



**FCC 47 CFR PART 15 SUBPART C
(Class II Permissive Change)**

TEST REPORT

For

Ultra Mobile PC / mX UMPC

**Trade Name / Model:
AMTEK / T770
DEVO / evobook light
Adapt Mobile Asia Co. Ltd. / mX1200**

Issued to

**AMTEK SYSTEM CO., LTD.
14F-11, No. 79, Sec. 1, Hsin Tai Wu rd., Hsi Chih City,
Taipei Hsien, Taiwan**

Issued by

**Compliance Certification Services Inc.
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1. TEST RESULT CERTIFICATION

Applicant: AMTEK SYSTEM CO., LTD.
14F-11, No. 79, Sec. 1, Hsin Tai Wu rd., Hsi Chih City,
Taipei Hsien, Taiwan

Equipment Under Test: Ultra Mobile PC / mX UMPC

Trade Name / Model: AMTEK / T770
DEVO / evobook light
Adapt Mobile Asia Co. Ltd. / mX1200

Date of Test: April 13 ~ 19, 2007

| APPLICABLE STANDARDS | |
|------------------------------|-------------------------|
| STANDARD | TEST RESULT |
| FCC 47 CFR Part 15 Subpart C | No non-compliance noted |

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Johnny Liu
Johnny Liu
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Gina Lo for
Amanda Wu
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

| | |
|-----------------------------------|---|
| Product | Ultra Mobile PC / mX UMPC |
| Trade Name / Model Number | AMTEK / T770 DEVO / evobook light Adapt Mobile Asia Co. Ltd. / mX1200 |
| Model Discrepancy | All the specification and layout are identical except they come with different model numbers and trade names for marketing purposes. |
| Power Supply | Power Adapter: LI SHIN INTERNATIONAL ENTERPRISE CORP. 0335A1965 I/P: AC 100-240V, 50-60Hz, 1.7A O/P: DC 19V, 3.42A Battery: Li-ion 10.8V, 2400mAh |
| Frequency Range | 2412 ~ 2462 MHz |
| Modulation Technique | IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: DSSS (CCK, DQPSK, DBPSK) + OFDM (QPSK, BPSK, 16-QAM, 64-QAM) |
| Transmit Data Rate | IEEE 802.11b: 11, 5.5, 2, 1 Mbps IEEE 802.11g: 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps |
| Number of Channels | 11 Channels |
| Antenna Specification | 1.08 dBi |
| Antenna Designation | PIFA Antenna |
| Class II Permissive Change | Added new appearance and changed motherboard. |

Remark:

1. The sample selected for test was production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **R4R-AIRT700UMPC** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.



3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|----------------------------|---------------------|-----------------|------------------|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| ¹ 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.52525 | 2655 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 156.7 - 156.9 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 162.0125 - 167.17 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 167.72 - 173.2 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 240 - 285 | 3600 - 4400 | (²) |
| 13.36 - 13.41 | 322 - 335.4 | | |

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



3.5 DESCRIPTION OF TEST MODES

The EUT (model: T770) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

The worst case data rate is determined as the data rate with highest output power.

IEEE802.11b mode:

Channel Low(2412MHz), Channel Mid(2437MHz) and Channel High(2462MHz) with 11Mbps data rate were chosen for full testing.

IEEE802.11g mode:

Channel Low(2412MHz), Channel Mid(2437MHz) and Channel High(2462MHz) with 6Mbps data rate were chosen for full testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z mode), lie-down position (X, Y mode). The worst emission was found in lie-down position (X axis) and the worst case was recorded.



4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

| 3M Semi Anechoic Chamber | | | | |
|--------------------------|-----------------|-------------------|----------------------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| Spectrum Analyzer | Agilent | E4446A | US42510252 | 08/02/2007 |
| Test Receiver | Rohde&Schwarz | ESCI | 100064 | 11/13/2007 |
| Switch Controller | TRC | Switch Controller | SC94050010 | 05/04/2008 |
| 4 Port Switch | TRC | 4 Port Switch | SC94050020 | 05/04/2008 |
| Horn-Antenna | TRC | HA-0502 | 06 | 06/06/2007 |
| Horn-Antenna | TRC | HA-0801 | 04 | 05/04/2008 |
| Horn-Antenna | TRC | HA-1201A | 01 | 07/10/2007 |
| Horn-Antenna | TRC | HA-1301A | 01 | 07/18/2007 |
| Bilog- Antenna | Sunol Sciences | JB3 | A030205 | 03/08/2008 |
| Turn Table | Max-Full | MFT-120S | T120S940302 | N.C.R. |
| Antenna Tower | Max-Full | MFA-430 | A440940302 | N.C.R. |
| Controller | Max-Full | MF-CM886 | CC-C-1F-13 | N.C.R. |
| Site NSA | CCS | N/A | FCC: 965860 IC: IC 6106 | 09/25/2008 |
| Test S/W | LABVIEW (V 6.1) | | | |

Remark: The measurement uncertainty is less than +/- 2.0065dB (30MHz ~ 1GHz), +/- 3.0958dB (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

Powerline Conducted Emissions Test Site

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|----------------------------------|-----------------|--------|---------------|-----------------|
| EMI Test Receiver 9kHz-30MHz | Rohde & Schwarz | ESHS30 | 828144/003 | 10/31/2007 |
| Two-Line V-Network 9kHz-30MHz | Schaffner | NNB41 | 03/10013 | 06/14/2007 |
| LISN 10kHz-100MHz | EMCO | 3825/2 | 9106-1809 | 03/19/2008 |
| Test S/W | LABVIEW (V 6.1) | | | |

Remark: The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

- No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029
- No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045
- No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

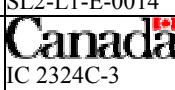
Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

| Country | Agency | Scope of Accreditation | Logo |
|---------|-----------------|--|---|
| USA | A2LA | EN 55011, EN 55014-1/2, CISPR 11, CISPR 14-1/2, EN 55022, EN 55015, CISPR 22, CISPR 15, AS/NZS 3548, VCCI V3 (2001), CFR 47, FCC Part 15/18, CNS 13783-1, CNS 13439, CNS 13438, CNS 13803, CNS 14115, EN 55024, IEC 801-2, IEC 801-3, IEC 801-4, IEC/EN 61000-3-2, EIC/EN 61000-3-3, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 50081-1/ EN 61000-6-3, EN 50081-2/EN 61000-6-4, EN 50081-2/EN 61000-6-1: 2001 |  0824-01 |
| USA | FCC | 3/10 meter Open Area Test Sites (93105, 90471) / 3M Semi Anechoic Chamber (965860) to perform FCC Part 15/18 measurements |  93105, 90471 965860 |
| Japan | VCCI | 3/10 meter Open Area Test Sites to perform conducted/radiated measurements |  R-393/1066/725/879 C-402/747/912 |
| Norway | NEMKO | EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2 |  ELA 124a ELA 124b ELA 124c |
| Taiwan | TAF | EN 300 328, EN 300 220-1, EN 300 220-2, EN 300 220-3, 47 CFR FCC Part 15 Subpart C, EN 61000-3-2, EN 61000-3-3, CNS 13439, CNS 13783-1, CNS 14115, CNS 13438, AS/NZS CISPR 22, CNS 13022-1, IEC 61000-4-2/3/4/5/6/8/11, CNS 13022-2/3 |  Testing Laboratory 0363 |
| Taiwan | BSMI | CNS 13438, CNS 13783-1, CNS 13439, CNS 14115 |  SL2-IS-E-0014 SL2-IN-E-0014 SL2-A1-E-0014 SL2-R1-E-0014 SL2-R2-E-0014 SL2-L1-E-0014 |
| Canada | Industry Canada | 3/10 meter Open Area Test Sites (IC 2324C-3, IC 2324C-5) / 3M Semi Anechoic Chamber (IC 6106) to perform RSS 212 Issue 1 |  IC 2324C-3 IC 2324C-5 IC 6106 |

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

| No | Equipment | Model | Serial No. | FCC ID | Trade Name | Data Cable | Power Cord |
|----|----------------------|----------|------------------|----------------|------------|------------------|------------|
| 1. | USB Keyboard | Compaq | KU-9978 | B463AOAGALT097 | FCC DoC | Shielded, 1.8m | N/A |
| 2. | USB 2.0 External HDD | F12-U | A0100214-31d0014 | FCC DoC | TeraSyS | Shielded, 1.8m | N/A |
| 3. | Multimedia Earphone | Axis-301 | N/A | FCC DoC | Labtec | Unshielded, 1.8m | N/A |

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

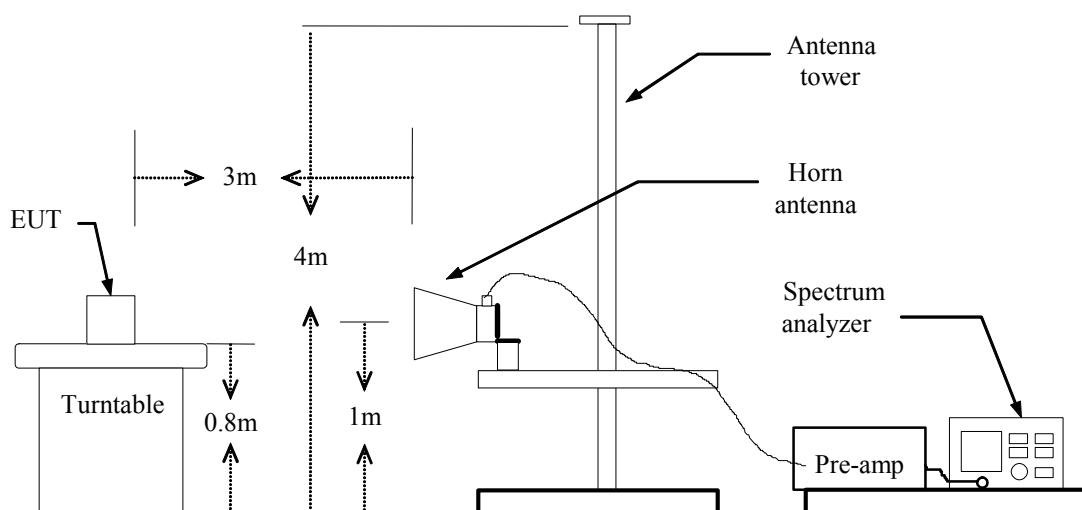
7. FCC PART 15.247 REQUIREMENTS

7.1 BAND EDGES MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands 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, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration

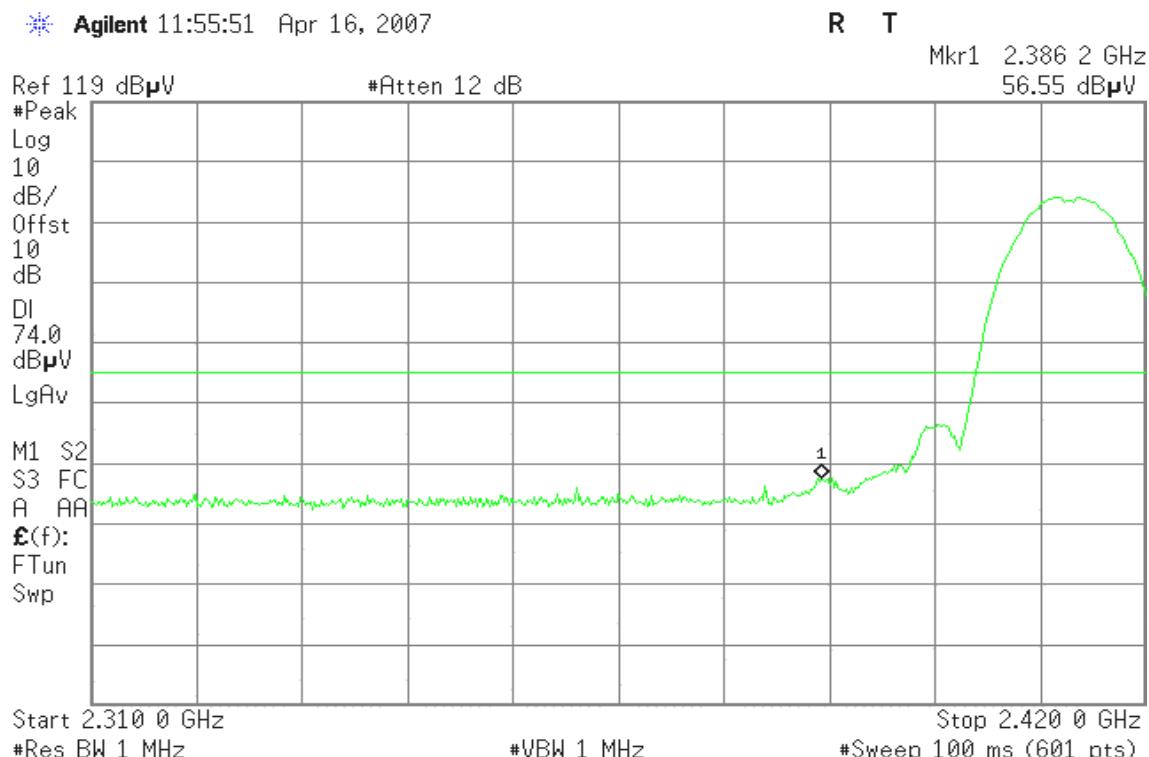


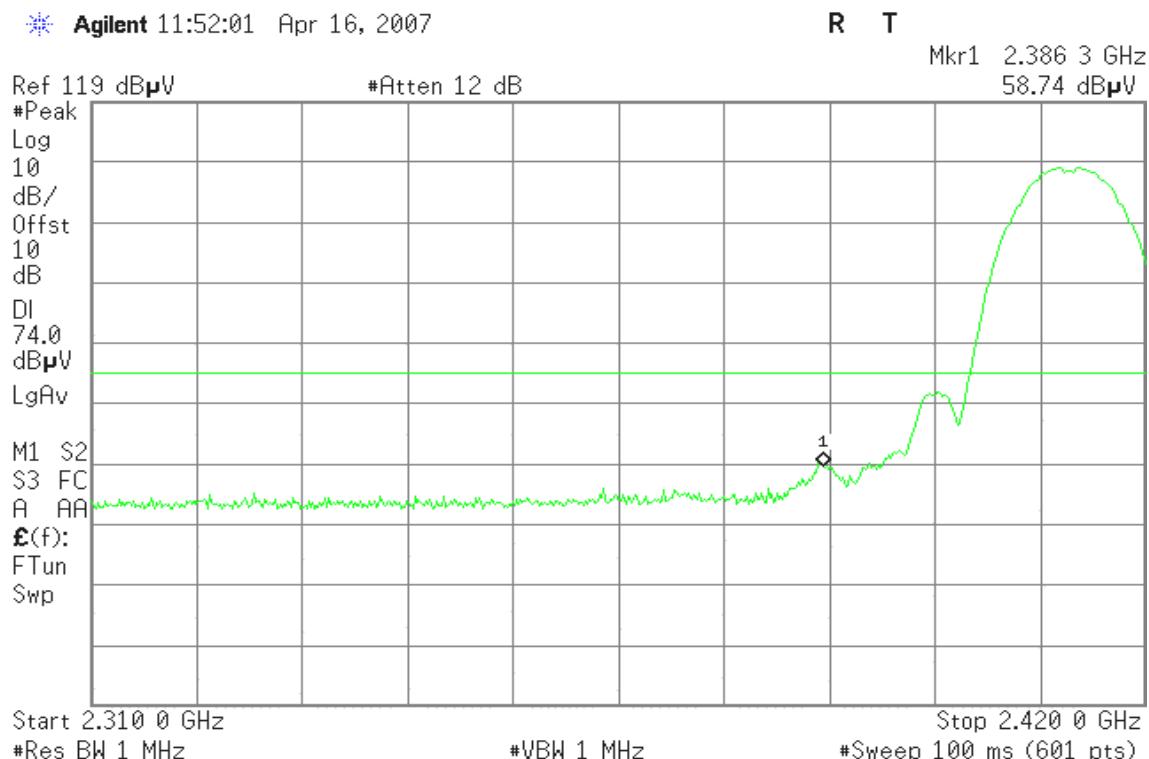
TEST PROCEDURE

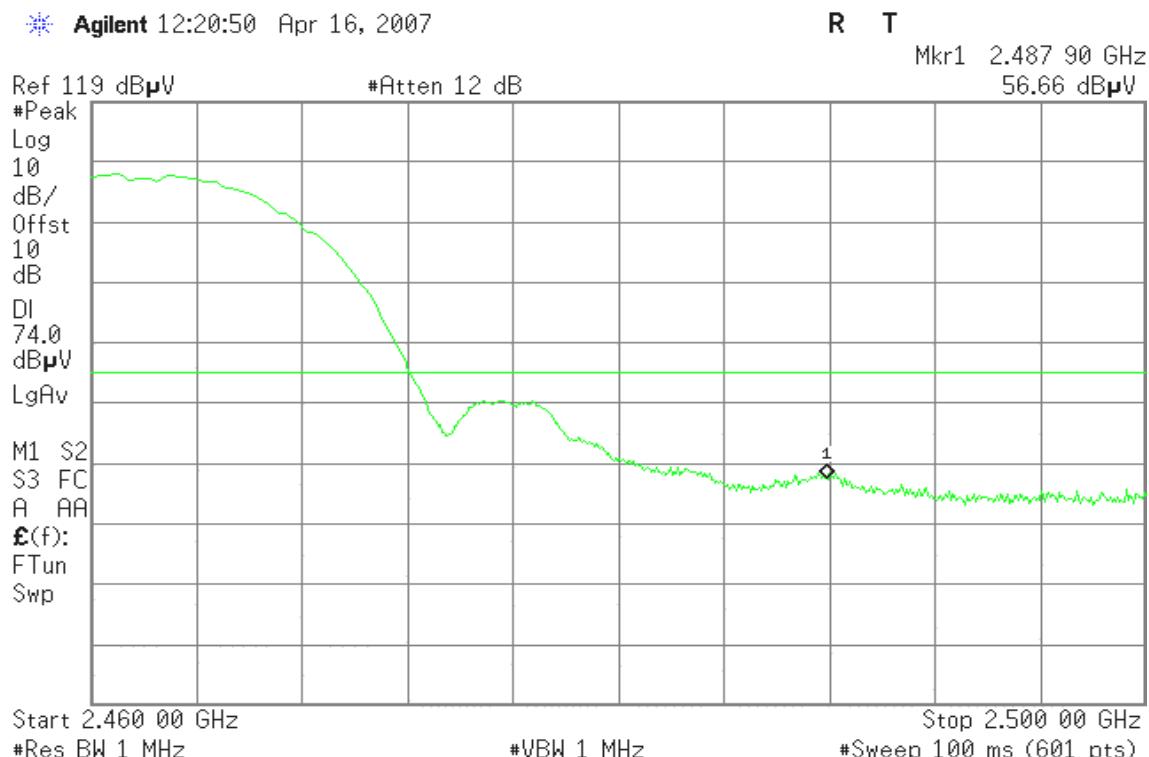
1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

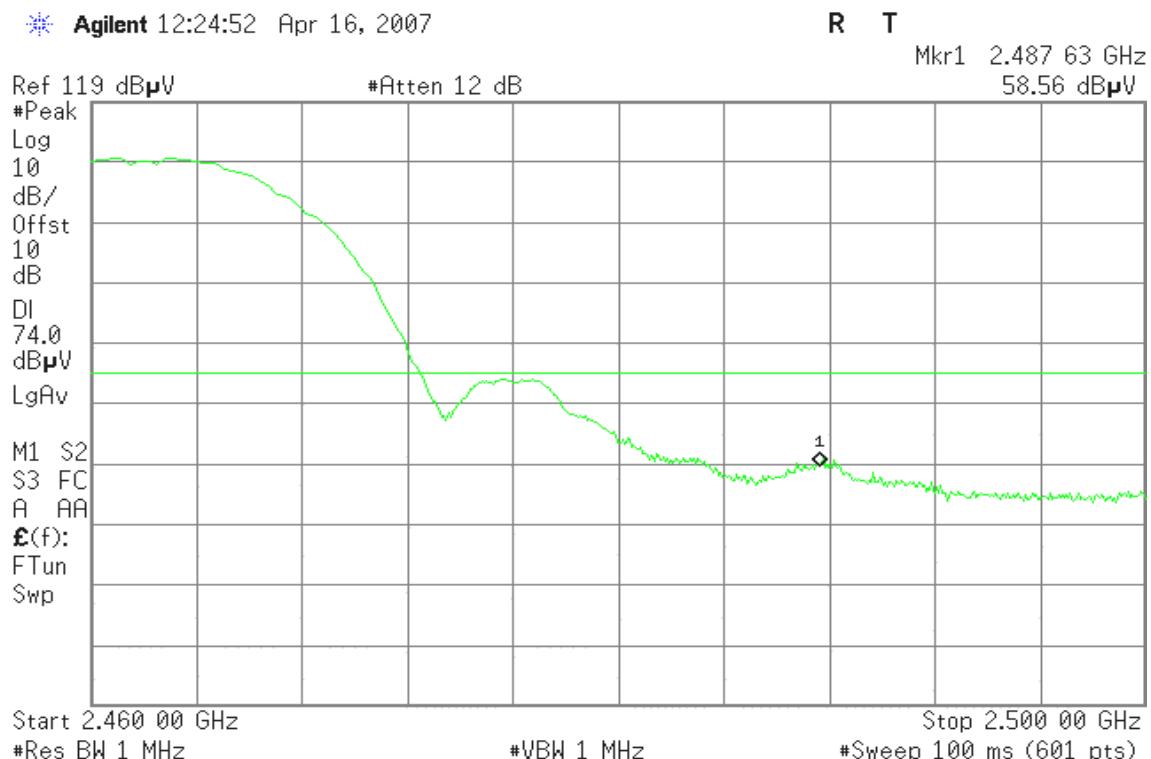
TEST RESULTS

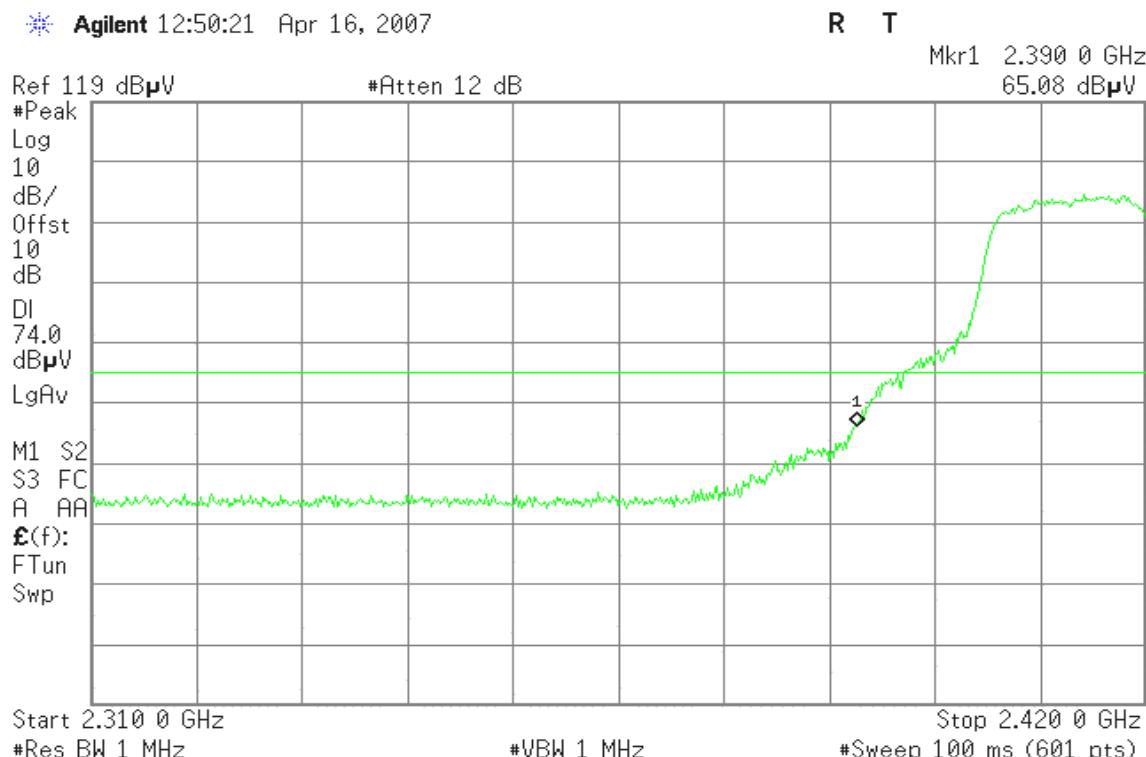
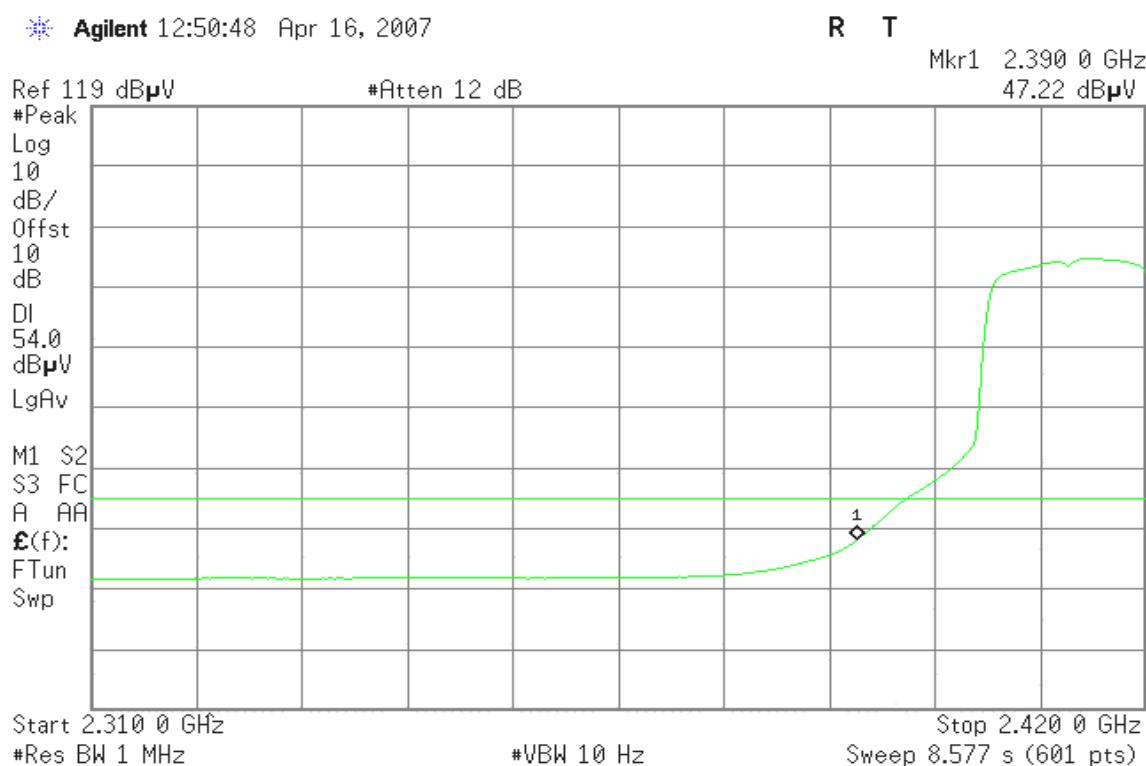
Refer to attach spectrum analyzer data chart.

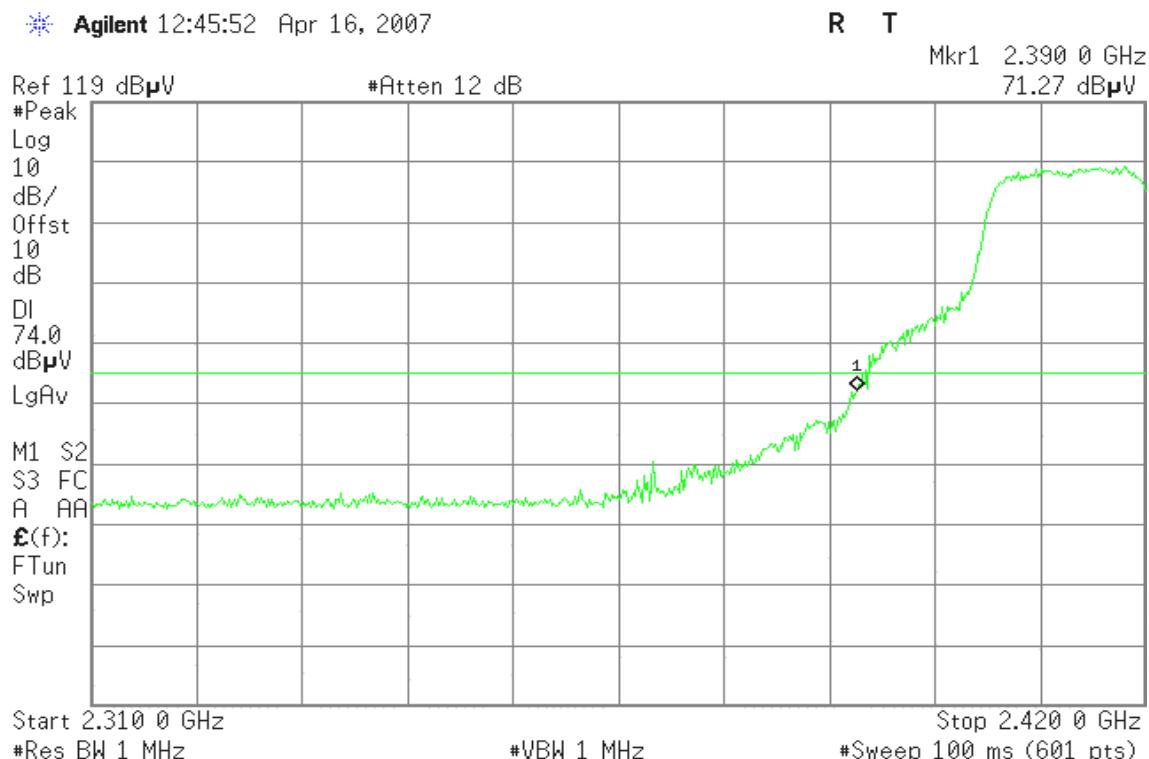
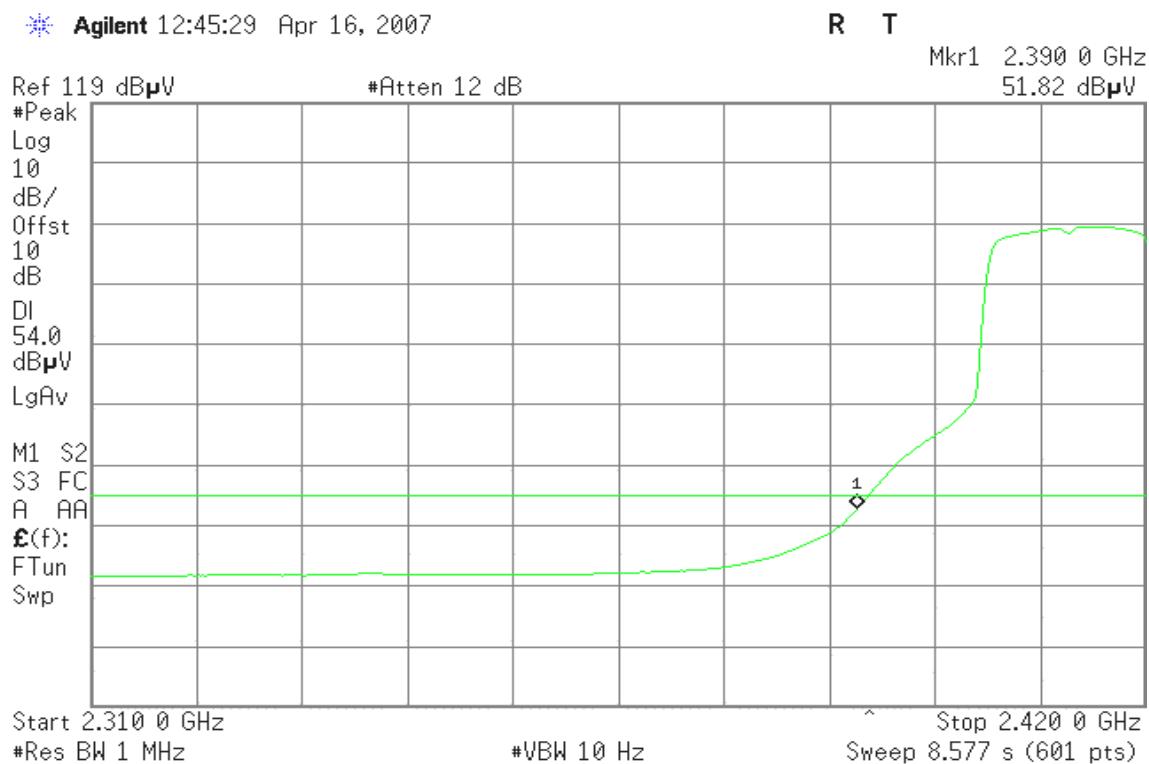
Band Edges (IEEE 802.11b / CH Low)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

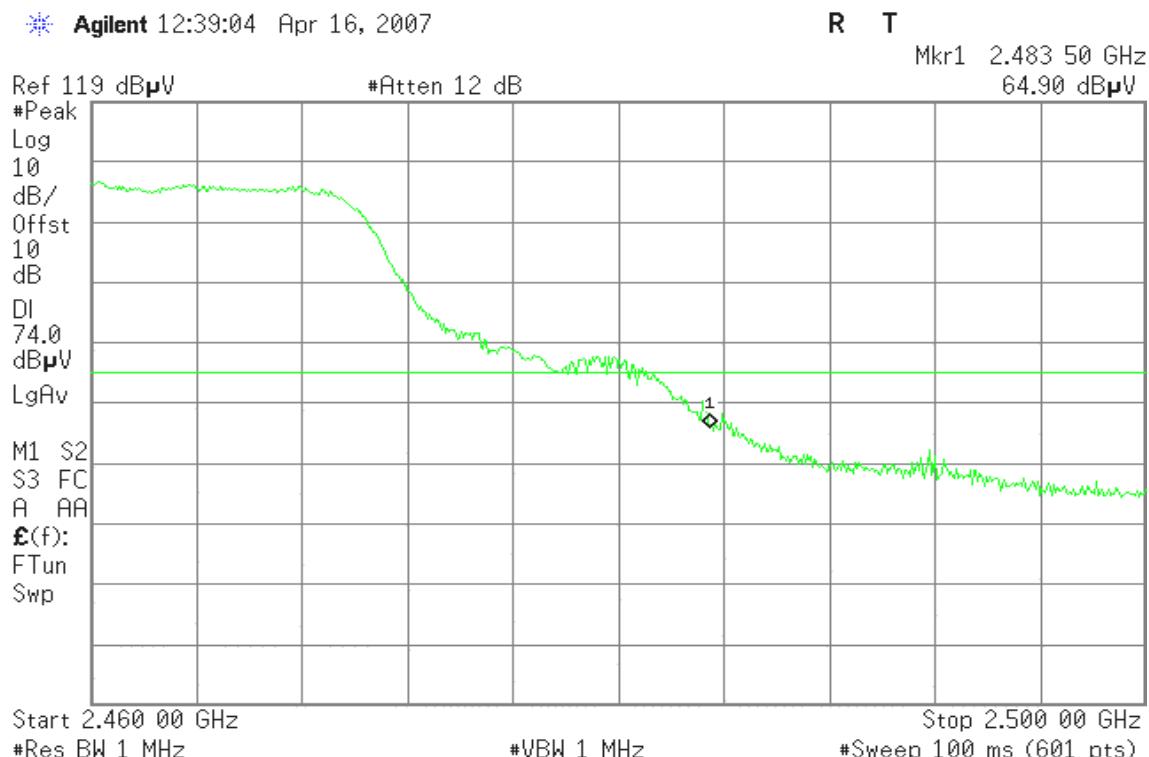
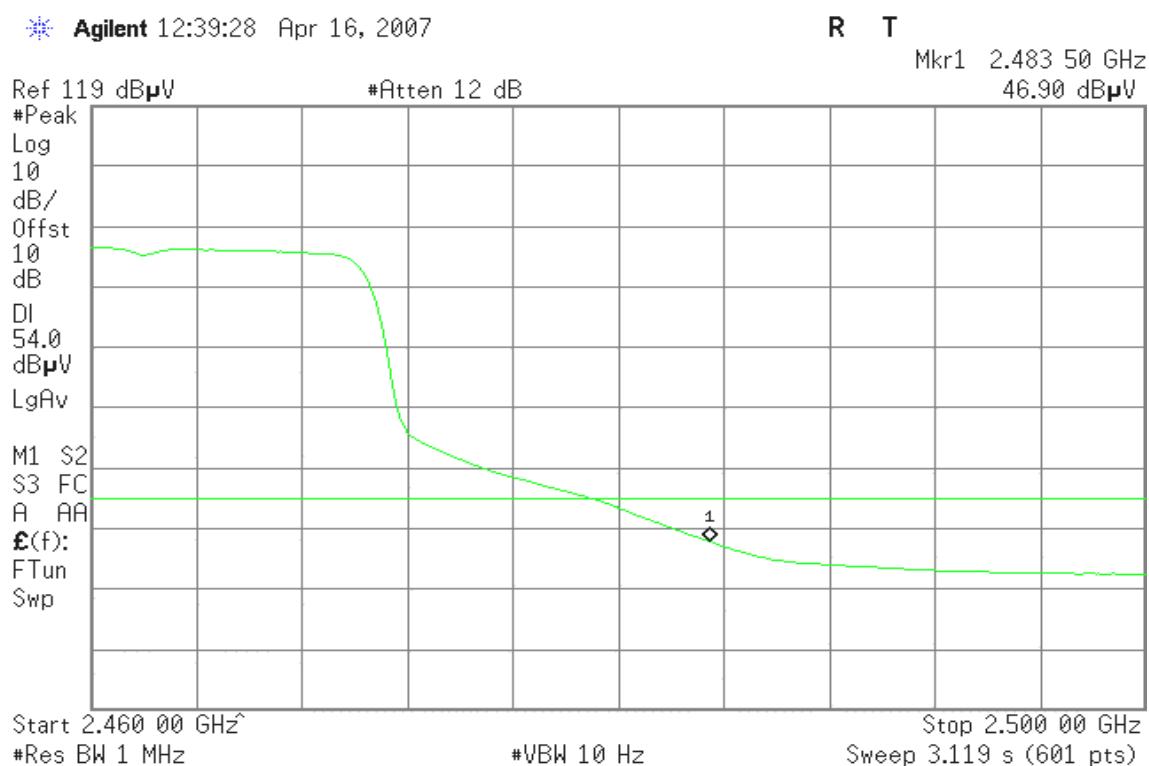
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

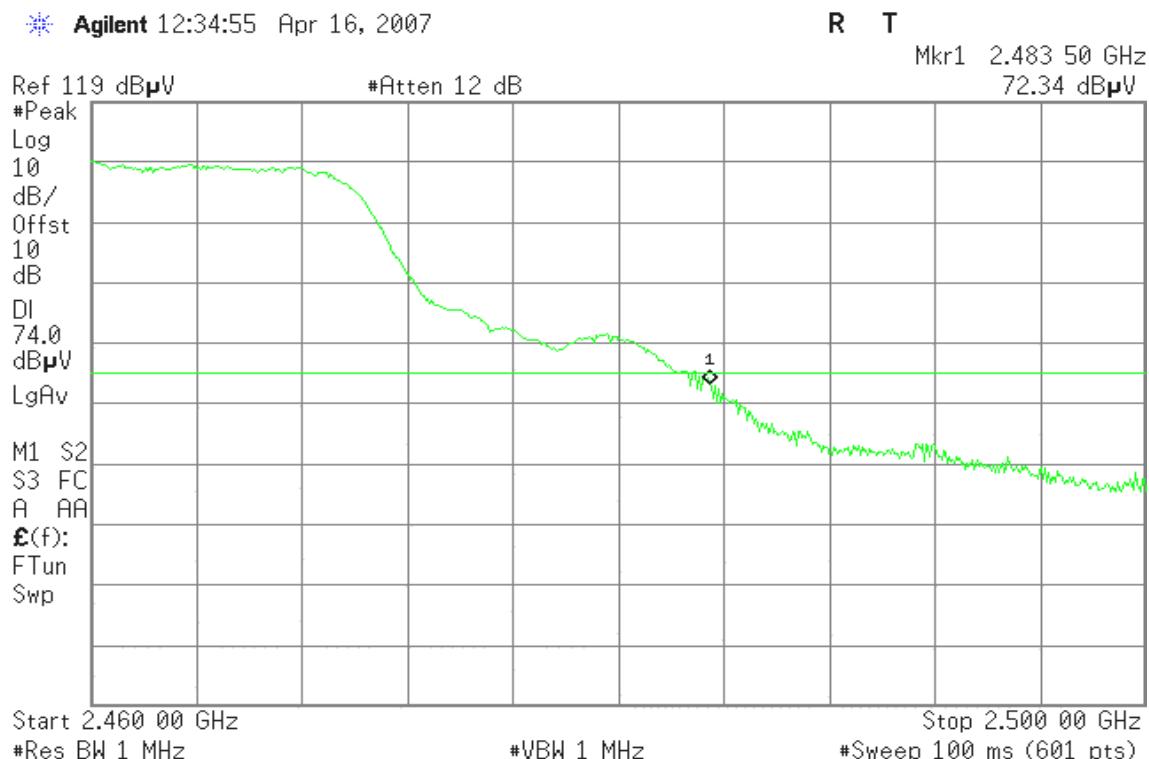
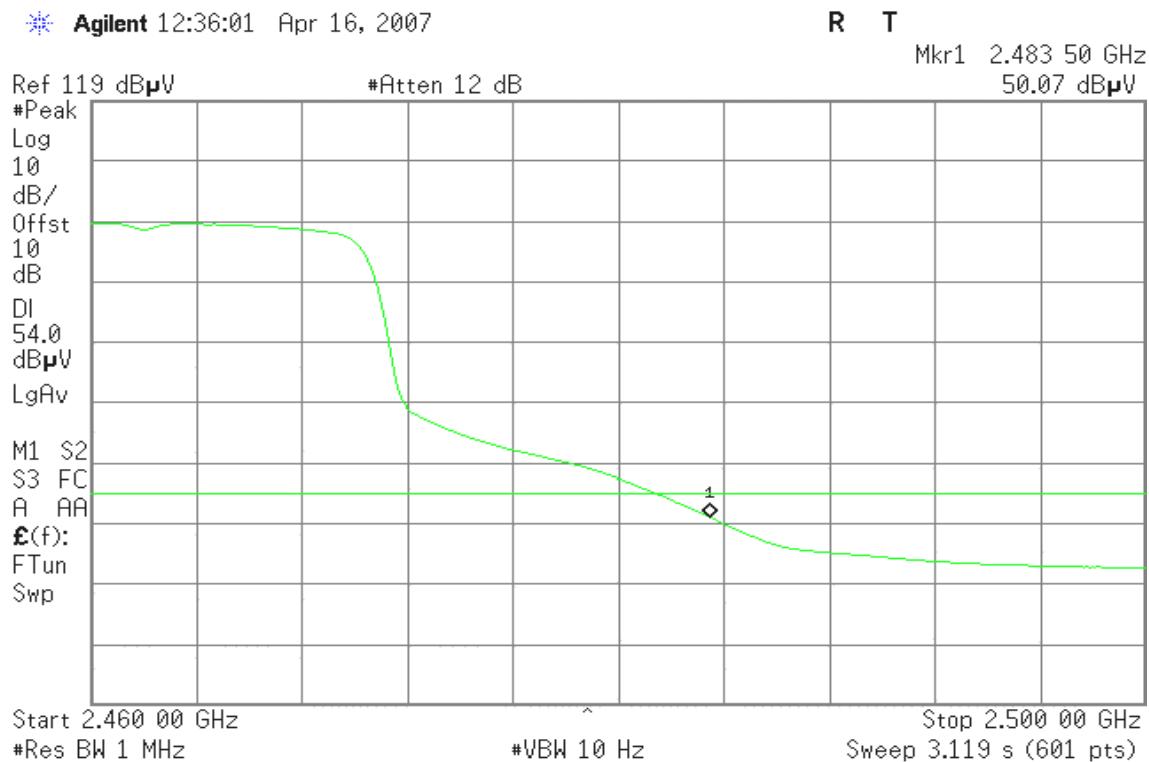
Band Edges (IEEE 802.11b / CH High)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

Band Edges (IEEE 802.11g / CH Low)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

Band Edges (IEEE 802.11g / CH High)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

7.2 SPURIOUS EMISSIONS

7.2.1 RADIATED EMISSIONS

LIMIT

- According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (μ V/m) | Measurement Distance (m) |
|-----------------|-----------------------------|--------------------------|
| 30-88 | 100* | 3 |
| 88-216 | 150* | 3 |
| 216-960 | 200* | 3 |
| Above 960 | 500 | 3 |

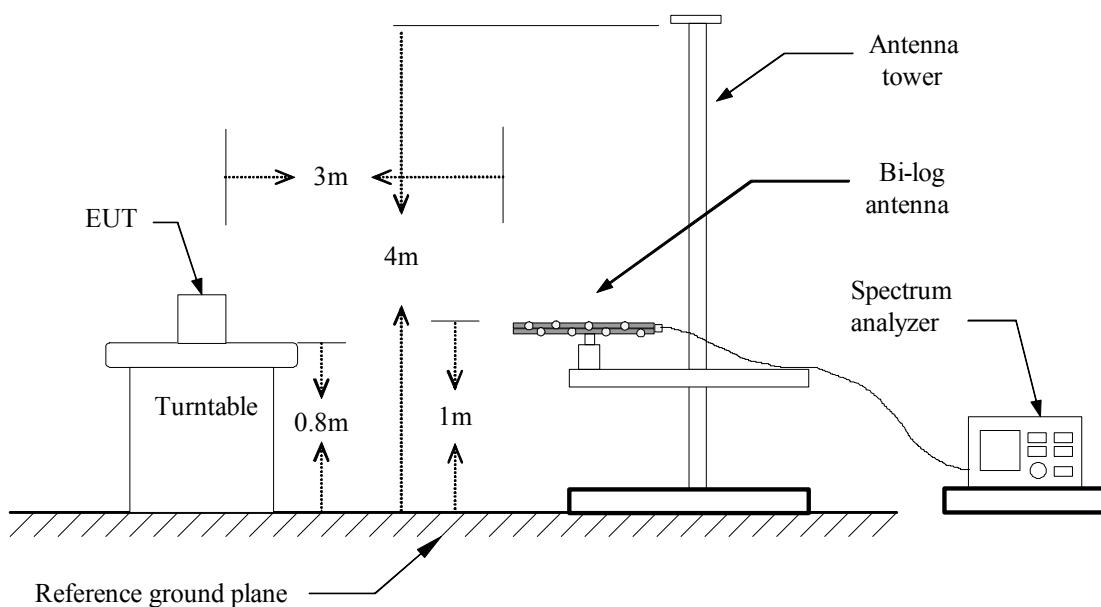
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

- In the emission table above, the tighter limit applies at the band edges.

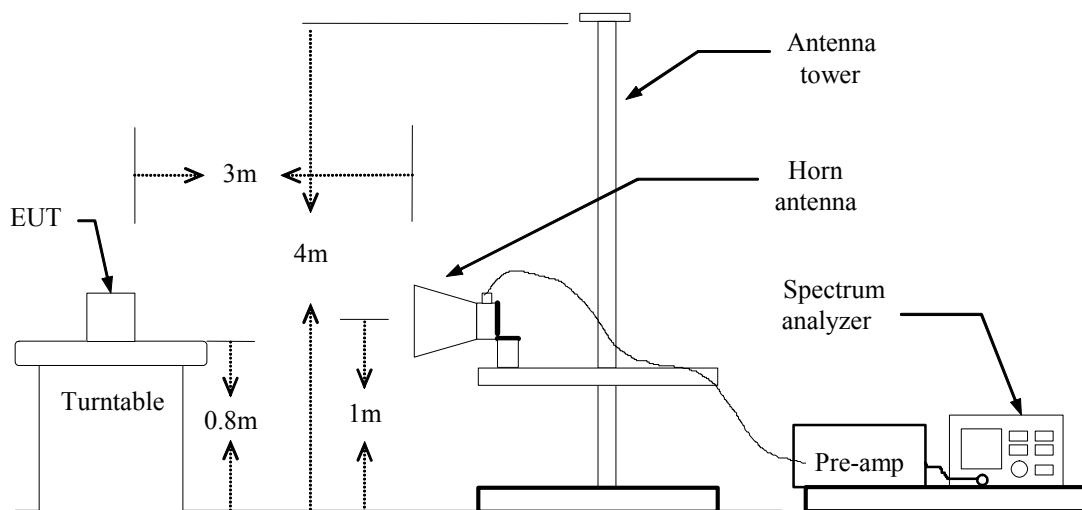
| Frequency (MHz) | Field Strength (μ V/m at 3-meter) | Field Strength (dB μ V/m at 3-meter) |
|-----------------|--|--|
| 30-88 | 100 | 40 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| Above 960 | 500 | 54 |

Test Configuration

Below 1 GHz



Above 1 GHz





TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.



TEST RESULTS

No non-compliance noted

Below 1GHz

Operation Mode: Normal Link

Test Date: April 19, 2007

Temperature: 20°C

Tested by: Nan Tsai

Humidity: 50% RH

Polarity: Ver. / Hor.

| Frequency (MHz) | Ant.Pol. (H/V) | Reading (dBuV) | Correction Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----------------|----------------|----------------|--------------------------|-----------------|----------------|-------------|--------|
| 39.70 | V | 47.93 | -12.70 | 35.23 | 40.00 | -4.77 | QP |
| 107.60 | V | 43.76 | -14.67 | 29.09 | 43.50 | -14.41 | QP |
| 241.78 | V | 44.02 | -14.61 | 29.41 | 46.00 | -16.59 | QP |
| 597.45 | V | 38.66 | -6.21 | 32.46 | 46.00 | -13.54 | QP |
| 633.02 | V | 38.32 | -5.32 | 33.00 | 46.00 | -13.00 | QP |
| 699.30 | V | 35.74 | -4.97 | 30.77 | 46.00 | -15.23 | QP |
| 39.70 | H | 37.33 | -12.70 | 24.63 | 40.00 | -15.37 | QP |
| 240.17 | H | 40.30 | -14.62 | 25.68 | 46.00 | -20.32 | QP |
| 479.43 | H | 41.06 | -7.71 | 33.36 | 46.00 | -12.64 | QP |
| 720.32 | H | 39.73 | -4.30 | 35.43 | 46.00 | -10.57 | QP |
| 802.77 | H | 34.79 | -3.09 | 31.70 | 46.00 | -14.30 | QP |
| 959.58 | H | 33.69 | -1.04 | 32.65 | 46.00 | -13.35 | QP |

Remark:

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
4. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
5. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

**Above 1 GHz****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** April 18, 2007**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (Peak) (dBuV) | Reading (Average) (dBuV) | Correction Factor (dB/m) | Result (Peak) (dBuV/m) | Result (Average) (dBuV/m) | Limit (Peak) (dBuV/m) | Limit (Average) (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|-----------------------|--------------------------|--------------------------|------------------------|---------------------------|-----------------------|--------------------------|-------------|--------|
| 1396.67 | V | 53.76 | --- | -10.14 | 43.62 | --- | 74.00 | 54.00 | -10.38 | Peak |
| 1805.00 | V | 52.33 | --- | -6.94 | 45.39 | --- | 74.00 | 54.00 | -8.61 | Peak |
| 4826.67 | V | 46.56 | --- | 0.56 | 47.12 | --- | 74.00 | 54.00 | -6.88 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 1396.67 | H | 53.35 | --- | -10.14 | 43.20 | --- | 74.00 | 54.00 | -10.80 | Peak |
| 2003.33 | H | 49.54 | --- | -5.00 | 44.55 | --- | 74.00 | 54.00 | -9.45 | Peak |
| 4826.67 | H | 53.33 | --- | 0.56 | 53.89 | --- | 74.00 | 54.00 | -0.11 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** April 18, 2007**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (Peak) (dBuV) | Reading (Average) (dBuV) | Correction Factor (dB/m) | Result (Peak) (dBuV/m) | Result (Average) (dBuV/m) | Limit (Peak) (dBuV/m) | Limit (Average) (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|-----------------------|--------------------------|--------------------------|------------------------|---------------------------|-----------------------|--------------------------|-------------|--------|
| 1396.67 | V | 52.99 | --- | -10.14 | 42.84 | --- | 74.00 | 54.00 | -11.16 | Peak |
| 1793.33 | V | 49.49 | --- | -7.06 | 42.43 | --- | 74.00 | 54.00 | -11.57 | Peak |
| 2003.33 | V | 49.06 | --- | -5.00 | 44.06 | --- | 74.00 | 54.00 | -9.94 | Peak |
| 4873.33 | V | 45.33 | --- | 0.60 | 45.93 | --- | 74.00 | 54.00 | -8.07 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| 1396.67 | H | 54.12 | --- | -10.14 | 43.98 | --- | 74.00 | 54.00 | -10.02 | Peak |
| 2003.33 | H | 49.55 | --- | -5.00 | 44.55 | --- | 74.00 | 54.00 | -9.45 | Peak |
| 4873.33 | H | 52.38 | --- | 0.60 | 52.98 | --- | 74.00 | 54.00 | -1.02 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** April 18, 2007**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (Peak) (dBuV) | Reading (Average) (dBuV) | Correction Factor (dB/m) | Result (Peak) (dBuV/m) | Result (Average) (dBuV/m) | Limit (Peak) (dBuV/m) | Limit (Average) (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|-----------------------|--------------------------|--------------------------|------------------------|---------------------------|-----------------------|--------------------------|-------------|--------|
| 1396.67 | V | 52.30 | --- | -10.14 | 42.16 | --- | 74.00 | 54.00 | -11.84 | Peak |
| 1793.33 | V | 49.43 | --- | -7.06 | 42.37 | --- | 74.00 | 54.00 | -11.63 | Peak |
| 2003.33 | V | 47.96 | --- | -5.00 | 42.96 | --- | 74.00 | 54.00 | -11.04 | Peak |
| 4920.00 | V | 45.02 | --- | 0.65 | 45.66 | --- | 74.00 | 54.00 | -8.34 | Peak |
| 5748.33 | V | 44.29 | --- | 1.75 | 46.04 | --- | 74.00 | 54.00 | -7.96 | Peak |
| N/A | | | | | | | | | | |
| 1396.67 | H | 54.78 | --- | -10.14 | 44.63 | --- | 74.00 | 54.00 | -9.37 | Peak |
| 1991.67 | H | 47.01 | --- | -5.09 | 41.92 | --- | 74.00 | 54.00 | -12.08 | Peak |
| 4920.00 | H | 51.36 | --- | 0.65 | 52.00 | --- | 74.00 | 54.00 | -2.00 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** April 18, 2007**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (Peak) (dBuV) | Reading (Average) (dBuV) | Correction Factor (dB/m) | Result (Peak) (dBuV/m) | Result (Average) (dBuV/m) | Limit (Peak) (dBuV/m) | Limit (Average) (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|-----------------------|--------------------------|--------------------------|------------------------|---------------------------|-----------------------|--------------------------|-------------|--------|
| 1396.67 | V | 54.15 | --- | -10.14 | 44.01 | --- | 74.00 | 54.00 | -9.99 | Peak |
| 2201.67 | V | 46.88 | --- | -4.50 | 42.38 | --- | 74.00 | 54.00 | -11.62 | Peak |
| 4826.67 | V | 48.95 | --- | 0.56 | 49.51 | --- | 74.00 | 54.00 | -4.49 | Peak |
| 7230.00 | V | 47.56 | --- | 3.56 | 51.11 | --- | 74.00 | 54.00 | -2.89 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| 1396.67 | H | 54.12 | --- | -10.14 | 43.98 | --- | 74.00 | 54.00 | -10.02 | Peak |
| 2003.33 | H | 46.31 | --- | -5.00 | 41.31 | --- | 74.00 | 54.00 | -12.69 | Peak |
| 4826.67 | H | 62.93 | 48.92 | 0.56 | 63.49 | 49.48 | 74.00 | 54.00 | -4.52 | Peak |
| 7241.67 | H | 48.99 | --- | 3.54 | 52.53 | --- | 74.00 | 54.00 | -1.47 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** April 18, 2007**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (Peak) (dBuV) | Reading (Average) (dBuV) | Correction Factor (dB/m) | Result (Peak) (dBuV/m) | Result (Average) (dBuV/m) | Limit (Peak) (dBuV/m) | Limit (Average) (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|-----------------------|--------------------------|--------------------------|------------------------|---------------------------|-----------------------|--------------------------|-------------|--------|
| 1396.67 | V | 53.97 | --- | -10.14 | 43.82 | --- | 74.00 | 54.00 | -10.18 | Peak |
| 1793.33 | V | 51.28 | --- | -7.06 | 44.22 | --- | 74.00 | 54.00 | -9.78 | Peak |
| 4873.33 | V | 46.83 | --- | 0.60 | 47.43 | --- | 74.00 | 54.00 | -6.57 | Peak |
| 7311.67 | V | 44.41 | --- | 3.40 | 47.81 | --- | 74.00 | 54.00 | -6.19 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| 1396.67 | H | 55.93 | --- | -10.14 | 45.79 | --- | 74.00 | 54.00 | -8.21 | Peak |
| 4873.33 | H | 63.28 | 48.80 | 0.60 | 63.88 | 49.40 | 74.00 | 54.00 | -4.60 | AVG |
| 7311.67 | H | 47.07 | --- | 3.40 | 50.47 | --- | 74.00 | 54.00 | -3.53 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** April 18, 2007**Temperature:** 25°C**Tested by:** Nan Tsai**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

| Frequency (MHz) | Ant. Pol. (H/V) | Reading (Peak) (dBuV) | Reading (Average) (dBuV) | Correction Factor (dB/m) | Result (Peak) (dBuV/m) | Result (Average) (dBuV/m) | Limit (Peak) (dBuV/m) | Limit (Average) (dBuV/m) | Margin (dB) | Remark |
|-----------------|-----------------|-----------------------|--------------------------|--------------------------|------------------------|---------------------------|-----------------------|--------------------------|-------------|--------|
| 1396.67 | V | 51.58 | --- | -10.14 | 41.44 | --- | 74.00 | 54.00 | -12.56 | Peak |
| 1805.00 | V | 50.72 | --- | -6.94 | 43.77 | --- | 74.00 | 54.00 | -10.23 | Peak |
| 2201.67 | V | 45.65 | --- | -4.50 | 41.15 | --- | 74.00 | 54.00 | -12.85 | Peak |
| 6635.00 | V | 43.61 | --- | 3.26 | 46.86 | --- | 74.00 | 54.00 | -7.14 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |
| 1396.67 | H | 56.89 | --- | -10.14 | 46.74 | --- | 74.00 | 54.00 | -7.26 | Peak |
| 4920.00 | H | 51.98 | --- | 0.65 | 52.62 | --- | 74.00 | 54.00 | -1.38 | Peak |
| 7790.00 | H | 43.20 | --- | 4.58 | 47.79 | --- | 74.00 | 54.00 | -6.21 | Peak |
| N/A | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



7.3 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

| Frequency Range (MHz) | Limits (dB μ V) | |
|--------------------------|------------------------|-----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56* | 56 to 46* |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.



TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode: Normal Link **Test Date:** April 13, 2007
Temperature: 25°C **Tested by:** Robert Huang
Humidity: 55% RH

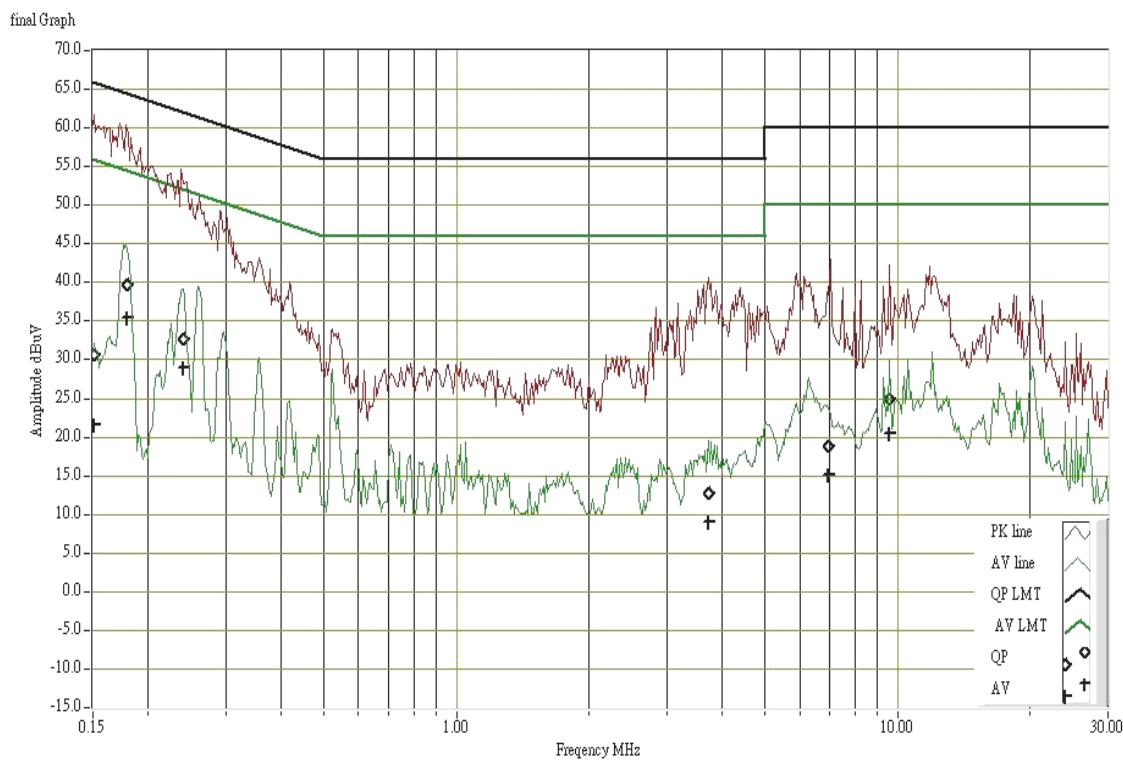
| Freq. (MHz) | QP Reading (dBuV) | AV Reading (dBuV) | Corr. factor (dB) | QP Result (dBuV) | AV Result (dBuV) | QP Limit (dBuV) | AV Limit (dBuV) | QP Margin (dB) | AV Margin (dB) | Note |
|----------------|-------------------------|-------------------------|-------------------------|------------------------|------------------------|-----------------------|-----------------------|----------------------|----------------------|------|
| 0.151 | 30.590 | 21.560 | 10.051 | 40.641 | 31.611 | 65.945 | 55.945 | -25.304 | -24.334 | L1 |
| 0.179 | 39.700 | 35.440 | 10.067 | 49.767 | 45.507 | 64.532 | 54.532 | -14.765 | -9.025 | L1 |
| 0.240 | 32.650 | 28.990 | 10.084 | 42.734 | 39.074 | 62.096 | 52.096 | -19.362 | -13.022 | L1 |
| 3.721 | 12.780 | 9.030 | 10.203 | 22.983 | 19.233 | 56.000 | 46.000 | -33.017 | -26.767 | L1 |
| 6.983 | 18.740 | 15.040 | 10.309 | 29.049 | 25.349 | 60.000 | 50.000 | -30.951 | -24.651 | L1 |
| 9.605 | 24.920 | 20.420 | 10.360 | 35.280 | 30.780 | 60.000 | 50.000 | -24.720 | -19.220 | L1 |
| 0.179 | 44.290 | 43.690 | 10.062 | 54.352 | 53.752 | 64.532 | 54.532 | -10.180 | -0.780 | L2 |
| 0.236 | 37.620 | 36.980 | 10.077 | 47.697 | 47.057 | 62.236 | 52.236 | -14.539 | -5.179 | L2 |
| 0.298 | 31.020 | 30.460 | 10.090 | 41.110 | 40.550 | 60.298 | 50.298 | -19.189 | -9.749 | L2 |
| 2.600 | 12.920 | 2.370 | 10.158 | 23.078 | 12.528 | 56.000 | 46.000 | -32.922 | -33.472 | L2 |
| 6.397 | 21.610 | 18.170 | 10.292 | 31.902 | 28.462 | 60.000 | 50.000 | -28.098 | -21.538 | L2 |
| 10.998 | 15.180 | 13.090 | 10.500 | 25.680 | 23.590 | 60.000 | 50.000 | -34.320 | -26.410 | L2 |

Remark:

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)

