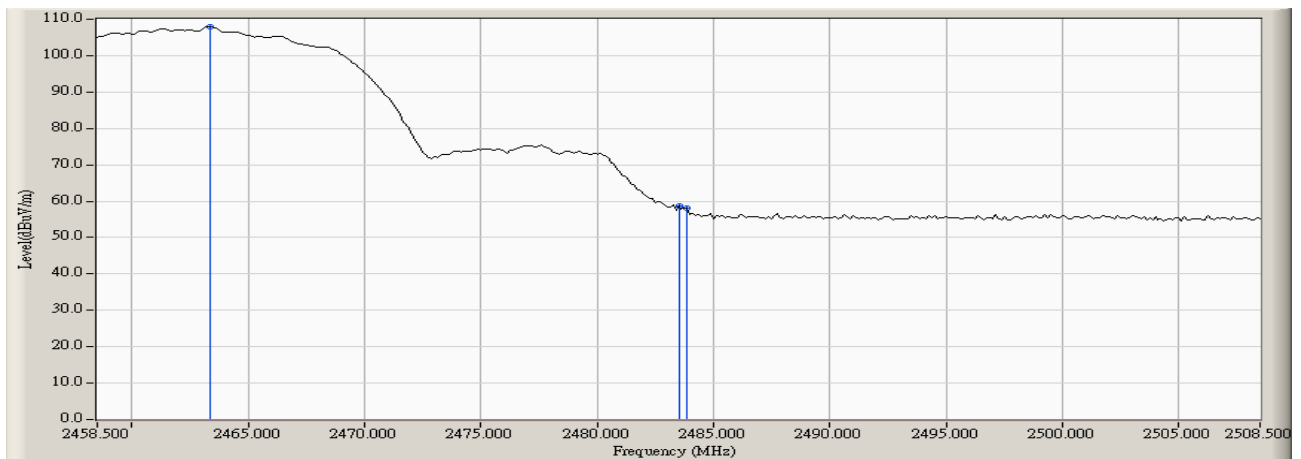
RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|---------------|-----------------|----------------------|--------|
| 11 (Vertical) | >2483.5 | >20 | Pass |

RF Radiated Measurement (Vertical):

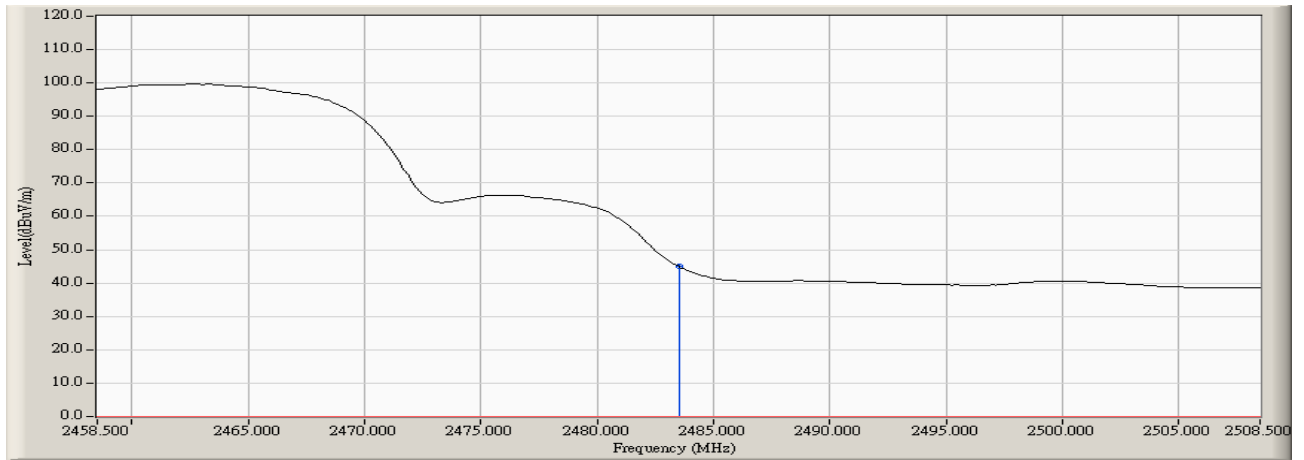
| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 11(Peak) | 2483.500 | -1.937 | 60.767 | 58.830 | 74.00 | 54.00 | Pass |
| 11(Average) | 2483.500 | -1.937 | 46.867 | 44.930 | 74.00 | 54.00 | Pass |

Figure Channel 11: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Vertical (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

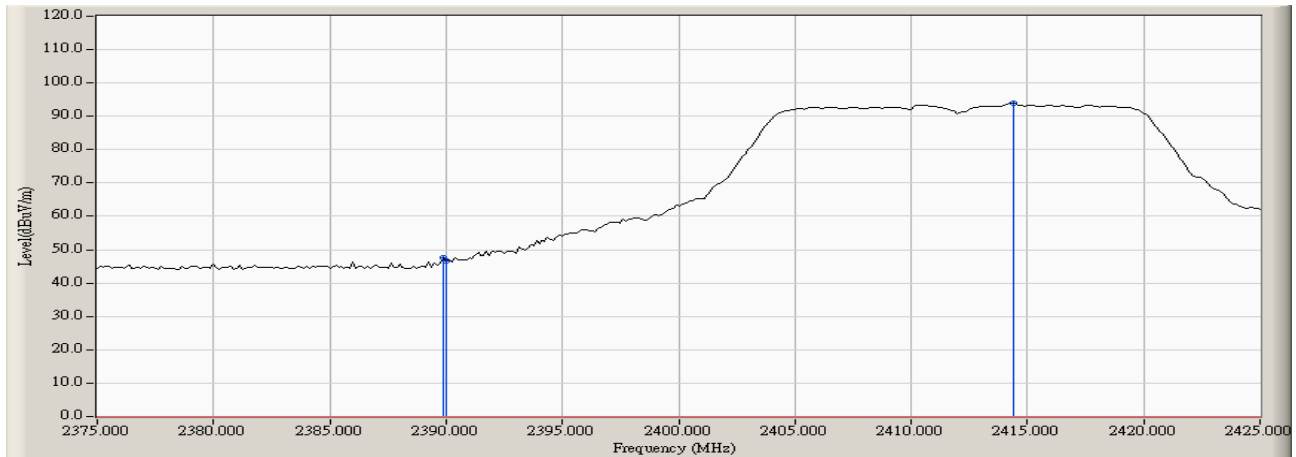
RF Radiated Measurement:

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

RF Radiated Measurement (Horizontal):

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 1 (Peak) | 2390.000 | -2.377 | 48.917 | 46.540 | 74.00 | 54.00 | Pass |
| 1 (Average) | -- | | -- | -- | 74.00 | 54.00 | Pass |

Figure Channel 1: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

RF Radiated Measurement:

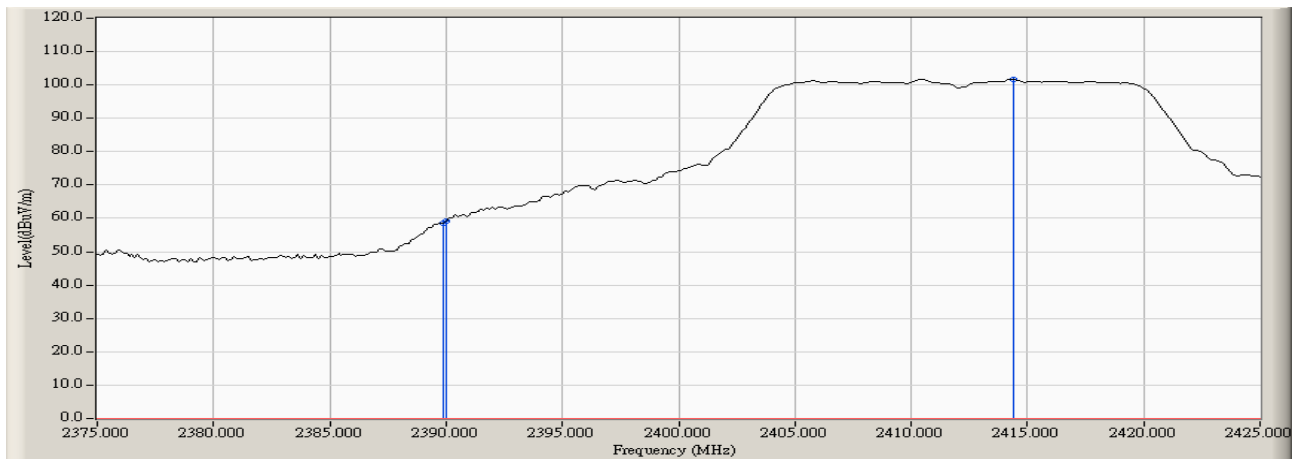
| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|--------------|-----------------|----------------------|--------|
| 1 (Vertical) | <2400 | >20 | Pass |

RF Radiated Measurement (Vertical):

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 1 (Peak) | 2390.000 | -2.377 | 61.637 | 59.260 | 74.00 | 54.00 | Pass |
| 1 (Average) | 2390.000 | -2.377 | 46.037 | 43.660 | 74.00 | 54.00 | Pass |

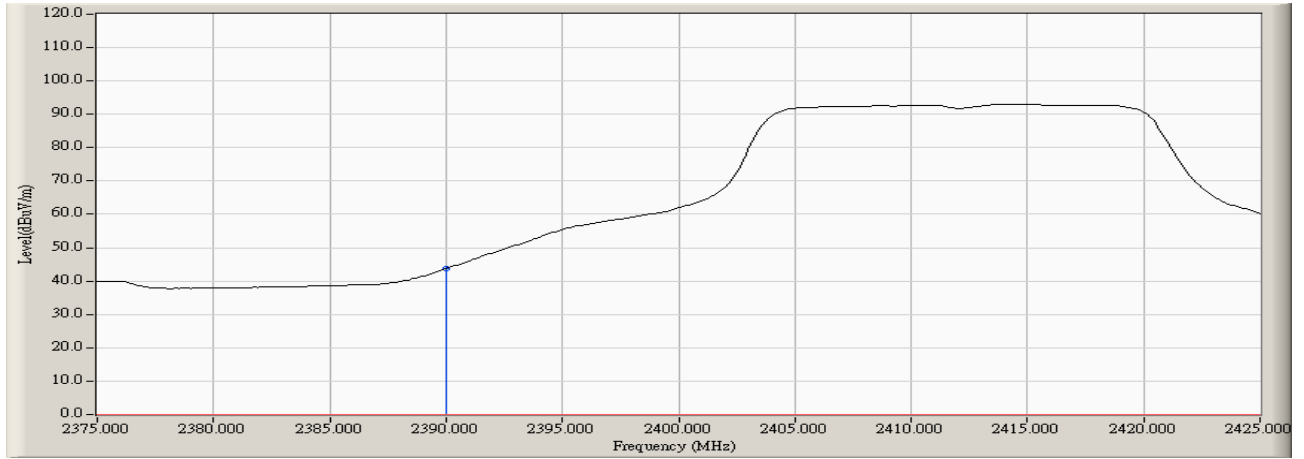
Figure Channel 1:

Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 1: Vertical (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

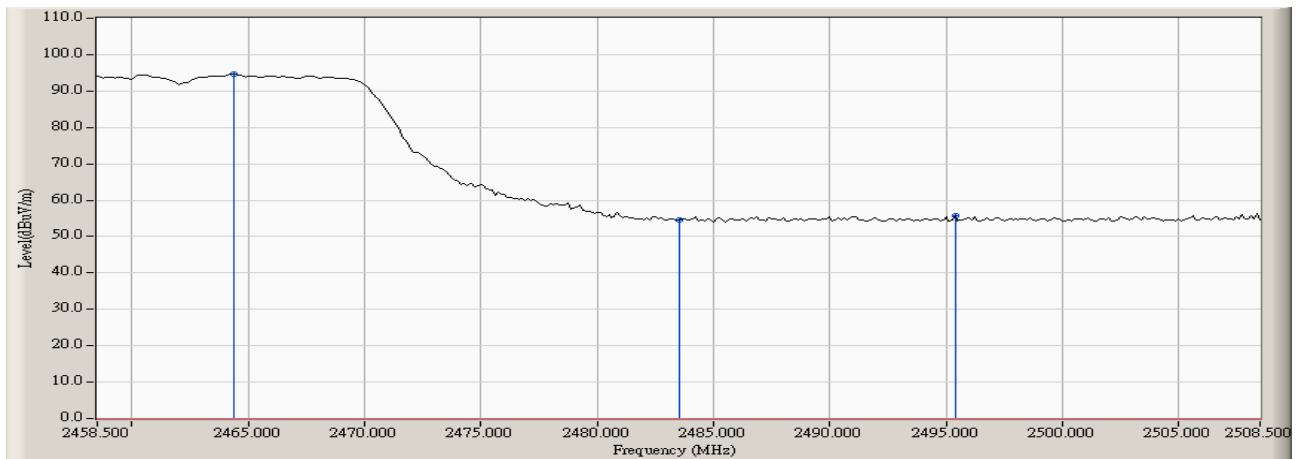
RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|-----------------|-----------------|----------------------|--------|
| 11 (Horizontal) | >2483.5 | >20 | Pass |

RF Radiated Measurement (Horizontal):

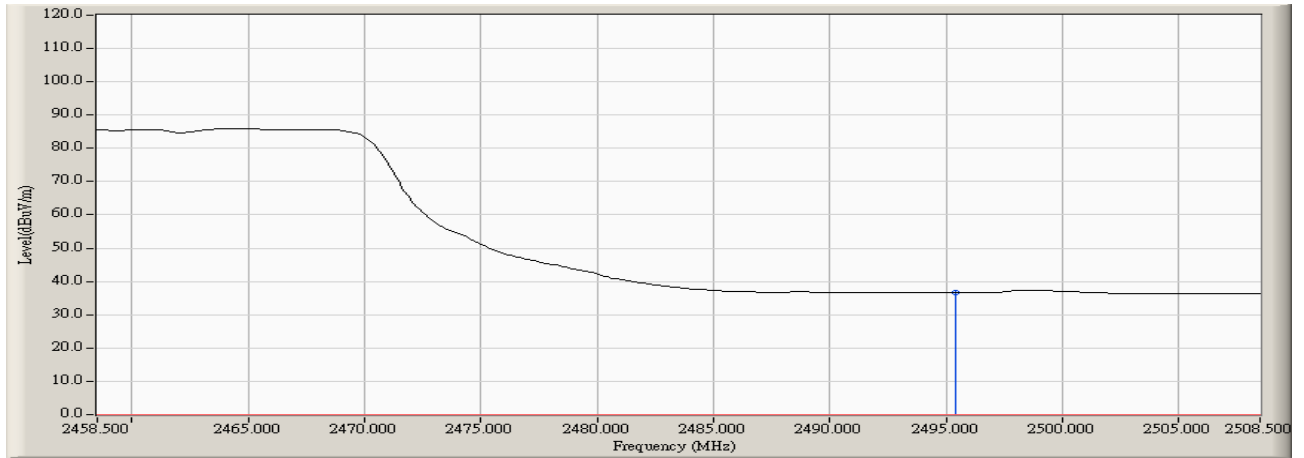
| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 11 (Peak) | 2495.380 | -1.900 | 57.780 | 55.880 | 74.00 | 54.00 | Pass |
| 11(Average) | 2495.380 | -1.900 | 38.550 | 36.650 | 74.00 | 54.00 | Pass |

Figure Channel 11: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Horizontal (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Product : SIP-Based Wireless Gateway
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

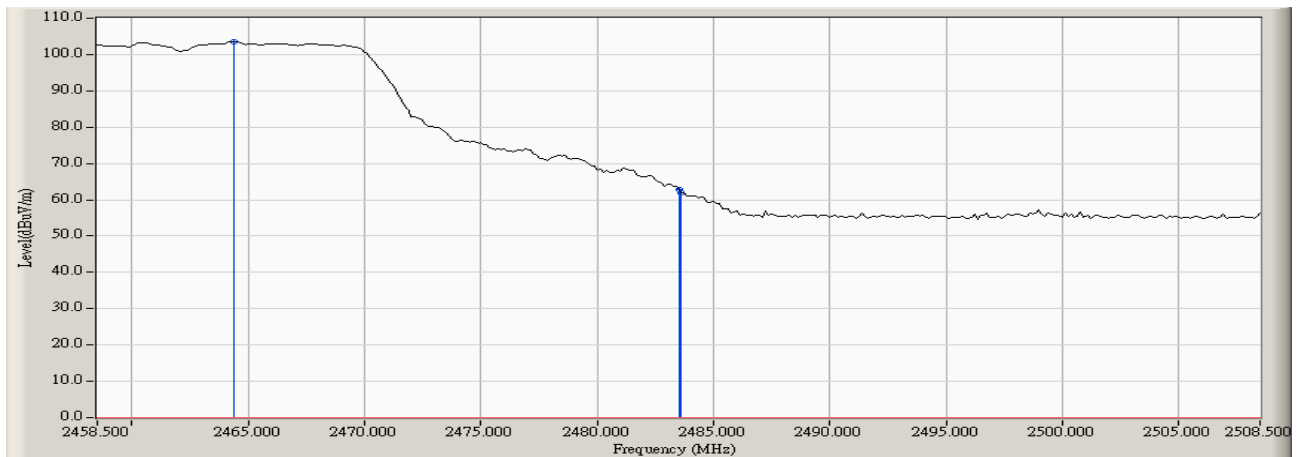
RF Radiated Measurement:

| Channel No. | Frequency (MHz) | Required Limit (dBc) | Result |
|---------------|-----------------|----------------------|--------|
| 11 (Vertical) | >2483.5 | >20 | Pass |

RF Radiated Measurement (Vertical):

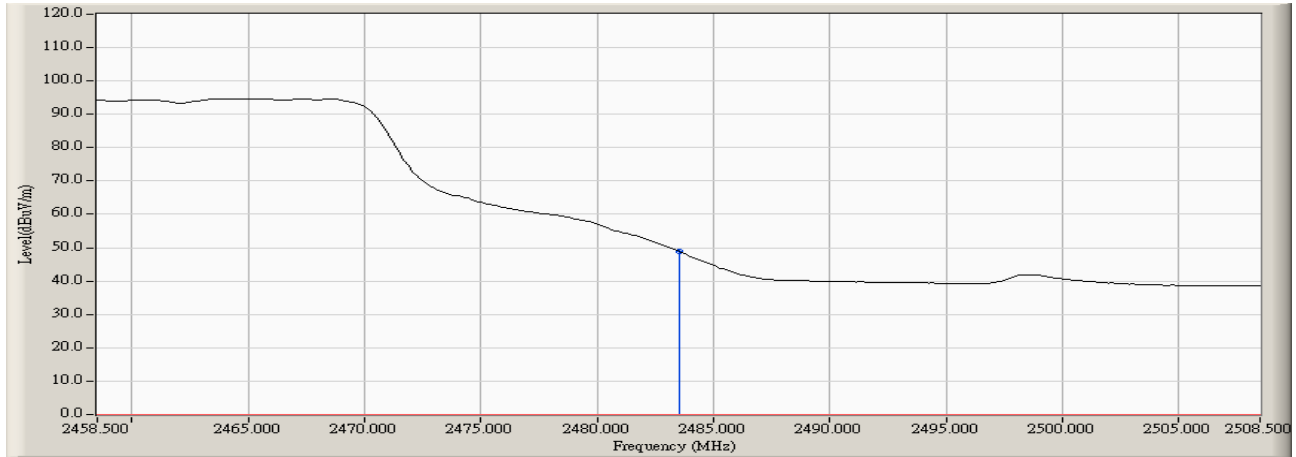
| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Result |
|--------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 11 (Peak) | 2483.500 | -1.937 | 64.627 | 62.690 | 74.00 | 54.00 | Pass |
| 11 (Average) | 2483.500 | -1.937 | 50.767 | 48.830 | 74.00 | 54.00 | Pass |

Figure Channel 11: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Vertical (Average)



Note: RBW=1MHz, VBW=100Hz, Sweep=500ms

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

6. Occupied Bandwidth

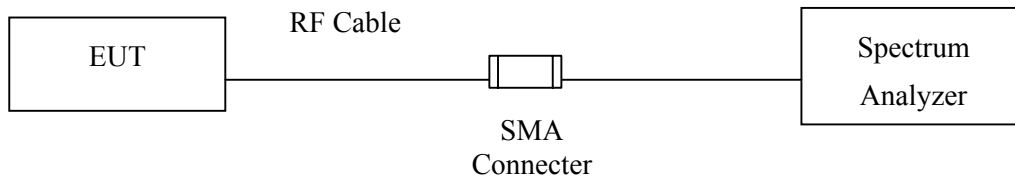
6.1. Test Equipment

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

| Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------------|--------------|-----------------------|-----------|
| X Test Receiver | R & S | ESI 26 / 838786 / 004 | May, 2005 |

- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

6.2. Test Setup



6.3. Limits

The minimum bandwidth shall be at least 500kHz.

6.4. Uncertainty

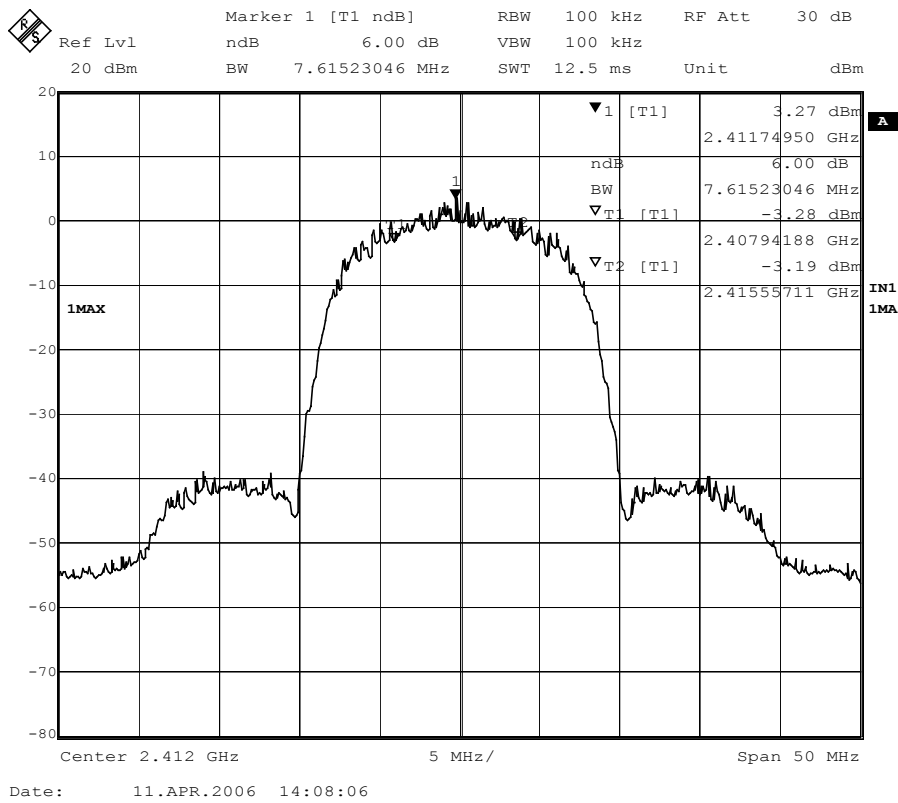
± 50 kHz

6.5. Test Result of Occupied Bandwidth

Product : SIP-Based Wireless Gateway
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 1 (11Mbps) | 2412.00 | 7615 | >500 | Pass |

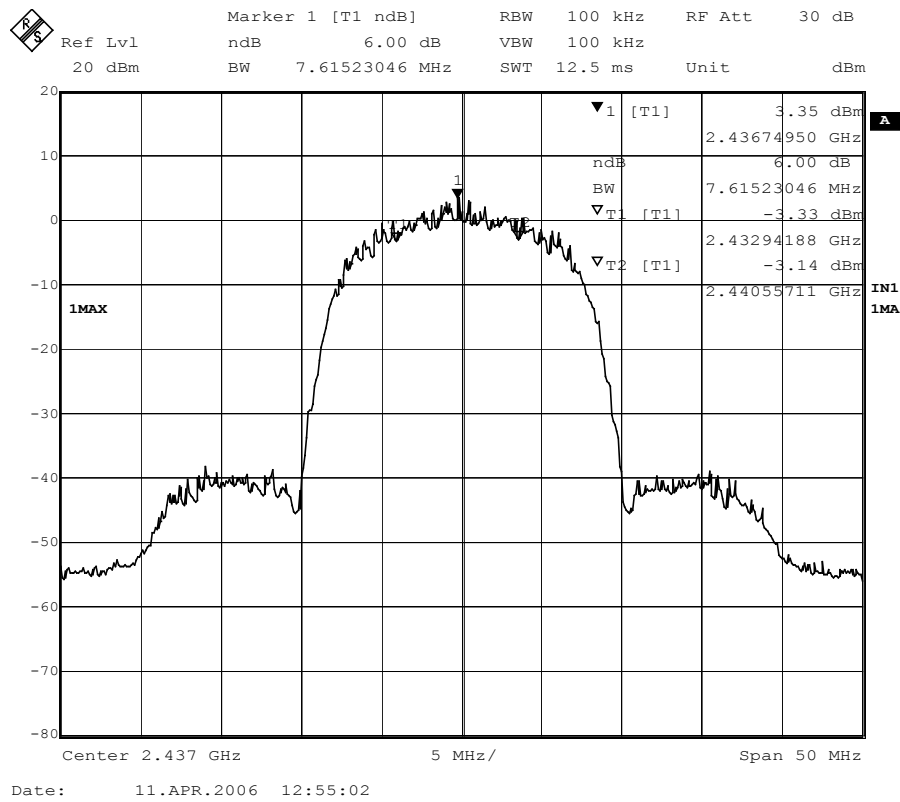
Figure Channel 1: 11Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 6 (11Mbps) | 2437.00 | 7615 | >500 | Pass |

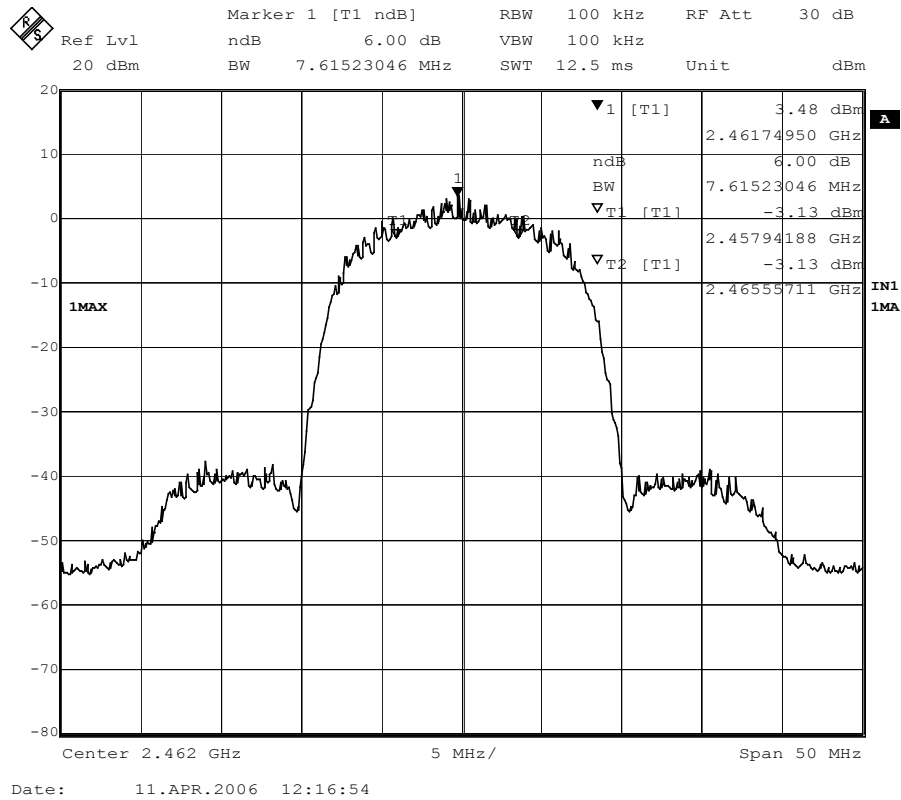
Figure Channel 6: 11Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2462MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 11 (11Mbps) | 2462.00 | 7615 | >500 | Pass |

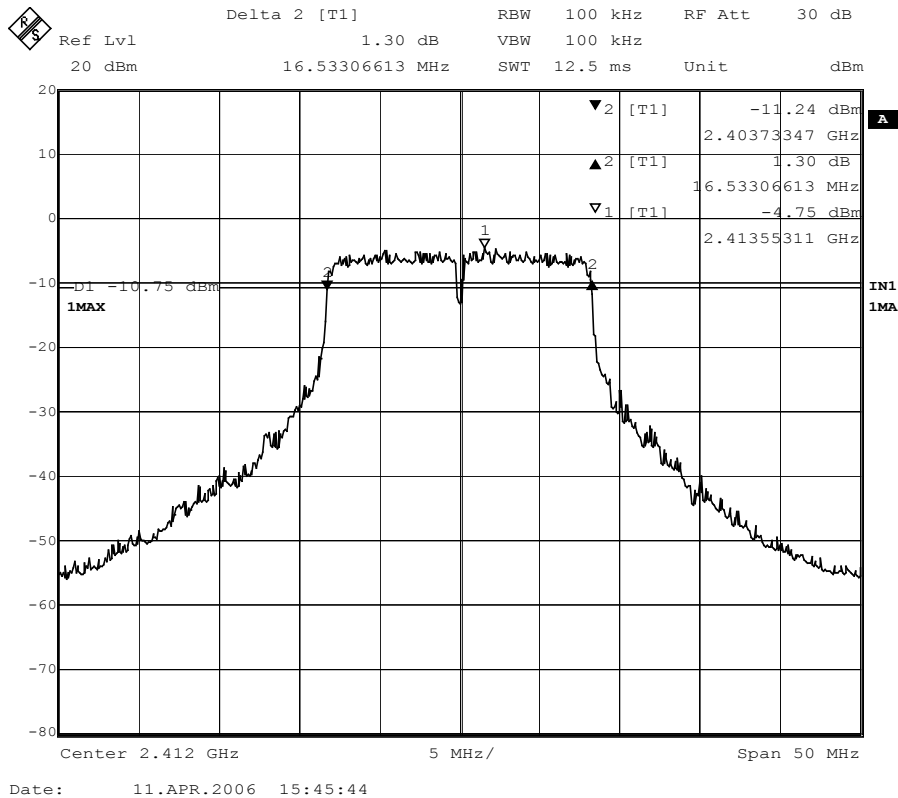
Figure Channel 11: 11Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2412MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 1 (6Mbps) | 2412.00 | 16533 | >500 | Pass |

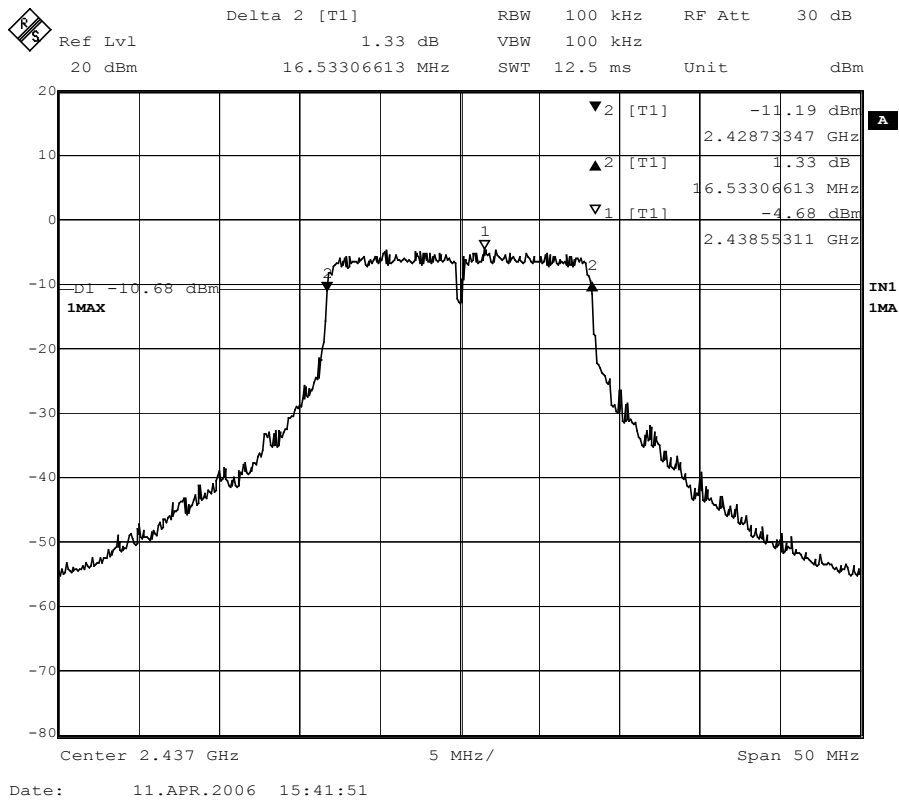
Figure Channel 1: 54Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 6 (6Mbps) | 2437.00 | 16533 | >500 | Pass |

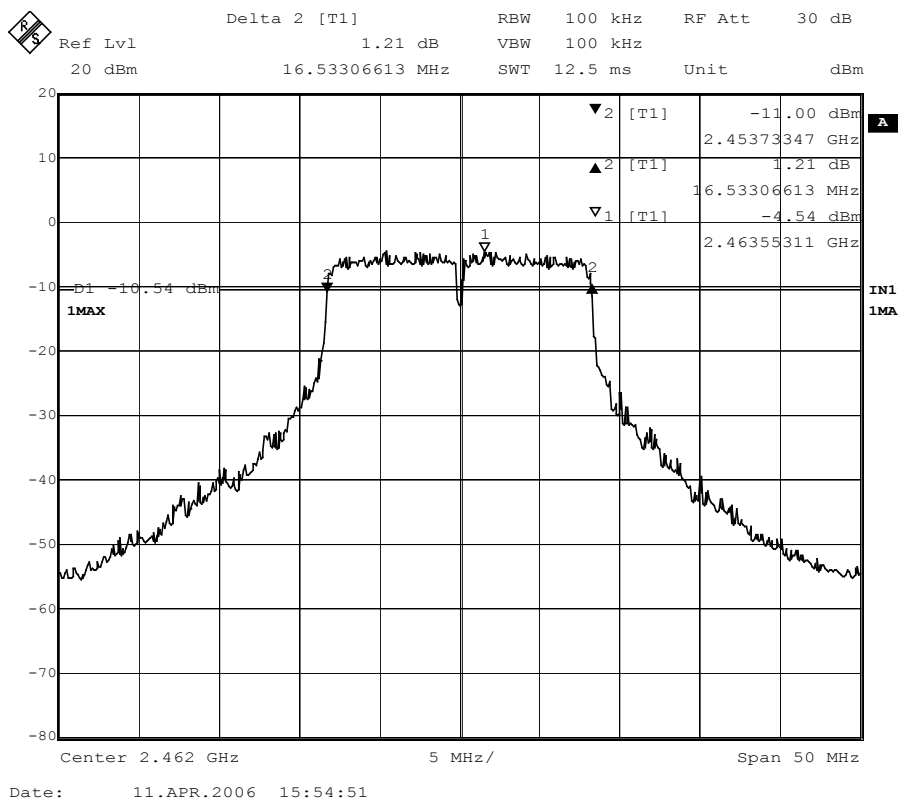
Figure Channel 6: 54Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2462MHz)

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 11 (6Mbps) | 2462.00 | 16533 | >500 | Pass |

Figure Channel 11: 54Mbps



7. Power Density

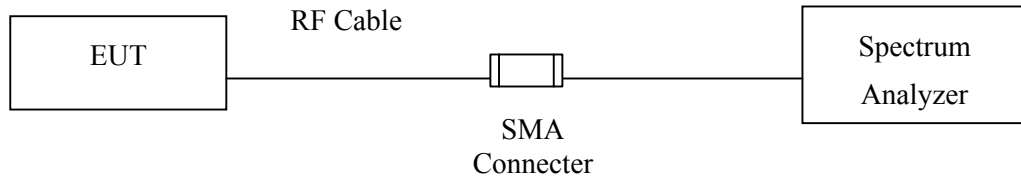
7.1. Test Equipment

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

| Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------------|--------------|-----------------------|-----------|
| X Test Receiver | R & S | ESI 26 / 838786 / 004 | May, 2005 |

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. Limits

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

7.4. Uncertainty

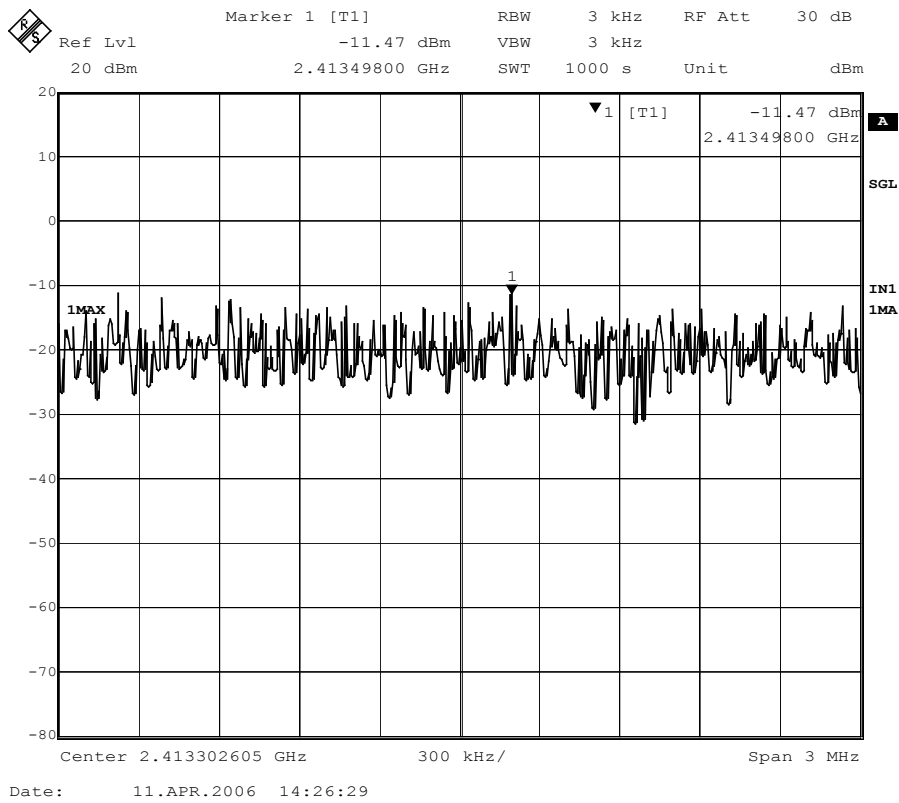
The measurement uncertainty is defined as ± 1.27 dB

7.5. Test Result of Power Density

Product : SIP-Based Wireless Gateway
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm) | Result |
|-------------|-----------------|---------------------|-------------|--------|
| 1 (11Mbps) | 2412.00 | -11.47 | < 8dBm | Pass |

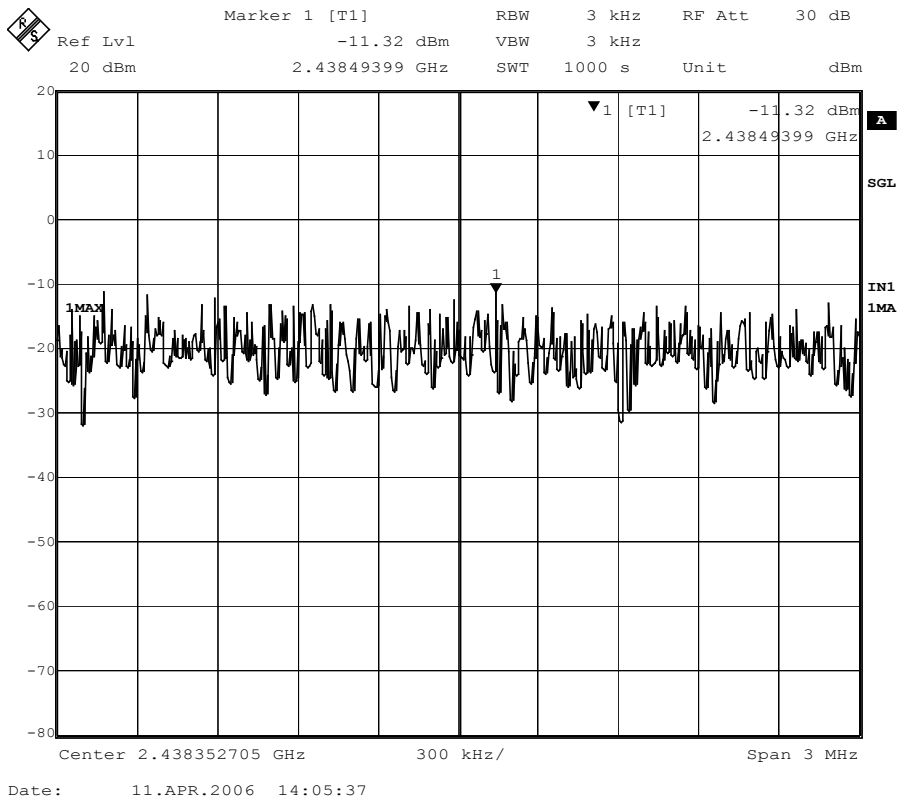
Figure Channel 1: 11Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 6 (11Mbps) | 2437.000 | -11.32 | < 8dBm | Pass |

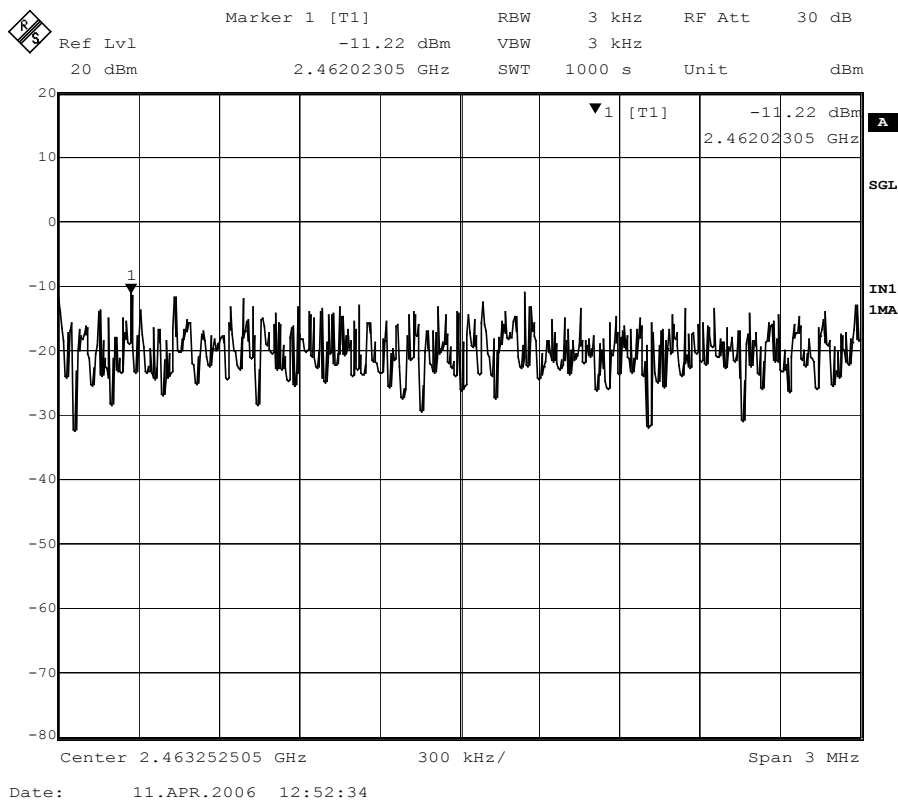
Figure Channel 6: 11Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b (2462MHz)

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 11 (11Mbps) | 2462.00 | -11.22 | < 8dBm | Pass |

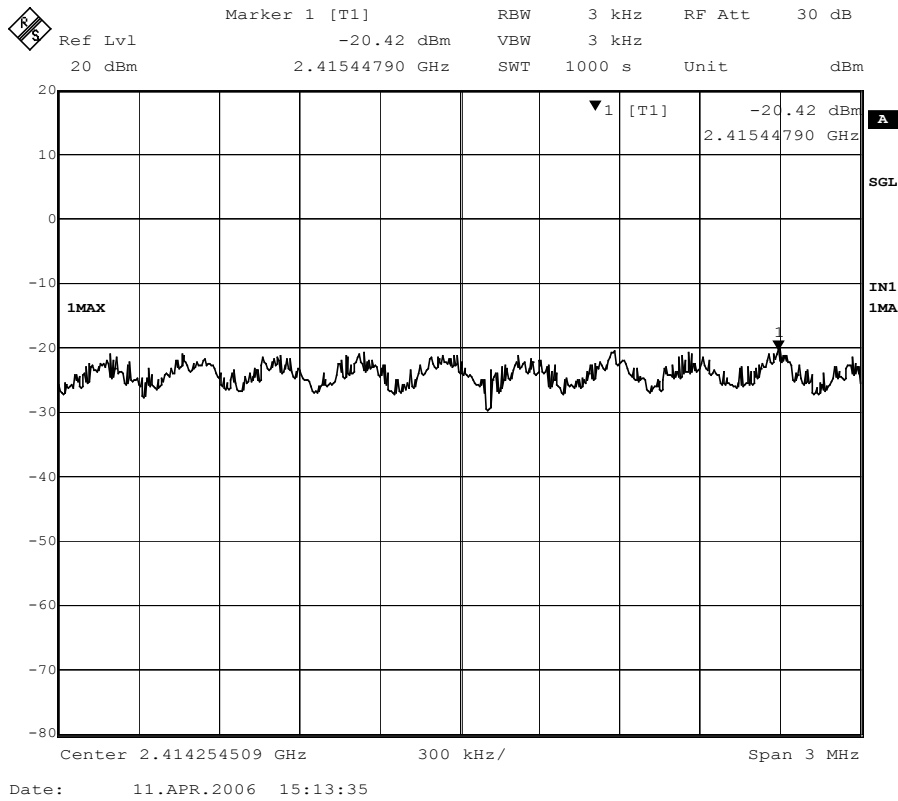
Figure Channel 11: 11Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2412MHz)

| Channel No. | Frequency (MHz) | Measure Level (dBm) | Limit (dBm) | Result |
|-------------|-----------------|---------------------|-------------|--------|
| 1 (54Mbps) | 2412.00 | -20.42 | < 8dBm | Pass |

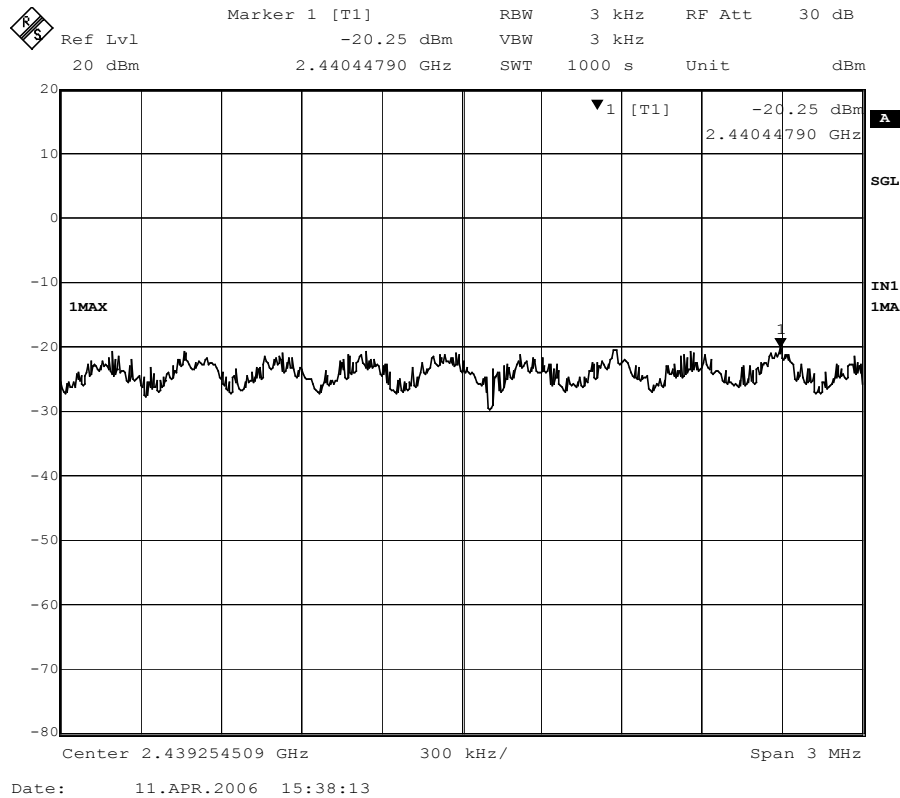
Figure Channel 1: 6Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 6 (54Mbps) | 2437.000 | -20.25 | < 8dBm | Pass |

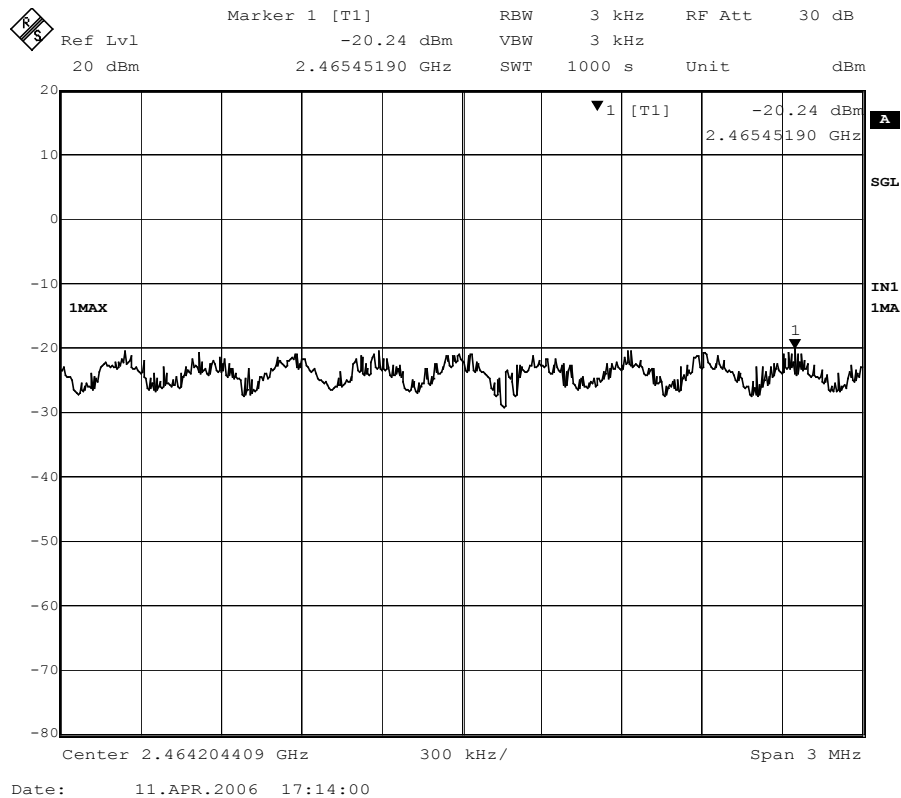
Figure Channel 6: 6Mbps



Product : SIP-Based Wireless Gateway
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g (2462MHz)

| Channel No. | Frequency (MHz) | Measurement Level (dBm) | Required Limit (dBm) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 11 (54Mbps) | 2462.00 | -20.24 | < 8dBm | Pass |

Figure Channel 11: 6Mbps



8. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 1: EUT Test Setup Photographs

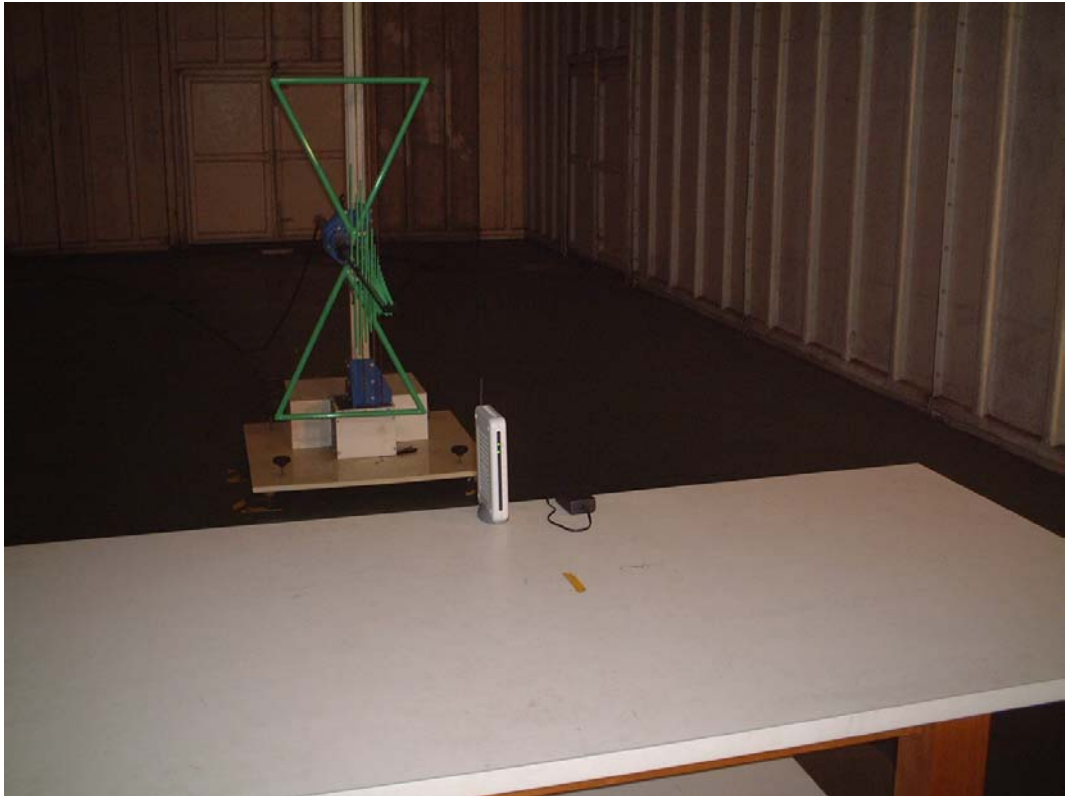
Front View of Conducted Test



Back View of Conducted Test



Front View of Radiated Test



Back View of Radiated Test



Front View of Radiated Test (Horn)



Back View of Radiated Test (Horn)



Attachment 2: EUT Detailed Photographs

Attachment 2 : EUT Detailed Photographs

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



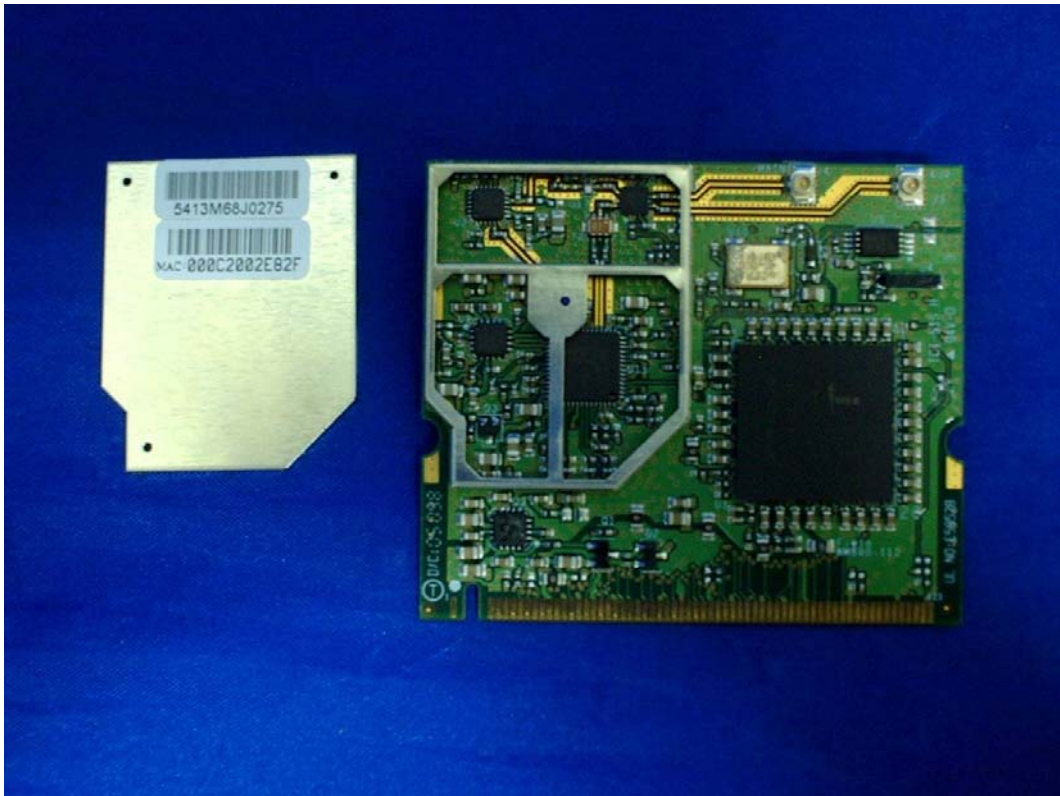
(5) EUT Photo



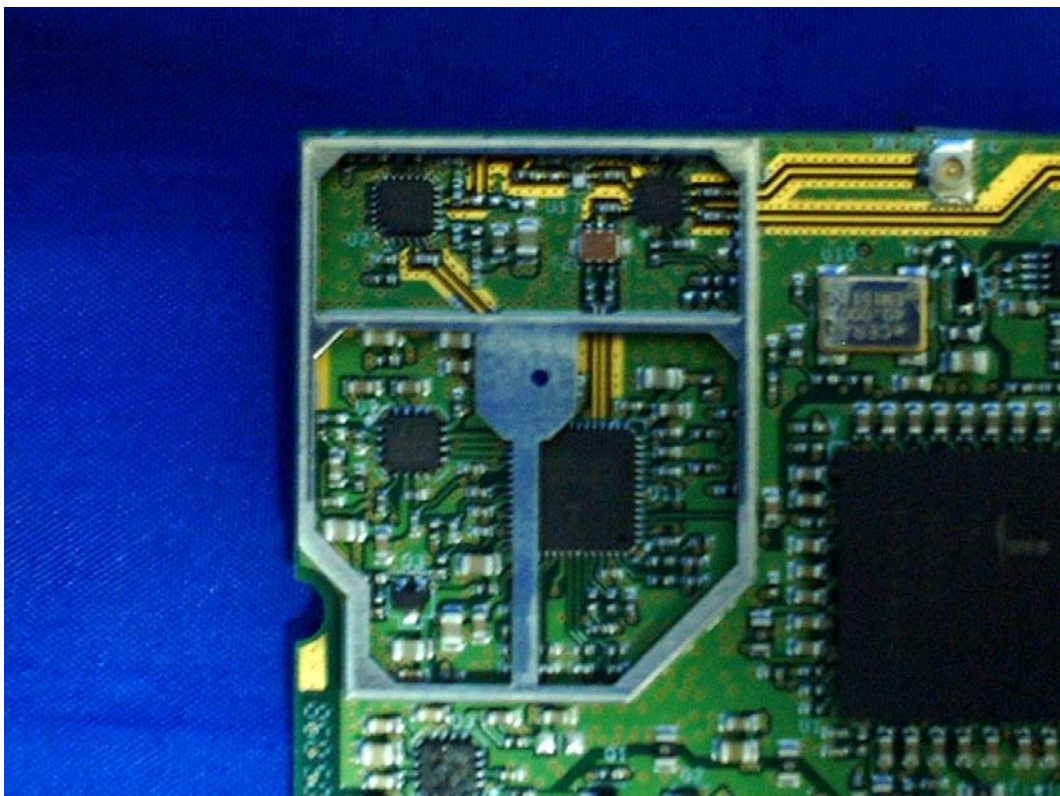
(6) EUT Photo



(7) EUT Photo



(8) EUT Photo



(9) EUT Photo



(10) EUT Photo



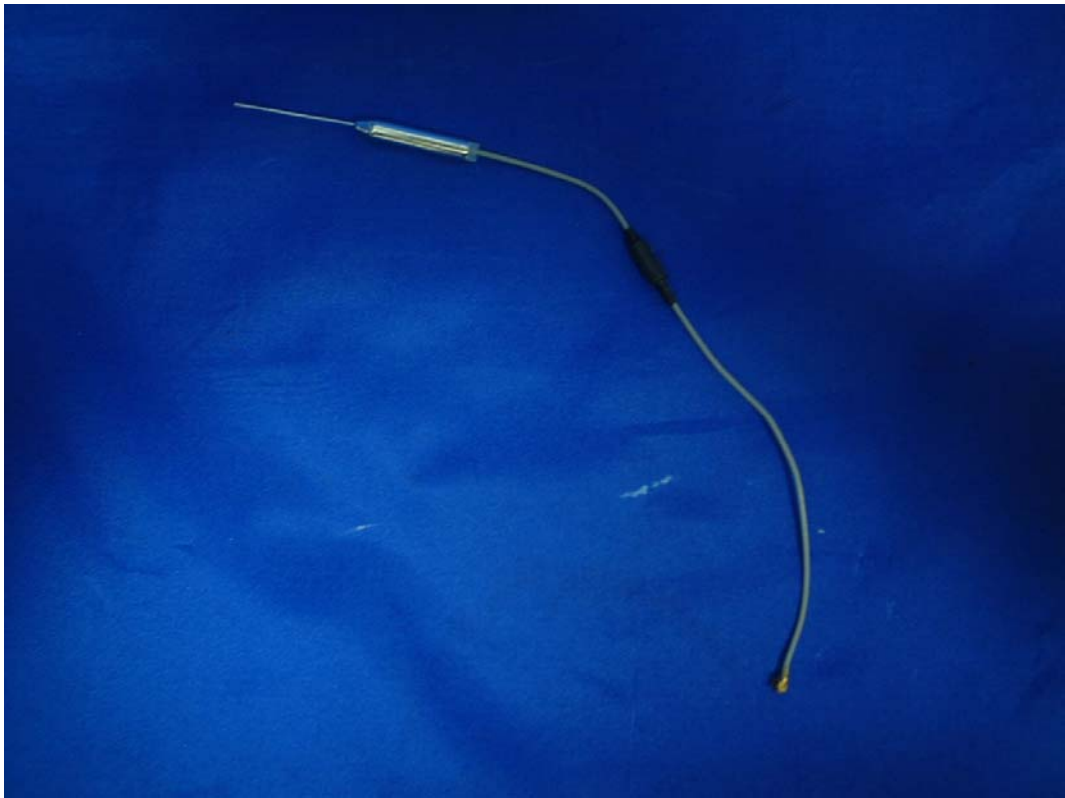
(11) EUT Photo



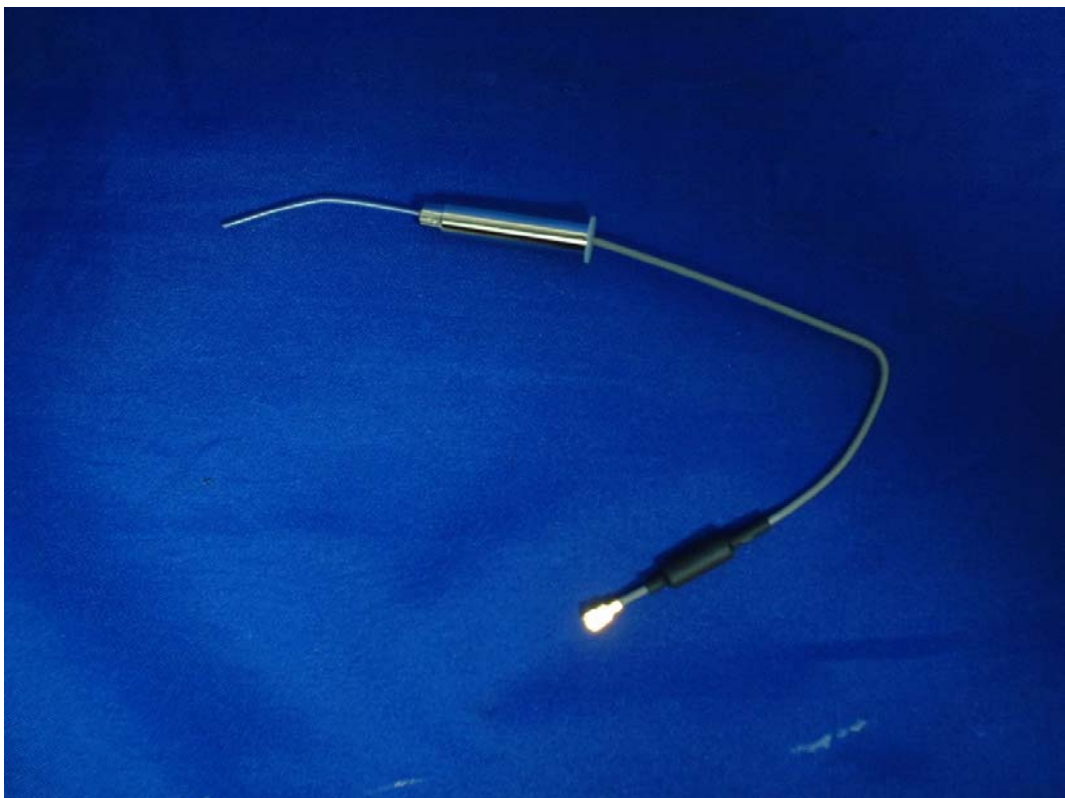
(12) EUT Photo



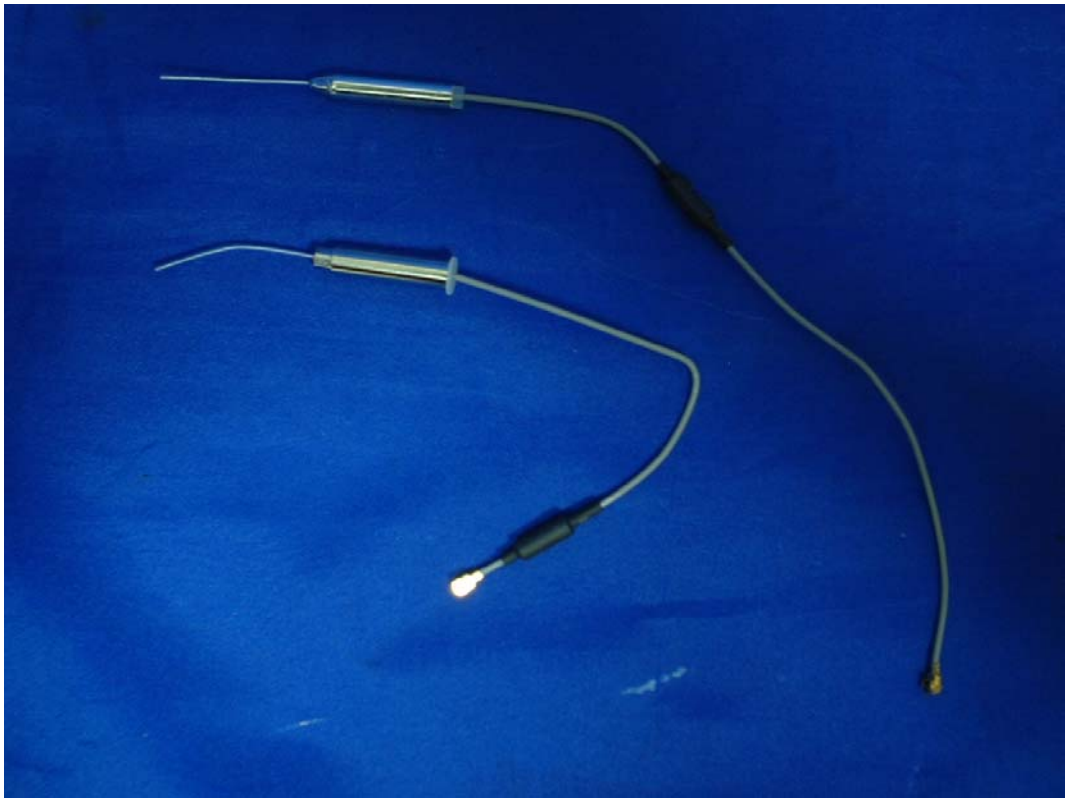
(13) EUT Photo



(14) EUT Photo



(15) EUT Photo



(16) EUT Photo



(17) EUT Photo



(18) EUT Photo

