



FCC TEST REPORT

REPORT NO.: RF951031H02A

MODEL NO.: BWA-35302, BWA-35302-ED, SMC8014WG-SI

RECEIVED: Jan. 05, 2007

TESTED: Feb. 07 to 15, 2007

ISSUED: Feb. 27, 2007

APPLICANT: HitronTechnologies

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1 CERTIFICATION

PRODUCT : Wireless Cable Modem
BRAND NAME : Hitron
MODEL NO. : BWA-35302, BWA-35302-ED, SMC8014WG-SI
TESTED: Feb. 07 to 15, 2007
APPLICANT : HitronTechnologies
TEST ITEM: R&D SAMPLE
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: BWA-35302) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Carol Liao, **DATE:** Feb. 27, 2007
(Carol Liao)

TECHNICAL ACCEPTANCE : Moris Lin, **DATE:** Feb. 27, 2007
Responsible for RF
(Moris Lin)

APPROVED BY : Hank Chung, **DATE:** Feb. 27, 2007
(Hank Chung)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: 47 CFR Part 15, Subpart C | | | |
|--|---|---------------|---|
| Standard Section | Test Type and Limit | Result | REMARK |
| 15.207 | AC Power Conducted Emission | PASS | Meet the requirement of limit Minimum passing margin is -11.45 dB at 0.158 MHz |
| 15.247(a)(2) | Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz | PASS | Meet the requirement of limit |
| 15.247(b) | Maximum Peak Output Power Limit: max. 30dBm | PASS | Meet the requirement of limit |
| 15.247(c) | Transmitter Radiated Emissions Limit: Table 15.209 | PASS | Meet the requirement of limit Minimum passing margin is -1.3 dB at 4874.00 MHz |
| 15.247(d) | Power Spectral Density Limit: max. 8dBm | PASS | Meet the requirement of limit |
| 15.247(c) | Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency | PASS | Meet the requirement of limit |

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

| Measurement | Value |
|-----------------------------------|--------------|
| Conducted emissions | 2.26 dB |
| Radiated emissions (30MHz-1GHz) | 2.98 dB |
| Radiated emissions (1GHz ~18GHz) | 2.21 dB |
| Radiated emissions (18GHz ~40GHz) | 1.88 dB |

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | |
|---------------------------|---|
| PRODUCT | Wireless Cable Modem |
| MODEL NO. | BWA-35302, BWA-35302-ED, SMC8014WG-SI |
| FCC ID | U4P-1350001 |
| POWER SUPPLY | DC 5V from power adapter |
| MODULATION TYPE | CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM |
| RADIO TECHNOLOGY | DSSS, OFDM |
| TRANSFER RATE | 802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps |
| FREQUENCY RANGE | 2412MHz ~ 2462MHz |
| NUMBER OF CHANNEL | 11 |
| CHANNEL SPACING | 5MHz |
| OUTPUT POWER | 802.11b: 104.713mW 802.11g: 93.325mW |
| ANTENNA TYPE | Dipole Antenna with I-PEX MHF connector |
| DATA CABLE | USB cable(1.8m, Shielded) |
| I/O PORTS | RJ45 Port x 1 Coaxial port x 1 |
| ASSOCIATED DEVICES | NA |

NOTE:

- The EUT has three model names, which are identical to each other in all aspects except for the followings:

| Brand Name | Model Name | Description |
|------------|--------------|-----------------------|
| Hitron | BWA-35302 | For marking different |
| | BWA-35302-ED | |
| | SMC8014WG-SI | |

From the above models, model: **BWA-35302** was selected as representative model for the test and its data was recorded in this report.

2. The EUT was powered by following power adapters:

| Adapter 1: | |
|-----------------------|--|
| Brand: | Leader Electronics Inc. |
| Model No.: | MU12-2050150-A1 |
| Input power : | 120-240V~50/60Hz, 0.5A |
| Output power : | 5V, 1.5A, non-shielded, without core, 1.9m |
| Adapter 2: | |
| Brand: | DVE |
| Model No.: | DSA-20D-05 2 050010 |
| Input power : | 100-240V, 50-60Hz, 0.7A, non-shielded , without core ,1.8m |
| Output power : | 5V, 2A, non-shielded, with one core, 1.8m |

3. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
4. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.
5. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

For 802.11b/g normal mode: Eleven channels are provided to this EUT.

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

3.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

| EUT configure mode | Applicable to | | | | Description |
|--------------------|---------------|-------|-------|------|-------------|
| | PLC | RE<1G | RE≥1G | APCM | |
| - | √ | √ | √ | √ | NA |

Where PLC: Power Line Conducted Emission RE<1G RE: Radiated Emission below 1GHz
 RE≥1G: Radiated Emission above 1GHz APCM: Antenna Port Conducted Measurement

Power Line Conducted Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| Mode | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b | 1 to 11 | 1 | DSSS | CCK | 1 |

- The EUT was tested with the following test modes:

| Test Mode | Description |
|-----------|---------------|
| Mode 1 | Wth Adapter 1 |
| Mode 2 | Wth Adapter 2 |

Radiated Emission Test (Below 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| Mode | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b | 1 to 11 | 1 | DSSS | CCK | 1 |

- The EUT was tested with the following test modes:

| Test Mode | Description |
|-----------|---------------|
| Mode 1 | Wth Adapter 1 |
| Mode 2 | Wth Adapter 2 |

Radiated Emission Test (Above 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

| Mode | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b | 1 to 11 | 1, 6, 11 | DSSS | CCK | 1 |
| 802.11g | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 6 |

The EUT was pre-tested in chamber as the following test modes:

| Test Mode | POWER |
|-----------|---------------|
| Mode 1 | Wth Adapter 1 |
| Mode 2 | Wth Adapter 2 |

The worst was found in **Mode 2**, the worst cases, were chosen for final test.

Bandedge Measurement:

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

| Mode | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b | 1 to 11 | 1, 11 | DSSS | CCK | 1 |
| 802.11g | 1 to 11 | 1, 11 | OFDM | BPSK | 6 |

Antenna Port Conducted Measurement:

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

| Mode | Available Channel | Tested Channel | Modulation Technology | Modulation Type | Data Rate (Mbps) |
|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b | 1 to 11 | 1, 6, 11 | DSSS | CCK | 11 |
| 802.11g | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 6 |

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless Cable Modem. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C. (15.247)
ANSI C63.4 : 2003

All tests have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of 47 CFR Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.5 DESCRIPTION OF SUPPORT UNITS

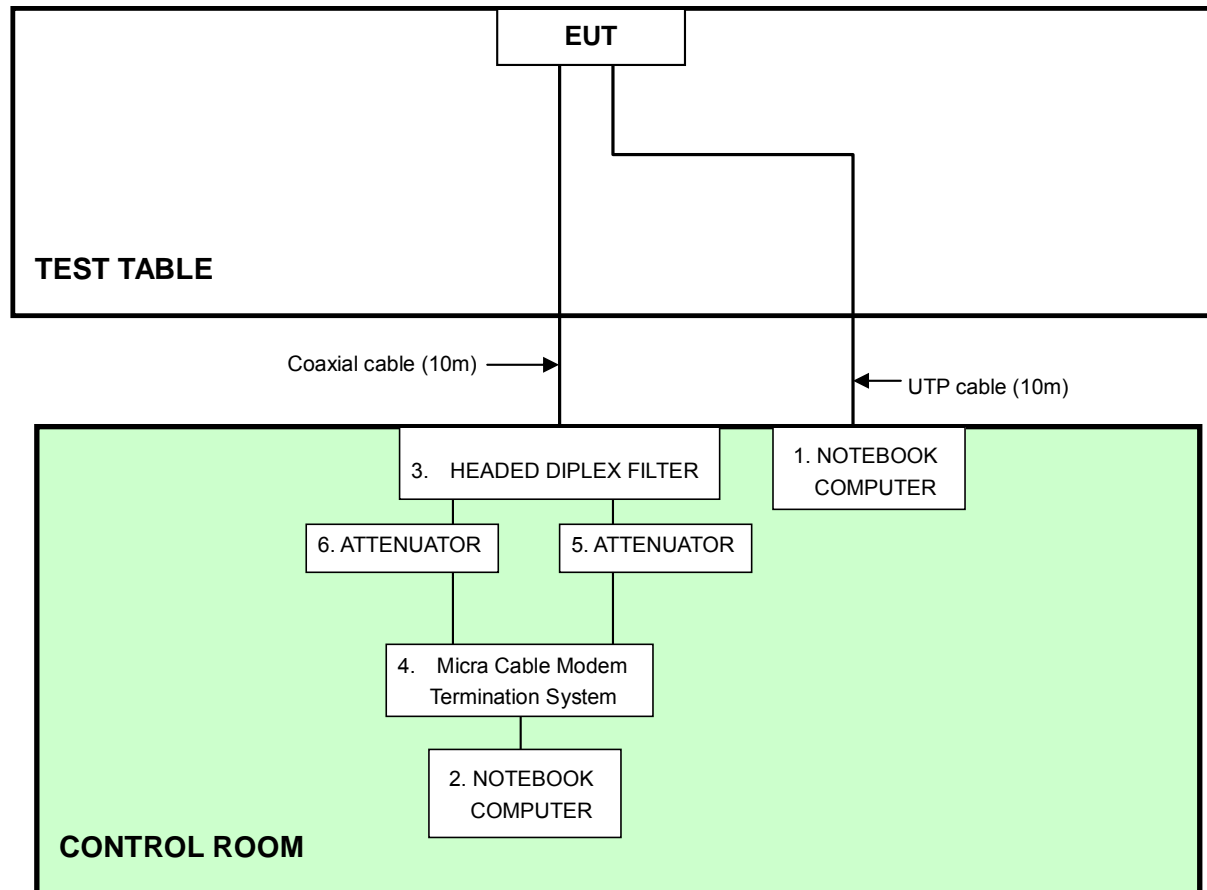
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| No. | Product | Brand | Model No. | Serial No. | FCC ID |
|-----|--------------------------------------|-------|---------------|------------------------------|-----------|
| 1 | NOTEBOOK COMPUTER | DELL | PP05L | CN-04Y212-48643 -38E-0145 | E2K24GBRL |
| 2 | NOTEBOOK COMPUTER | DELL | DMC | GV3ZB1S | NA |
| 3 | HEADED DIPLEX FILTER | NA | TF-55-XHE-III | NA | NA |
| 4 | Micra Cable Modem Termination System | NA | CMTE-100A | NA | NA |
| 5 | ATTENUATOR | NA | NA | NA | NA |
| 6 | ATTENUATOR | NA | NA | NA | NA |

| No. | Signal cable description |
|-----|--------------------------|
| 1 | NA |
| 2 | NA |
| 3 | NA |
| 4 | NA |
| 5 | NA |
| 6 | NA |

Note: 1. All power cords of the above support units are unshielded (1.8m).

3.6 CONFIGURATION OF SYSTEM UNDER TEST



- NOTE:**
1. Support units 1-6 were kept in the control room during the test.
 2. Please refer to the photos of test configuration in Item 5 also.



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dB μ V) | |
|-----------------------------|------------------------------|----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 | 56 to 46 |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

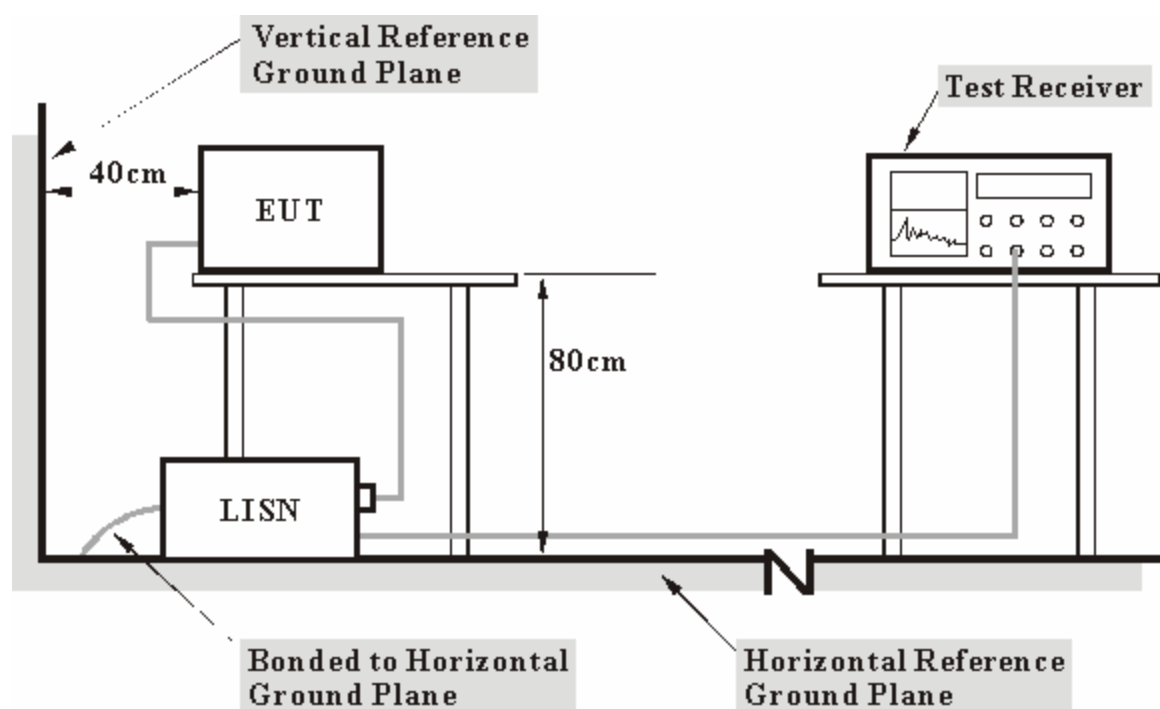
| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|--|-----------------|-------------|------------------|
| Test Receiver | ESCS 30 | 847124/029 | Dec. 14, 2007 |
| Line-Impedance Stabilization Network(for EUT) | ENV-216 | 100071 | Nov. 26, 2007 |
| Line-Impedance Stabilization Network(for Peripheral) | KNW-407 | 8/1395/12 | Aug. 15, 2007 |
| RF Cable (JETBAO) | RG233/U | Cable_CB_01 | Dec. 09, 2007 |
| Terminator | 50 | 2 | Oct. 30, 2007 |
| Software | ADT_Cond_V7.3.2 | NA | NA |

- NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in ADT Shielded Room No. B.
 3. The VCCI Con B Registration No. is C-2193.

4.1.3 TEST PROCEDURES

- a. The EUT/HOST was placed 0.4 meters from the conducting wall of the shielded room with EUT/HOST being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT/HOST were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.5 EUT OPERATING CONDITIONS

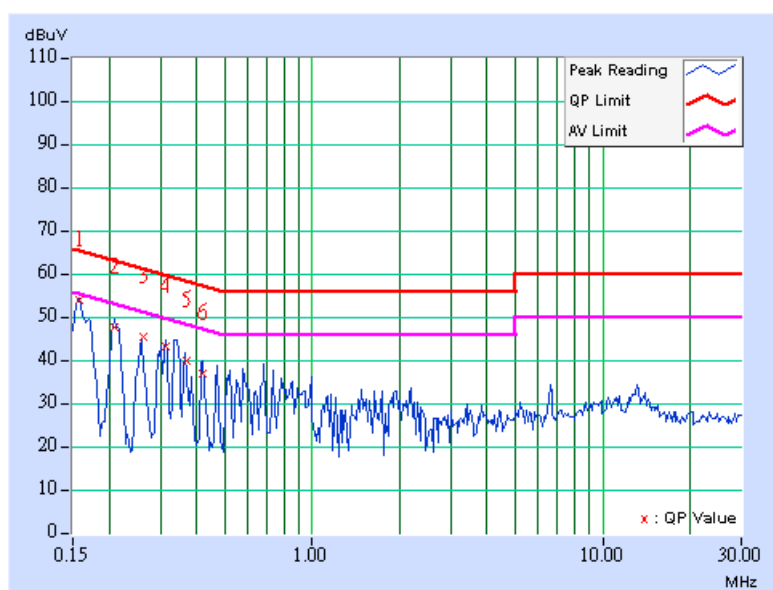
- a. Turn on the power of all equipment.
- b. Prepared other computer system (support unit 1-6) to act as communication partners and placed them outside of testing area.
- c. The communication partner runs the test program "Ping.exe" to enable EUT under transmission/receiving condition continuously via UTP cable, Coaxial cable and wireless.
- d. Repeat steps b-c.

4.1.6 TEST RESULTS

| | | | |
|---------------------------------|-------------------------|----------------------|-----------|
| TEST MODE | With Adapter 1 | CHANNEL | Channel 1 |
| MODULATION TYPE | CCK | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | TRANSFER RATE | 1Mbps |
| ENVIRONMENTAL CONDITIONS | 20deg. C, 60%RH, 970hPa | PHASE | Line (L) |
| TESTED BY | Wen Yu | | |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----|----------------|-------------------------|---------------|-----|----------------|-----|-----------|-------|--------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.158 | 9.60 | 44.53 | - | 54.13 | - | 65.58 | 55.58 | -11.45 | - |
| 2 | 0.209 | 9.60 | 38.19 | - | 47.79 | - | 63.26 | 53.26 | -15.47 | - |
| 3 | 0.262 | 9.60 | 36.06 | - | 45.66 | - | 61.37 | 51.37 | -15.71 | - |
| 4 | 0.314 | 9.60 | 33.80 | - | 43.40 | - | 59.86 | 49.86 | -16.46 | - |
| 5 | 0.368 | 9.60 | 30.35 | - | 39.95 | - | 58.54 | 48.54 | -18.59 | - |
| 6 | 0.420 | 9.60 | 27.42 | - | 37.02 | - | 57.46 | 47.46 | -20.44 | - |

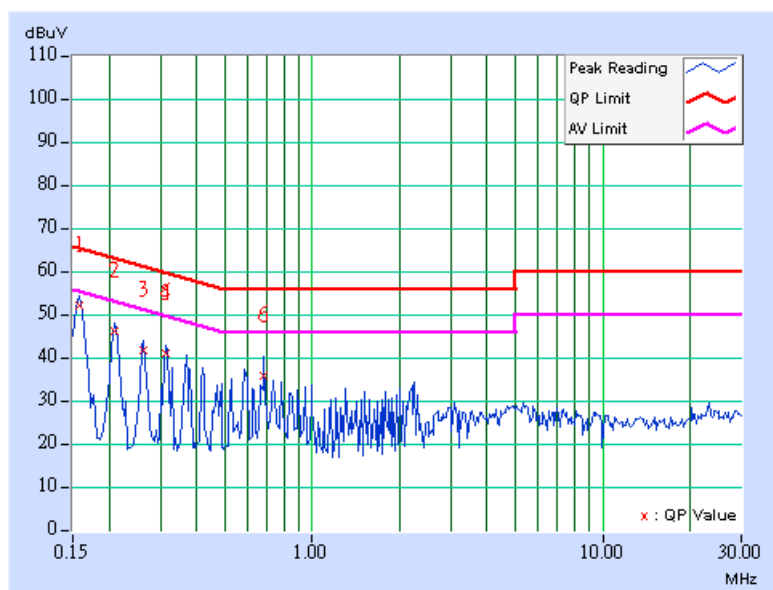
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|-------------------------|----------------------|-------------|
| TEST MODE | With Adapter 1 | CHANNEL | Channel 1 |
| MODULATION TYPE | CCK | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | TRANSFER RATE | 1Mbps |
| ENVIRONMENTAL CONDITIONS | 20deg. C, 60%RH, 970hPa | PHASE | Neutral (N) |
| TESTED BY | Wen Yu | | |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----|----------------|-------------------------|---------------|-----|----------------|-----|-----------|-------|--------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.158 | 9.60 | 42.68 | - | 52.28 | - | 65.58 | 55.58 | -13.30 | - |
| 2 | 0.209 | 9.60 | 36.66 | - | 46.26 | - | 63.26 | 53.26 | -17.00 | - |
| 3 | 0.263 | 9.60 | 32.39 | - | 41.99 | - | 61.33 | 51.33 | -19.34 | - |
| 4 | 0.314 | 9.60 | 31.40 | - | 41.00 | - | 59.86 | 49.86 | -18.86 | - |
| 5 | 0.314 | 9.60 | 31.40 | - | 41.00 | - | 59.86 | 49.86 | -18.86 | - |
| 6 | 0.681 | 9.60 | 26.30 | - | 35.90 | - | 56.00 | 46.00 | -20.10 | - |

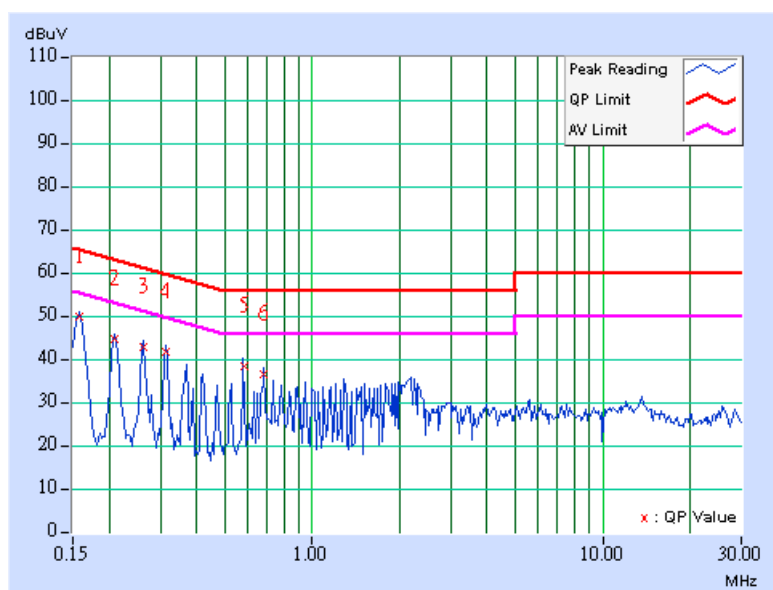
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|-------------------------|----------------------|-----------|
| TEST MODE | With Adapter 2 | CHANNEL | Channel 1 |
| MODULATION TYPE | CCK | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | TRANSFER RATE | 1Mbps |
| ENVIRONMENTAL CONDITIONS | 20deg. C, 60%RH, 970hPa | PHASE | Line (L) |
| TESTED BY | Wen Yu | | |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----|----------------|-------------------------|---------------|-----|----------------|-----|-----------|-------|--------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.158 | 9.60 | 40.46 | - | 50.06 | - | 65.58 | 55.58 | -15.52 | - |
| 2 | 0.209 | 9.60 | 35.03 | - | 44.63 | - | 63.26 | 53.26 | -18.63 | - |
| 3 | 0.263 | 9.60 | 33.30 | - | 42.90 | - | 61.33 | 51.33 | -18.43 | - |
| 4 | 0.314 | 9.60 | 32.23 | - | 41.83 | - | 59.86 | 49.86 | -18.03 | - |
| 5 | 0.582 | 9.60 | 29.06 | - | 38.66 | - | 56.00 | 46.00 | -17.34 | - |
| 6 | 0.681 | 9.60 | 27.16 | - | 36.76 | - | 56.00 | 46.00 | -19.24 | - |

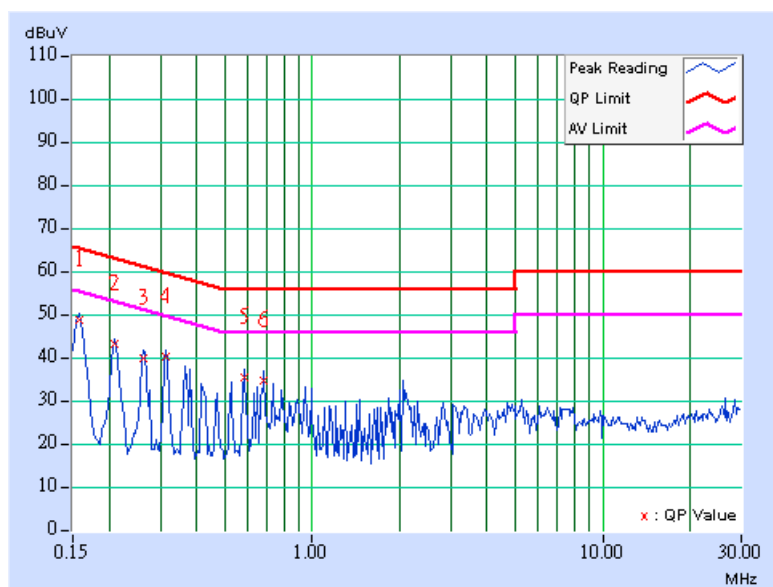
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|-------------------------|----------------------|-------------|
| TEST MODE | With Adapter 2 | CHANNEL | Channel 1 |
| MODULATION TYPE | CCK | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | TRANSFER RATE | 1Mbps |
| ENVIRONMENTAL CONDITIONS | 20deg. C, 60%RH, 970hPa | PHASE | Neutral (N) |
| TESTED BY | Wen Yu | | |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value | | Emission Level | | Limit | | Margin | |
|----|----------------|-------------------------|---------------|-----|----------------|-----|-----------|-------|--------|-----|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.158 | 9.60 | 39.36 | - | 48.96 | - | 65.58 | 55.58 | -16.62 | - |
| 2 | 0.209 | 9.60 | 33.57 | - | 43.17 | - | 63.26 | 53.26 | -20.09 | - |
| 3 | 0.263 | 9.60 | 30.25 | - | 39.85 | - | 61.33 | 51.33 | -21.48 | - |
| 4 | 0.314 | 9.60 | 30.72 | - | 40.32 | - | 59.86 | 49.86 | -19.54 | - |
| 5 | 0.584 | 9.60 | 25.98 | - | 35.58 | - | 56.00 | 46.00 | -20.42 | - |
| 6 | 0.681 | 9.60 | 25.06 | - | 34.66 | - | 56.00 | 46.00 | -21.34 | - |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

| Frequencies (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|----------------------------------|------------------------|---------------------|------------------|
| ADVANTEST Spectrum Analyzer | R3271A | 85060311 | July 03, 2007 |
| HP Pre_Amplifier | 8449B | 3008A01922 | Sep. 18, 2007 |
| ROHDE & SCHWARZ Test Receiver | ESCS30 | 100375 | Sep. 20, 2007 |
| CHASE Broadband Antenna | VULB 9168 | 138 | Dec. 10, 2007 |
| Schwarzbeck Horn_Antenna | BBHA9120 | D124 | Jan. 01, 2008 |
| Schwarzbeck Horn_Antenna | BBHA 9170 | BBHA9170153 | Jan. 04, 2008 |
| SCHWARZBECK Biconical Antenna | VHBA9123 | 459 | Jun. 08, 2009 |
| SCHWARZBECK Periodic Antenna | UPA6108 | 1148 | Jun. 08, 2009 |
| R&S Loop Antenna | HFH2-Z2 | 881058/15 | Nov. 29, 2007 |
| RF Switches (ARNITSU) | CS-201 | 1565157 | NA |
| RF CABLE (Chaintek) | SF102 | 22054-2 | Nov. 14. 2007 |
| RF Cable(RICHTEC) | 9913-30M N-N Cable | STCCAB-30M-1 GHz | Jul. 15, 2007 |
| Software | ADT_Radiated_V 5.14 | NA | NA |
| CHANCE MOST Antenna Tower | AT-100 | 0203 | NA |
| CHANCE MOST Turn Table | TT-100 | 0203 | NA |

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Biconical and Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824A-3.
7. Loop antenna was used for all emissions below 30 MHz.

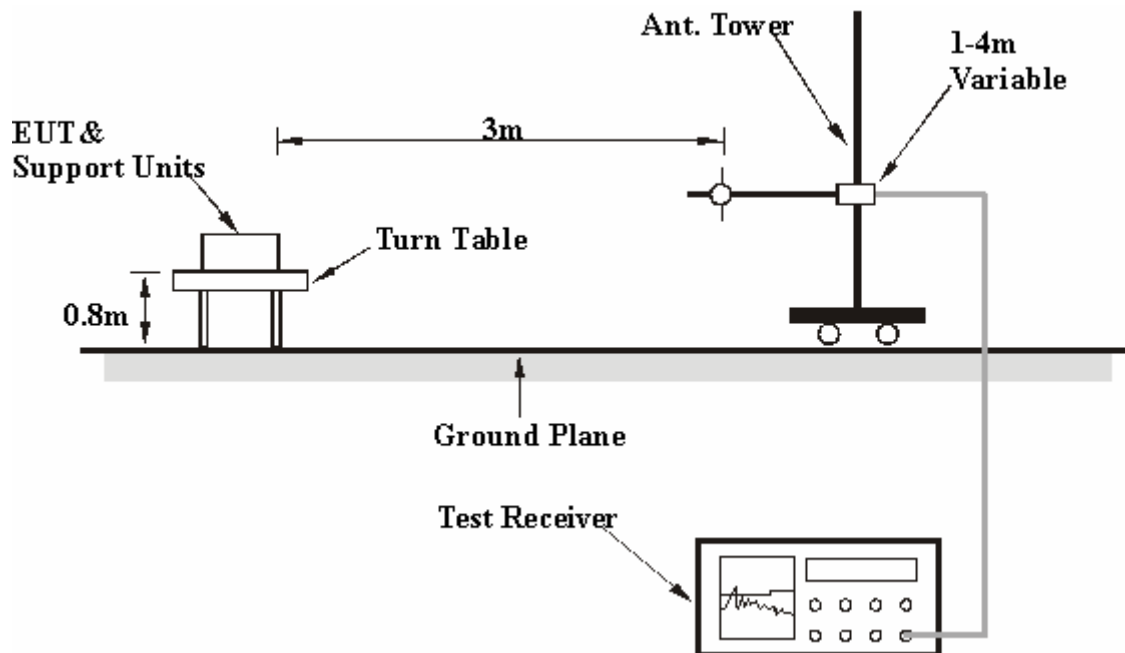
4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5



4.2.6 TEST RESULTS

Below 1GHz Worst-Case Data

| | | | |
|---------------------------------|-------------------------|-----------------------------|---------------|
| TEST MODE | With Adapter 1 | CHANNEL | Channel 1 |
| MODULATION TYPE | CCK | INPUT POWER (SYSTEM) | 120Vac, 60 Hz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | FREQUENCY RANGE | 30-1000 MHz |
| DETECTOR FUNCTION | Quasi-Peak, 120kHz | TRANSFER RATE | 1Mbps |
| TESTED BY | Tony Chen | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 129.54 | 32.90 QP | 43.50 | -10.60 | 1.48 H | 291 | 20.40 | 12.60 |
| 2 | 225.01 | 32.20 QP | 46.00 | -13.80 | 1.49 H | 69 | 19.50 | 12.70 |
| 3 | 250.00 | 35.90 QP | 46.00 | -10.10 | 1.08 H | 58 | 22.20 | 13.80 |
| 4 | 375.01 | 36.10 QP | 46.00 | -9.90 | 1.00 H | 306 | 17.90 | 18.20 |
| 5 | 399.99 | 37.80 QP | 46.00 | -8.20 | 1.00 H | 33 | 18.80 | 19.00 |
| 6 | 500.02 | 34.20 QP | 46.00 | -11.80 | 1.00 H | 53 | 12.40 | 21.80 |
| 7 | 799.99 | 37.30 QP | 46.00 | -8.70 | 1.02 H | 27 | 9.70 | 27.60 |
| 8 | 874.98 | 29.70 QP | 46.00 | -16.30 | 1.01 H | 104 | 1.10 | 28.60 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 111.63 | 28.00 QP | 43.50 | -15.50 | 1.14 V | 244 | 17.20 | 10.90 |
| 2 | 129.54 | 31.80 QP | 43.50 | -11.70 | 1.03 V | 237 | 19.20 | 12.60 |
| 3 | 250.00 | 28.50 QP | 46.00 | -17.50 | 1.06 V | 172 | 14.80 | 13.80 |
| 4 | 375.01 | 34.60 QP | 46.00 | -11.40 | 1.19 V | 0 | 16.40 | 18.20 |
| 5 | 400.00 | 35.50 QP | 46.00 | -10.50 | 1.12 V | 0 | 16.50 | 19.00 |
| 6 | 500.02 | 31.50 QP | 46.00 | -14.50 | 1.02 V | 322 | 9.70 | 21.80 |
| 7 | 874.98 | 28.90 QP | 46.00 | -17.10 | 1.22 V | 306 | 0.30 | 28.60 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

Below 1GHz Worst-Case Data

| | | | |
|---------------------------------|-------------------------|-----------------------------|---------------|
| TEST MODE | With Adapter 2 | CHANNEL | Channel 1 |
| MODULATION TYPE | CCK | INPUT POWER (SYSTEM) | 120Vac, 60 Hz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | FREQUENCY RANGE | 30-1000 MHz |
| DETECTOR FUNCTION | Quasi-Peak, 120kHz | TRANSFER RATE | 1Mbps |
| TESTED BY | Tony Chen | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 129.54 | 33.20 QP | 43.50 | -10.30 | 1.42 H | 213 | 20.60 | 12.60 |
| 2 | 225.01 | 32.80 QP | 46.00 | -13.20 | 1.47 H | 236 | 20.10 | 12.70 |
| 3 | 250.00 | 36.20 QP | 46.00 | -9.80 | 1.02 H | 360 | 22.40 | 13.80 |
| 4 | 375.01 | 36.80 QP | 46.00 | -9.20 | 1.12 H | 14 | 18.60 | 18.20 |
| 5 | 400.00 | 37.20 QP | 46.00 | -8.80 | 1.01 H | 147 | 18.20 | 19.00 |
| 6 | 500.02 | 34.70 QP | 46.00 | -11.30 | 1.23 H | 312 | 12.90 | 21.80 |
| 7 | 799.99 | 38.20 QP | 46.00 | -7.80 | 1.00 H | 360 | 10.60 | 27.60 |
| 8 | 874.98 | 29.90 QP | 46.00 | -16.10 | 1.04 H | 143 | 1.30 | 28.60 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 112.67 | 29.10 QP | 43.50 | -14.40 | 1.03 V | 123 | 18.10 | 11.00 |
| 2 | 129.54 | 32.40 QP | 43.50 | -11.10 | 1.08 V | 360 | 19.80 | 12.60 |
| 3 | 250.00 | 29.70 QP | 46.00 | -16.30 | 1.12 V | 10 | 15.90 | 13.80 |
| 4 | 375.01 | 34.10 QP | 46.00 | -11.90 | 1.07 V | 45 | 15.90 | 18.20 |
| 5 | 400.00 | 35.90 QP | 46.00 | -10.10 | 1.12 V | 58 | 16.90 | 19.00 |
| 6 | 500.02 | 32.60 QP | 46.00 | -13.40 | 1.00 V | 236 | 10.80 | 21.80 |
| 7 | 874.98 | 29.30 QP | 46.00 | -16.70 | 1.20 V | 142 | 0.70 | 28.60 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

802.11b DSSS modulation

| | | | |
|---------------------------------|----------------------------|--|------------------------------------|
| MODE | Channel 1 | FREQUENCY RANGE | 1000~25000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION & BANDWIDTH | Peak (PK) Average (AV) 1 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | TESTED BY | Tony Chen |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 2375.00 | 58.50 PK | 74.00 | -15.50 | 1.24 H | 324 | 26.70 | 31.90 |
| 1 | 2375.00 | 45.40 AV | 54.00 | -8.60 | 1.24 H | 324 | 13.50 | 31.90 |
| 2 | *2412.00 | 104.40 PK | | | 1.24 H | 324 | 72.40 | 32.00 |
| 2 | *2412.00 | 97.70 AV | | | 1.24 H | 324 | 65.70 | 32.00 |
| 3 | 4824.00 | 47.20 PK | 74.00 | -26.80 | 1.13 H | 241 | 11.20 | 36.00 |
| 3 | 4824.00 | 38.80 AV | 54.00 | -15.20 | 1.13 H | 241 | 2.90 | 36.00 |
| 4 | 7236.00 | 51.50 PK | 74.00 | -22.50 | 1.24 H | 132 | 9.20 | 42.20 |
| 4 | 7236.00 | 37.20 AV | 54.00 | -16.80 | 1.24 H | 132 | -5.00 | 42.20 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 2375.00 | 66.30 PK | 74.00 | -7.70 | 1.42 V | 274 | 34.40 | 31.90 |
| 1 | 2375.00 | 48.80 AV | 54.00 | -5.20 | 1.42 V | 274 | 16.90 | 31.90 |
| 2 | *2412.00 | 114.30 PK | | | 1.42 V | 274 | 82.30 | 32.00 |
| 2 | *2412.00 | 107.50 AV | | | 1.42 V | 274 | 75.50 | 32.00 |
| 3 | 4824.00 | 48.30 PK | 74.00 | -25.70 | 1.35 V | 91 | 12.40 | 36.00 |
| 3 | 4824.00 | 41.50 AV | 54.00 | -12.50 | 1.35 V | 91 | 5.50 | 36.00 |
| 4 | 7236.00 | 51.20 PK | 74.00 | -22.80 | 1.26 V | 268 | 8.90 | 42.20 |
| 4 | 7236.00 | 37.50 AV | 54.00 | -16.50 | 1.26 V | 268 | -4.80 | 42.20 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

| | | | |
|---------------------------------|----------------------------|--|------------------------------------|
| MODE | Channel 6 | FREQUENCY RANGE | 1000~25000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION & BANDWIDTH | Peak (PK) Average (AV) 1 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | TESTED BY | Tony Chen |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|--|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *2437.00 | 107.80 PK | | | 1.26 H | 110 | 75.60 | 32.10 |
| 1 | *2437.00 | 100.10 AV | | | 1.26 H | 110 | 68.00 | 32.10 |
| 2 | 4874.00 | 52.00 PK | 74.00 | -22.00 | 1.42 H | 344 | 15.90 | 36.10 |
| 2 | 4874.00 | 48.00 AV | 54.00 | -6.00 | 1.42 H | 344 | 11.90 | 36.10 |
| 3 | 7311.00 | 51.90 PK | 74.00 | -22.10 | 1.20 H | 156 | 9.40 | 42.50 |
| 3 | 7311.00 | 37.70 AV | 54.00 | -16.30 | 1.20 H | 156 | -4.80 | 42.50 |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
|--|----------------|-------------------------|----------------|--------------|--------------------|----------------------|------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *2437.00 | 113.60 PK | | | 1.39 V | 274 | 81.50 | 32.10 |
| 1 | *2437.00 | 108.60 AV | | | 1.39 V | 274 | 76.50 | 32.10 |
| 2 | 4874.00 | 54.80 PK | 74.00 | -19.20 | 1.57 V | 117 | 18.70 | 36.10 |
| 2 | 4874.00 | 52.70 AV | 54.00 | -1.30 | 1.57 V | 117 | 16.60 | 36.10 |
| 3 | 7311.00 | 52.30 PK | 74.00 | -21.70 | 1.22 V | 54 | 9.80 | 42.50 |
| 3 | 7311.00 | 38.90 AV | 54.00 | -15.10 | 1.22 V | 54 | -3.60 | 42.50 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency



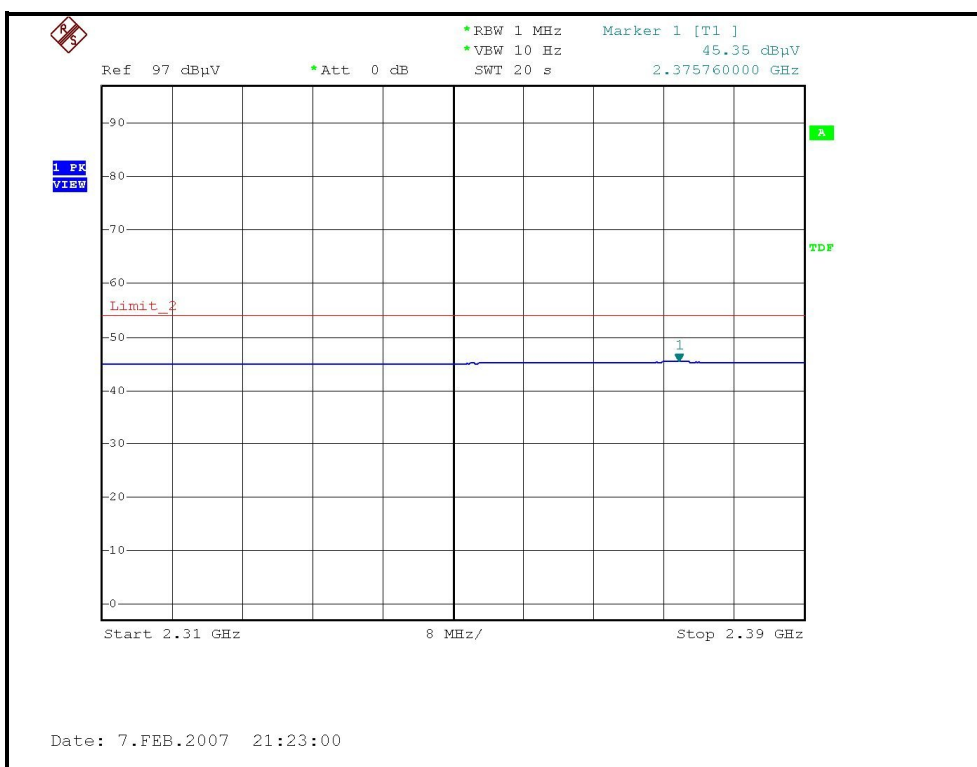
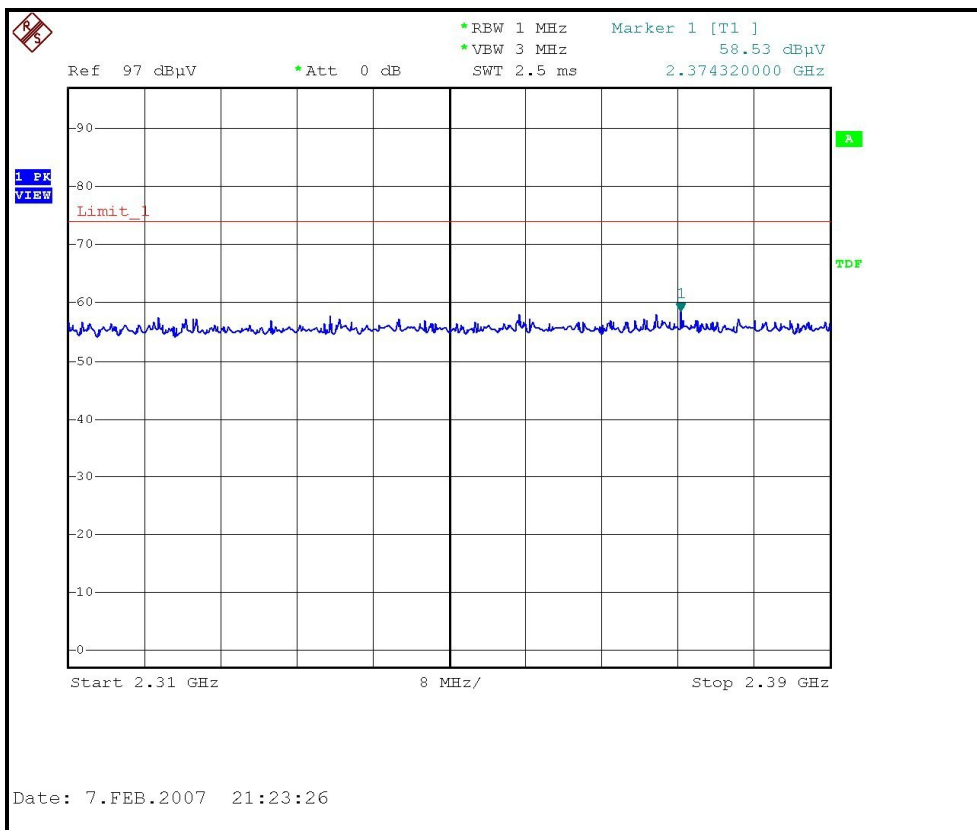
| | | | |
|---------------------------------|----------------------------|--|------------------------------------|
| MODE | Channel 11 | FREQUENCY RANGE | 1000~25000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION & BANDWIDTH | Peak (PK) Average (AV) 1 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | TESTED BY | Tony Chen |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|--|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *2462.00 | 106.20 PK | | | 1.25 H | 112 | 74.00 | 32.20 |
| 1 | *2462.00 | 99.30 AV | | | 1.25 H | 112 | 67.10 | 32.20 |
| 2 | 2483.50 | 58.00 PK | 74.00 | -16.00 | 1.25 H | 112 | 25.70 | 32.30 |
| 2 | 2483.50 | 46.00 AV | 54.00 | -8.00 | 1.25 H | 112 | 13.70 | 32.30 |
| 3 | 4924.00 | 48.30 PK | 74.00 | -25.70 | 1.54 H | 66 | 12.10 | 36.20 |
| 3 | 4924.00 | 40.10 AV | 54.00 | -13.90 | 1.54 H | 66 | 3.90 | 36.20 |
| 4 | 7386.00 | 51.30 PK | 74.00 | -22.70 | 1.10 H | 276 | 8.50 | 42.80 |
| 4 | 7386.00 | 37.80 AV | 54.00 | -16.20 | 1.10 H | 276 | -5.00 | 42.80 |

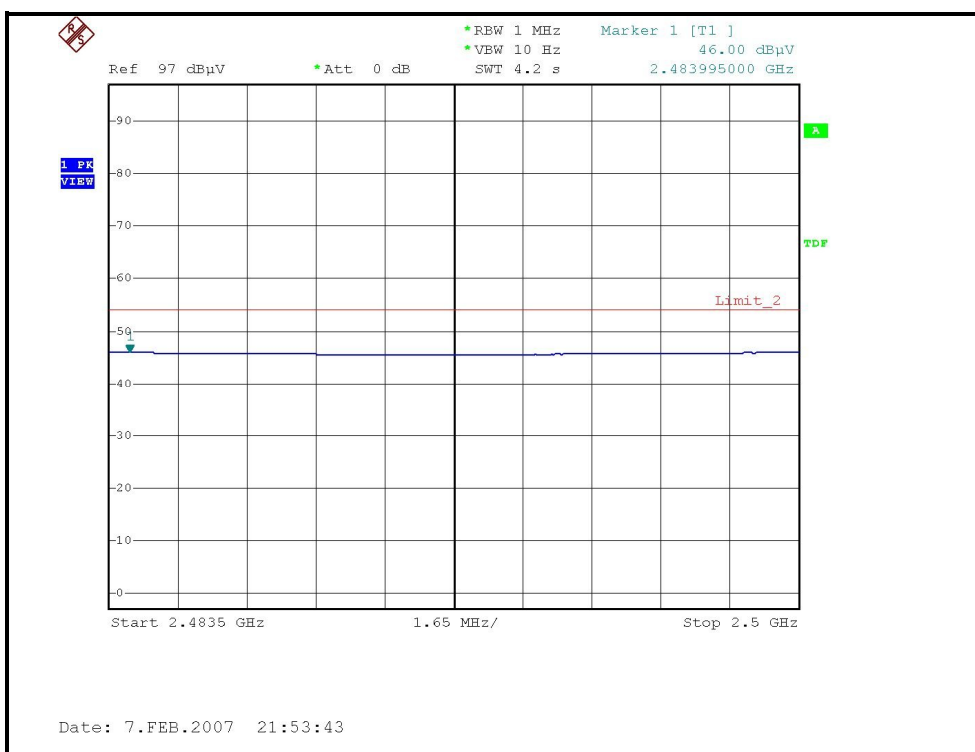
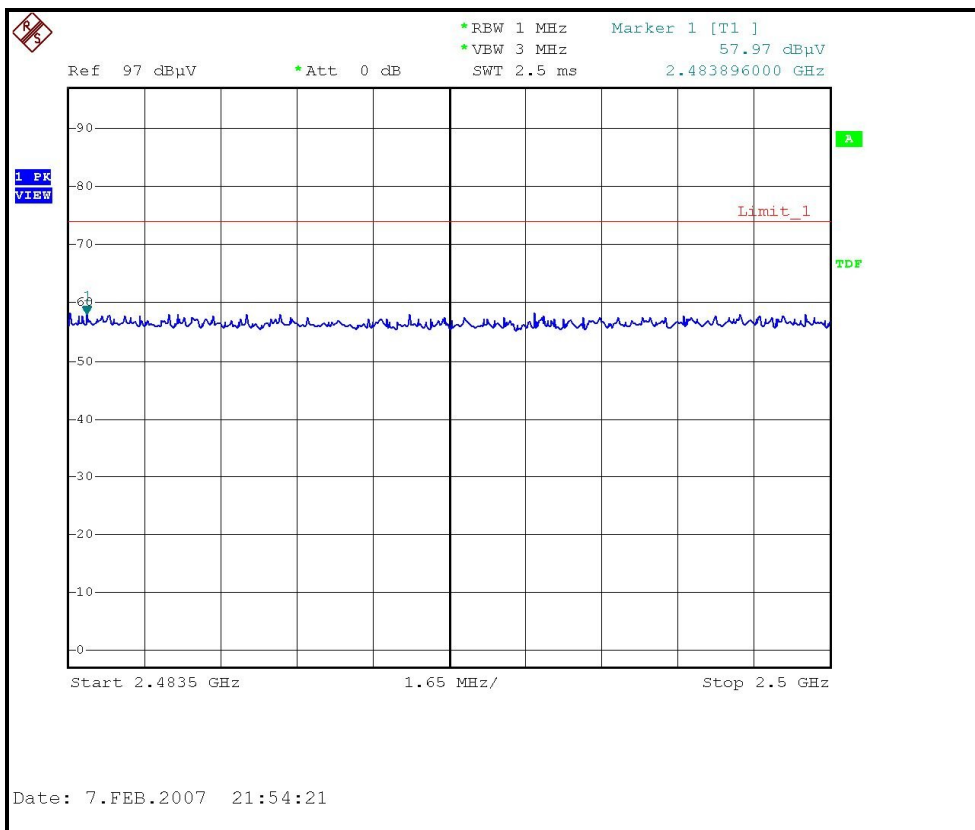
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
|--|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *2462.00 | 114.10 PK | | | 1.43 V | 247 | 81.90 | 32.20 |
| 1 | *2462.00 | 107.40 AV | | | 1.43 V | 247 | 75.20 | 32.20 |
| 2 | 2483.50 | 67.10 PK | 74.00 | -6.90 | 1.43 V | 247 | 34.90 | 32.30 |
| 2 | 2483.50 | 49.90 AV | 54.00 | -4.10 | 1.43 V | 247 | 17.60 | 32.30 |
| 3 | 4924.00 | 49.70 PK | 74.00 | -24.30 | 1.09 V | 352 | 13.50 | 36.20 |
| 3 | 4924.00 | 43.90 AV | 54.00 | -10.10 | 1.09 V | 352 | 7.70 | 36.20 |
| 4 | 7386.00 | 51.40 PK | 74.00 | -22.60 | 1.11 V | 123 | 8.60 | 42.80 |
| 4 | 7386.00 | 37.90 AV | 54.00 | -16.10 | 1.11 V | 123 | -4.90 | 42.80 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

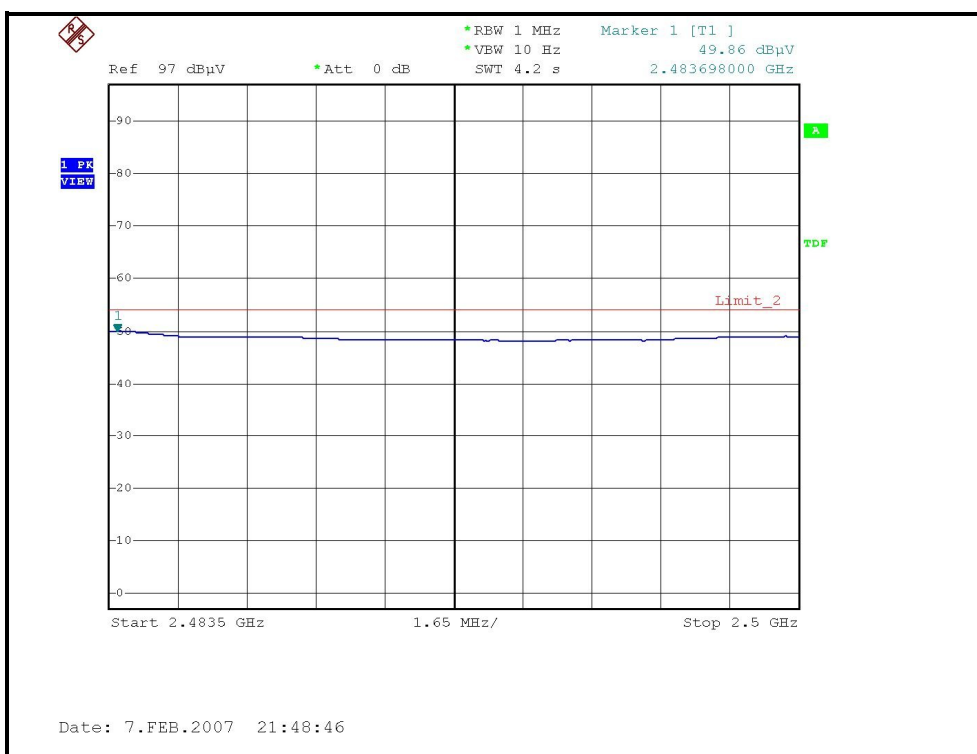
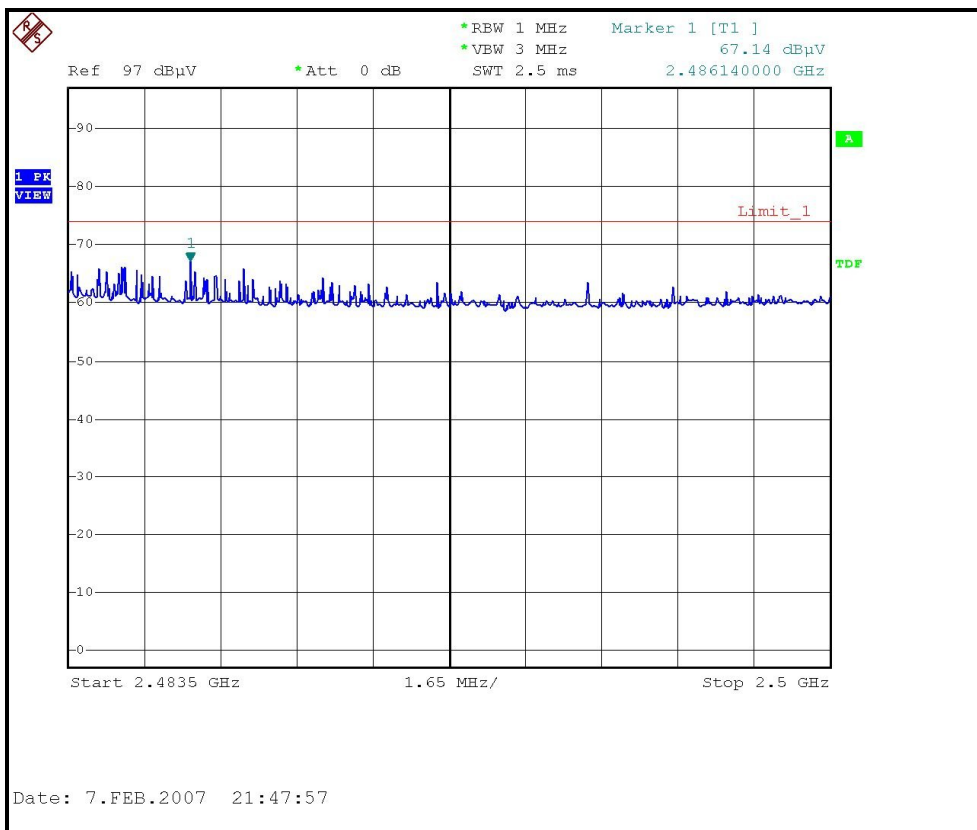
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)



802.11g OFDM modulation

| | | | |
|---------------------------------|----------------------------|--|------------------------------------|
| MODE | Channel 1 | FREQUENCY RANGE | 1000~25000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION & BANDWIDTH | Peak (PK) Average (AV) 1 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | TESTED BY | Tony Chen |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 2390.00 | 58.60 PK | 74.00 | -15.40 | 1.46 H | 339 | 26.70 | 31.90 |
| 1 | 2390.00 | 45.70 AV | 54.00 | -8.30 | 1.46 H | 339 | 13.80 | 31.90 |
| 2 | *2412.00 | 101.00 PK | | | 1.46 H | 339 | 69.00 | 32.00 |
| 2 | *2412.00 | 91.00 AV | | | 1.46 H | 339 | 59.00 | 32.00 |
| 3 | 4824.00 | 51.10 PK | 74.00 | -22.90 | 1.38 H | 206 | 15.10 | 36.00 |
| 3 | 4824.00 | 46.30 AV | 54.00 | -7.70 | 1.38 H | 206 | 10.40 | 36.00 |
| 4 | 7236.00 | 52.20 PK | 74.00 | -21.80 | 1.10 H | 211 | 9.90 | 42.20 |
| 4 | 7236.00 | 37.00 AV | 54.00 | -17.00 | 1.10 H | 211 | -5.20 | 42.20 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | 2390.00 | 60.90 PK | 74.00 | -13.10 | 1.37 V | 272 | 29.00 | 31.90 |
| 1 | 2390.00 | 48.50 AV | 54.00 | -5.50 | 1.37 V | 272 | 16.60 | 31.90 |
| 2 | *2412.00 | 107.90 PK | | | 1.37 V | 272 | 75.90 | 32.00 |
| 2 | *2412.00 | 98.10 AV | | | 1.37 V | 272 | 66.10 | 32.00 |
| 3 | 4824.00 | 51.40 PK | 74.00 | -22.60 | 1.60 V | 290 | 15.40 | 36.00 |
| 3 | 4824.00 | 47.30 AV | 54.00 | -6.70 | 1.60 V | 290 | 11.40 | 36.00 |
| 4 | 7236.00 | 51.50 PK | 74.00 | -22.50 | 1.53 V | 324 | 9.30 | 42.20 |
| 4 | 7236.00 | 38.00 AV | 54.00 | -16.00 | 1.53 V | 324 | -4.30 | 42.20 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. " * " : Fundamental frequency



| | | | |
|---------------------------------|----------------------------|--|------------------------------------|
| MODE | Channel 6 | FREQUENCY RANGE | 1000~25000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION & BANDWIDTH | Peak (PK) Average (AV) 1 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | TESTED BY | Tony Chen |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2437.00 | 105.80 PK | | | 1.49 H | 115 | 73.60 | 32.10 |
| 1 | *2437.00 | 95.70 AV | | | 1.49 H | 115 | 63.60 | 32.10 |
| 2 | 4874.00 | 51.30 PK | 74.00 | -22.70 | 1.40 H | 202 | 15.20 | 36.10 |
| 2 | 4874.00 | 45.50 AV | 54.00 | -8.50 | 1.40 H | 202 | 9.40 | 36.10 |
| 3 | 7311.00 | 51.90 PK | 74.00 | -22.10 | 1.11 H | 241 | 9.40 | 42.50 |
| 3 | 7311.00 | 38.00 AV | 54.00 | -16.00 | 1.11 H | 241 | -4.50 | 42.50 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2437.00 | 112.00 PK | | | 1.36 V | 263 | 79.80 | 32.10 |
| 1 | *2437.00 | 101.60 AV | | | 1.36 V | 263 | 69.50 | 32.10 |
| 2 | 4874.00 | 55.10 PK | 74.00 | -18.90 | 1.43 V | 116 | 19.00 | 36.10 |
| 2 | 4874.00 | 50.20 AV | 54.00 | -3.80 | 1.43 V | 116 | 14.10 | 36.10 |
| 3 | 7311.00 | 52.40 PK | 74.00 | -21.60 | 1.02 V | 94 | 9.90 | 42.50 |
| 3 | 7311.00 | 38.30 AV | 54.00 | -15.70 | 1.02 V | 94 | -4.30 | 42.50 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

| | | | |
|---------------------------------|----------------------------|--|------------------------------------|
| MODE | Channel 11 | FREQUENCY RANGE | 1000~25000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION & BANDWIDTH | Peak (PK) Average (AV) 1 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 970hPa | TESTED BY | Tony Chen |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

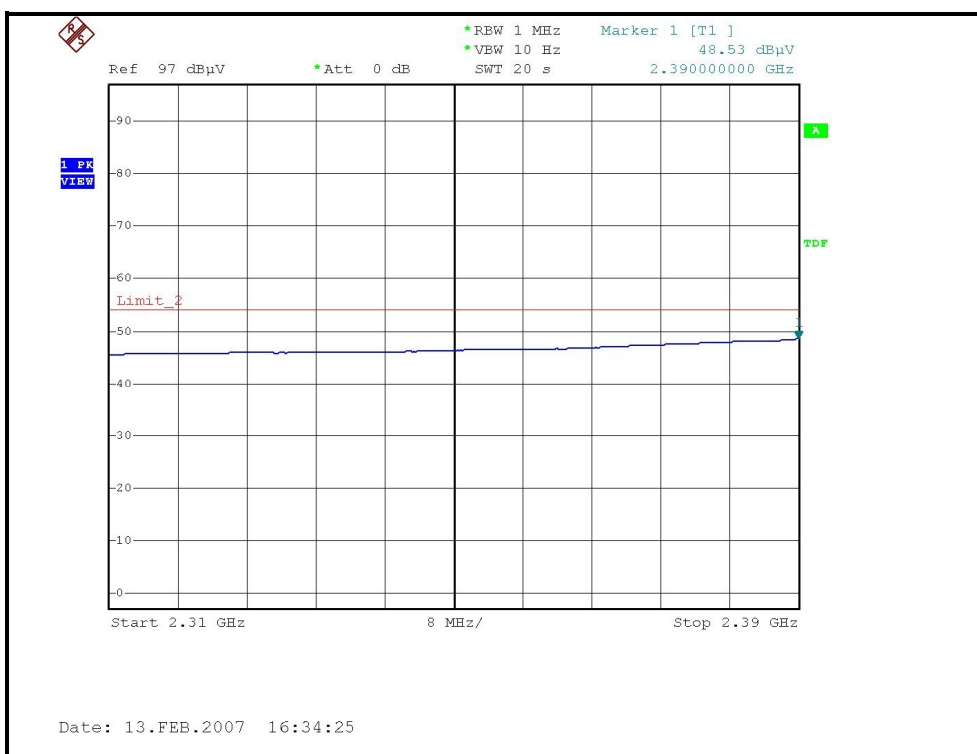
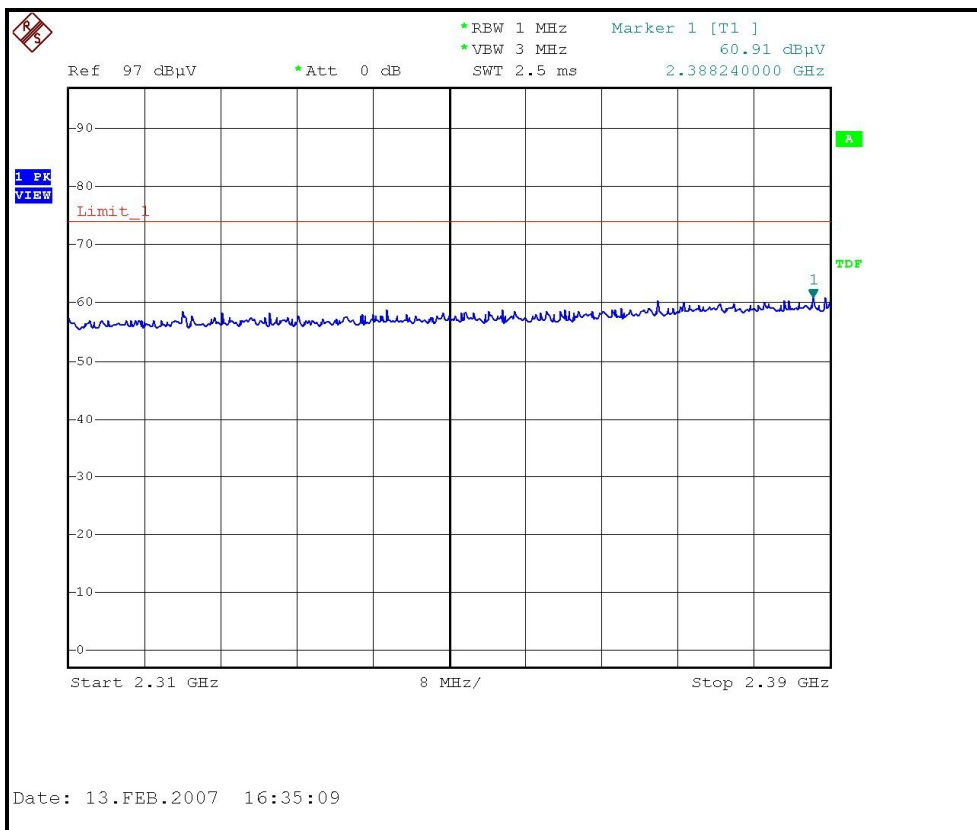
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2462.00 | 100.40 PK | | | 1.18 H | 112 | 68.20 | 32.20 |
| 1 | *2462.00 | 89.70 AV | | | 1.18 H | 112 | 57.50 | 32.20 |
| 2 | 2483.50 | 58.50 PK | 74.00 | -15.50 | 1.18 H | 112 | 26.30 | 32.30 |
| 2 | 2483.50 | 45.80 AV | 54.00 | -8.20 | 1.18 H | 112 | 13.50 | 32.30 |
| 3 | 4924.00 | 50.10 PK | 74.00 | -23.90 | 1.55 H | 205 | 13.90 | 36.20 |
| 3 | 4924.00 | 44.10 AV | 54.00 | -9.90 | 1.55 H | 205 | 7.90 | 36.20 |
| 4 | 7386.00 | 51.30 PK | 74.00 | -22.70 | 1.02 H | 111 | 8.50 | 42.80 |
| 4 | 7386.00 | 37.60 AV | 54.00 | -16.40 | 1.02 H | 111 | -5.20 | 42.80 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

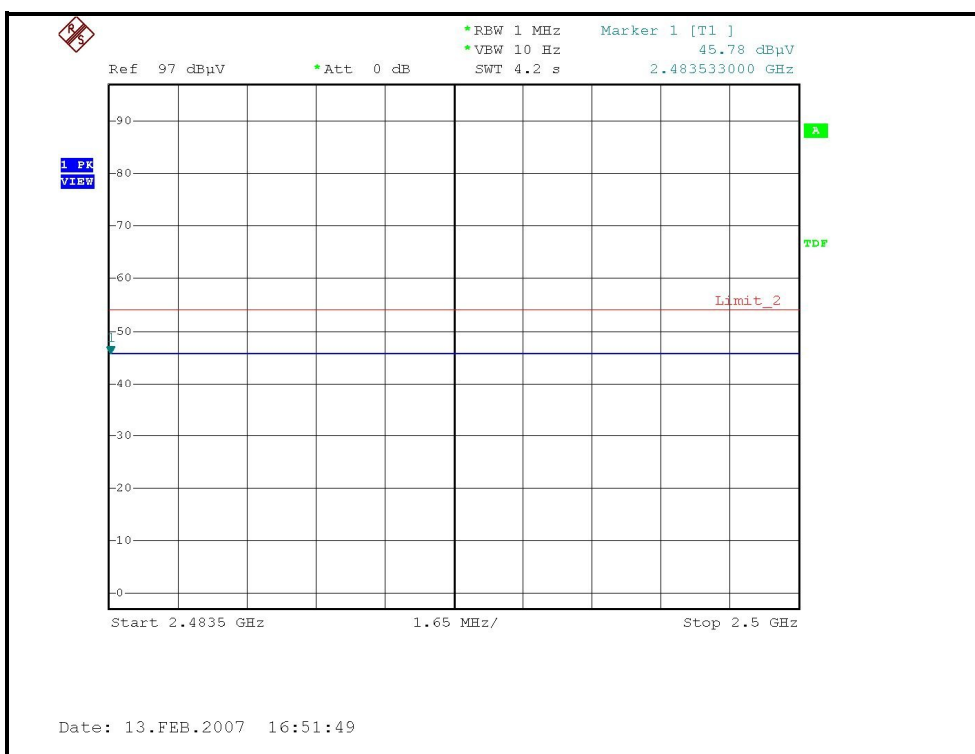
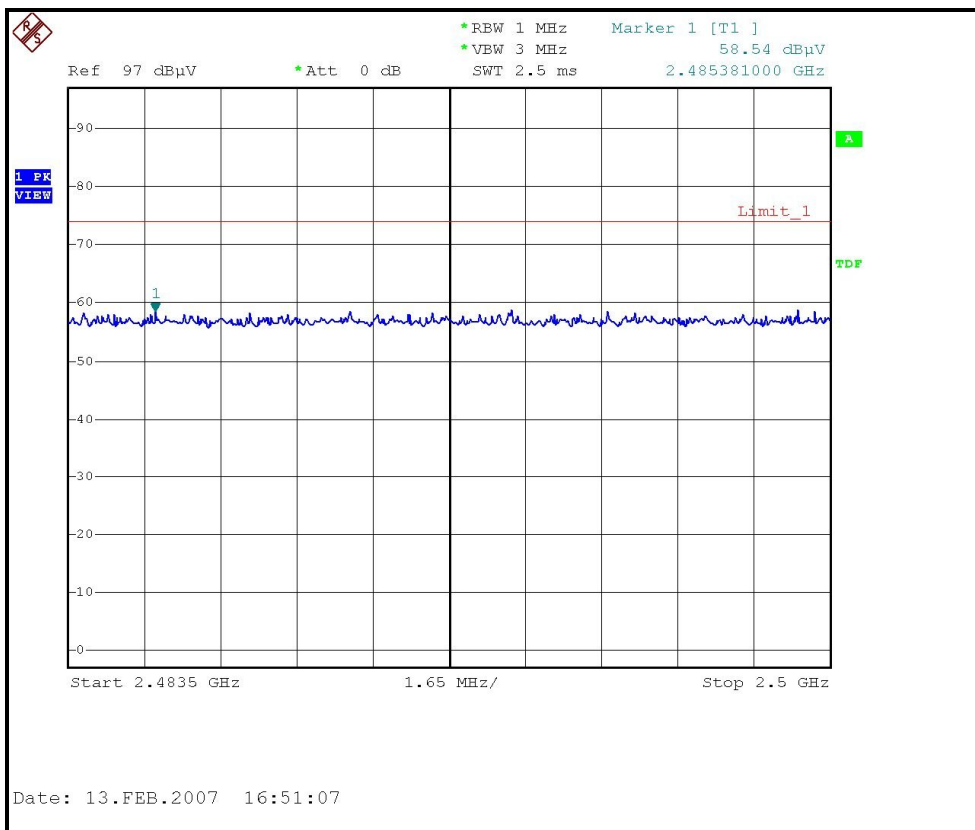
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2462.00 | 108.80 PK | | | 1.29 V | 174 | 76.60 | 32.20 |
| 1 | *2462.00 | 98.30 AV | | | 1.29 V | 174 | 66.10 | 32.20 |
| 2 | 2483.50 | 60.40 PK | 74.00 | -13.60 | 1.29 V | 174 | 28.10 | 32.30 |
| 2 | 2483.50 | 47.50 AV | 54.00 | -6.50 | 1.29 V | 174 | 15.20 | 32.30 |
| 3 | 4924.00 | 53.00 PK | 74.00 | -21.00 | 1.26 V | 117 | 16.80 | 36.20 |
| 3 | 4924.00 | 49.60 AV | 54.00 | -4.40 | 1.26 V | 117 | 13.40 | 36.20 |
| 4 | 7386.00 | 51.80 PK | 74.00 | -22.20 | 1.21 V | 241 | 9.00 | 42.80 |
| 4 | 7386.00 | 38.30 AV | 54.00 | -15.70 | 1.21 V | 241 | -4.50 | 42.80 |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

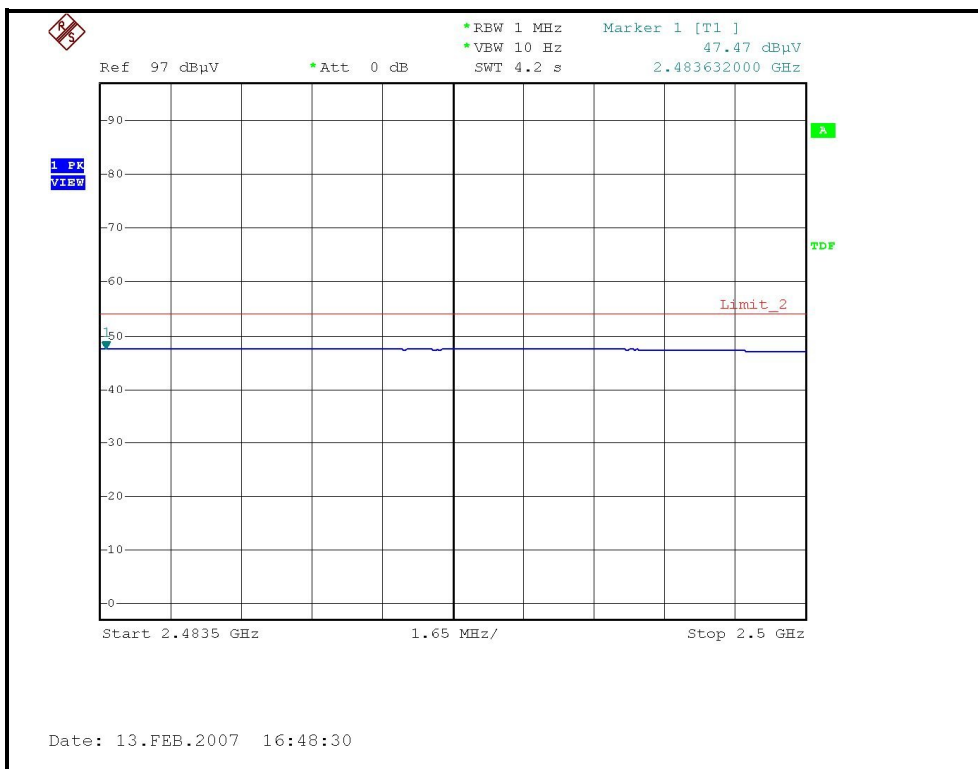
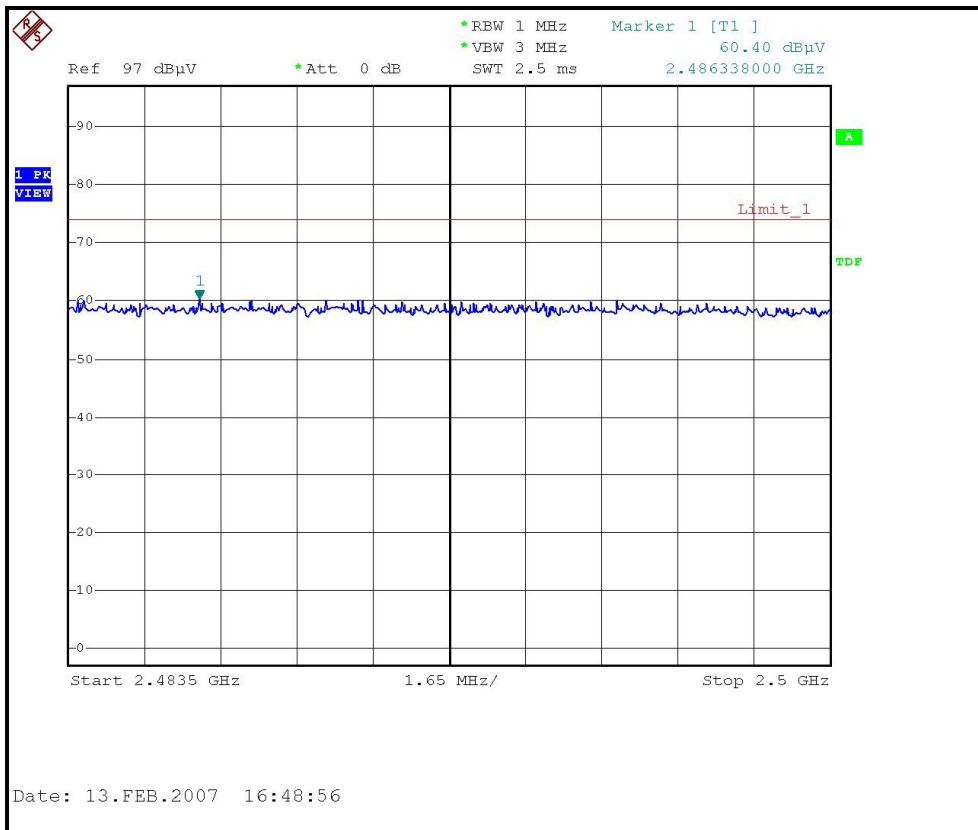
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE, CH11, VERTICAL)





4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| ROHDE & SCHWARZ Analyzer | FSP40 | 100037 | Aug. 15, 2007 |

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.3.5 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



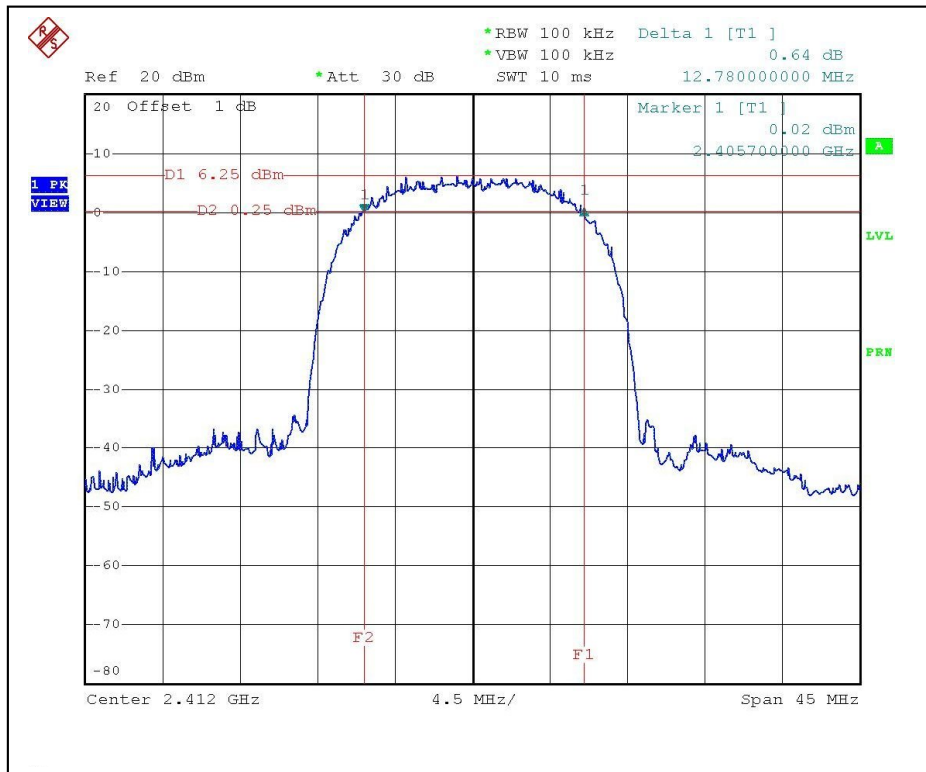
4.3.6 TEST RESULTS

802.11b DSSS modulation

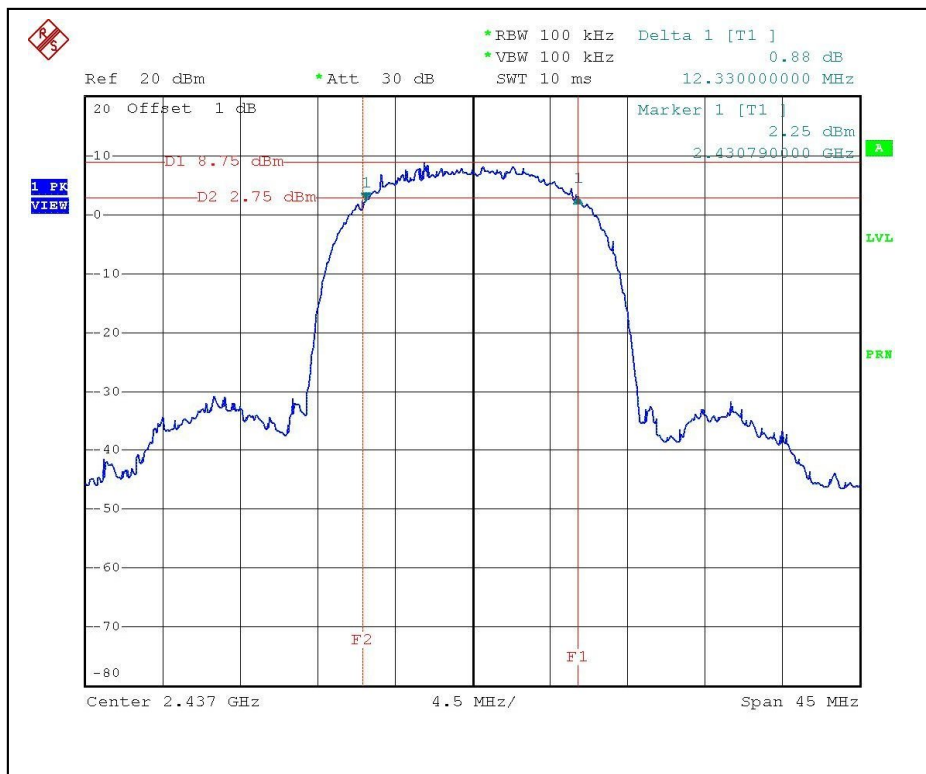
| | | | |
|-----------------------------|---------------|---------------------------------|-------------------------|
| MODULATION TYPE | CCK | TRANSFER RATE | 11Mbps |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | ENVIRONMENTAL CONDITIONS | 18deg. C, 62%RH, 970hPa |
| TESTED BY | Eric Lee | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6 dB BANDWIDTH (MHz) | MINIMUM LIMIT (MHz) | PASS/FAIL |
|----------------|--------------------------------|-----------------------------|----------------------------|------------------|
| 1 | 2412 | 12.78 | 0.5 | PASS |
| 6 | 2437 | 12.33 | 0.5 | PASS |
| 11 | 2462 | 12.42 | 0.5 | PASS |

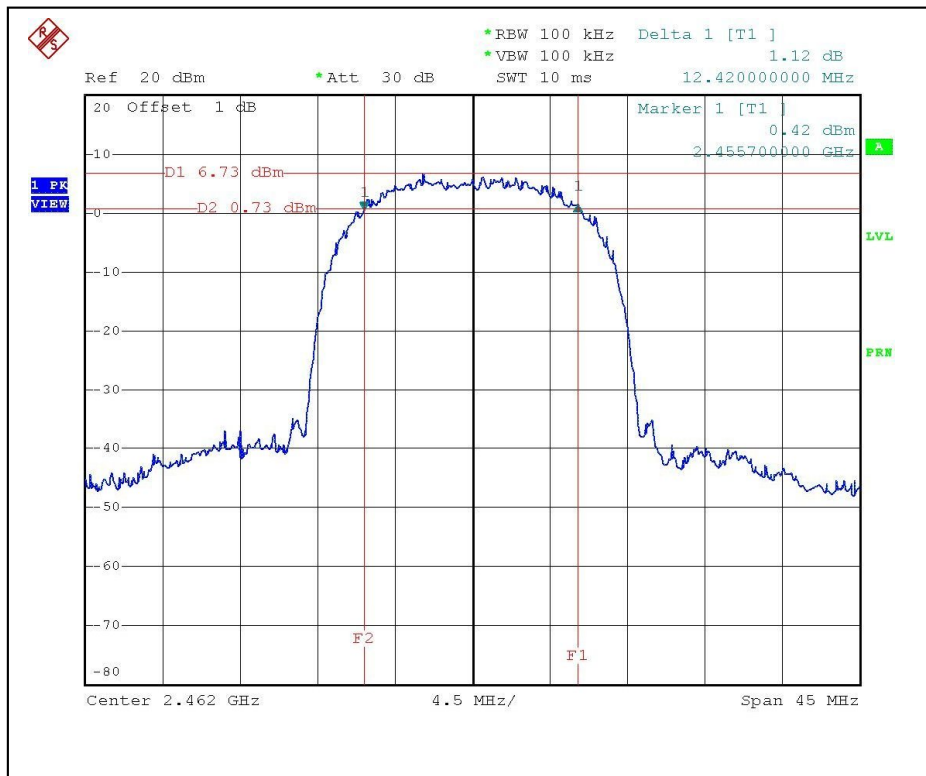
CH1



CH6



CH11



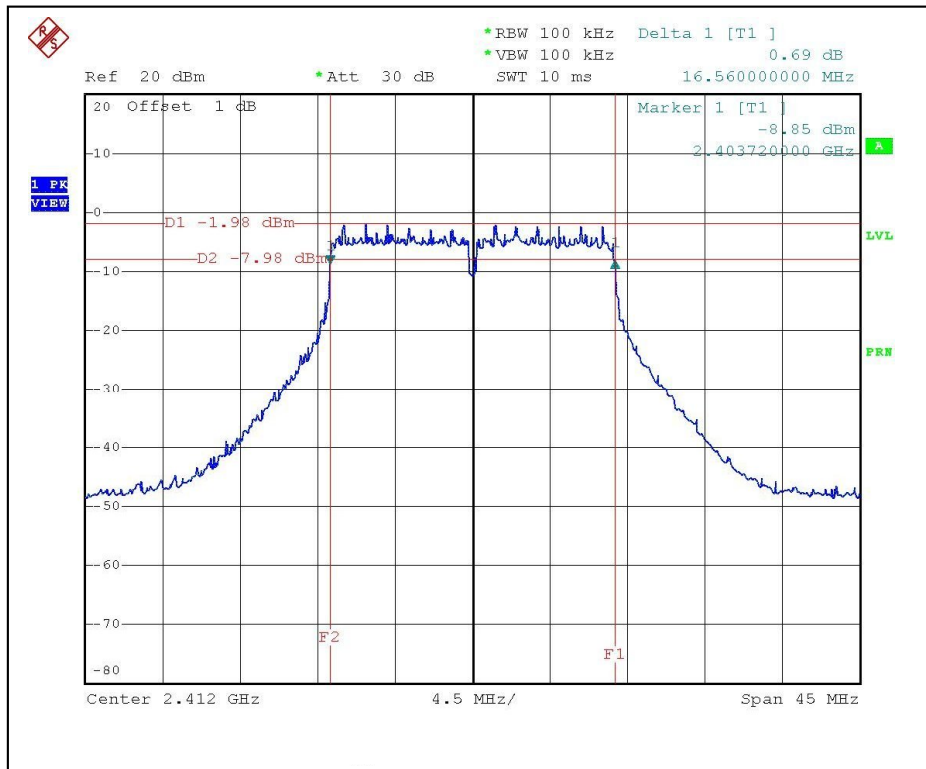


802.11g OFDM modulation

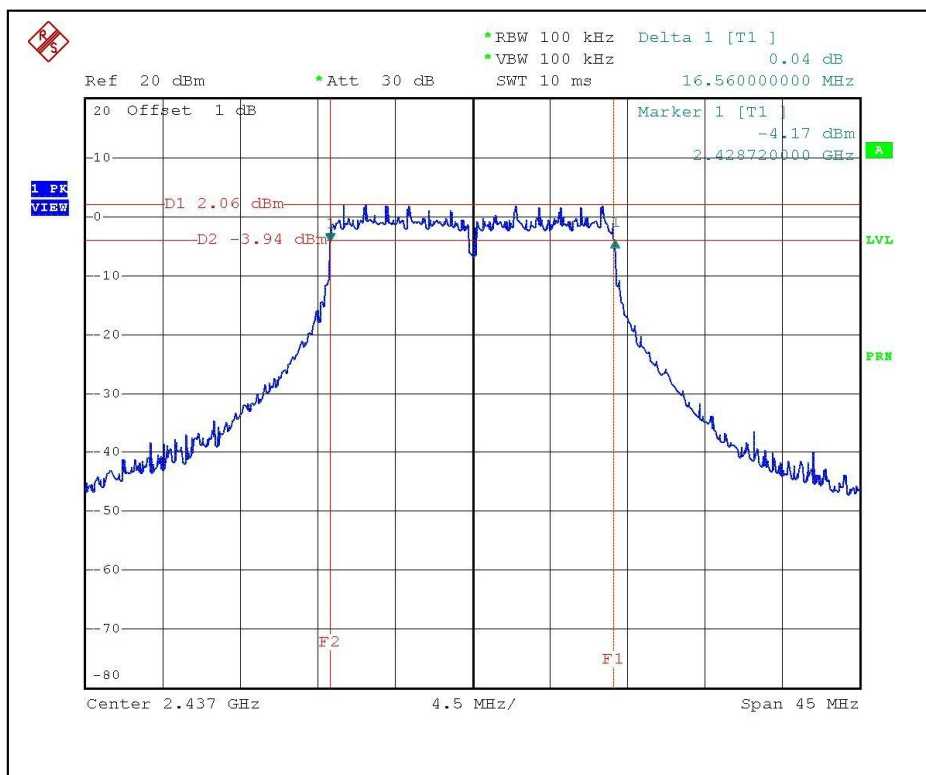
| | | | |
|-----------------------------|---------------|---------------------------------|-------------------------|
| MODULATION TYPE | BPSK | TRANSFER RATE | 6Mbps |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | ENVIRONMENTAL CONDITIONS | 18deg. C, 62%RH, 970hPa |
| TESTED BY | Eric Lee | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6 dB BANDWIDTH (MHz) | MINIMUM LIMIT (MHz) | PASS/FAIL |
|----------------|--------------------------------|-----------------------------|----------------------------|------------------|
| 1 | 2412 | 16.56 | 0.5 | PASS |
| 6 | 2437 | 16.56 | 0.5 | PASS |
| 11 | 2462 | 15.56 | 0.5 | PASS |

CH1



CH6



CH11

