# FCC TEST REPORT

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|---|---|
| **REPORT NO.:** | RF980507H07 |
| **MODEL NO.:** | CA1060 |
| **RECEIVED:** | May 07, 2009 |
| **TESTED:** | May 08 to 22, 2009 |
| **ISSUED:** | June 08, 2009 |

| | |
|---|---|
| **APPLICANT:** | Motorola Inc. |
| **ADDRESS:** | One Motorola Plaza Holtsville, NY 11742 |

| | |
|---|---|
| **ISSUED BY:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch |
| **LAB ADDRESS:** | No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan |

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# 1. CERTIFICATION

| | |
|---|---|
| **PRODUCT:** | WiFi Voice Communication Appliance |
| **BRAND NAME:** | MOTOROLA |
| **MODEL NO.:** | CA1060 |
| **TEST SAMPLE:** | MASS-PRODUCTION |
| **TESTED:** | May 08 to 22, 2009 |
| **APPLICANT:** | Motorola Inc. |
| **STANDARDS:** | FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003 |

The above equipment (Model: CA1060) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, 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:** June 08, 2009
( Carol Liao, Specialist )

**TECHNICAL ACCEPTANCE** : , **DATE:** June 08, 2009
Responsible for RF
( Hank Chung, Deputy Manager )

**APPROVED BY** : , **DATE:** June 08, 2009
(May Chen, Deputy Manager )

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247) | | | |
|---|---|---|---|
| **Standard Section** | **Test Type and Limit** | **Result** | **Remark** |
| 15.207 | AC Power Conducted Emission | NA | Not Applicable |
| 15.247(a)(2) | Spectrum Bandwidth of a Direct Sequence Spread Spectrum System<br>Limit: min. 500kHz | PASS | Meet the requirement of limit. |
| 15.247(b) | Maximum Peak Output Power<br>Limit: max. 30dBm | PASS | Meet the requirement of limit. |
| 15.247(d) | Radiated Emissions<br>Limit: Table 15.209 | PASS | Meet the requirement of limit.<br>Minimum passing margin is -4.21dB at 2390.00MHz |
| 15.247(e) | Power Spectral Density<br>Limit: max. 8dBm | PASS | Meet the requirement of limit. |
| 15.247(d) | Band Edge Measurement<br>Limit: 20dB 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 16-4-2:

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

**Below 1GHz:**

| Measurement | Value |
|---|---|
| Radiated emissions (30MHz-1GHz) | 3.94 dB |
| Radiated emissions (1GHz -18GHz) | 2.49 dB |
| Radiated emissions (18GHz -40GHz) | 2.70 dB |

**Above 1GHz:**

| Measurement | Value |
|---|---|
| Radiated emissions (30MHz-1GHz) | 3.83 dB |
| Radiated emissions (1GHz -18GHz) | 2.44 dB |
| Radiated emissions (18GHz -40GHz) | 2.67 dB |

# 3. GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| **PRODUCT** | WiFi Voice Communication Appliance |
| **MODEL NO.** | CA1060 |
| **FCC ID** | UZ7CA1060 |
| **POWER SUPPLY** | DC 3.9~4.2V from Battery |
| **MODULATION TYPE** | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM |
| **MODULATION TECHNOLOGY** | DSSS, OFDM |
| **TRANSFER RATE** | 802.11b: 11 / 5.5 / 2 / 1Mbps<br>802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps |
| **OPERATING FREQUENCY** | 2412 ~ 2462MHz |
| **MAXIMUM OUTPUT POWER** | 802.11b: 116.681mW<br>802.11g: 249.459mW |
| **ANTENNA TYPE** | PIFA antenna with -3.5 dBi antenna gain |
| **DATA CABLE** | NA |
| **I/O PORTS** | Female Socket Port x 1 |
| **ACCESSORY** | Headset (Brand: AAPC, Model: AEP-KT02D-02) |

**NOTE:**

1. The EUT was pre-tested in chamber under the following modes:

| Test Mode | Description |
|---|---|
| Mode A | X-Y plane |
| Mode B | Z-X plane |
| **Mode C** | **Z-Y plane** |

For radiated test mode, the worse case was found in **Mode C**. Therefore only the test data of the mode was recorded in this report.

2. The EUT was pre-tested in chamber under the following modes:

| Test Mode | Description |
|---|---|
| Mode 1 | EUT only |
| Mode 2 | EUT with headset |

For radiated test (Above 1 GHz), the worse case was found in **Mode 2**. Therefore only the test data of the mode was recorded in this report.

3. The EUT, operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b devices to the network. With its high-speed data transmissions of up to 54Mbps.

4. 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

Eleven channels are provided for 802.11b, 802.11g:

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

## 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

| EUT CONFIGURE MODE | APPLICABLE TO | | | | DESCRIPTION |
|---|---|---|---|---|---|
| | PLC | RE < 1G | RE ³ 1G | APCM | |
| MODE 1 | NA | √ | - | - | EUT only |
| MODE 2 | NA | √ | √ | √ | EUT with headset |

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

**RE ³ 1G:** Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

**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) | EUT CONFIGURE MODE |
|---|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1 | DSSS | DBPSK | 1 | MODE 1 |
| 802.11b | 1 to 11 | 1 | DSSS | DBPSK | 1 | MODE 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) | EUT CONFIGURE MODE |
|---|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1, 2, 3, 6, 10, 11 | DSSS | DBPSK | 1 | MODE 2 |
| 802.11g | 1 to 11 | 1, 2, 3, 6, 10, 11 | OFDM | BPSK | 6 | MODE 2 |

**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) | EUT CONFIGURE MODE |
|---|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1, 2, 3, 6, 10, 11 | DSSS | DBPSK | 1 | MODE 2 |
| 802.11g | 1 to 11 | 1, 2, 3, 6, 10, 11 | OFDM | BPSK | 6 | MODE 2 |

**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) | EUT CONFIGURE MODE |
|---|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1, 6, 11 | DSSS | DBPSK | 1 | MODE 2 |
| 802.11g | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 6 | MODE 2 |

## 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**FCC Part 15, Subpart C. (15.247)**
**ANSI C63.4-2003**

All test items 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 FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

## 3.4 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.

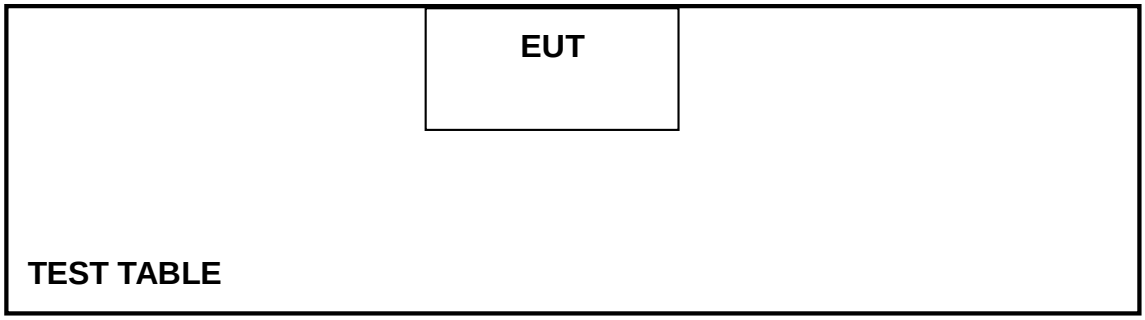
| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|---|---|---|---|---|---|
| 1 | Headset | AAPC | AEP-KT02D-02 | NA | NA |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|---|---|
| 1 | 56 cm Headset cable with male plug |

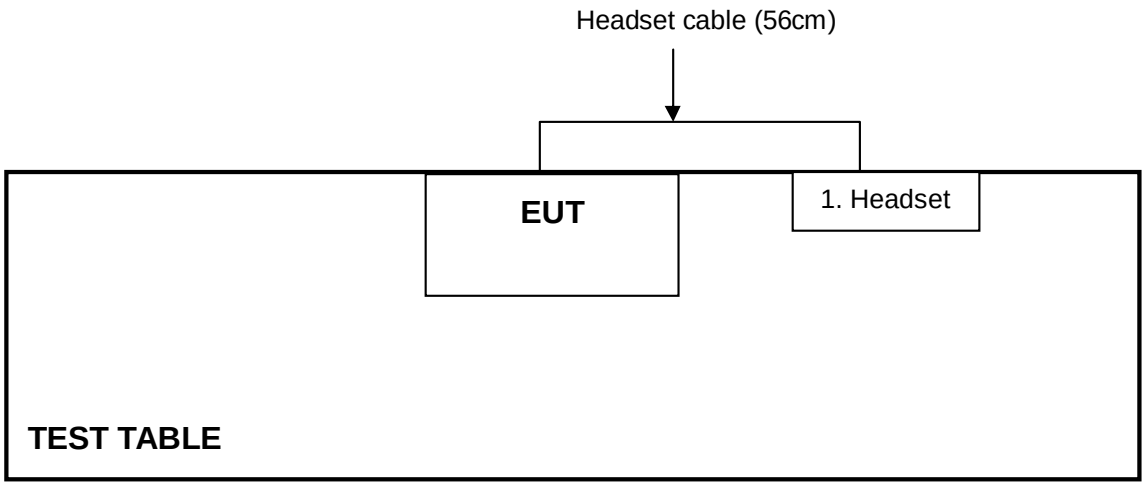
**NOTE:** All power cords of the above support units are non shielded (1.8m).

## 3.5 CONFIGURATION OF SYSTEM UNDER TEST

**For Radiated test (EUT only):**




**For Radiated test (EUT with headset):**



# 4.TEST TYPES AND RESULTS

## 4.1 RADIATED EMISSION MEASUREMENT

### 4.1.1 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.

## 4.1.2 TEST INSTRUMENTS

**Below 1GHz:**

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| ROHDE & SCHWARZ Spectrum Analyzer | FSP40 | 100036 | Dec. 9, 2008 | Dec. 08, 2009 |
| HP Pre_Amplifier | 8449B | 3008A01923 | Nov. 10, 2008 | Nov. 09, 2009 |
| ROHDE & SCHWARZ Test Receiver | ESCS30 | 847124/029 | Sep. 9, 2008 | Sep. 08, 2009 |
| SCHWARZBECK TRILOG Broadband Antenna | VULB 9168 | 138 | April 29, 2009 | April 28, 2010 |
| Schwarzbeck Horn_Antenna | BBHA9120 | D124 | Dec. 09, 2008 | Dec. 08, 2009 |
| Schwarzbeck Horn_Antenna | BBHA 9170 | BBHA9170153 | Jan. 22, 2009 | Jan. 21, 2010 |
| R&S Loop Antenna | HFH2-Z2 | 100070 | Jan. 14, 2008 | Jan. 13, 2010 |
| RF Switches | EMH-011 | 08009 | Oct. 07, 2008 | Oct. 06, 2009 |
| RF CABLE (Chaintek) | Sucoflex 106 | 28077 | Aug. 15, 2008 | Aug. 14, 2009 |
| RF Cable | 8DFB | STCCAB-30M-1GHz | Oct. 07, 2008 | Oct. 06, 2009 |
| Software | ADT_Radiated_V7.6.15.9.2 | NA | NA | NA |
| CT Antenna Tower & Turn Table | NA | NA | 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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 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 7450G-3.

## Above 1GHz:

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|---|---|---|---|---|
| ADVANTEST Spectrum Analyzer | U3751 | 17010023 | July. 31, 2008 | July. 30, 2009 |
| ADVANTEST Spectrum Analyzer | U3772 | 160100280 | July 26, 2008 | July 25, 2009 |
| HP Pre_Amplifier | 8449B | 3008A01922 | Sep. 25, 2008 | Sep. 24, 2009 |
| ROHDE & SCHWARZ Test Receiver | ESVS 30 | 841977/002 | Nov. 03, 2008 | Nov. 02, 2009 |
| SCHAFFNER(CHASE) Broadband Antenna | CBL6112B | 2798 | April 29, 2009 | April 28, 2010 |
| Schwarzbeck Horn_Antenna | BBHA9120-D1 | D123 | Sep. 30, 2008 | Sep. 29, 2009 |
| Schwarzbeck Horn_Antenna | BBHA 9170 | BBHA9170153 | Jan. 23, 2009 | Jan. 22, 2010 |
| RF Switches | MP59B | 6100175593 | Sep. 02, 2008 | Sep. 01, 2009 |
| RF Cable | 8DFB | STBCAB-30M-1GHz | Sep. 02, 2008 | Sep. 01, 2009 |
| Software | ADT_Radiated_V7.6.15.9.2 | NA | NA | NA |
| CT Antenna Tower & Turn Table | NA | NA | NA | NA |
| CORCOM AC Filter | MRI2030 | 024/019 | 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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: U3772) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. B.
4. The VCCI Site Registration No. is R-847.
5. The FCC Site Registration No. is 92753.
6. The CANADA Site Registration No. is IC 7450G-2.

### 4.1.3 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.

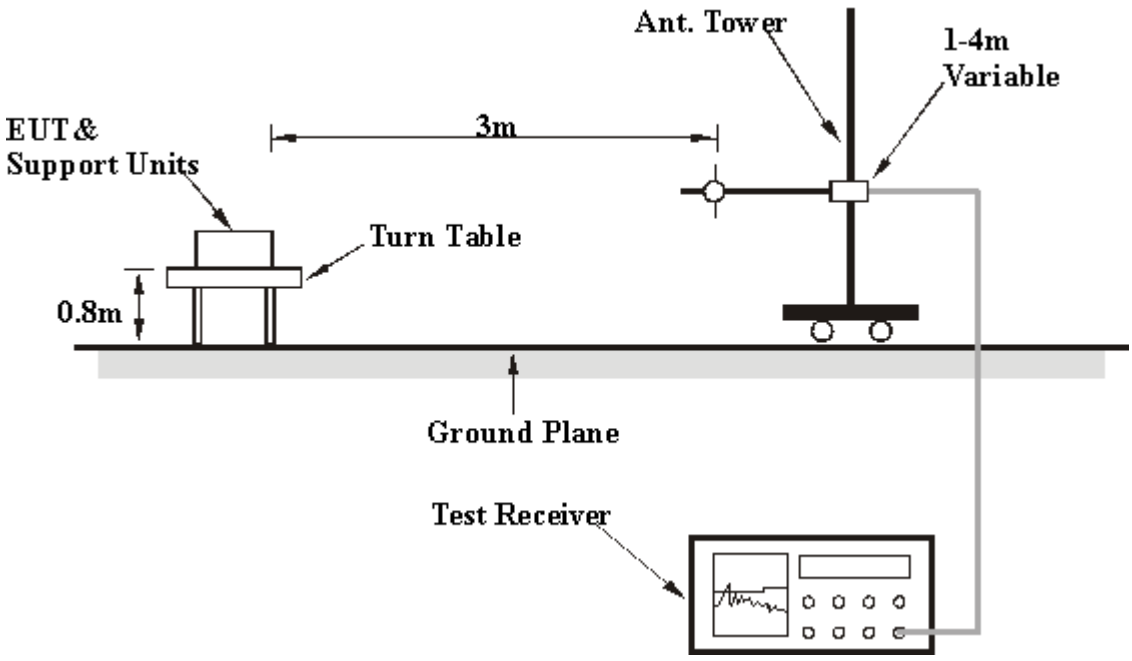
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection 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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP




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

4.1.6 EUT OPERATING CONDITIONS

**For EUT only:**

1. Set the EUT under transmission/ receiver condition continuously at specific channel frequency.

**For EUT with headset:**

1. Set the EUT under transmission/ receiver condition continuously at specific channel frequency.
2. EUT sound comes out from the support unit 1 (Headset).

## 4.1.7 TEST RESULTS

**BELOW 1GHz WORST-CASE DATA：802.11b DSSS MODULATION**

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| **CHANNEL** | Channel 1 | **FREQUENCY RANGE** | Below 1000MHz |
| **INPUT POWER** | DC 3.9~4.2V from Battery | **DETECTOR FUNCTION** | Quasi-Peak |
| **ENVIRONMENTAL CONDITIONS** | 31deg. C, 59%RH 965hPa | **TESTED BY** | Eric Lee |
| **TEST MODE** | Mode 1 | | |

| 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 | 127.12 | 26.81 QP | 43.50 | -16.69 | 1.25 H | 47 | 13.53 | 13.28 |
| 2 | 136.42 | 27.12 QP | 43.50 | -16.38 | 1.11 H | 96 | 12.88 | 14.24 |
| 3 | 144.68 | 27.98 QP | 43.50 | -15.52 | 1.02 H | 247 | 12.81 | 15.17 |
| 4 | 156.81 | 25.30 QP | 43.50 | -18.20 | 1.63 H | 203 | 9.79 | 15.51 |
| 5 | 200.00 | 24.12 QP | 43.50 | -19.38 | 1.42 H | 236 | 11.73 | 12.39 |
| 6 | 600.00 | 25.10 QP | 46.00 | -20.90 | 1.82 H | 326 | 0.06 | 25.04 |
| **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 | 121.92 | 27.21 QP | 43.50 | -16.29 | 1.56 V | 324 | 14.46 | 12.75 |
| 2 | 126.41 | 26.31 QP | 43.50 | -17.19 | 1.02 V | 192 | 13.10 | 13.21 |
| 3 | 135.42 | 23.10 QP | 43.50 | -20.40 | 1.69 V | 296 | 8.96 | 14.14 |
| 4 | 199.98 | 28.25 QP | 43.50 | -15.25 | 1.46 V | 231 | 15.86 | 12.39 |
| 5 | 260.01 | 28.20 QP | 46.00 | -17.80 | 1.01 V | 2 | 13.47 | 14.73 |
| 6 | 849.99 | 26.30 QP | 46.00 | -19.70 | 1.65 V | 62 | -2.49 | 28.79 |

**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.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | Below 1000MHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 31deg. C, 59%RH 965hPa | TESTED BY | Eric Lee |
| TEST MODE | Mode 2 | | |

| 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 | 127.10 | 26.10 QP | 43.50 | -17.40 | 1.24 H | 51 | 12.82 | 13.28 |
| 2 | 136.40 | 28.90 QP | 43.50 | -14.60 | 1.25 H | 350 | 14.66 | 14.24 |
| 3 | 144.70 | 26.16 QP | 43.50 | -17.34 | 1.16 H | 210 | 10.98 | 15.18 |
| 4 | 156.80 | 24.90 QP | 43.50 | -18.60 | 1.47 H | 9 | 9.39 | 15.51 |
| 5 | 199.99 | 23.97 QP | 43.50 | -19.53 | 1.35 H | 237 | 11.58 | 12.39 |
| 6 | 599.99 | 26.10 QP | 46.00 | -19.90 | 1.20 H | 75 | 1.06 | 25.04 |
| 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 | 121.97 | 28.25 QP | 43.50 | -15.25 | 1.98 V | 65 | 15.50 | 12.75 |
| 2 | 126.41 | 25.14 QP | 43.50 | -18.36 | 1.85 V | 236 | 11.93 | 13.21 |
| 3 | 135.41 | 24.31 QP | 43.50 | -19.19 | 1.98 V | 63 | 10.17 | 14.14 |
| 4 | 199.98 | 28.25 QP | 43.50 | -15.25 | 1.46 V | 231 | 15.86 | 12.39 |
| 5 | 259.98 | 29.64 QP | 46.00 | -16.36 | 1.10 V | 249 | 14.91 | 14.73 |
| 6 | 850.01 | 27.54 QP | 46.00 | -18.46 | 1.28 V | 98 | -1.25 | 28.79 |

**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

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 54.29 PK | 74.00 | -19.71 | 1.69 H | 1 | 23.89 | 30.40 |
| 2 | 2390.00 | 43.43 AV | 54.00 | -10.57 | 1.69 H | 1 | 13.03 | 30.40 |
| 3 | *2412.00 | 102.50 PK | | | 1.69 H | 1 | 72.01 | 30.49 |
| 4 | *2412.00 | 95.43 AV | | | 1.69 H | 1 | 64.94 | 30.49 |
| 5 | 4824.00 | 45.95 PK | 74.00 | -28.05 | 1.71 H | 322 | 10.26 | 35.69 |
| 6 | 4824.00 | 33.62 AV | 54.00 | -20.38 | 1.71 H | 322 | -2.07 | 35.69 |
| 7 | #7236.00 | 52.37 PK | 82.50 | -30.13 | 1.47 H | 284 | 10.13 | 42.24 |
| 8 | #7236.00 | 39.24 AV | 75.43 | -36.19 | 1.47 H | 284 | -3.00 | 42.24 |
| 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 | 54.19 PK | 74.00 | -19.81 | 1.01 V | 99 | 23.79 | 30.40 |
| 2 | 2390.00 | 43.24 AV | 54.00 | -10.76 | 1.01 V | 99 | 12.84 | 30.40 |
| 3 | *2412.00 | 106.29 PK | | | 1.00 V | 79 | 75.80 | 30.49 |
| 4 | *2412.00 | 100.62 AV | | | 1.00 V | 79 | 70.13 | 30.49 |
| 5 | 4824.00 | 46.43 PK | 74.00 | -27.57 | 1.40 V | 129 | 10.74 | 35.69 |
| 6 | 4824.00 | 34.29 AV | 54.00 | -19.71 | 1.40 V | 129 | -1.40 | 35.69 |
| 7 | #7236.00 | 52.40 PK | 86.29 | -33.89 | 1.04 V | 23 | 10.16 | 42.24 |
| 8 | #7236.00 | 38.10 AV | 80.62 | -42.52 | 1.04 V | 23 | -4.14 | 42.24 |

**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. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 2 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 2388.00 | 57.40 PK | 74.00 | -16.60 | 1.00 H | 198 | 27.01 | 30.39 |
| 2 | 2388.00 | 46.71 AV | 54.00 | -7.29 | 1.00 H | 198 | 16.32 | 30.39 |
| 3 | *2417.00 | 107.60 PK | | | 1.00 H | 200 | 77.08 | 30.52 |
| 4 | *2417.00 | 100.79 AV | | | 1.00 H | 200 | 70.27 | 30.52 |
| 5 | 4834.00 | 45.84 PK | 74.00 | -28.16 | 1.68 H | 314 | 10.13 | 35.71 |
| 6 | 4834.00 | 33.57 AV | 54.00 | -20.43 | 1.68 H | 314 | -2.14 | 35.71 |
| 7 | 7251.00 | 52.24 PK | 74.00 | -21.76 | 1.43 H | 284 | 9.95 | 42.29 |
| 8 | 7251.00 | 39.14 AV | 54.00 | -14.86 | 1.43 H | 284 | -3.15 | 42.29 |
| 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 | 59.52 PK | 74.00 | -14.48 | 1.02 V | 148 | 29.12 | 30.40 |
| 2 | 2390.00 | 48.92 AV | 54.00 | -5.08 | 1.02 V | 148 | 18.52 | 30.40 |
| 3 | *2417.00 | 109.70 PK | | | 1.00 V | 74 | 79.18 | 30.52 |
| 4 | *2417.00 | 104.10 AV | | | 1.00 V | 74 | 73.58 | 30.52 |
| 5 | 4834.00 | 46.23 PK | 74.00 | -27.77 | 1.43 V | 131 | 10.52 | 35.71 |
| 6 | 4834.00 | 34.13 AV | 54.00 | -19.87 | 1.43 V | 131 | -1.58 | 35.71 |
| 7 | 7251.00 | 53.24 PK | 74.00 | -20.76 | 1.04 V | 29 | 10.95 | 42.29 |
| 8 | 7251.00 | 38.42 AV | 54.00 | -15.58 | 1.04 V | 29 | -3.87 | 42.29 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 3 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 2382.00 | 55.88 PK | 74.00 | -18.12 | 1.74 H | 348 | 25.52 | 30.36 |
| 2 | 2382.00 | 44.80 AV | 54.00 | -9.20 | 1.74 H | 348 | 14.44 | 30.36 |
| 3 | *2422.00 | 109.60 PK | | | 1.73 H | 341 | 79.06 | 30.54 |
| 4 | *2422.00 | 102.80 AV | | | 1.73 H | 341 | 72.26 | 30.54 |
| 5 | 4844.00 | 47.12 PK | 74.00 | -26.88 | 1.64 H | 314 | 11.38 | 35.74 |
| 6 | 4844.00 | 35.63 AV | 54.00 | -18.37 | 1.64 H | 314 | -0.11 | 35.74 |
| 7 | 7266.00 | 52.37 PK | 74.00 | -21.63 | 1.44 H | 296 | 10.02 | 42.35 |
| 8 | 7266.00 | 39.23 AV | 54.00 | -14.77 | 1.44 H | 296 | -3.12 | 42.35 |
| 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 | 2382.00 | 58.33 PK | 74.00 | -15.67 | 1.02 V | 149 | 27.97 | 30.36 |
| 2 | 2382.00 | 47.90 AV | 54.00 | -6.10 | 1.02 V | 149 | 17.54 | 30.36 |
| 3 | *2422.00 | 110.80 PK | | | 1.04 V | 83 | 80.26 | 30.54 |
| 4 | *2422.00 | 106.30 AV | | | 1.04 V | 83 | 75.76 | 30.54 |
| 5 | 4844.00 | 47.93 PK | 74.00 | -26.07 | 1.37 V | 124 | 12.19 | 35.74 |
| 6 | 4844.00 | 36.21 AV | 54.00 | -17.79 | 1.37 V | 124 | 0.47 | 35.74 |
| 7 | 7266.00 | 52.84 PK | 74.00 | -21.16 | 1.07 V | 34 | 10.49 | 42.35 |
| 8 | 7266.00 | 38.24 AV | 54.00 | -15.76 | 1.07 V | 34 | -4.11 | 42.35 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 6 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 107.95 PK | | | 1.72 H | 0 | 77.34 | 30.61 |
| 2 | *2437.00 | 100.65 AV | | | 1.72 H | 0 | 70.04 | 30.61 |
| 3 | 4874.00 | 47.29 PK | 74.00 | -26.71 | 1.68 H | 318 | 11.49 | 35.80 |
| 4 | 4874.00 | 35.98 AV | 54.00 | -18.02 | 1.68 H | 318 | 0.18 | 35.80 |
| 5 | 7311.00 | 52.22 PK | 74.00 | -21.78 | 1.47 H | 298 | 9.70 | 42.52 |
| 6 | 7311.00 | 39.05 AV | 54.00 | -14.95 | 1.47 H | 298 | -3.47 | 42.52 |
| 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 | 111.61 PK | | | 1.00 V | 84 | 81.00 | 30.61 |
| 2 | *2437.00 | 105.11 AV | | | 1.00 V | 84 | 74.50 | 30.61 |
| 3 | 4874.00 | 48.60 PK | 74.00 | -25.40 | 1.53 V | 326 | 12.80 | 35.80 |
| 4 | 4874.00 | 36.99 AV | 54.00 | -17.01 | 1.53 V | 326 | 1.19 | 35.80 |
| 5 | 7311.00 | 52.19 PK | 74.00 | -21.81 | 1.01 V | 11 | 9.67 | 42.52 |
| 6 | 7311.00 | 37.94 AV | 54.00 | -16.06 | 1.01 V | 11 | -4.58 | 42.52 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 10 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 22deg. C, 68%RH 965hPa | TESTED BY | Duke Tseng |

| 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 | *2457.00 | 106.70 PK | | | 1.76 H | 342 | 76.00 | 30.70 |
| 2 | *2457.00 | 100.60 AV | | | 1.76 H | 342 | 69.90 | 30.70 |
| 3 | 2483.50 | 54.86 PK | 74.00 | -19.14 | 1.73 H | 339 | 24.04 | 30.82 |
| 4 | 2483.50 | 44.78 AV | 54.00 | -9.22 | 1.73 H | 339 | 13.96 | 30.82 |
| 5 | 4914.00 | 47.13 PK | 74.00 | -26.87 | 1.62 H | 310 | 11.25 | 35.88 |
| 6 | 4914.00 | 35.26 AV | 54.00 | -18.74 | 1.62 H | 310 | -0.62 | 35.88 |
| 7 | 7371.00 | 52.63 PK | 74.00 | -21.37 | 1.43 H | 284 | 9.89 | 42.74 |
| 8 | 7371.00 | 38.22 AV | 54.00 | -15.78 | 1.43 H | 284 | -4.52 | 42.74 |
| 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 | *2457.00 | 110.70 PK | | | 1.03 V | 94 | 80.00 | 30.70 |
| 2 | *2457.00 | 106.10 AV | | | 1.03 V | 94 | 75.40 | 30.70 |
| 3 | 2483.50 | 60.16 PK | 74.00 | -13.84 | 1.01 V | 147 | 29.34 | 30.82 |
| 4 | 2483.50 | 47.11 AV | 54.00 | -6.89 | 1.01 V | 147 | 16.29 | 30.82 |
| 5 | 4914.00 | 47.72 PK | 74.00 | -26.28 | 1.27 V | 129 | 11.84 | 35.88 |
| 6 | 4914.00 | 35.63 AV | 54.00 | -18.37 | 1.27 V | 129 | -0.25 | 35.88 |
| 7 | 7371.00 | 52.23 PK | 74.00 | -21.77 | 1.04 V | 31 | 9.49 | 42.74 |
| 8 | 7371.00 | 37.93 AV | 54.00 | -16.07 | 1.04 V | 31 | -4.81 | 42.74 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 11 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 102.47 PK | | | 1.01 H | 79 | 71.75 | 30.72 |
| 2 | *2462.00 | 94.98 AV | | | 1.01 H | 79 | 64.26 | 30.72 |
| 3 | 2493.90 | 55.91 PK | 74.00 | -18.09 | 1.02 H | 95 | 25.09 | 30.86 |
| 4 | 2493.90 | 43.93 AV | 54.00 | -10.07 | 1.02 H | 95 | 13.07 | 30.86 |
| 5 | 4924.00 | 46.58 PK | 74.00 | -27.42 | 1.49 H | 138 | 10.68 | 35.90 |
| 6 | 4924.00 | 34.11 AV | 54.00 | -19.89 | 1.49 H | 138 | -1.79 | 35.90 |
| 7 | 7386.00 | 52.08 PK | 74.00 | -21.92 | 1.11 H | 63 | 9.28 | 42.80 |
| 8 | 7386.00 | 37.11 AV | 54.00 | -16.89 | 1.11 H | 63 | -5.69 | 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 | 106.27 PK | | | 1.68 V | 58 | 75.55 | 30.72 |
| 2 | *2462.00 | 100.85 AV | | | 1.68 V | 58 | 70.13 | 30.72 |
| 3 | 2483.50 | 55.42 PK | 74.00 | -18.58 | 1.73 V | 15 | 24.56 | 30.82 |
| 4 | 2483.50 | 43.93 AV | 54.00 | -10.07 | 1.73 V | 15 | 13.11 | 30.82 |
| 5 | 4924.00 | 45.58 PK | 74.00 | -28.42 | 1.69 V | 350 | 9.68 | 35.90 |
| 6 | 4924.00 | 33.72 AV | 54.00 | -20.28 | 1.69 V | 350 | -2.18 | 35.90 |
| 7 | 7386.00 | 52.61 PK | 74.00 | -21.39 | 1.53 V | 271 | 9.81 | 42.80 |
| 8 | 7386.00 | 38.65 AV | 54.00 | -15.35 | 1.53 V | 271 | -4.15 | 42.80 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

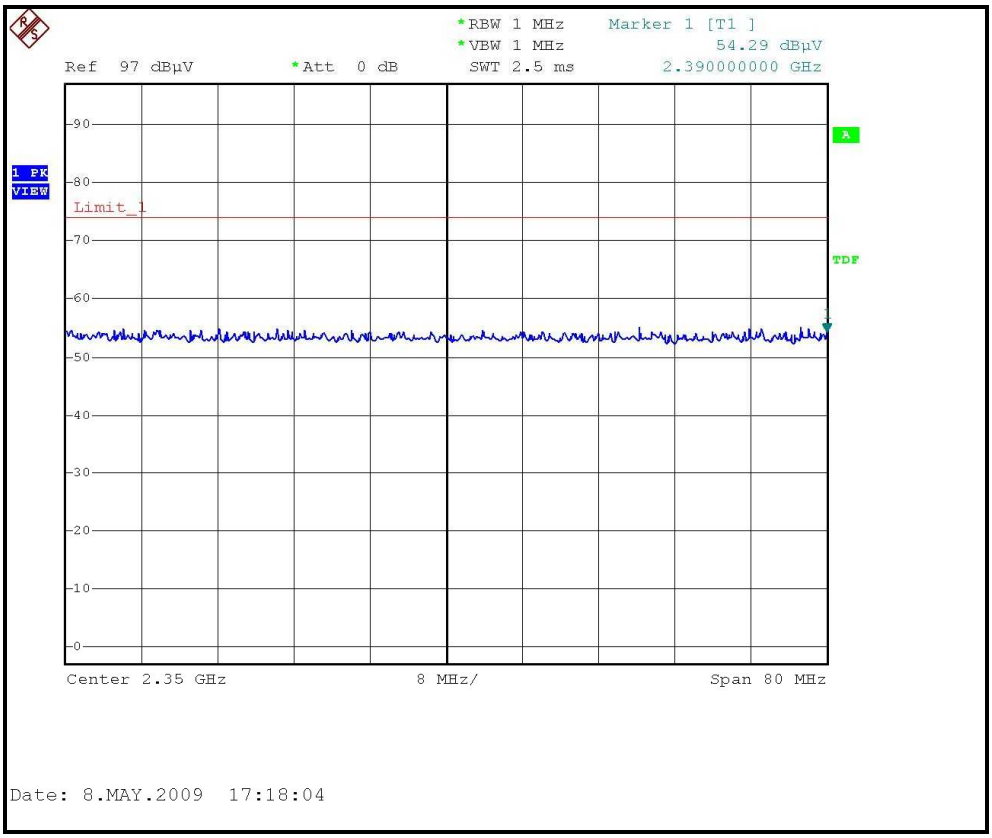
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

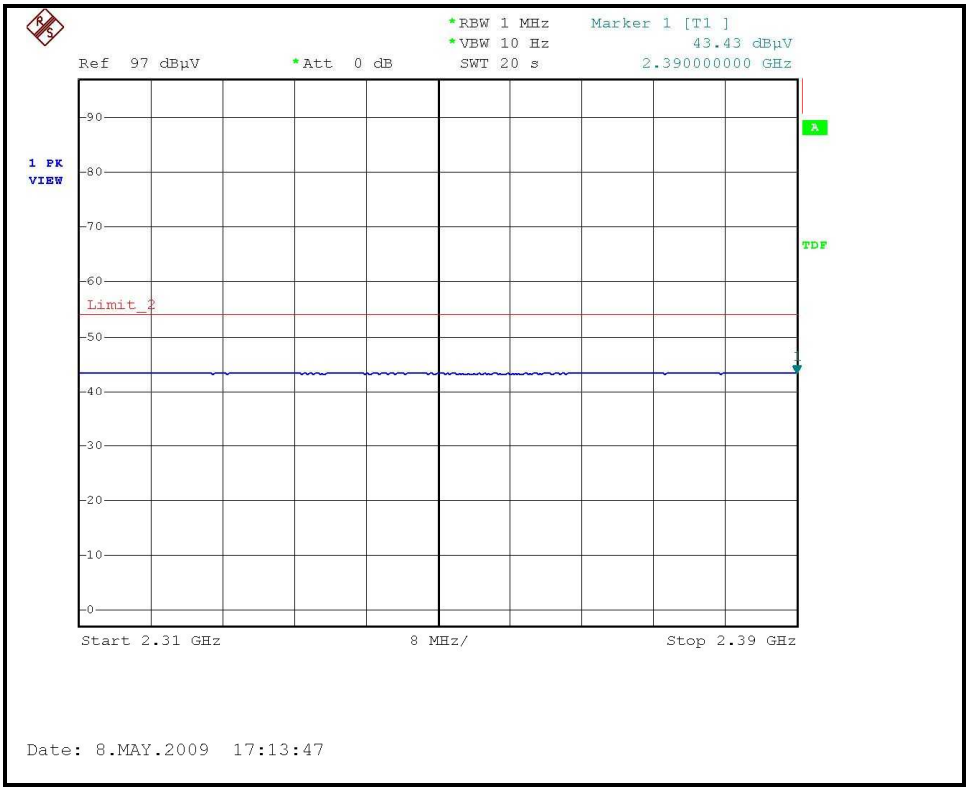
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

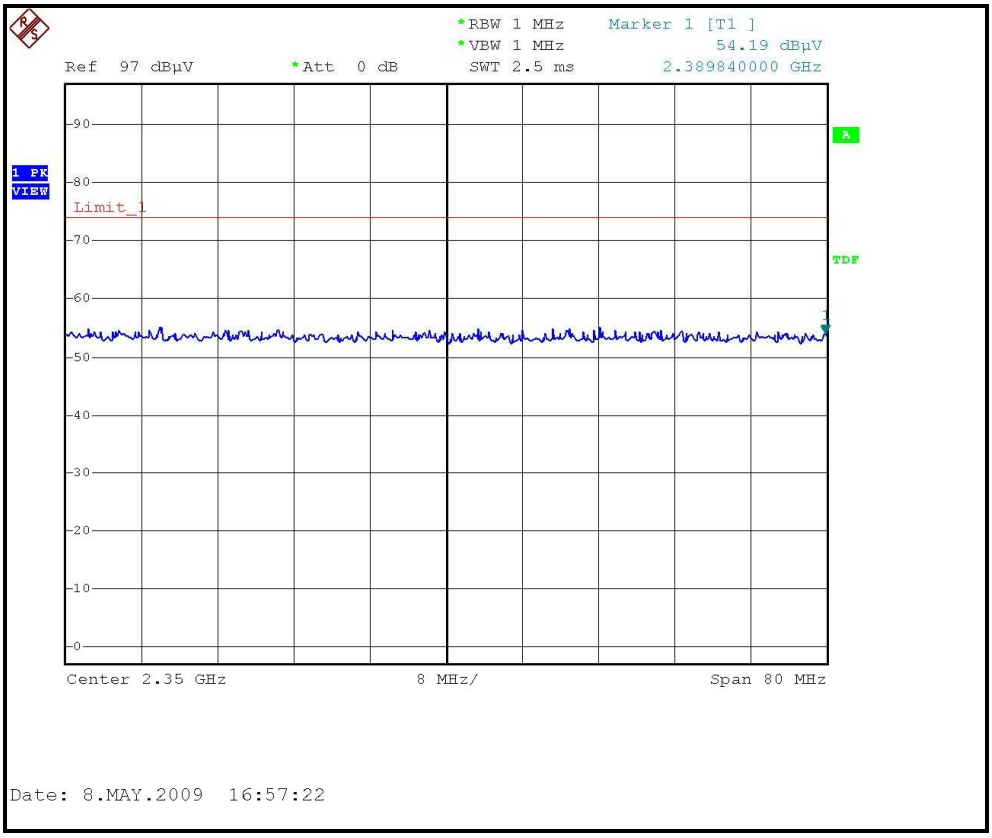
5. " * ": Fundamental frequency.

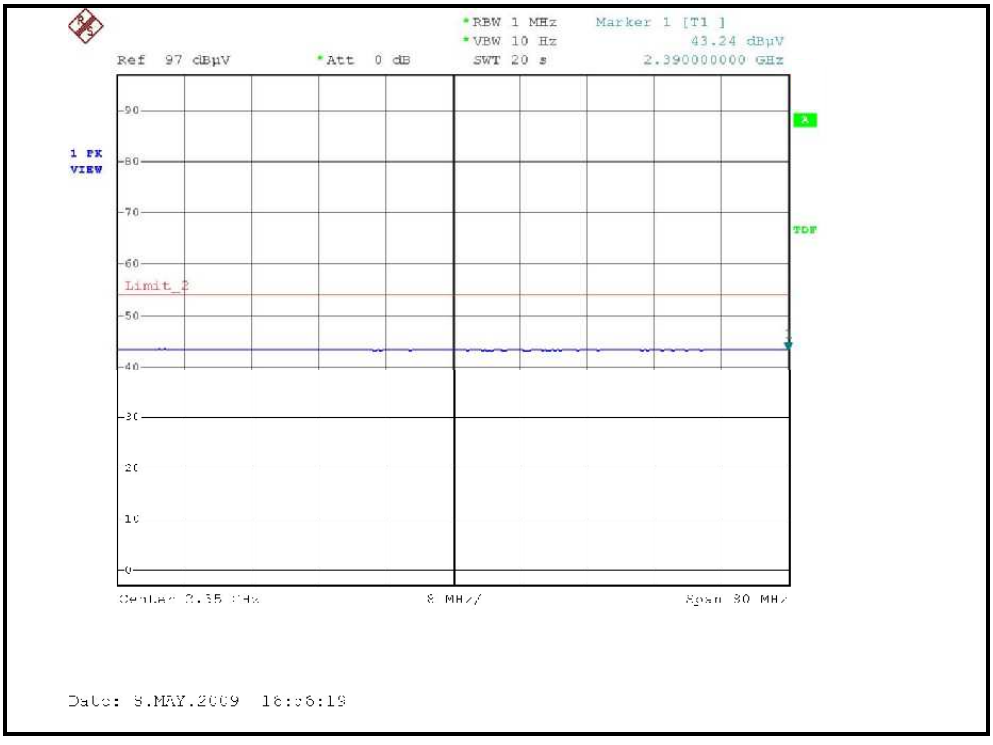
RESTRICTED BANDEDGE (802.11b MODE,CH 1, HORIZONTAL )



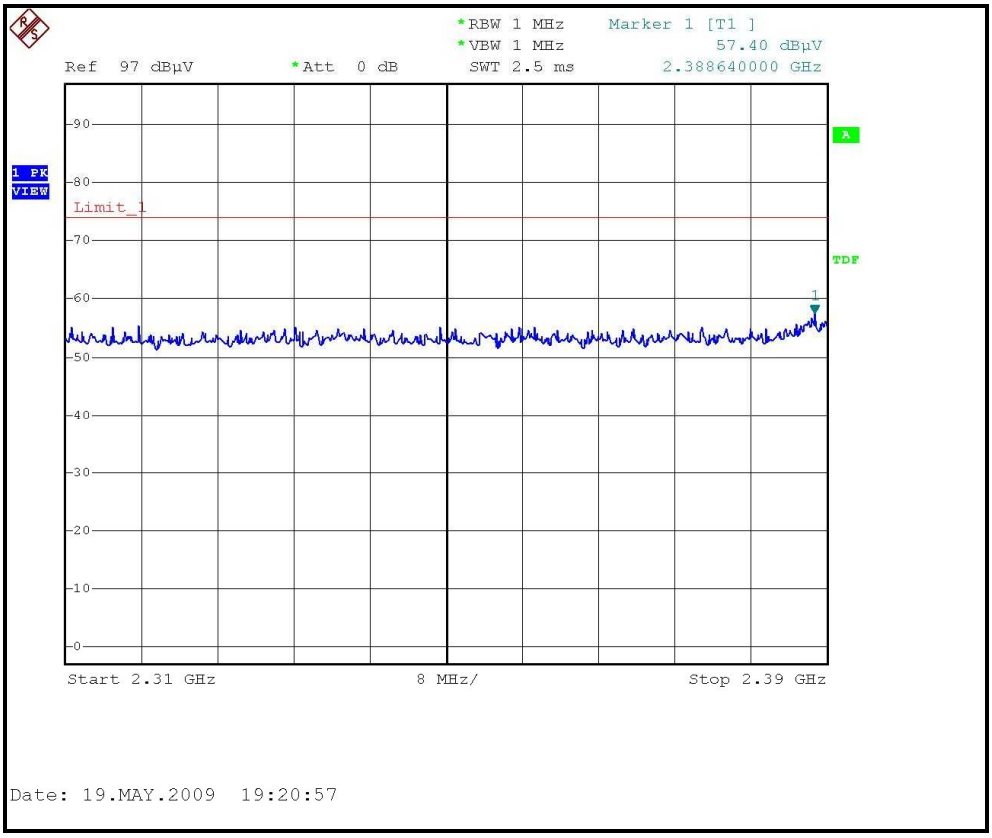



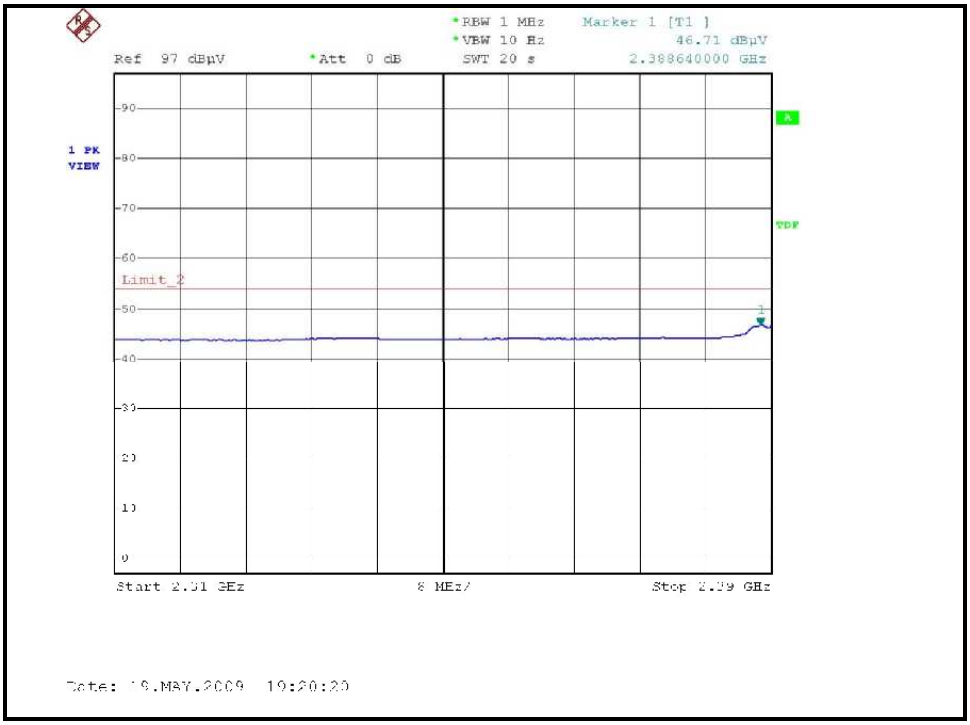
RESTRICTED BANDEDGE (802.11b MODE,CH 1, VERTICAL )



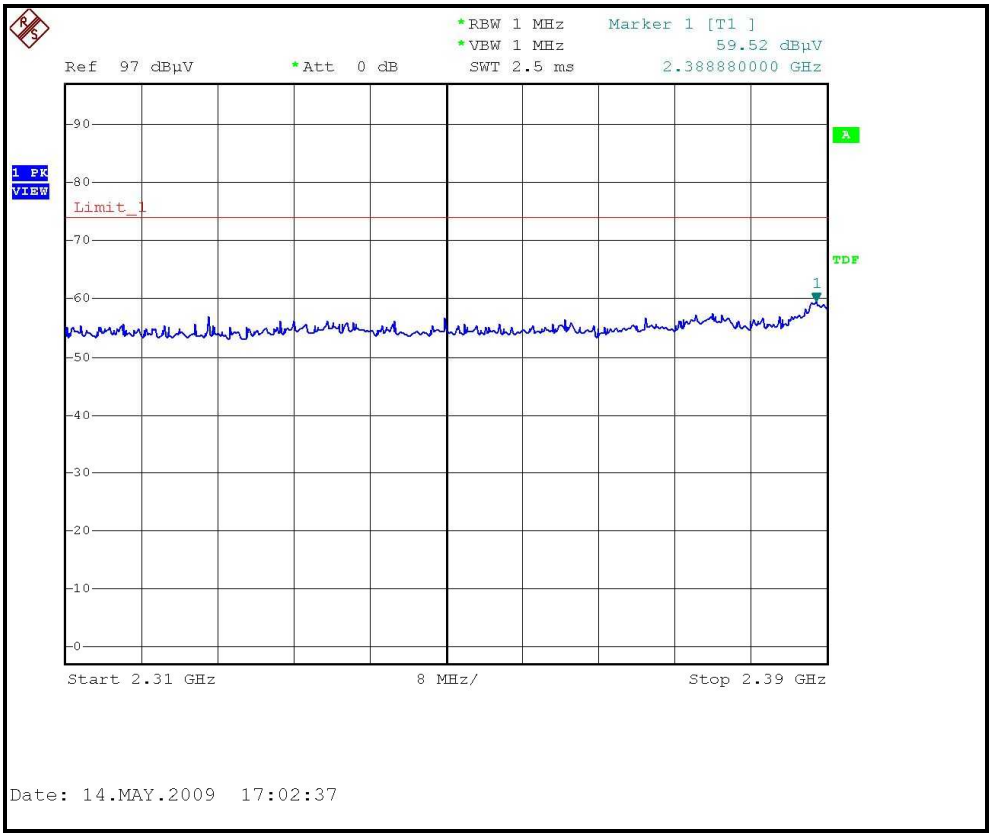



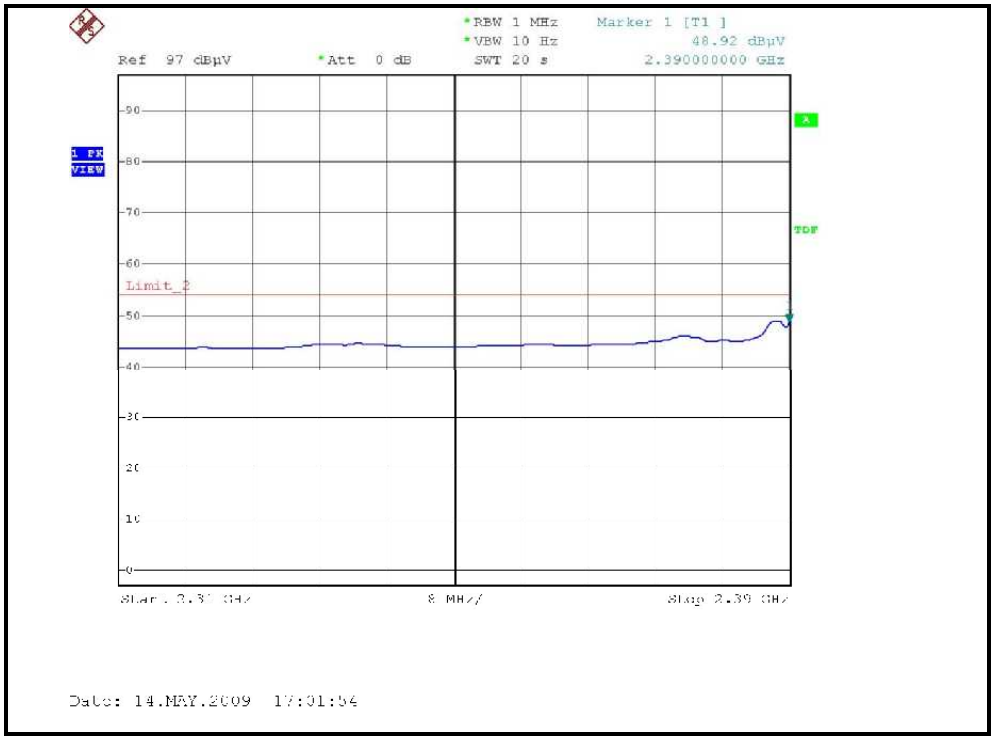
RESTRICTED BANDEDGE (802.11b MODE,CH 2, HORIZONTAL )



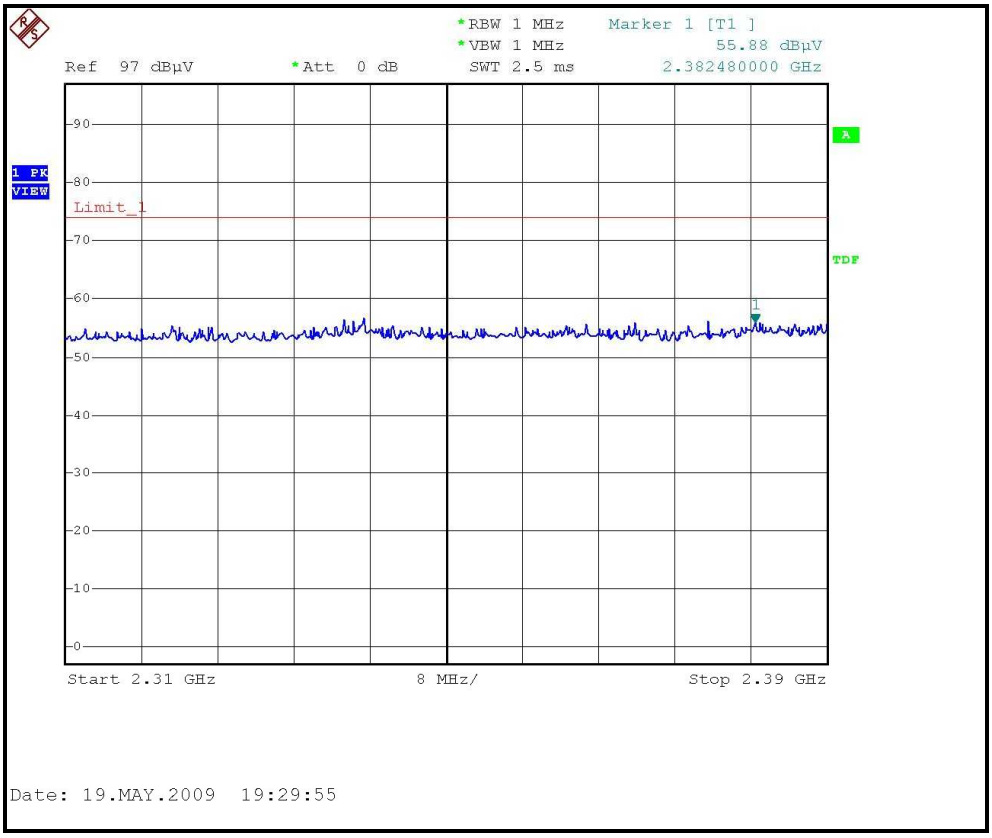



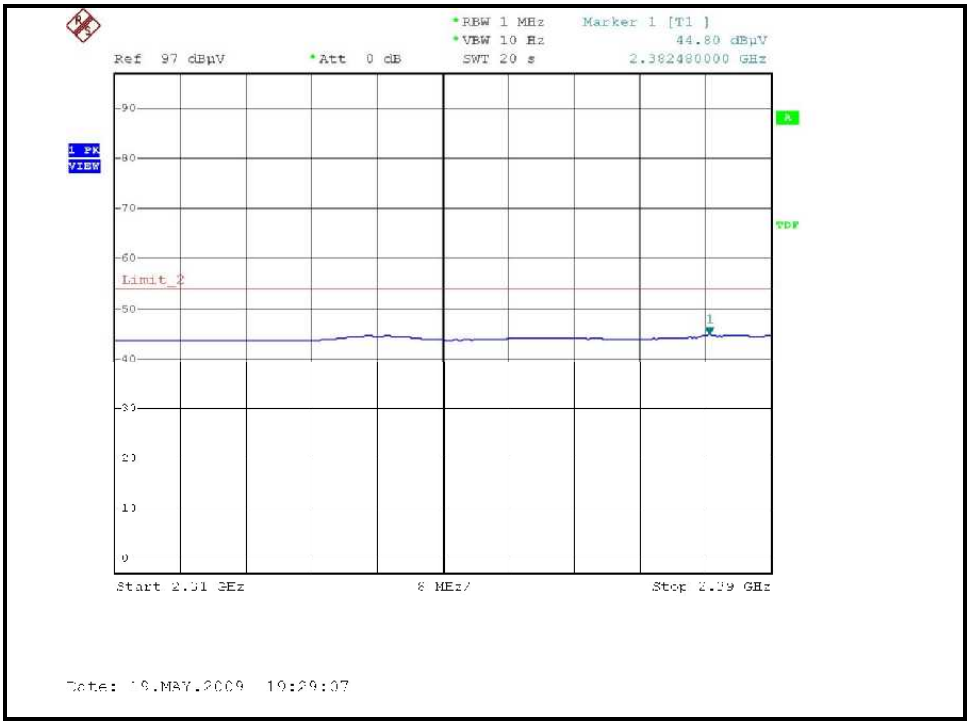
RESTRICTED BANDEDGE (802.11b MODE,CH 2, VERTICAL )



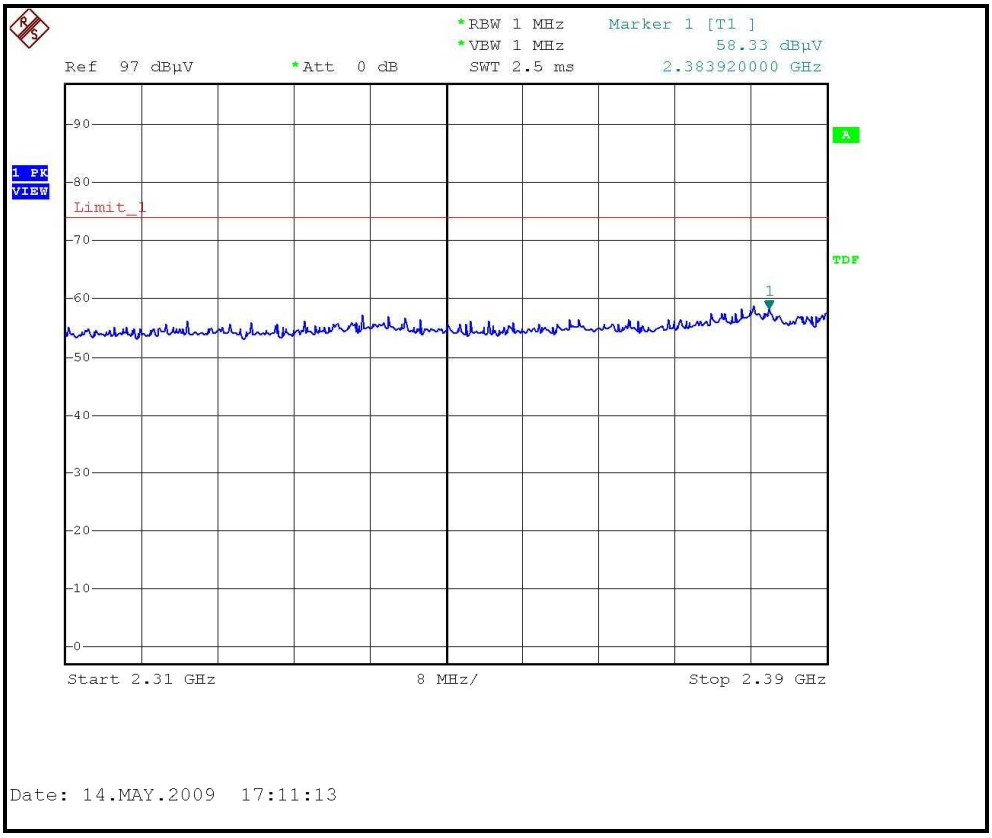



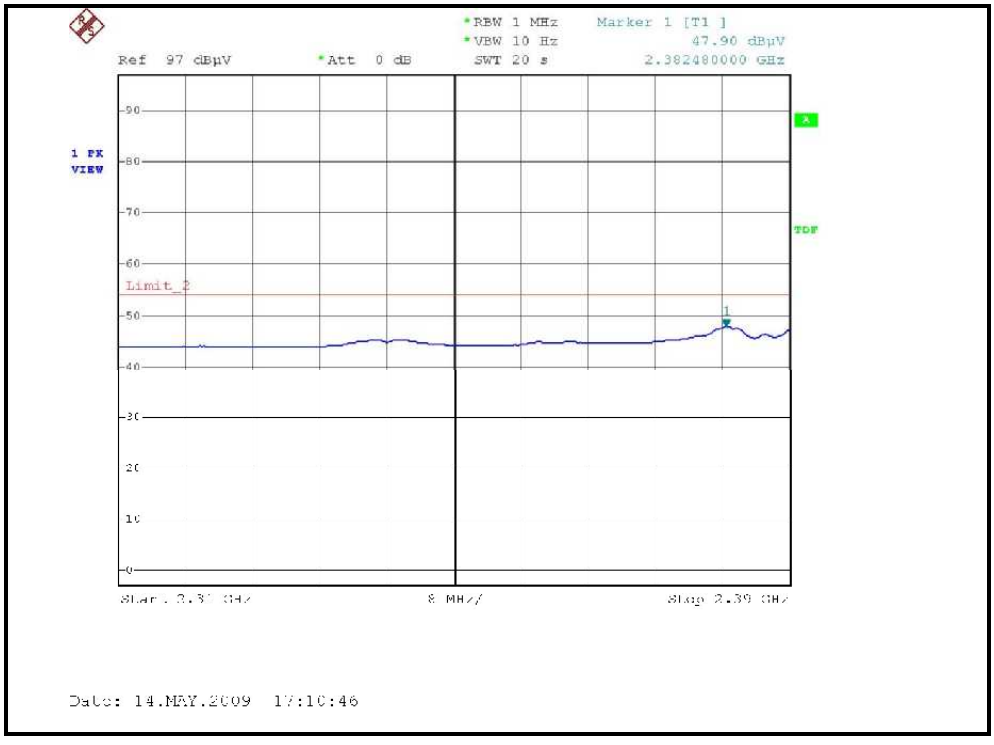
RESTRICTED BANDEDGE (802.11b MODE,CH 3, HORIZONTAL )



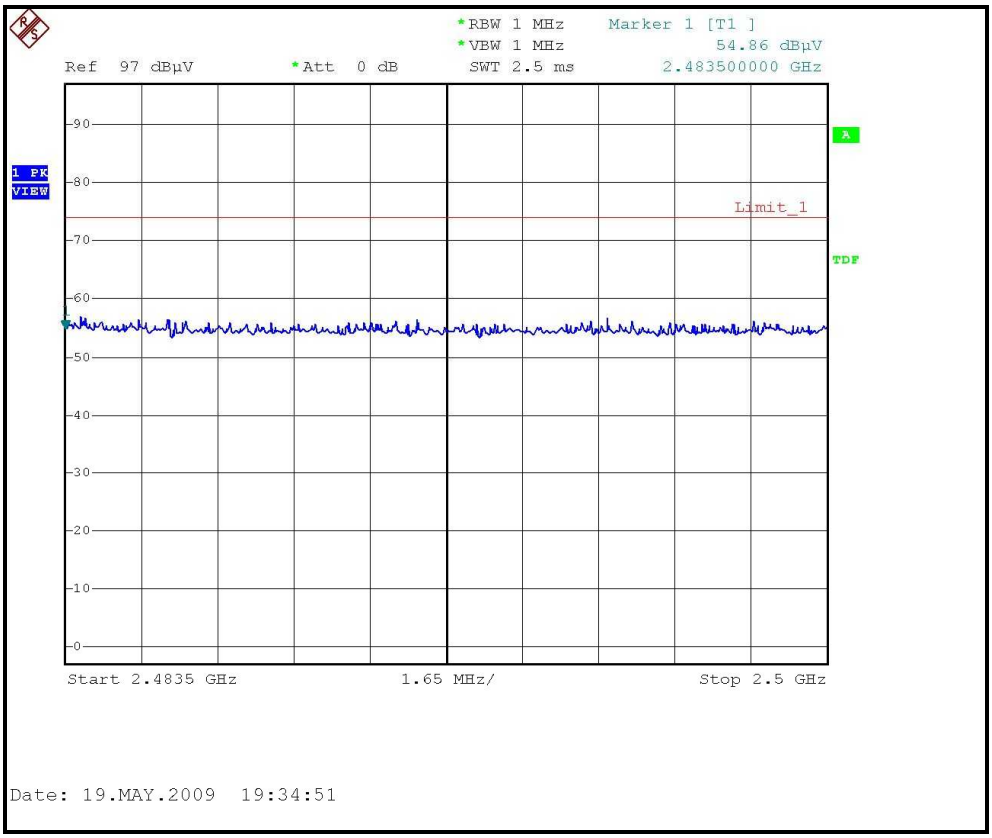



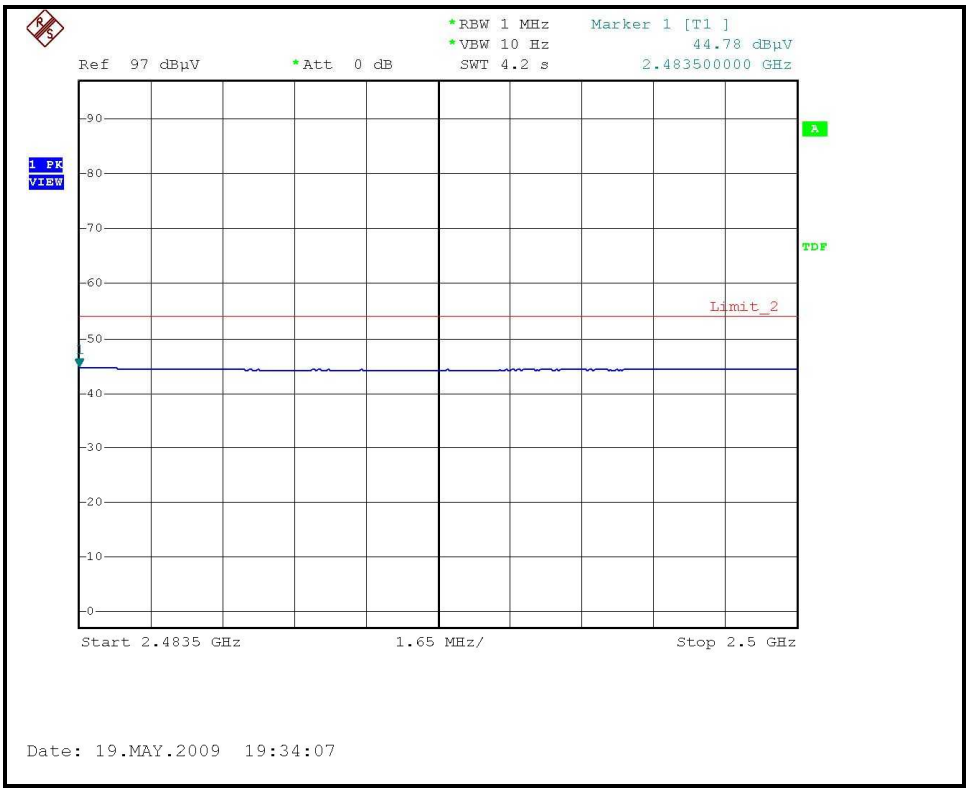
RESTRICTED BANDEDGE (802.11b MODE,CH 3, VERTICAL )



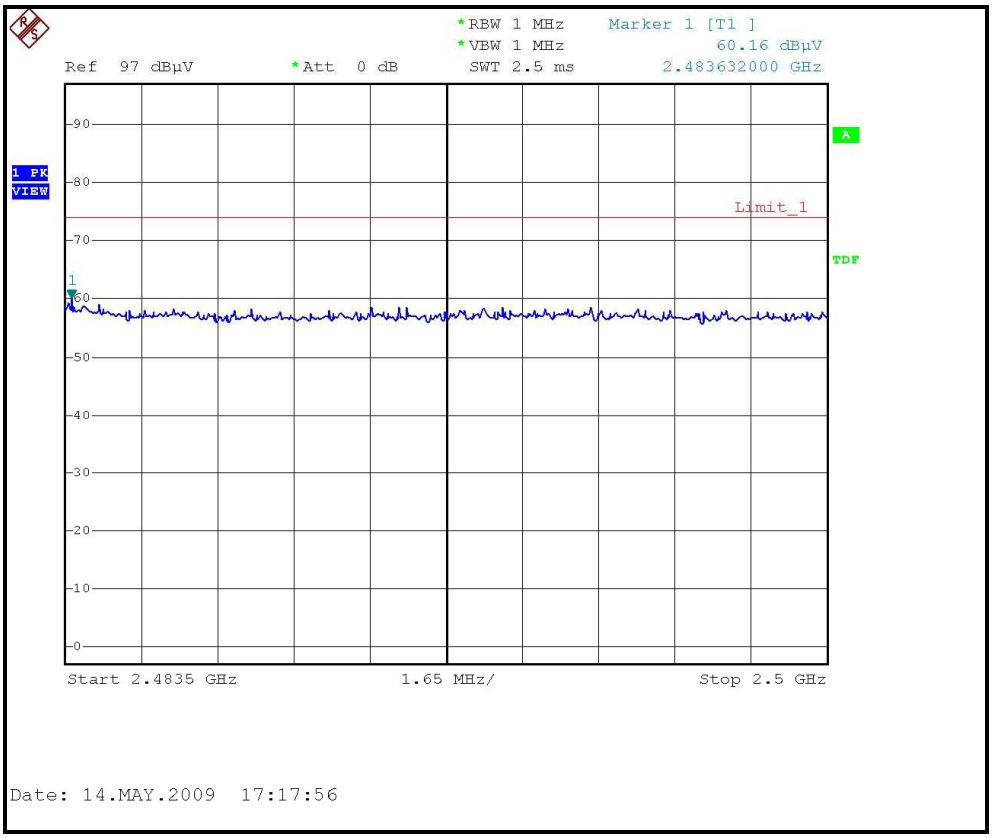



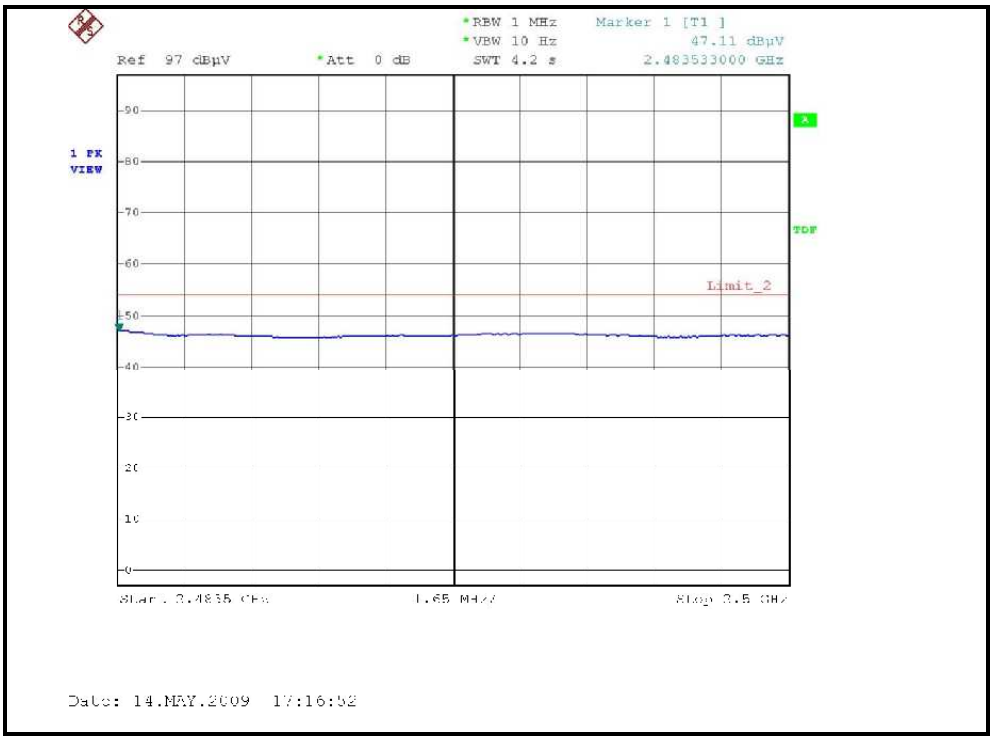
RESTRICTED BANDEDGE (802.11b MODE,CH 10, HORIZONTAL )



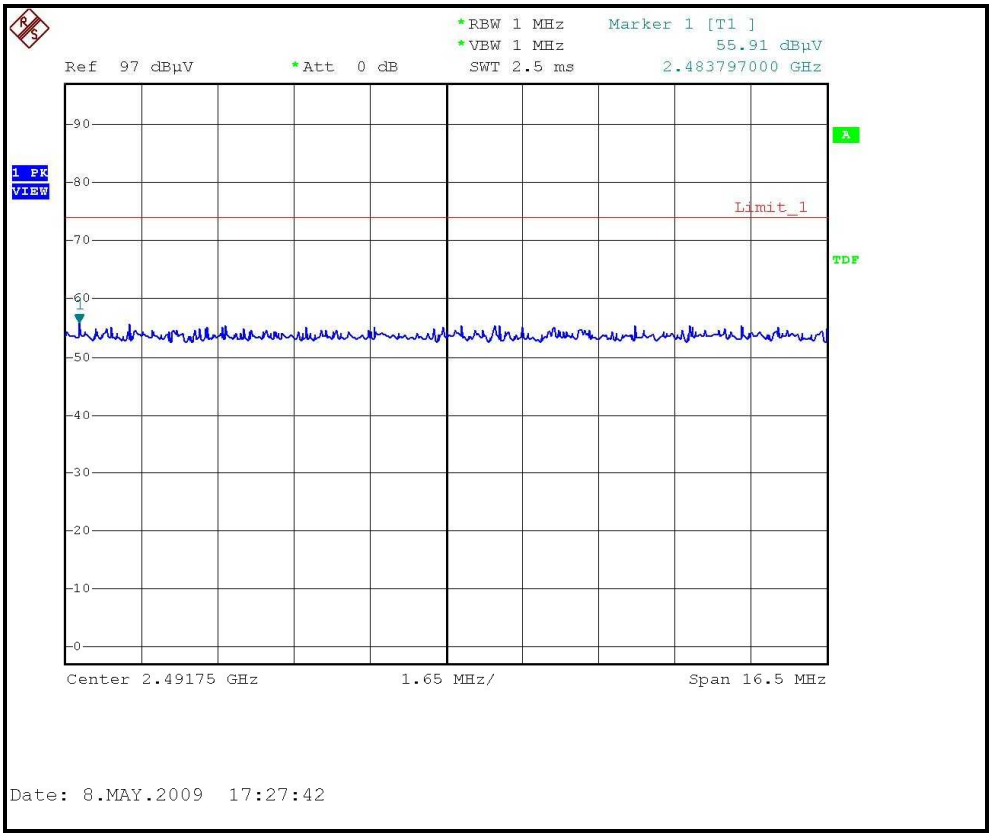



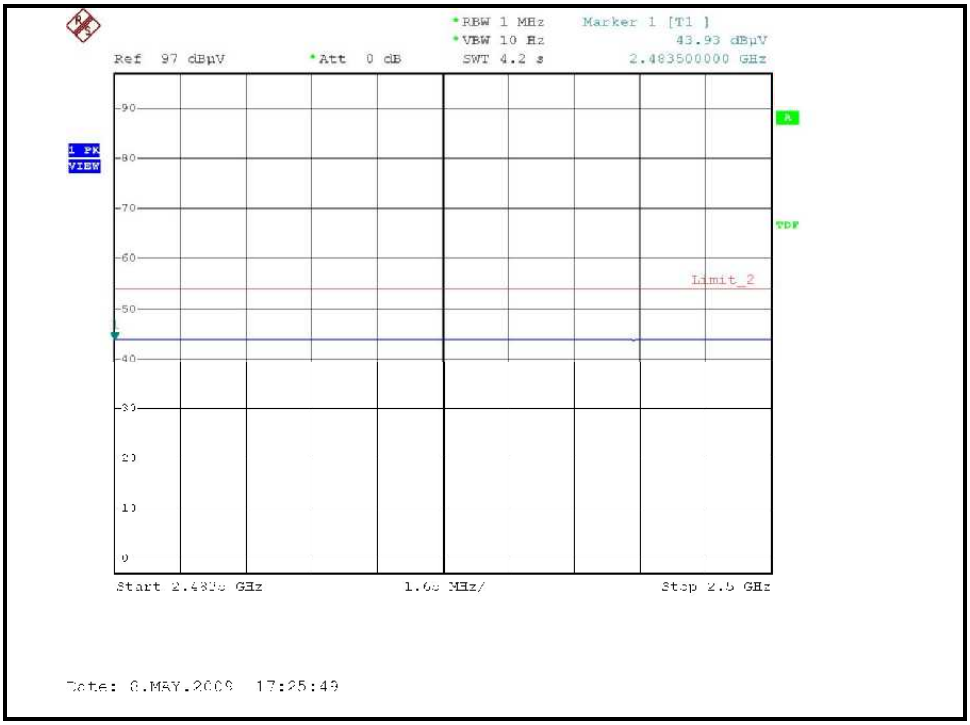
RESTRICTED BANDEDGE (802.11b MODE,CH 10, VERTICAL )



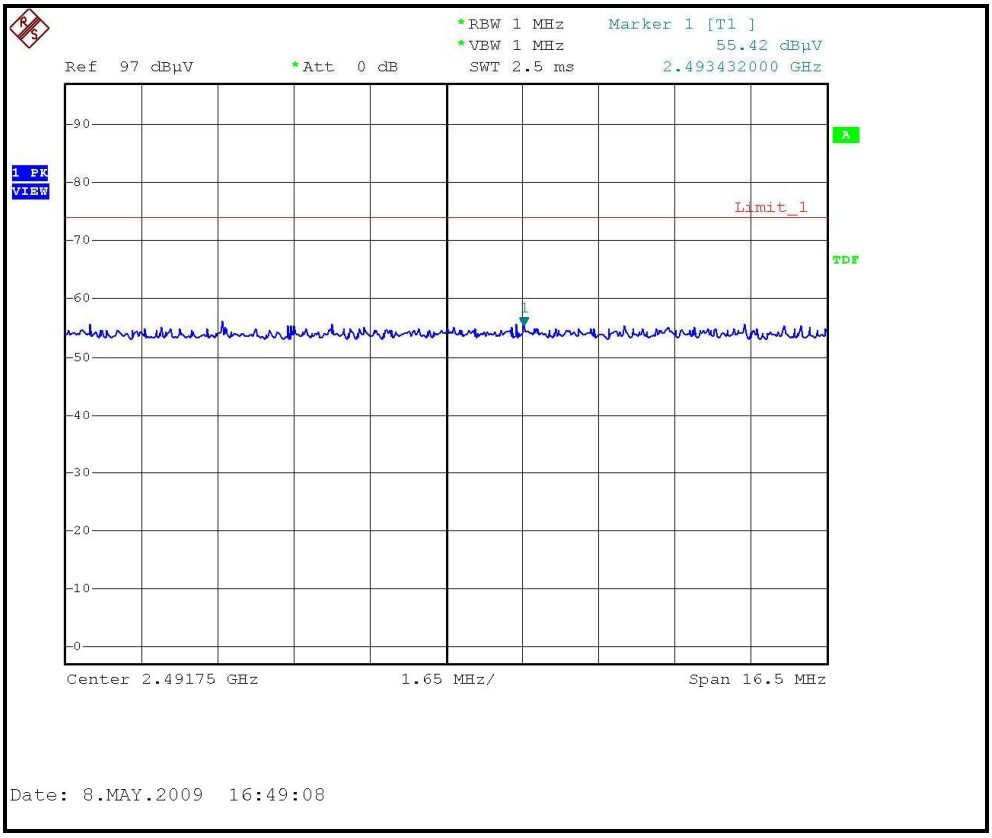



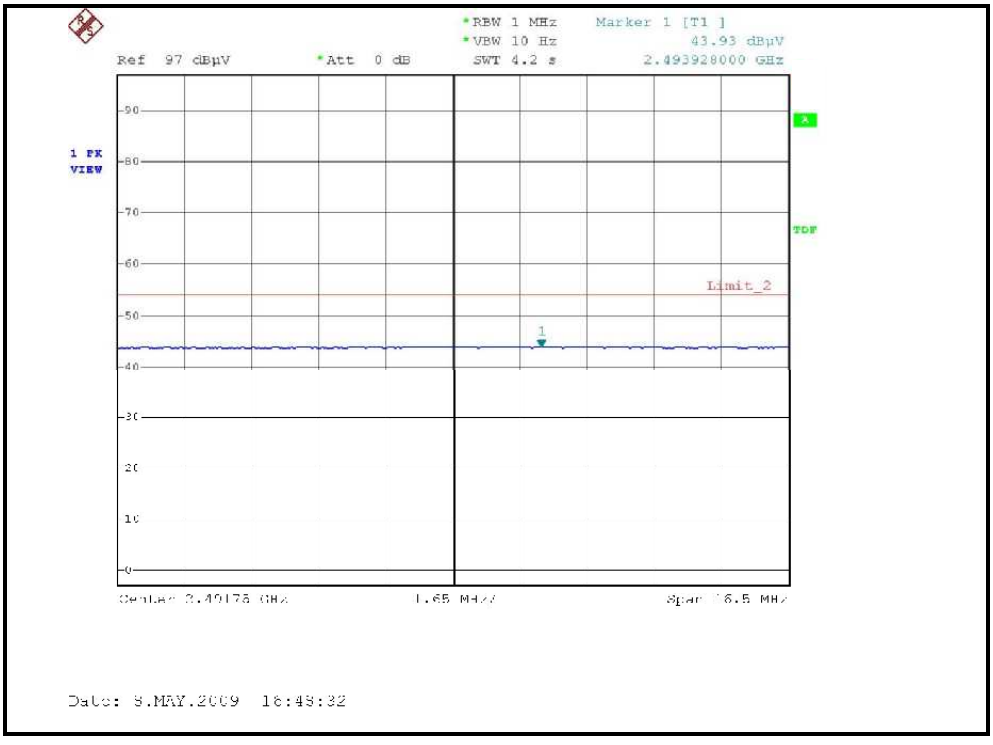
RESTRICTED BANDEDGE (802.11b MODE,CH 11, HORIZONTAL )



RESTRICTED BANDEDGE (802.11b MODE,CH 11, VERTICAL )



## 802.11g OFDM MODULATION

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 63.32 PK | 74.00 | -10.68 | 1.11 H | 68 | 32.92 | 30.40 |
| 2 | 2390.00 | 46.99 AV | 54.00 | -7.01 | 1.11 H | 68 | 16.59 | 30.40 |
| 3 | *2412.00 | 101.62 PK | | | 1.65 H | 358 | 71.13 | 30.49 |
| 4 | *2412.00 | 92.58 AV | | | 1.65 H | 358 | 62.09 | 30.49 |
| 5 | 4824.00 | 44.91 PK | 74.00 | -29.09 | 1.39 H | 204 | 9.22 | 35.69 |
| 6 | 4824.00 | 33.02 AV | 54.00 | -20.98 | 1.39 H | 204 | -2.67 | 35.69 |
| 7 | #7236.00 | 53.10 PK | 81.62 | -28.52 | 1.41 H | 29 | 10.86 | 42.24 |
| 8 | #7236.00 | 38.93 AV | 72.58 | -33.65 | 1.41 H | 29 | -3.31 | 42.24 |
| 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 | 63.66 PK | 74.00 | -10.34 | 1.05 V | 5 | 33.26 | 30.40 |
| 2 | 2390.00 | 48.92 AV | 54.00 | -5.08 | 1.05 V | 5 | 18.52 | 30.40 |
| 3 | *2412.00 | 105.68 PK | | | 1.03 V | 199 | 75.19 | 30.49 |
| 4 | *2412.00 | 96.29 AV | | | 1.03 V | 199 | 65.80 | 30.49 |
| 5 | 4824.00 | 44.11 PK | 74.00 | -29.89 | 1.19 V | 28 | 8.42 | 35.69 |
| 6 | 4824.00 | 32.22 AV | 54.00 | -21.78 | 1.19 V | 28 | -3.47 | 35.69 |
| 7 | #7236.00 | 51.62 PK | 85.68 | -34.06 | 1.21 V | 32 | 9.38 | 42.24 |
| 8 | #7236.00 | 38.10 AV | 76.29 | -38.19 | 1.21 V | 32 | -4.14 | 42.24 |

**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. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 2 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 62.54 PK | 74.00 | -11.46 | 1.73 H | 344 | 32.14 | 30.40 |
| 2 | 2390.00 | 47.76 AV | 54.00 | -6.24 | 1.73 H | 344 | 17.36 | 30.40 |
| 3 | *2417.00 | 106.00 PK | | | 1.72 H | 342 | 75.48 | 30.52 |
| 4 | *2417.00 | 96.10 AV | | | 1.72 H | 342 | 65.58 | 30.52 |
| 5 | 4834.00 | 45.93 PK | 74.00 | -28.07 | 1.64 H | 321 | 10.22 | 35.71 |
| 6 | 4834.00 | 33.84 AV | 54.00 | -20.16 | 1.64 H | 321 | -1.87 | 35.71 |
| 7 | 7251.00 | 52.54 PK | 74.00 | -21.46 | 1.41 H | 274 | 10.25 | 42.29 |
| 8 | 7251.00 | 39.27 AV | 54.00 | -14.73 | 1.41 H | 274 | -3.02 | 42.29 |
| 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 | 64.70 PK | 74.00 | -9.30 | 1.02 V | 148 | 34.30 | 30.40 |
| **2** | **2390.00** | **49.79 AV** | **54.00** | **-4.21** | **1.02 V** | **148** | **19.39** | **30.40** |
| 3 | *2417.00 | 107.30 PK | | | 1.04 V | 183 | 76.78 | 30.52 |
| 4 | *2417.00 | 98.24 AV | | | 1.04 V | 183 | 67.72 | 30.52 |
| 5 | 4834.00 | 46.12 PK | 74.00 | -27.88 | 1.62 V | 134 | 10.41 | 35.71 |
| 6 | 4834.00 | 34.27 AV | 54.00 | -19.73 | 1.62 V | 134 | -1.44 | 35.71 |
| 7 | 7251.00 | 52.13 PK | 74.00 | -21.87 | 1.01 V | 32 | 9.84 | 42.29 |
| 8 | 7251.00 | 38.42 AV | 54.00 | -15.58 | 1.01 V | 32 | -3.87 | 42.29 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 3 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 61.21 PK | 74.00 | -12.79 | 1.74 H | 343 | 30.81 | 30.40 |
| 2 | 2390.00 | 47.04 AV | 54.00 | -6.96 | 1.74 H | 343 | 16.64 | 30.40 |
| 3 | *2422.00 | 107.30 PK | | | 1.74 H | 341 | 76.76 | 30.54 |
| 4 | *2422.00 | 97.50 AV | | | 1.74 H | 341 | 66.96 | 30.54 |
| 5 | 4844.00 | 45.84 PK | 74.00 | -28.16 | 1.62 H | 313 | 10.10 | 35.74 |
| 6 | 4844.00 | 33.78 AV | 54.00 | -20.22 | 1.62 H | 313 | -1.96 | 35.74 |
| 7 | 7266.00 | 52.23 PK | 74.00 | -21.77 | 1.37 H | 269 | 9.88 | 42.35 |
| 8 | 7266.00 | 39.03 AV | 54.00 | -14.97 | 1.37 H | 269 | -3.32 | 42.35 |
| 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 | 65.50 PK | 74.00 | -8.50 | 1.00 V | 81 | 35.10 | 30.40 |
| 2 | 2390.00 | 49.77 AV | 54.00 | -4.23 | 1.00 V | 81 | 19.37 | 30.40 |
| 3 | *2422.00 | 107.70 PK | | | 1.03 V | 167 | 77.16 | 30.54 |
| 4 | *2422.00 | 98.60 AV | | | 1.03 V | 167 | 68.06 | 30.54 |
| 5 | 4844.00 | 46.00 PK | 74.00 | -28.00 | 1.63 V | 131 | 10.26 | 35.74 |
| 6 | 4844.00 | 34.16 AV | 54.00 | -19.84 | 1.63 V | 131 | -1.58 | 35.74 |
| 7 | 7266.00 | 51.89 PK | 74.00 | -22.11 | 1.34 V | 36 | 9.54 | 42.35 |
| 8 | 7266.00 | 38.92 AV | 54.00 | -15.08 | 1.34 V | 36 | -3.43 | 42.35 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 6 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 107.34 PK | | | 1.71 H | 350 | 76.73 | 30.61 |
| 2 | *2437.00 | 98.00 AV | | | 1.71 H | 350 | 67.39 | 30.61 |
| 3 | 4874.00 | 46.11 PK | 74.00 | -27.89 | 1.35 H | 154 | 10.31 | 35.80 |
| 4 | 4874.00 | 33.85 AV | 54.00 | -20.15 | 1.35 H | 154 | -1.95 | 35.80 |
| 5 | 7311.00 | 53.69 PK | 74.00 | -20.31 | 1.42 H | 19 | 11.17 | 42.52 |
| 6 | 7311.00 | 39.72 AV | 54.00 | -14.28 | 1.42 H | 19 | -2.80 | 42.52 |
| 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 | 110.71 PK | | | 1.01 V | 182 | 80.10 | 30.61 |
| 2 | *2437.00 | 101.46 AV | | | 1.01 V | 182 | 70.85 | 30.61 |
| 3 | 4874.00 | 45.23 PK | 74.00 | -28.77 | 1.22 V | 303 | 9.43 | 35.80 |
| 4 | 4874.00 | 32.49 AV | 54.00 | -21.51 | 1.22 V | 303 | -3.31 | 35.80 |
| 5 | 7311.00 | 51.64 PK | 74.00 | -22.36 | 1.24 V | 59 | 9.12 | 42.52 |
| 6 | 7311.00 | 38.18 AV | 54.00 | -15.82 | 1.24 V | 59 | -4.34 | 42.52 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 10 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 22deg. C, 68%RH 965hPa | TESTED BY | Duke Tseng |

| 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 | *2457.00 | 105.60 PK | | | 1.75 H | 339 | 74.90 | 30.70 |
| 2 | *2457.00 | 95.70 AV | | | 1.75 H | 339 | 65.00 | 30.70 |
| 3 | 2483.50 | 60.07 PK | 74.00 | -13.93 | 1.80 H | 356 | 29.25 | 30.82 |
| 4 | 2483.50 | 45.63 AV | 54.00 | -8.37 | 1.80 H | 356 | 14.81 | 30.82 |
| 5 | 4914.00 | 46.93 PK | 74.00 | -27.07 | 1.61 H | 312 | 11.05 | 35.88 |
| 6 | 4914.00 | 35.14 AV | 54.00 | -18.86 | 1.61 H | 312 | -0.74 | 35.88 |
| 7 | 7371.00 | 52.23 PK | 74.00 | -21.77 | 1.41 H | 273 | 9.49 | 42.74 |
| 8 | 7371.00 | 38.14 AV | 54.00 | -15.86 | 1.41 H | 273 | -4.60 | 42.74 |
| 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 | *2457.00 | 107.90 PK | | | 1.05 V | 104 | 77.20 | 30.70 |
| 2 | *2457.00 | 98.90 AV | | | 1.05 V | 104 | 68.20 | 30.70 |
| 3 | 2483.50 | 66.06 PK | 74.00 | -7.94 | 1.00 V | 146 | 35.24 | 30.82 |
| 4 | 2483.50 | 49.11 AV | 54.00 | -4.89 | 1.00 V | 146 | 18.29 | 30.82 |
| 5 | 4914.00 | 47.37 PK | 74.00 | -26.63 | 1.24 V | 131 | 11.49 | 35.88 |
| 6 | 4914.00 | 35.29 AV | 54.00 | -18.71 | 1.24 V | 131 | -0.59 | 35.88 |
| 7 | 7371.00 | 52.10 PK | 74.00 | -21.90 | 1.30 V | 39 | 9.36 | 42.74 |
| 8 | 7371.00 | 38.01 AV | 54.00 | -15.99 | 1.30 V | 39 | -4.73 | 42.74 |

**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. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 11 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER | DC 3.9~4.2V from Battery | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 66%RH 965hPa | TESTED BY | Eric Lee |

| 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 | 101.98 PK | | | 1.69 H | 347 | 71.26 | 30.72 |
| 2 | *2462.00 | 93.48 AV | | | 1.69 H | 347 | 62.76 | 30.72 |
| 3 | 2483.50 | 57.84 PK | 74.00 | -16.16 | 1.15 H | 71 | 27.02 | 30.82 |
| 4 | 2483.50 | 44.86 AV | 54.00 | -9.14 | 1.15 H | 71 | 14.04 | 30.82 |
| 5 | 4924.00 | 43.84 PK | 74.00 | -30.16 | 1.36 H | 198 | 7.94 | 35.90 |
| 6 | 4924.00 | 32.79 AV | 54.00 | -21.21 | 1.36 H | 198 | -3.11 | 35.90 |
| 7 | 7386.00 | 52.42 PK | 74.00 | -21.58 | 1.39 H | 19 | 9.62 | 42.80 |
| 8 | 7386.00 | 38.58 AV | 54.00 | -15.42 | 1.39 H | 19 | -4.22 | 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 | 106.11 PK | | | 1.00 V | 191 | 75.39 | 30.72 |
| 2 | *2462.00 | 96.43 AV | | | 1.00 V | 191 | 65.71 | 30.72 |
| 3 | 2483.50 | 60.39 PK | 74.00 | -13.61 | 1.05 V | 3 | 29.57 | 30.82 |
| 4 | 2483.50 | 45.81 AV | 54.00 | -8.19 | 1.05 V | 3 | 14.99 | 30.82 |
| 5 | 4924.00 | 44.62 PK | 74.00 | -29.38 | 1.29 V | 180 | 8.72 | 35.90 |
| 6 | 4924.00 | 32.58 AV | 54.00 | -21.42 | 1.29 V | 180 | -3.32 | 35.90 |
| 7 | 7386.00 | 51.29 PK | 74.00 | -22.71 | 1.33 V | 60 | 8.49 | 42.80 |
| 8 | 7386.00 | 37.54 AV | 54.00 | -16.46 | 1.33 V | 60 | -5.26 | 42.80 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

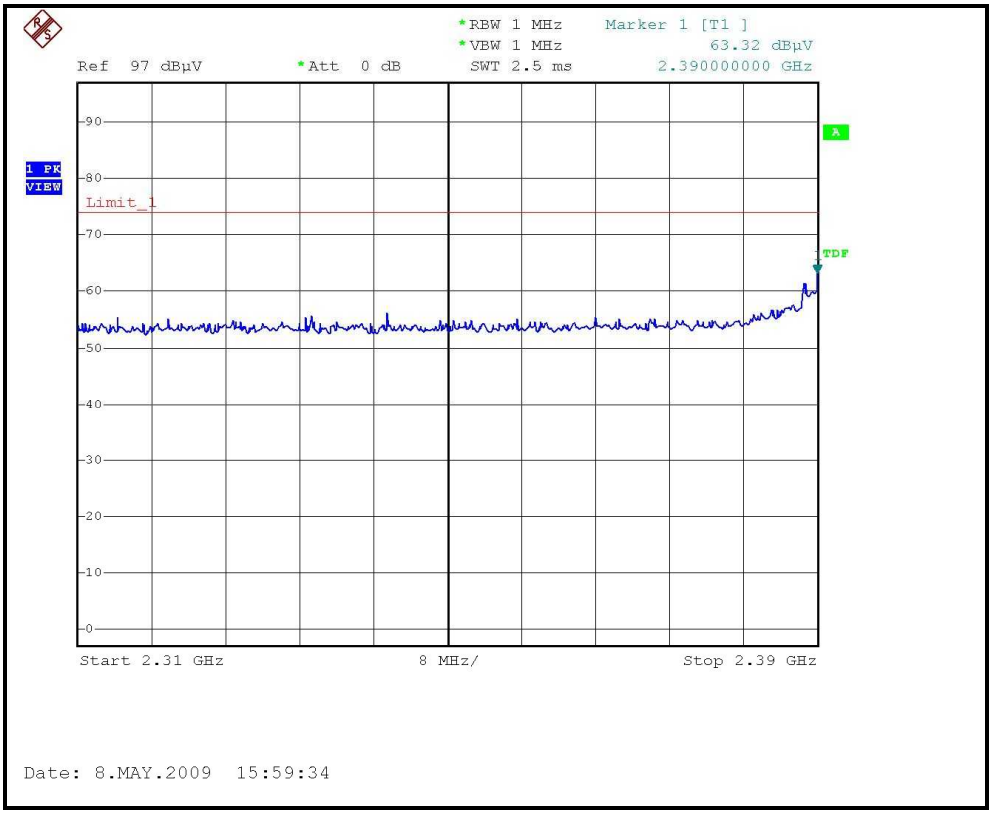
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

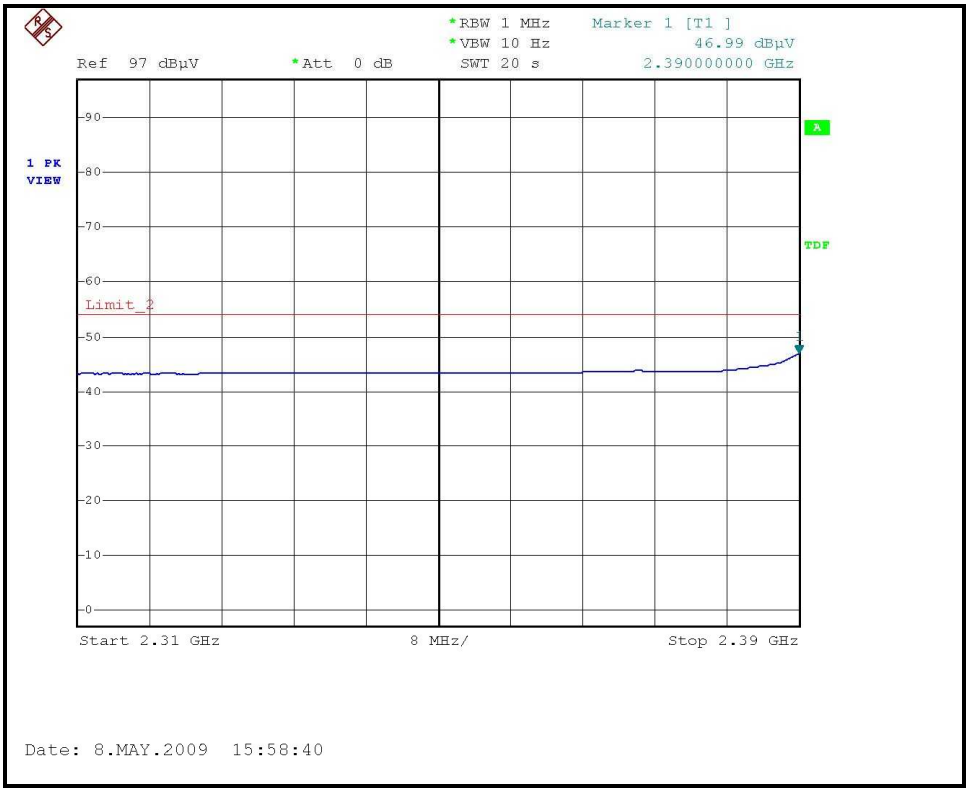
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

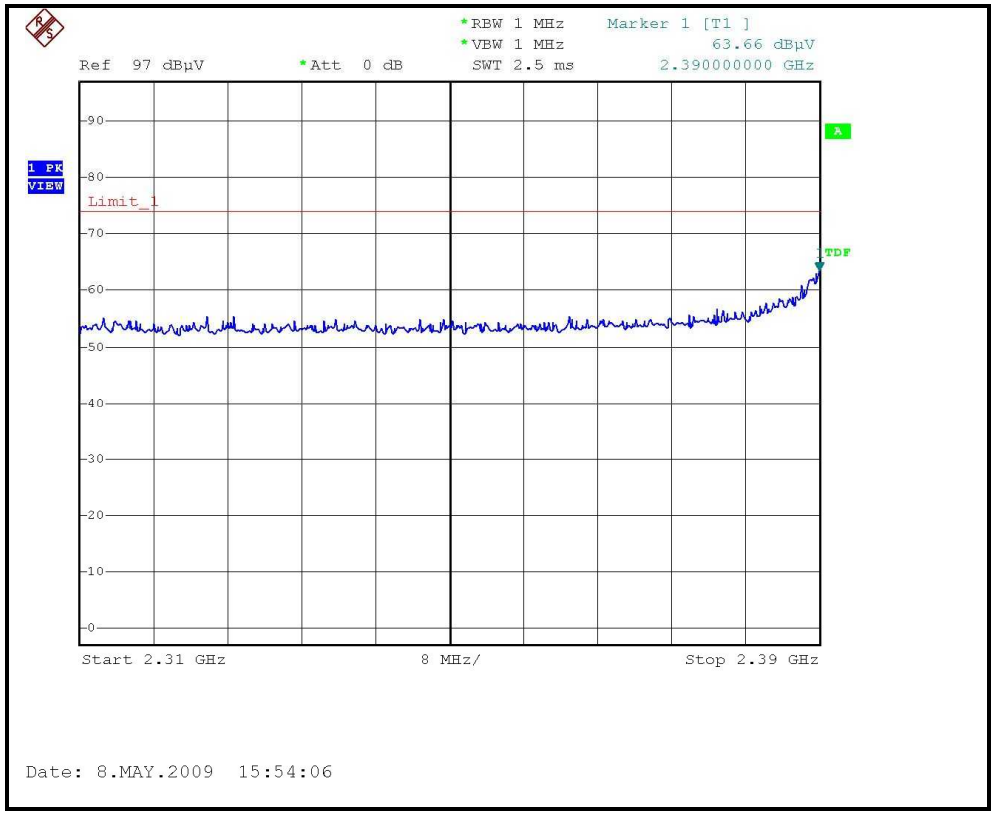
5. " * ": Fundamental frequency.

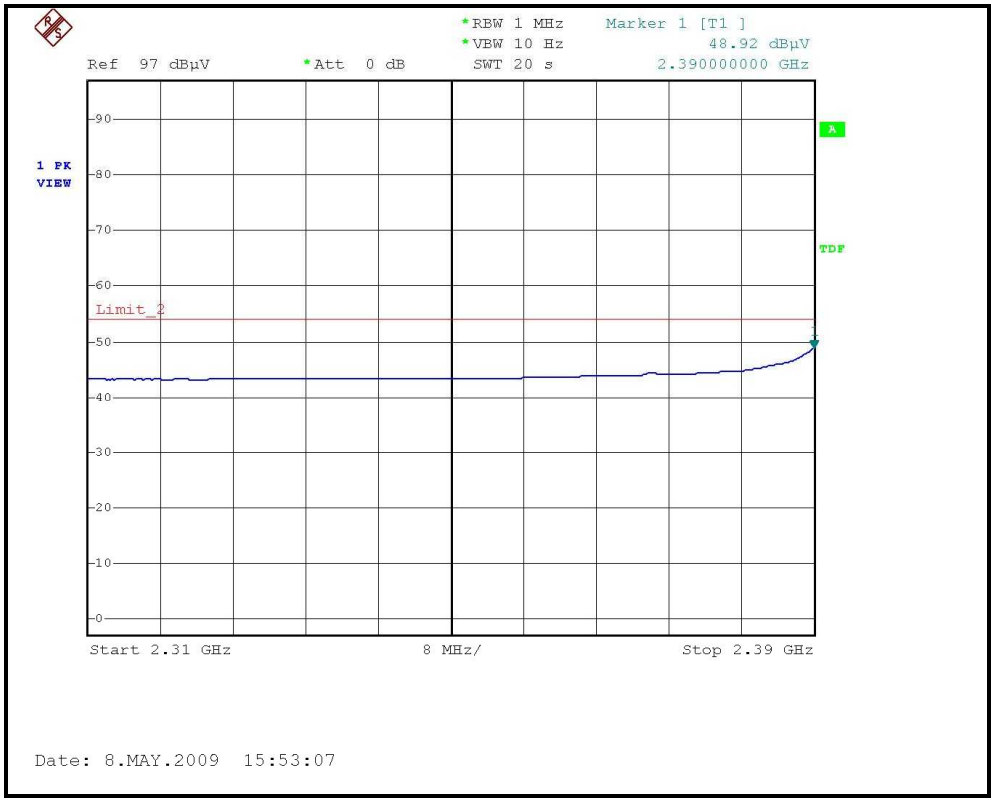
RESTRICTED BANDEDGE (802.11g MODE,CH 1, HORIZONTAL )



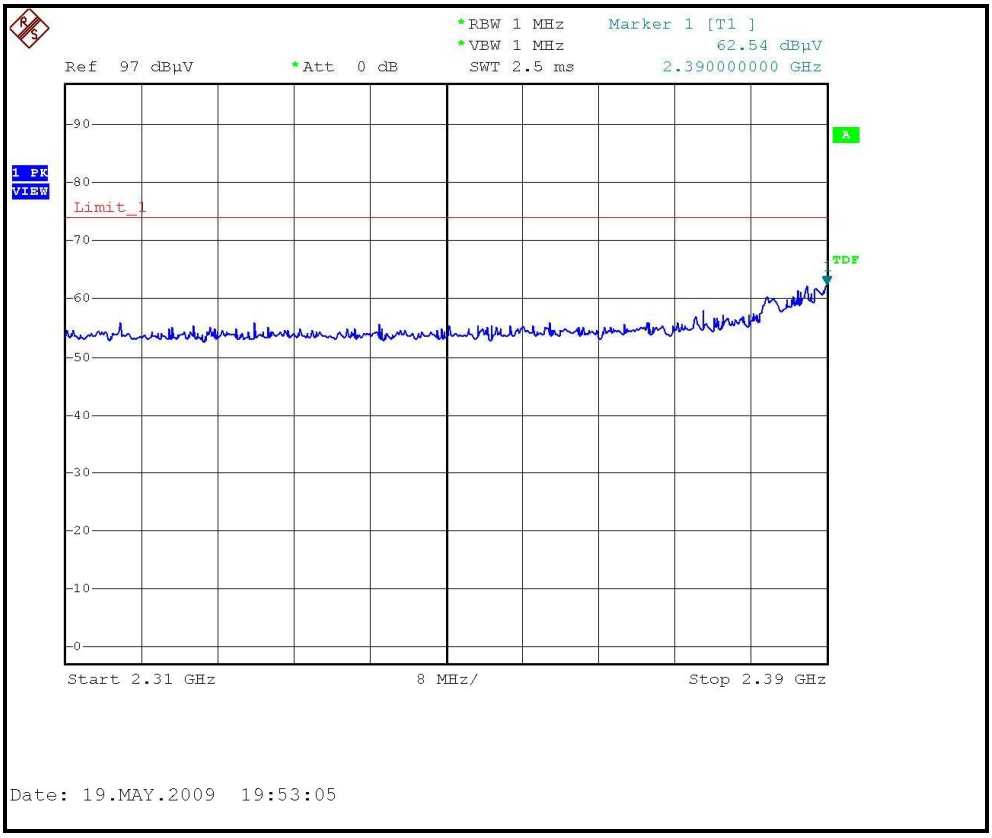



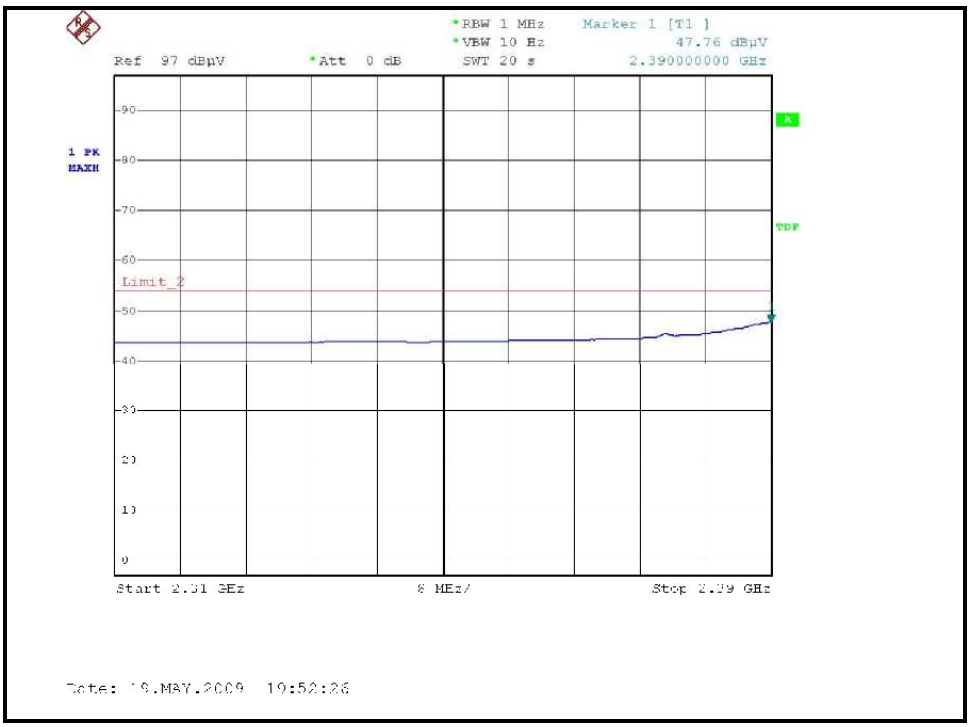
RESTRICTED BANDEDGE (802.11g MODE,CH 1, VERTICAL )



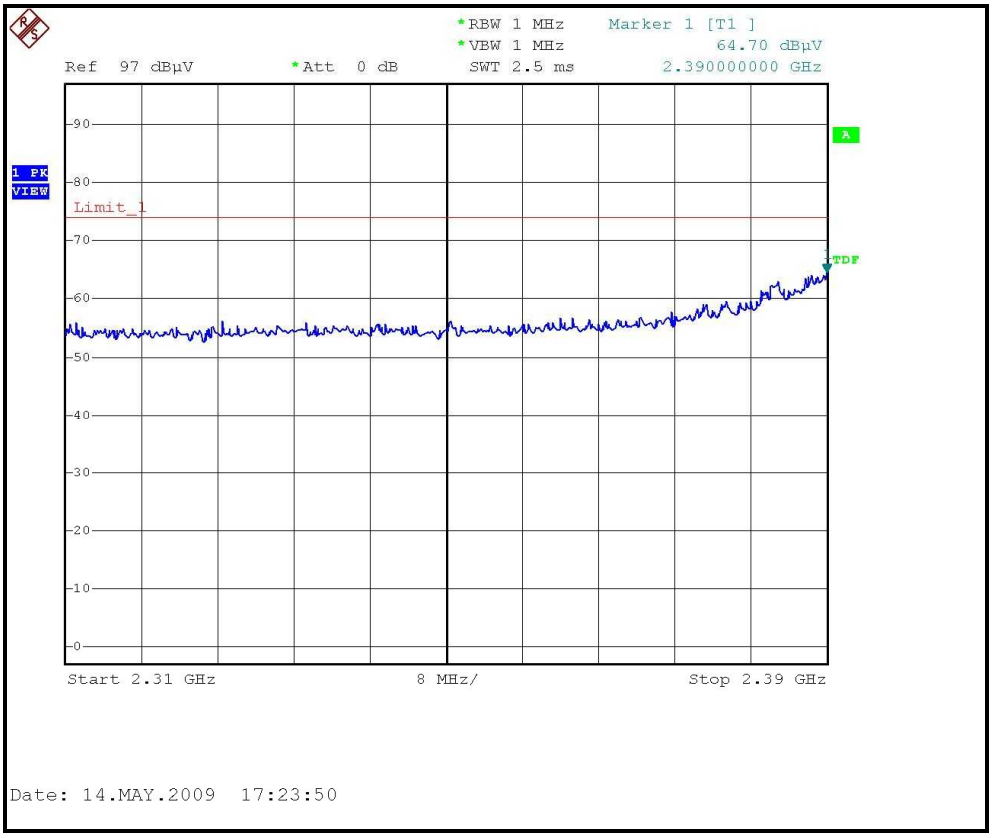



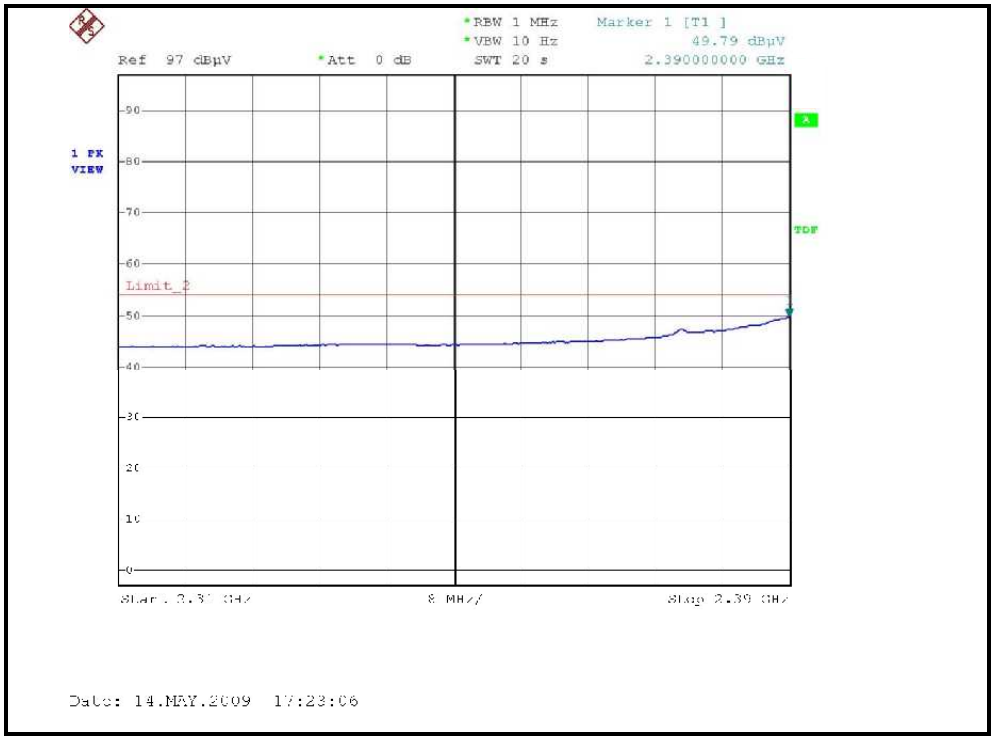
RESTRICTED BANDEDGE (802.11g MODE,CH 2, HORIZONTAL )



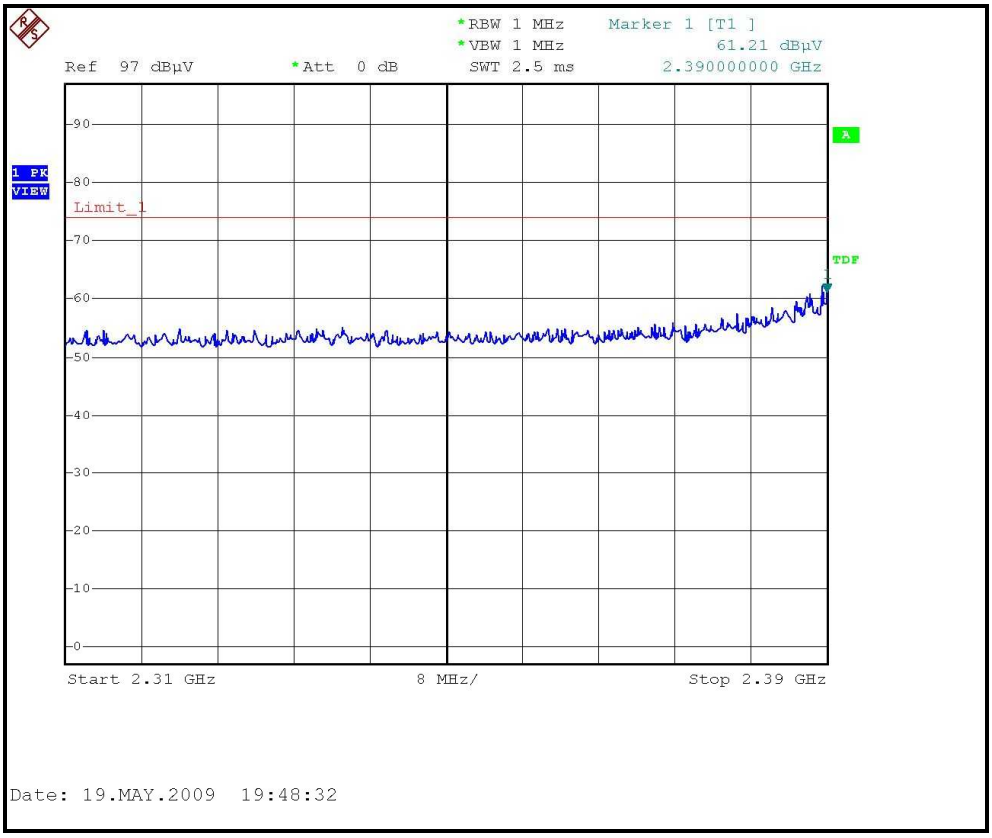



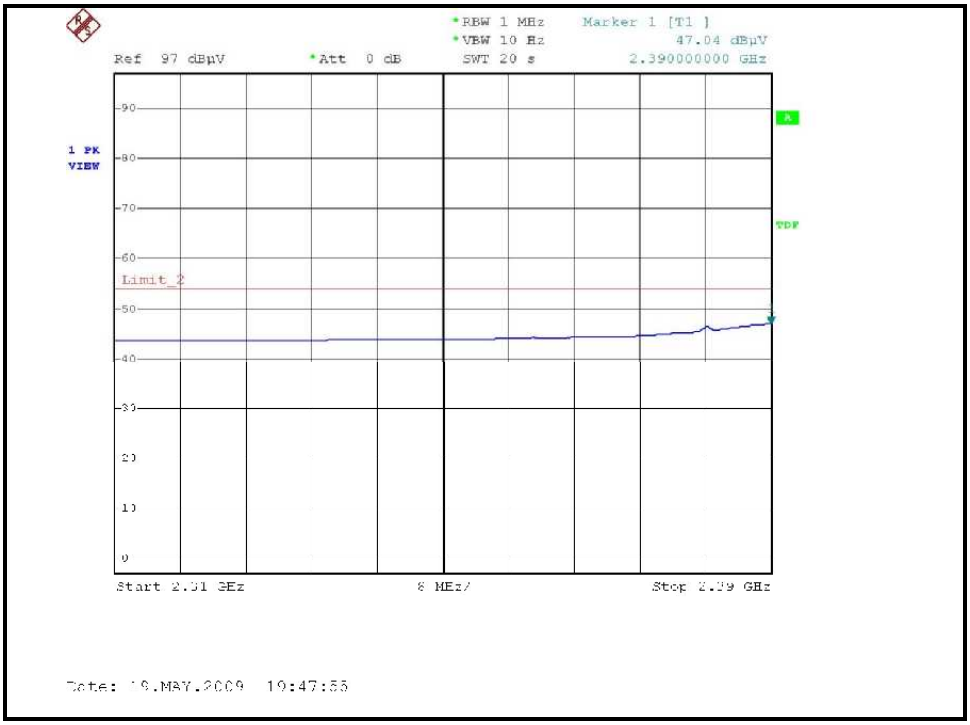
RESTRICTED BANDEDGE (802.11g MODE,CH 2, VERTICAL )



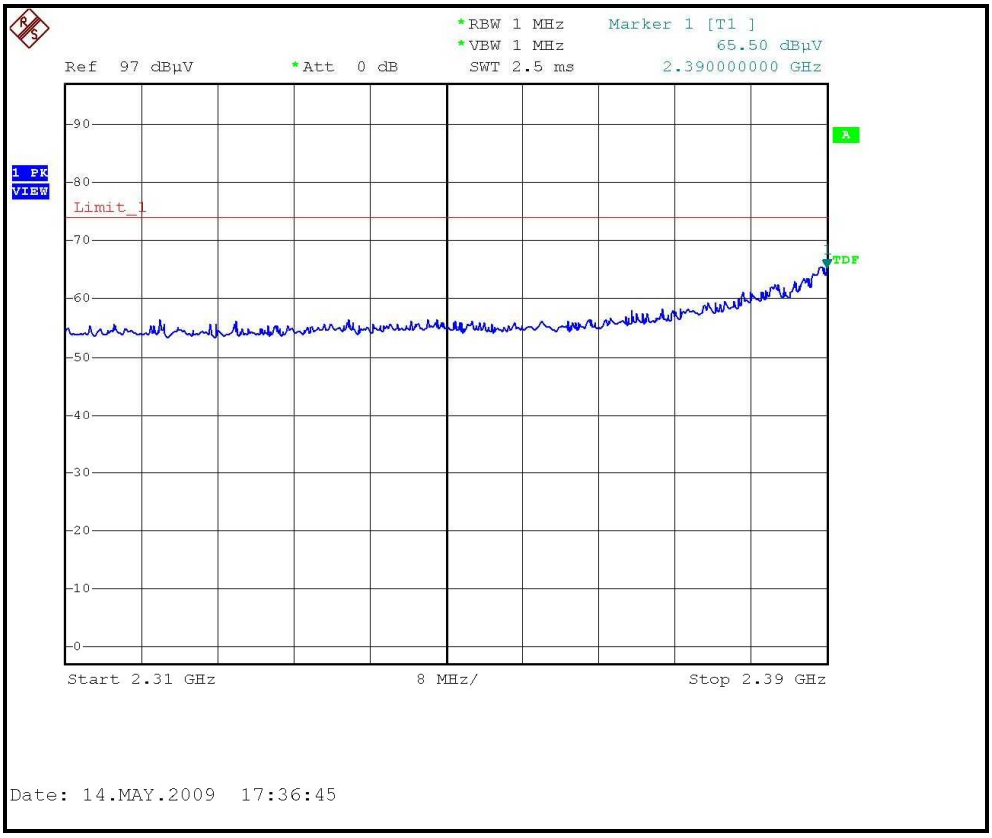



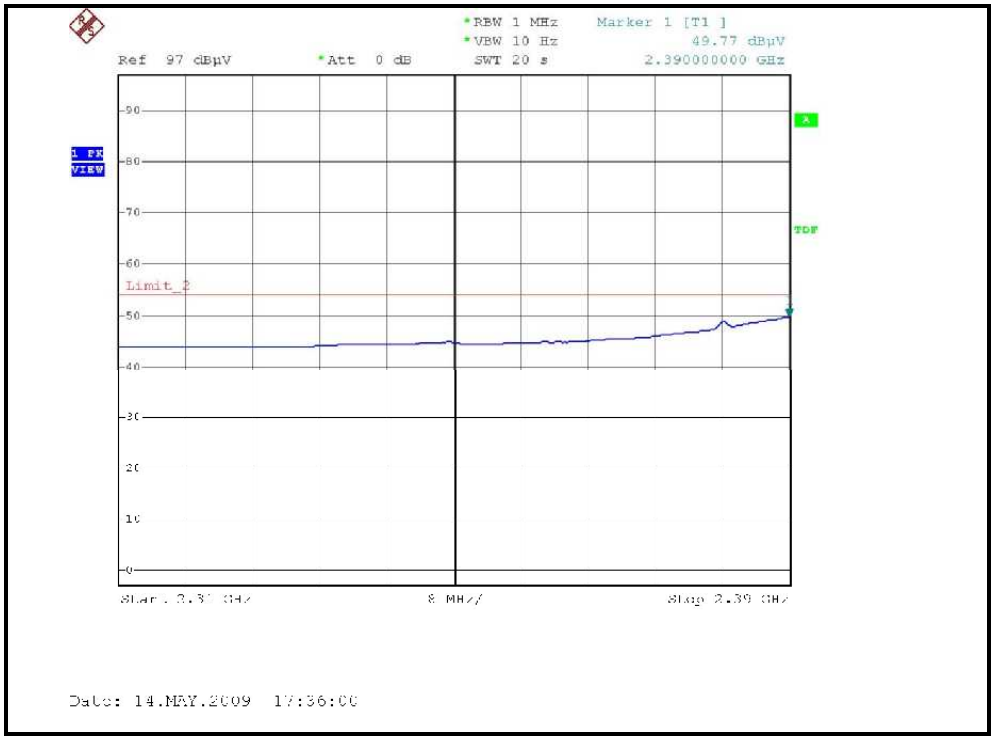
RESTRICTED BANDEDGE (802.11g MODE,CH 3, HORIZONTAL )



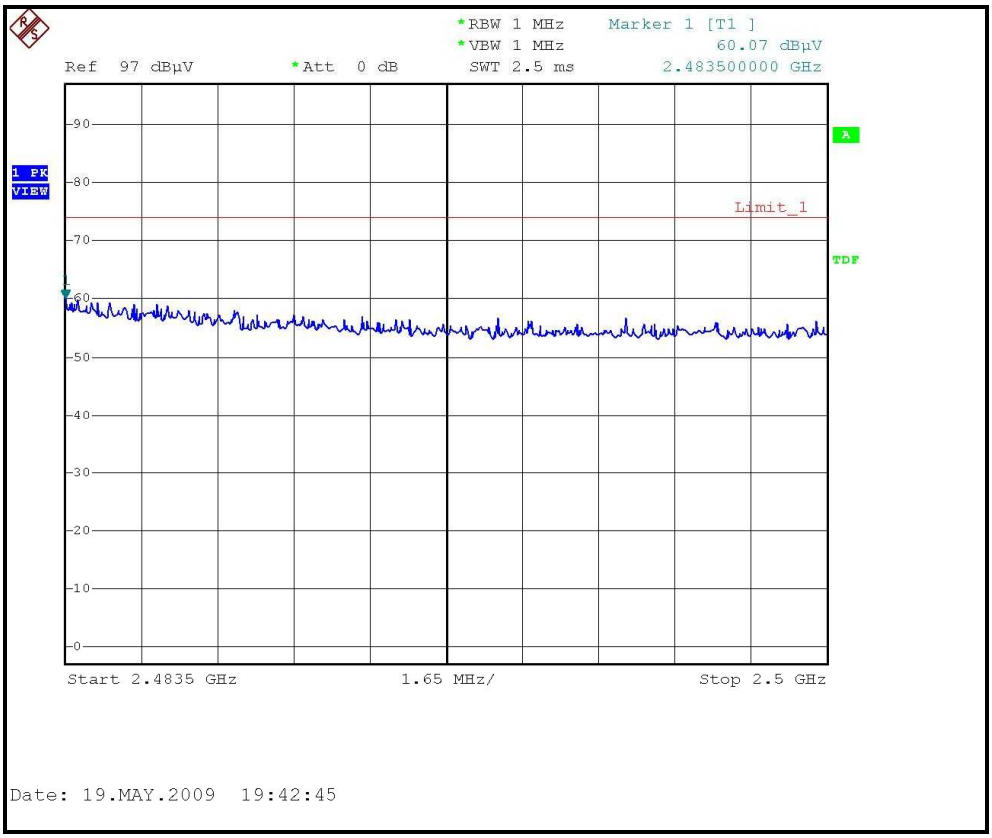



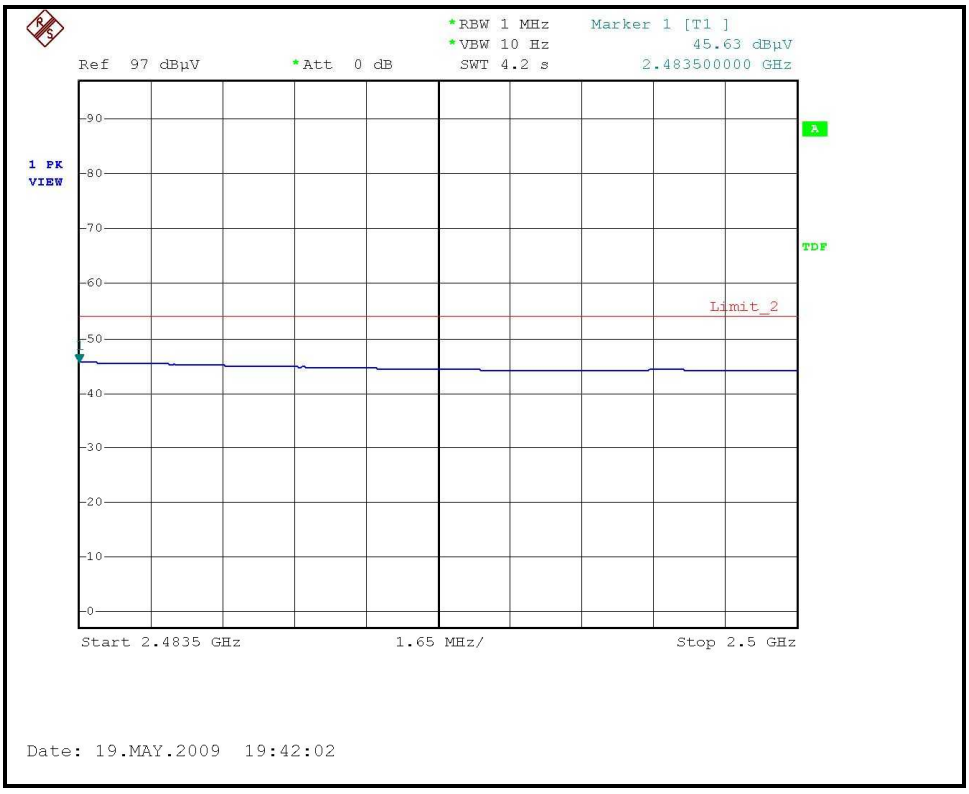
RESTRICTED BANDEDGE (802.11g MODE,CH 3, VERTICAL )



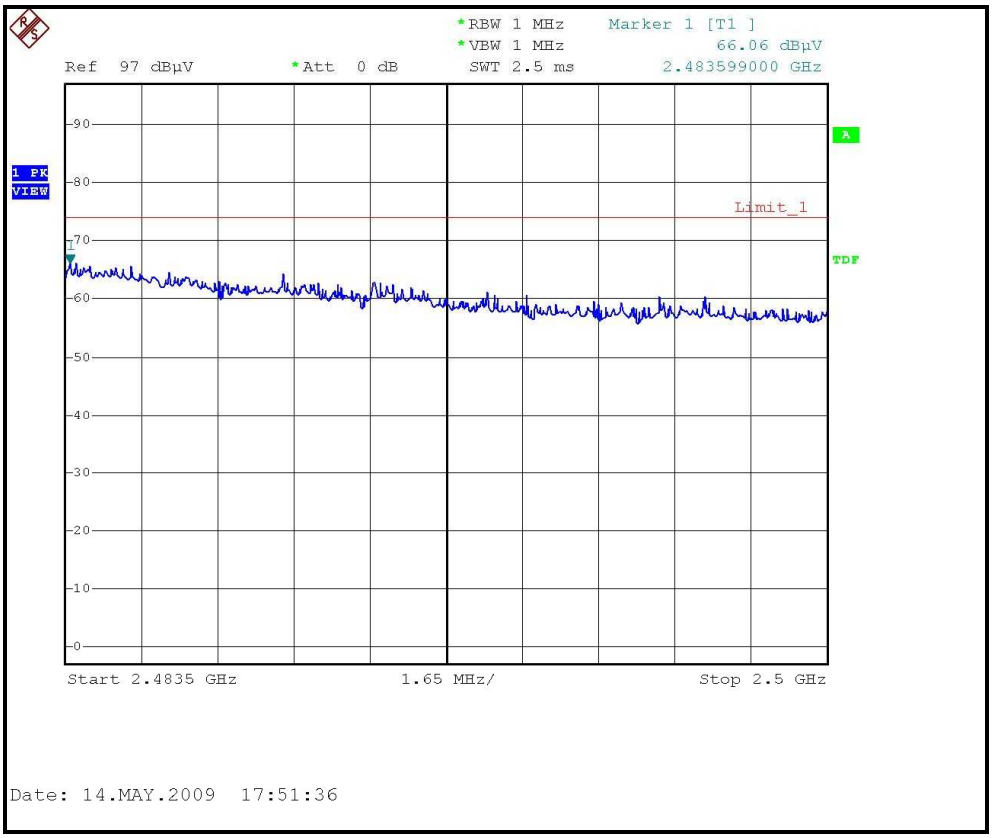



RESTRICTED BANDEDGE (802.11g MODE,CH 10, HORIZONTAL )

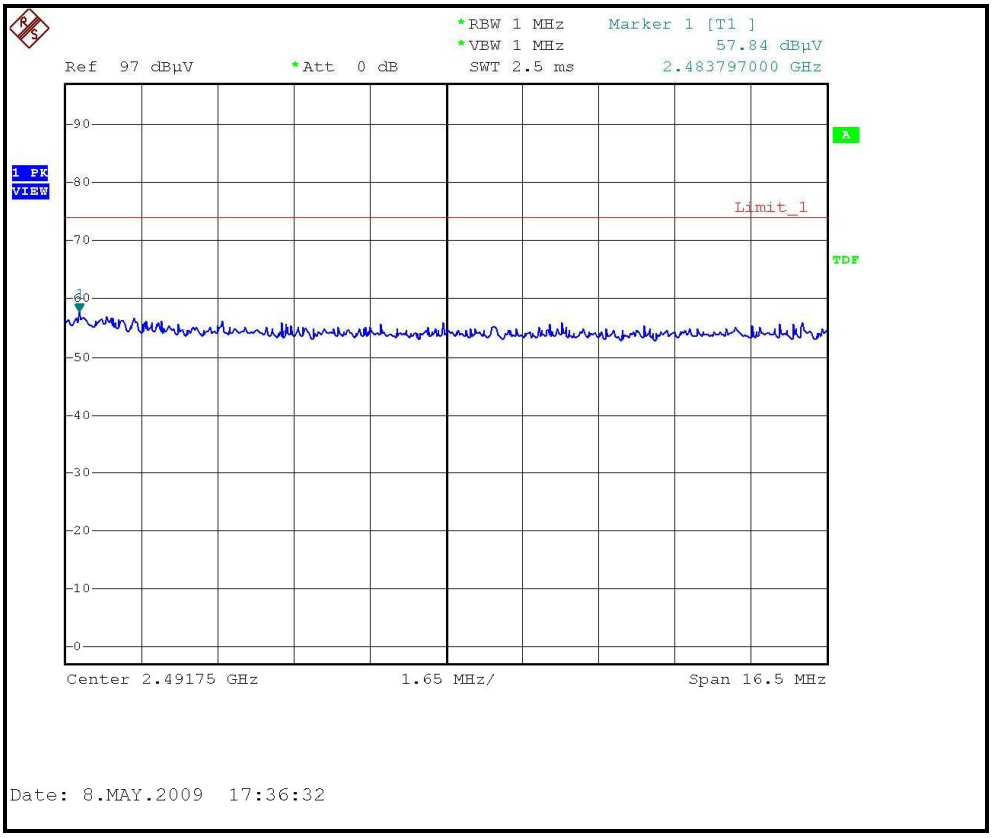


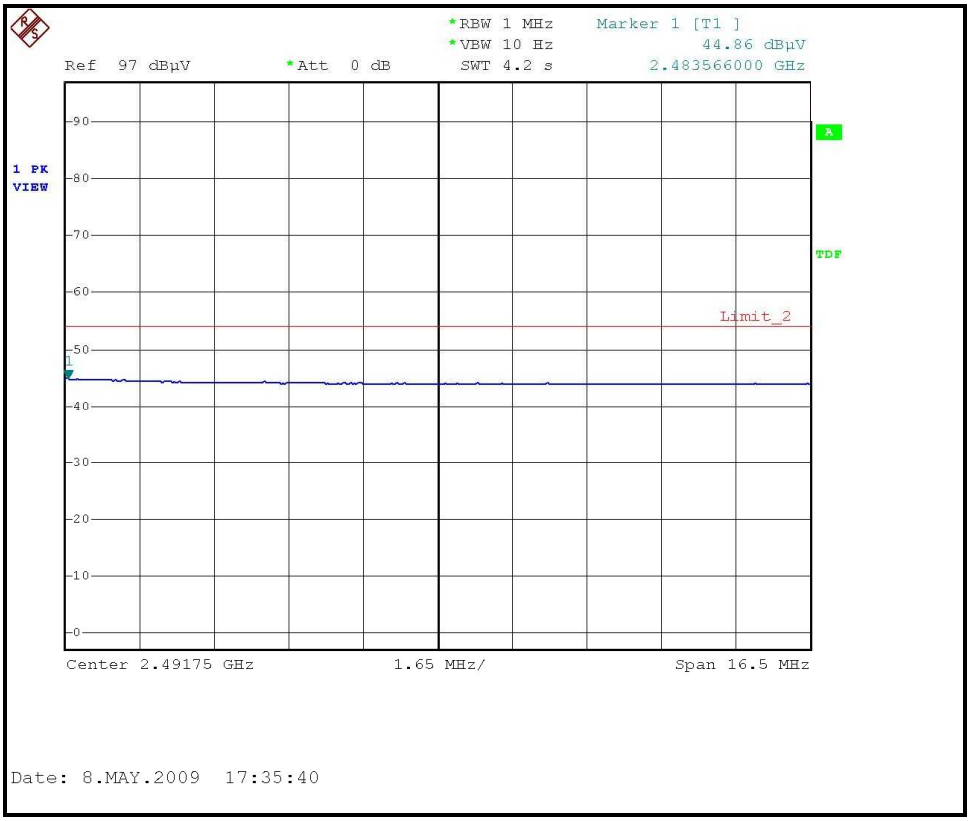



RESTRICTED BANDEDGE (802.11g MODE,CH 10, VERTICAL )

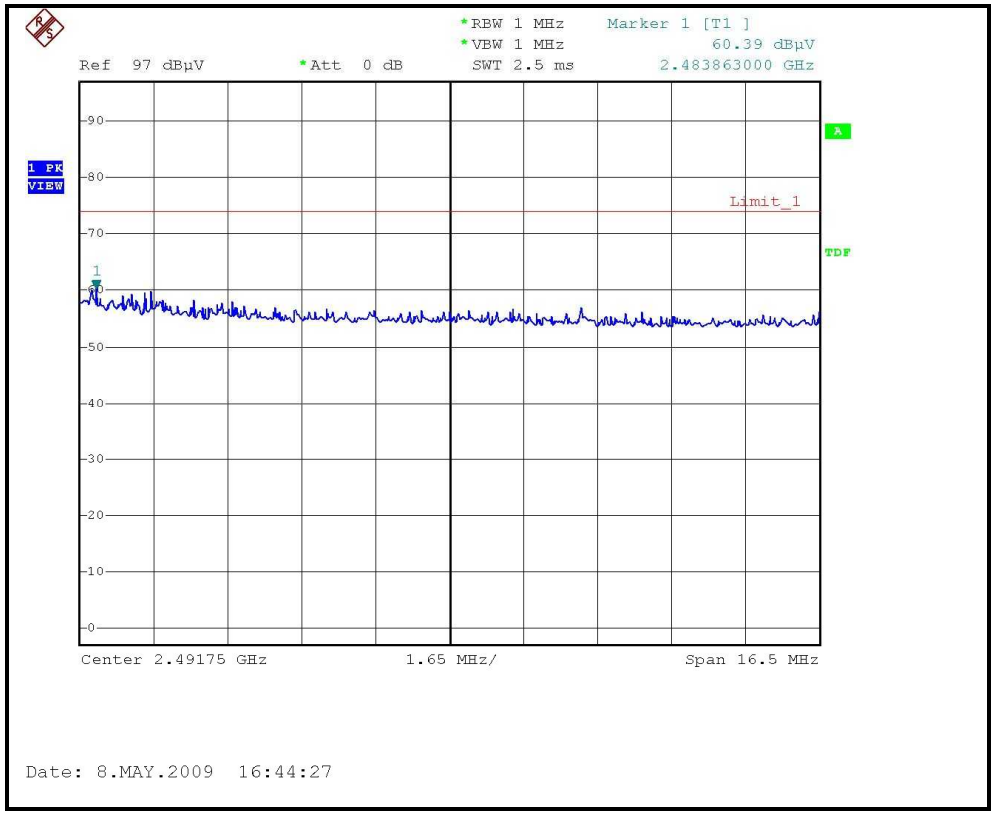


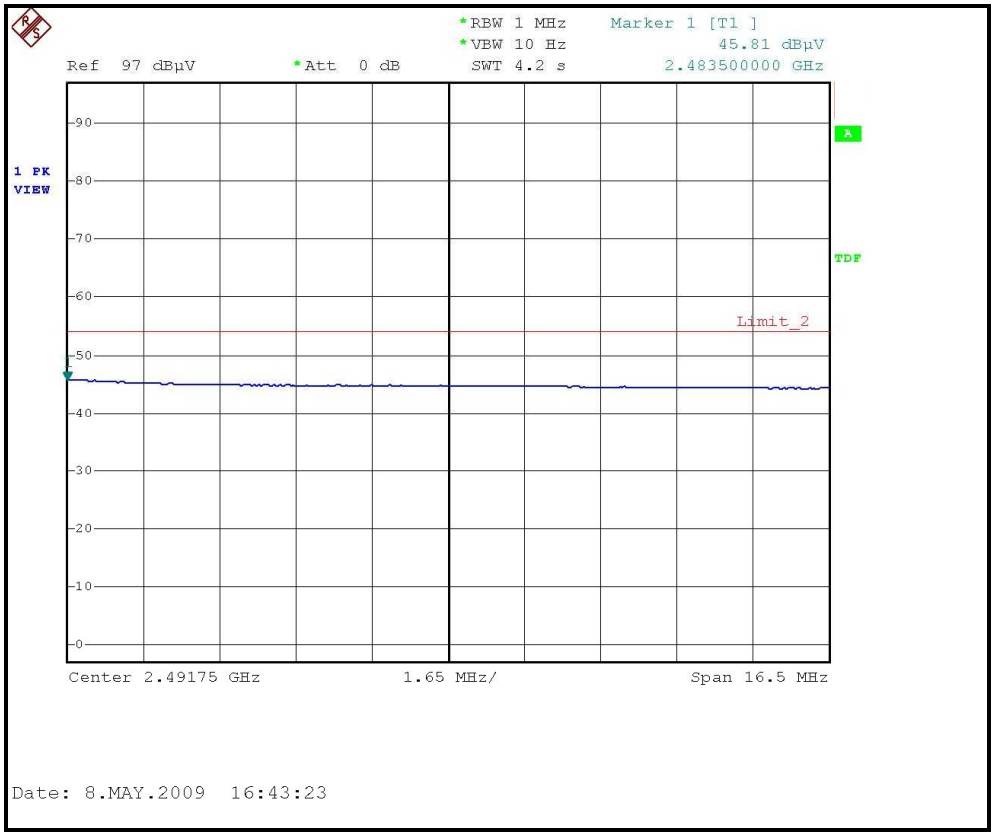

RESTRICTED BANDEDGE (802.11g MODE,CH 11, HORIZONTAL )



RESTRICTED BANDEDGE (802.11g MODE,CH 11, VERTICAL )



## 4.2 6dB BANDWIDTH MEASUREMENT

### 4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 4.2.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated DATE | Calibrated Until |
|---|---|---|---|---|
| R&S SPECTRUM ANALYZER | FSP40 | 100036 | Dec. 09, 2008 | Dec. 08, 2009 |

**NOTE:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

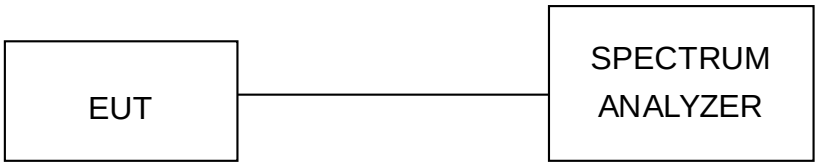
### 4.2.3 TEST PROCEDURE

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

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.2.5 TEST SETUP




### 4.2.6 EUT OPERATING CONDITIONS

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

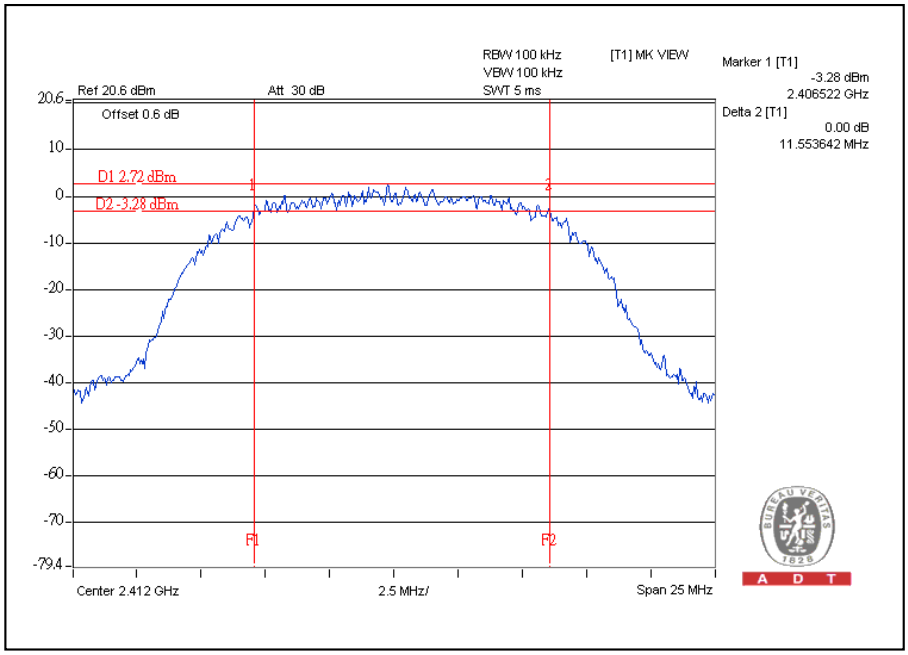
## 4.2.7 TEST RESULTS

### 802.11b DSSS MODULATION:

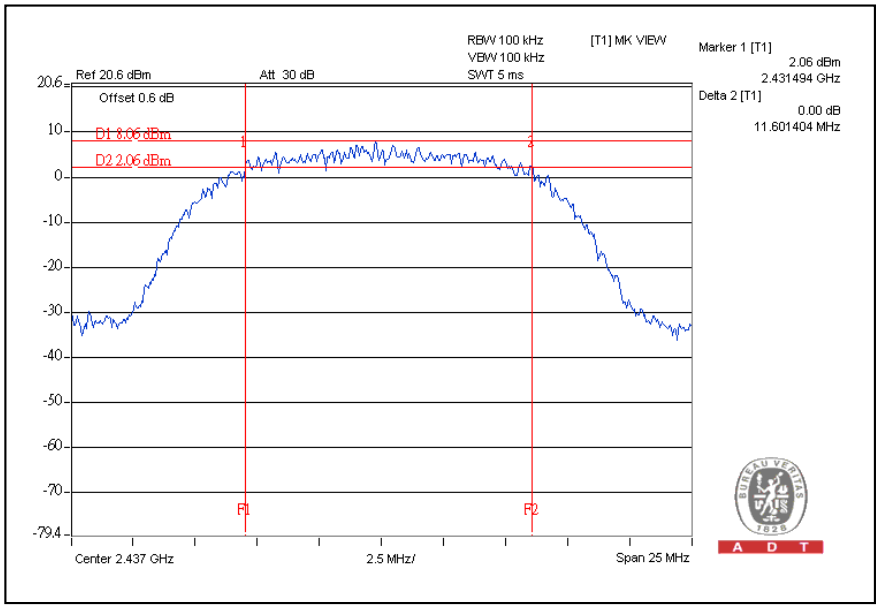
| MODULATION TYPE | DBPSK | TRANSFER RATE | 1Mbps |
|---|---|---|---|
| INPUT POWER | DC 3.9~4.2V from Battery | ENVIRONMENTAL CONDITIONS | 25deg.C, 60%RH, 965hPa |
| TESTED BY | Frank Liu | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|
| 1 | 2412 | 11.55 | 0.5 | PASS |
| 6 | 2437 | 11.60 | 0.5 | PASS |
| 11 | 2462 | 11.58 | 0.5 | PASS |

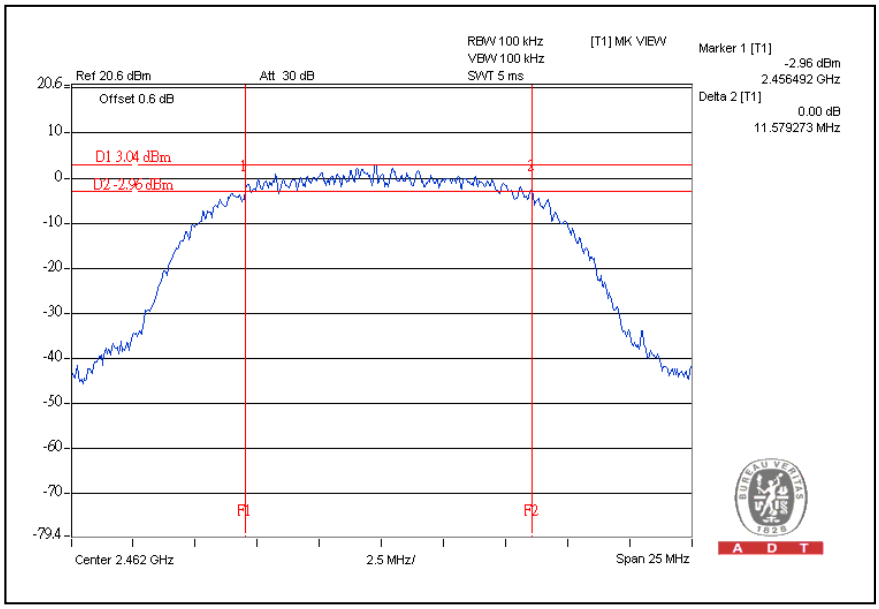
CH1



CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
2.06 dBm
2.431494 GHz
Delta 2 [T1]
0.00 dB
11.601404 MHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 8.06 dBm
D2 2.06 dBm
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

CH11

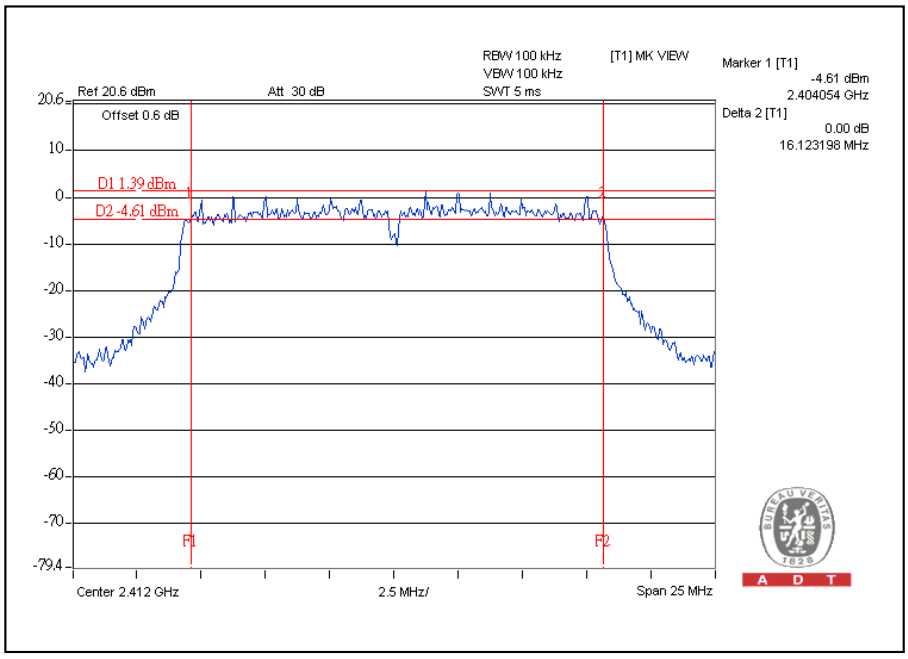

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-2.96 dBm
2.456492 GHz
Delta 2 [T1]
0.00 dB
11.579273 MHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 3.04 dBm
D2 -2.96 dBm
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

## 802.11g OFDM MODULATION:

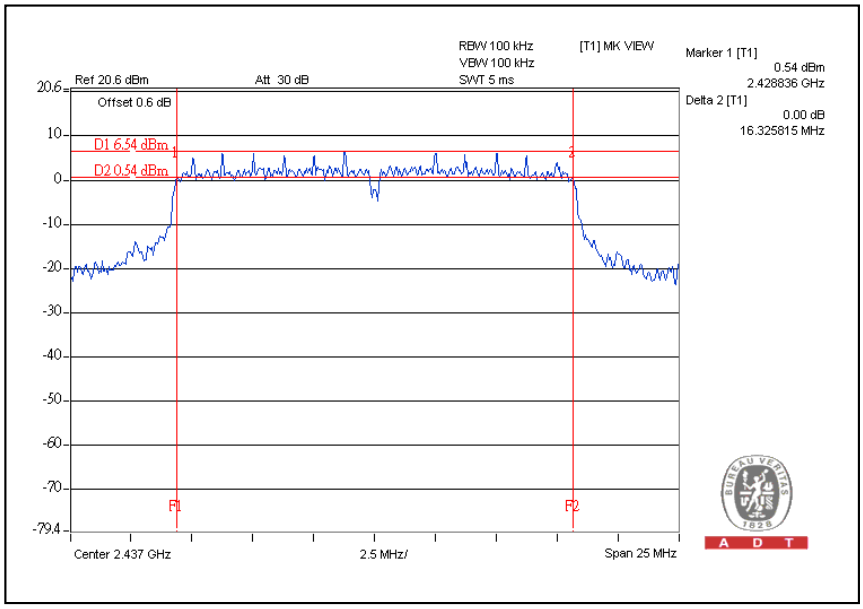
| MODULATION TYPE | BPSK | TRANSFER RATE | 6Mbps |
|---|---|---|---|
| INPUT POWER | DC 3.9~4.2V from Battery | ENVIRONMENTAL CONDITIONS | 25deg.C, 60%RH, 965hPa |
| TESTED BY | Frank Liu | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|
| 1 | 2412 | 16.12 | 0.5 | PASS |
| 6 | 2437 | 16.33 | 0.5 | PASS |
| 11 | 2462 | 16.36 | 0.5 | PASS |

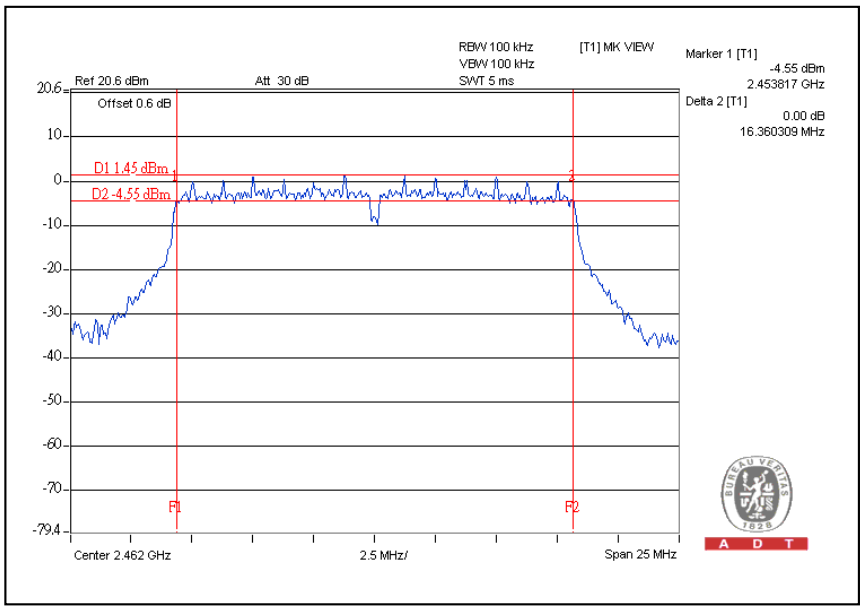
CH1



CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
0.54 dBm
2.428836 GHz
Delta 2 [T1]
0.00 dB
16.325815 MHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 6.54 dBm
D2 0.54 dBm
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.55 dBm
2.453817 GHz
Delta 2 [T1]
0.00 dB
16.360309 MHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 1.45 dBm
D2 -4.55 dBm
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

## 4.3 MAXIMUM PEAK OUTPUT POWER

### 4.3.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

### 4.3.2 INSTRUMENTS

| Description & Manufacturer | Model no. | Serial No. | Calibrated date | Calibrated Until |
|---|---|---|---|---|
| Anritsu Power Meter | ML2495A | 0824006 | June 14, 2008 | June 13, 2009 |
| Pulse Power Sensor | MA2411B | 0738172 | April 25, 2009 | April 24, 2010 |

**NOTE:**
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

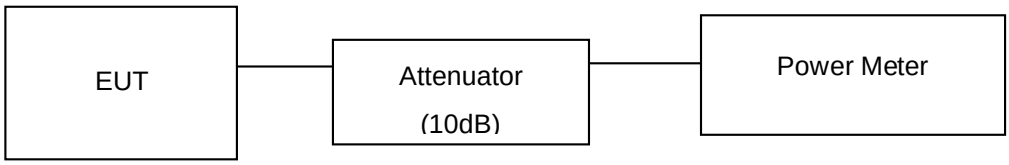
### 4.3.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.3.5 TEST SETUP




### 4.3.6 EUT OPERATING CONDITIONS

Same as Item 4.2.6

## 4.3.7 TEST RESULTS

### 802.11b DSSS MODULATION:

| MODULATION TYPE | DBPSK | TRANSFER RATE | 1Mbps |
|---|---|---|---|
| INPUT POWER | DC 3.9~4.2V from Battery | ENVIRONMENTAL CONDITIONS | 25deg.C, 60%RH, 965hPa |
| TESTED BY | Frank Liu | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | PEAK POWER OUTPUT (mW) | PEAK POWER OUTPUT (dBm) | PEAK POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|
| 1 | 2412 | 37.068 | 15.69 | 30 | PASS |
| 6 | 2437 | 116.681 | 20.67 | 30 | PASS |
| 11 | 2462 | 37.325 | 15.72 | 30 | PASS |

### 802.11g OFDM MODULATION:

| MODULATION TYPE | BPSK | TRANSFER RATE | 6Mbps |
|---|---|---|---|
| INPUT POWER | DC 3.9~4.2V from Battery | ENVIRONMENTAL CONDITIONS | 25deg.C, 60%RH, 965hPa |
| TESTED BY | Frank Liu | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | PEAK POWER OUTPUT (mW) | PEAK POWER OUTPUT (dBm) | PEAK POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|
| 1 | 2412 | 169.824 | 22.30 | 30 | PASS |
| 6 | 2437 | 249.459 | 23.97 | 30 | PASS |
| 11 | 2462 | 187.499 | 22.73 | 30 | PASS |

## 4.4 POWER SPECTRAL DENSITY MEASUREMENT

### 4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

### 4.4.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated DATE | Calibrated Until |
|---|---|---|---|---|
| R&S SPECTRUM ANALYZER | FSP40 | 100036 | Dec. 09, 2008 | Dec. 08, 2009 |

**NOTE:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

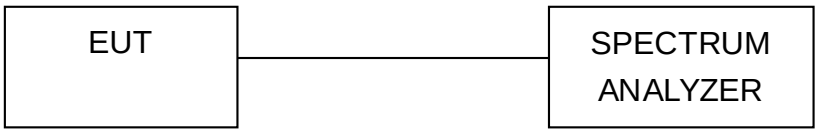
### 4.4.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

### 4.4.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.4.5 TEST SETUP




### 4.4.6 EUT OPERATING CONDITION

Same as Item 4.2.6

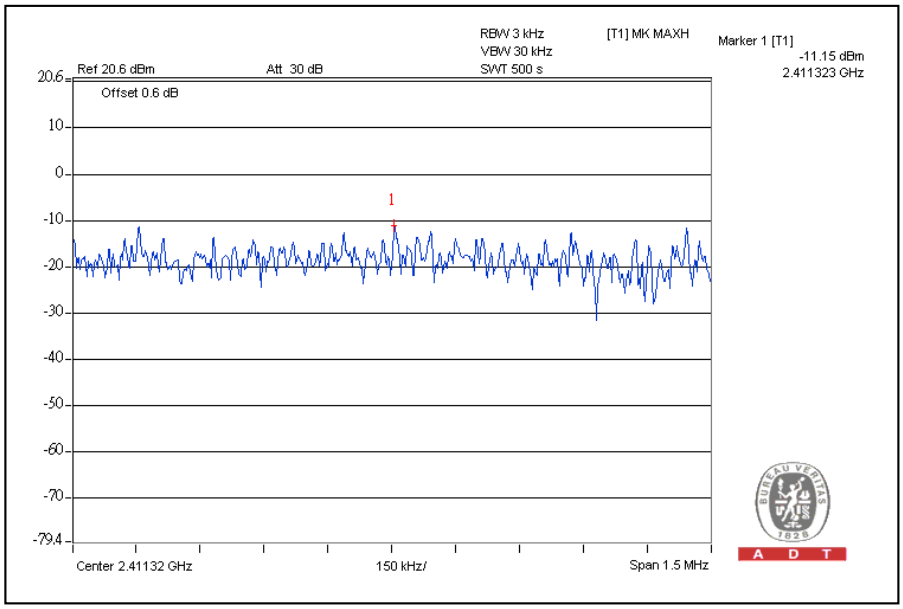
## 4.4.7 TEST RESULTS

### 802.11b DSSS MODULATION:

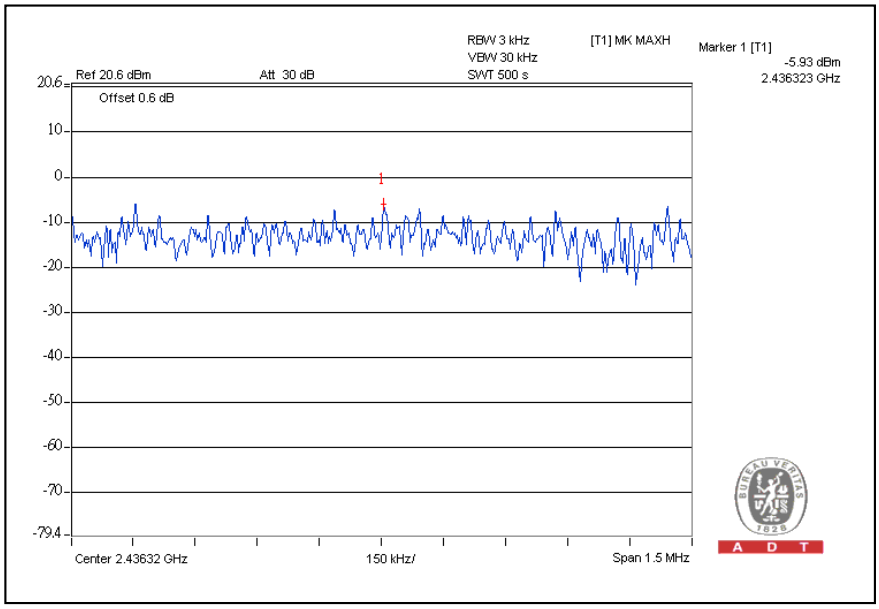
| MODULATION TYPE | DBPSK | TRANSFER RATE | 1Mbps |
|---|---|---|---|
| INPUT POWER | DC 3.9~4.2V from Battery | ENVIRONMENTAL CONDITIONS | 25deg.C, 60%RH, 965hPa |
| TESTED BY | Frank Liu | | |

| CHANNEL | CHANNEL FREQUENCY (MHz ) | RF POWER LEVEL IN 3kHz BW (dBm) | MAXIMUM LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|
| 1 | 2412 | -11.15 | 8 | PASS |
| 6 | 2437 | -5.93 | 8 | PASS |
| 11 | 2462 | -10.73 | 8 | PASS |

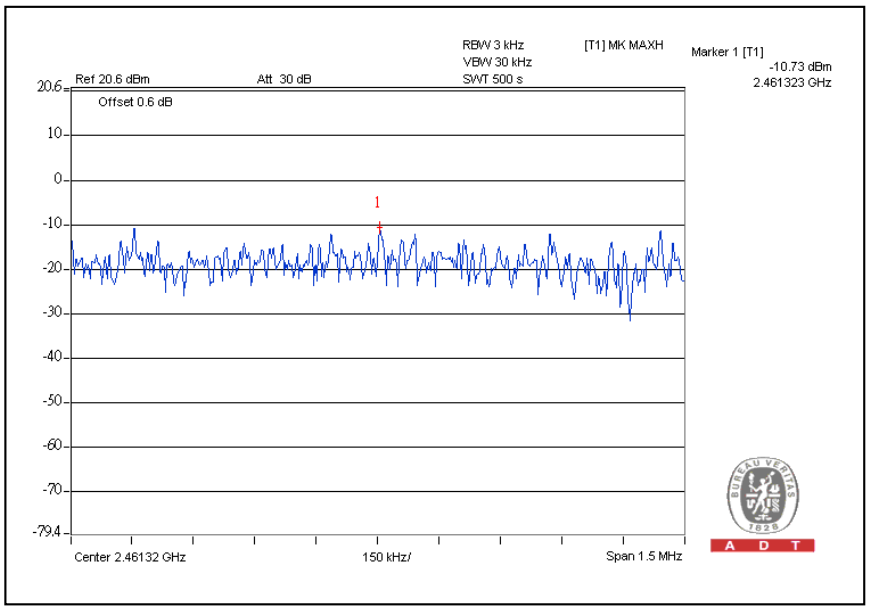
CH1



CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-5.93 dBm
2.436323 GHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Center 2.43632 GHz
150 kHz/
Span 1.5 MHz

CH11

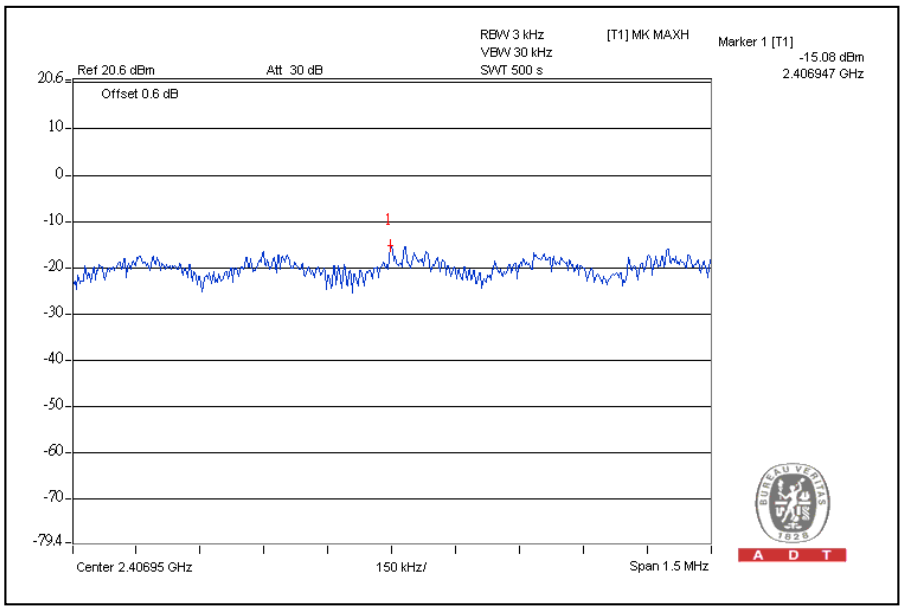

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.73 dBm
2.461323 GHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Center 2.46132 GHz
150 kHz/
Span 1.5 MHz

## 802.11g OFDM MODULATION:

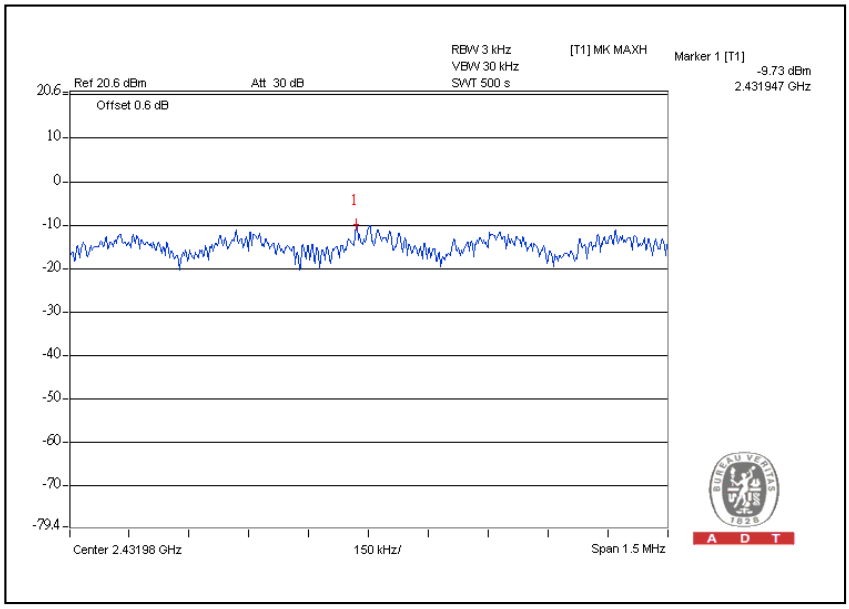
| MODULATION TYPE | BPSK | TRANSFER RATE | 6Mbps |
|---|---|---|---|
| INPUT POWER | DC 3.9~4.2V from Battery | ENVIRONMENTAL CONDITIONS | 25deg.C, 60%RH, 965hPa |
| TESTED BY | Frank Liu | | |

| CHANNEL | CHANNEL FREQUENCY (MHz ) | RF POWER LEVEL IN 3kHz BW (dBm) | MAXIMUM LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|
| 1 | 2412 | -15.08 | 8 | PASS |
| 6 | 2437 | -9.73 | 8 | PASS |
| 11 | 2462 | -14.74 | 8 | PASS |

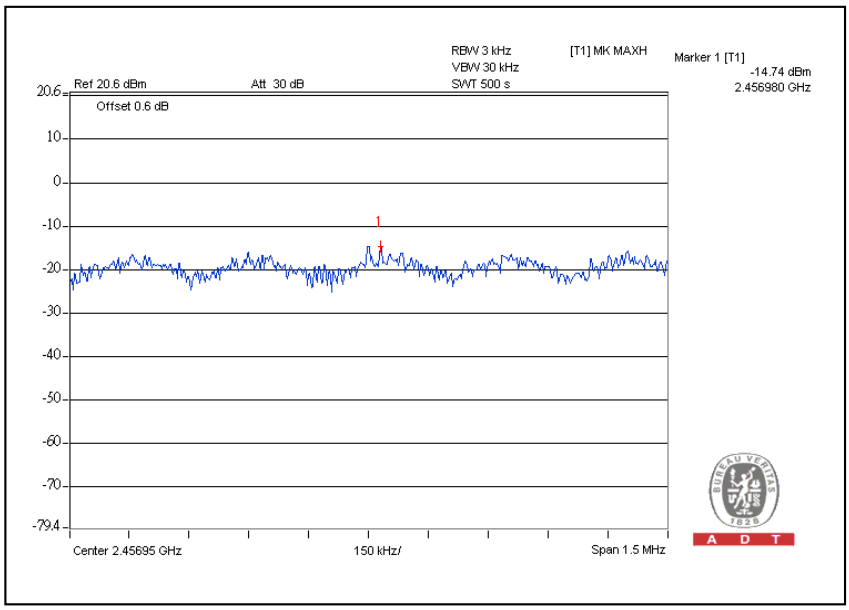
CH1



CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.73 dBm
2.431947 GHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Center 2.43198 GHz
150 kHz/
Span 1.5 MHz

CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.74 dBm
2.456980 GHz
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Center 2.45695 GHz
150 kHz/
Span 1.5 MHz

## 4.5 CONDUCTED OUT-BAND EMISSION MEASUREMENT

### 4.5.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).

### 4.5.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated DATE | Calibrated Until |
|---|---|---|---|---|
| R&S SPECTRUM ANALYZER | FSP40 | 100036 | Dec. 09, 2008 | Dec. 08, 2009 |

**NOTE:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The conducted out-band emission was measured and recorded.

The spectrum plots (RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.5.5 EUT OPERATING CONDITION

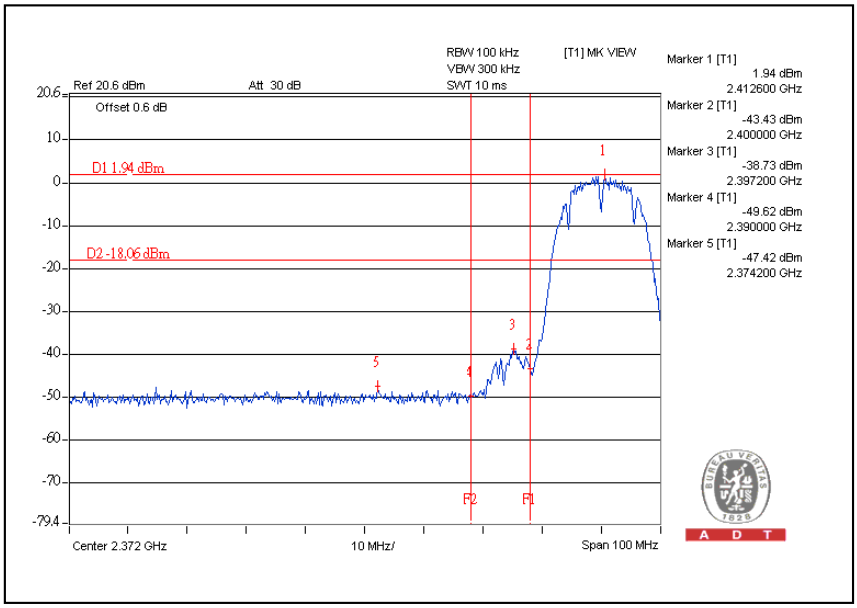
Same as Item 4.2.6

### 4.5.6 TEST RESULTS

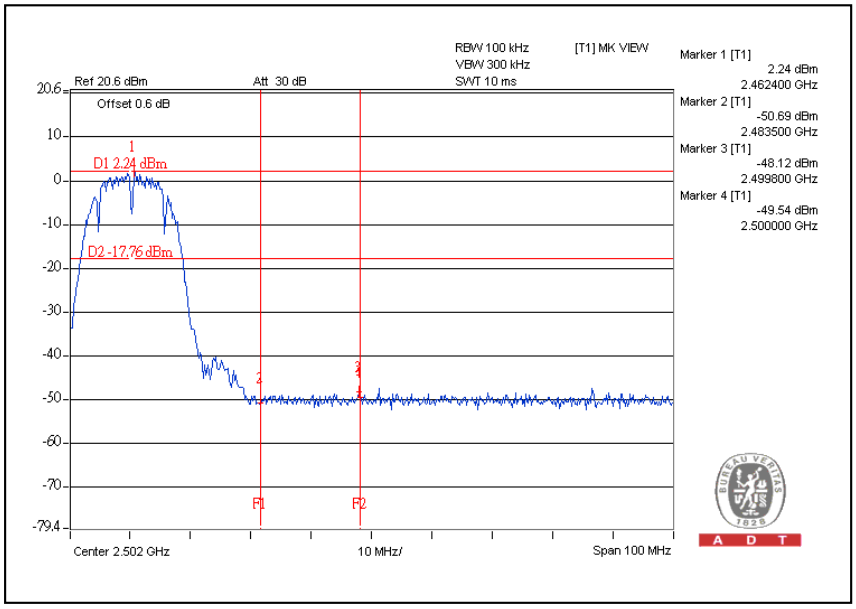
The spectrum plots are attached on the following below images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

## 802.11b DSSS MODULATION:

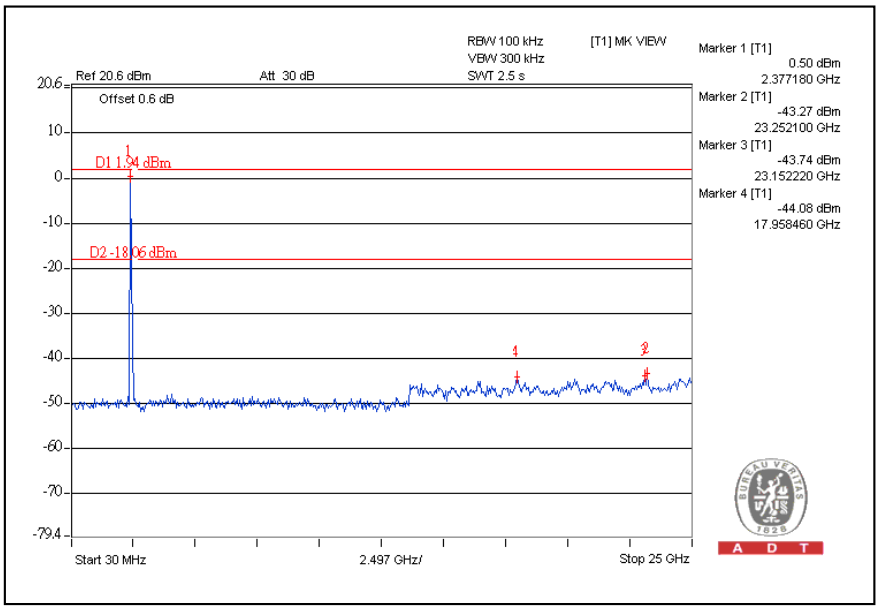
CH1



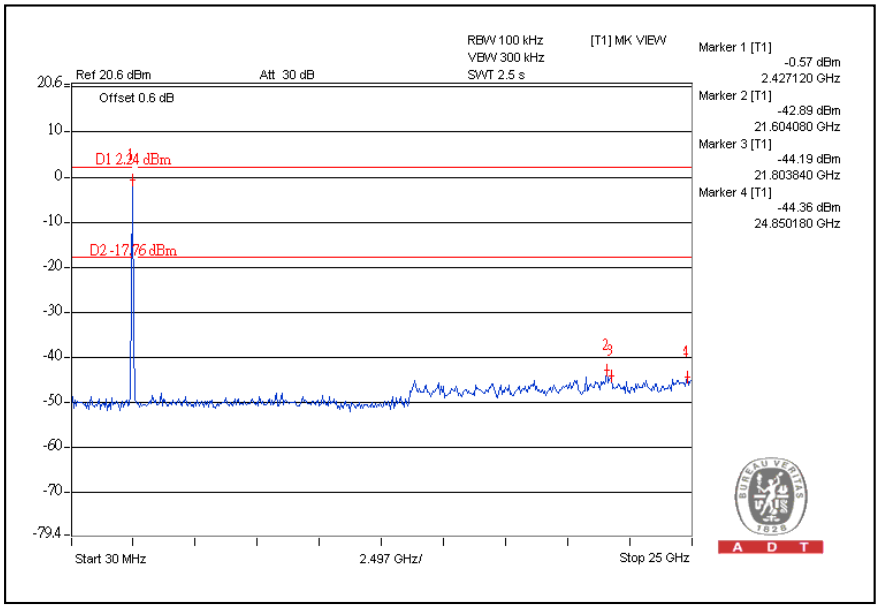

CH11



CH1

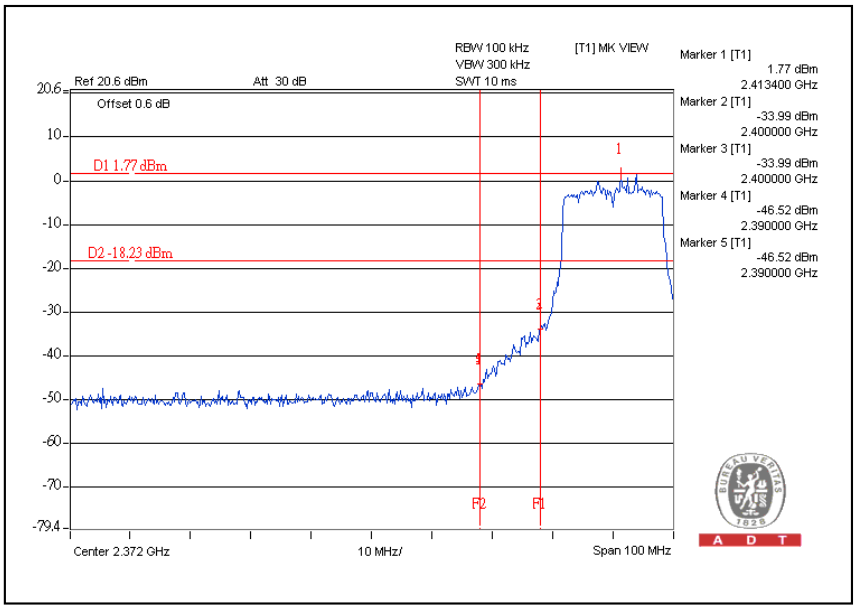

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 1.94 dBm
D2 -18.06 dBm
Marker 1 [T1]
0.50 dBm
2.377180 GHz
Marker 2 [T1]
-43.27 dBm
23.252100 GHz
Marker 3 [T1]
-43.74 dBm
23.152220 GHz
Marker 4 [T1]
-44.08 dBm
17.958460 GHz
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

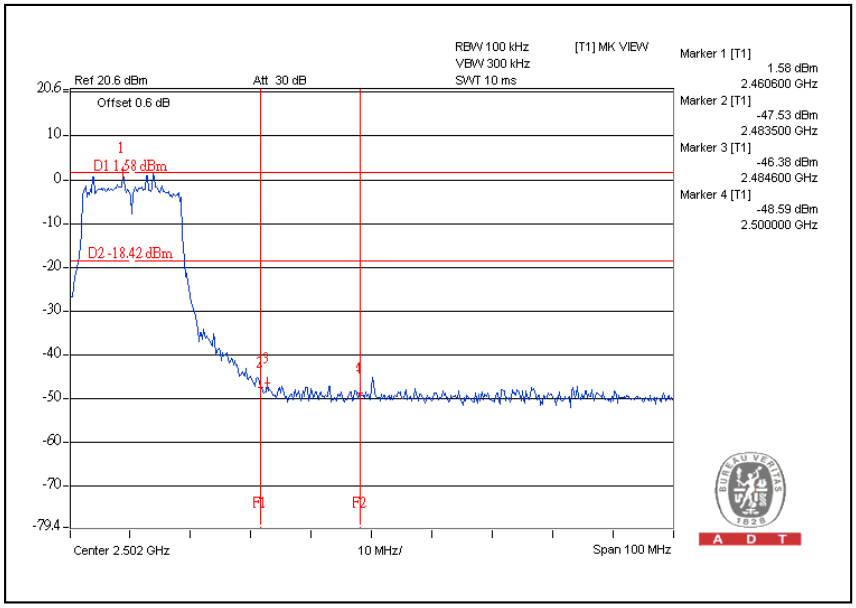

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 2.24 dBm
D2 -17.76 dBm
Marker 1 [T1]
-0.57 dBm
2.427120 GHz
Marker 2 [T1]
-42.89 dBm
21.604080 GHz
Marker 3 [T1]
-44.19 dBm
21.803840 GHz
Marker 4 [T1]
-44.36 dBm
24.850180 GHz
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Start 30 MHz
2.497 GHz/
Stop 25 GHz

## 802.11g OFDM MODULATION:

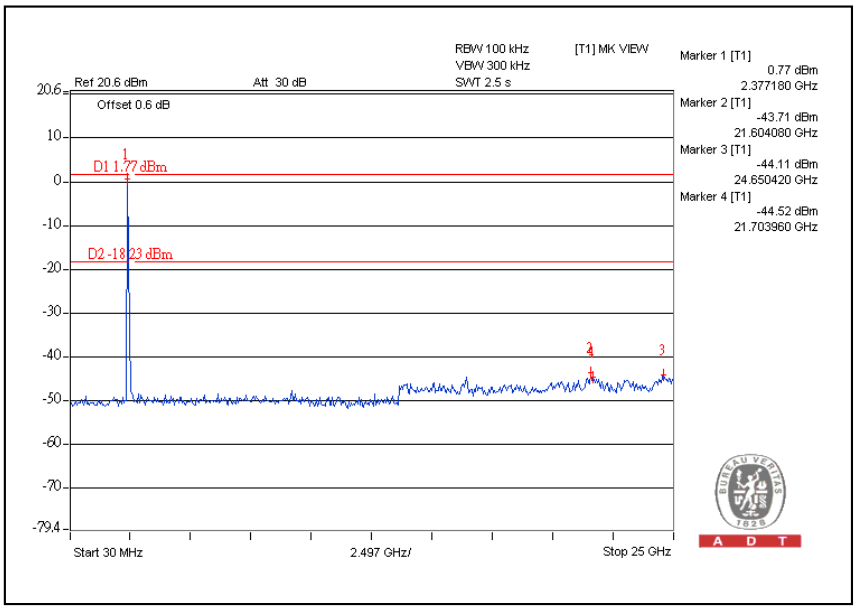
CH 1



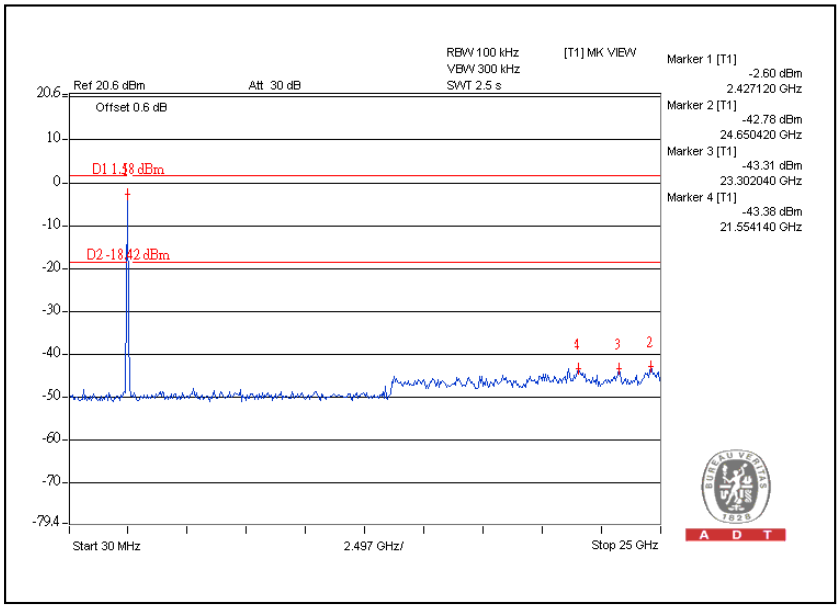

CH11



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 1.77 dBm
D2 -18.23 dBm
Marker 1 [T1]
0.77 dBm
2.377180 GHz
Marker 2 [T1]
-43.71 dBm
21.604080 GHz
Marker 3 [T1]
-44.11 dBm
24.650420 GHz
Marker 4 [T1]
-44.52 dBm
21.703960 GHz
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.6 dBm
Att 30 dB
Offset 0.6 dB
D1 1.58 dBm
D2 -18.42 dBm
Marker 1 [T1]
-2.60 dBm
2.427120 GHz
Marker 2 [T1]
-42.78 dBm
24.650420 GHz
Marker 3 [T1]
-43.31 dBm
23.302040 GHz
Marker 4 [T1]
-43.38 dBm
21.554140 GHz
20.6
10
0
-10
-20
-30
-40
-50
-60
-70
-79.4
Start 30 MHz
2.497 GHz/
Stop 25 GHz

## 4.6 ANTENNA REQUIREMENT

### 4.6.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 4.6.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is PIFA antenna without connector. The maximum Gain of the antenna is -3.5 dBi.

# 5. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

| | |
|---|---|
| **USA** | FCC, NVLAP |
| **Germany** | TUV Rheinland |
| **Japan** | VCCI |
| **Norway** | NEMKO |
| **Canada** | INDUSTRY CANADA, CSA |
| **R.O.C.** | TAF, BSMI, NCC |
| **Netherlands** | Telefication |
| **Singapore** | GOST-ASIA(MOU) |
| **Russia** | CERTIS(MOU) |

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab**:
Tel: 886-2-26052180
Fax: 886-2-26052943

**Hsin Chu EMC/RF Lab**:
Tel: 886-3-5935343
Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety Telecom Lab**:
Tel: 886-3-3183232
Fax: 886-3-3185050

**Web Site**: www.adt.com.tw

The address and road map of all our labs can be found in our web site also

# 6. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

**--- END --**