



# FCC TEST REPORT (15.407)

**REPORT NO.:** RF980606H02A-1

**MODEL NO.:** E3000

**RECEIVED:** June 06, 2009

**TESTED:** June 23 to July 03, 2009

**ISSUED:** Dec. 16, 2009

**APPLICANT:** Cisco-Linksys LLC

**ADDRESS:** 121 Theory Drive Irvine, CA 92617(USA)

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

**TEST LOCATION:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung  
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307, Taiwan

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## 1. CERTIFICATION

**PRODUCT:** Simultaneous Dual-Band Wireless-N Gigabit Router  
**BRAND NAME:** Linksys  
**MODEL NO.:** E3000  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**TESTED:** June 23 to July 03, 2009  
**APPLICANT:** Cisco-Linksys LLC  
**STANDARDS:** FCC Part 15, Subpart E (Section 15.407),  
ANSI C63.4-2003

The above equipment (Model: E3000) 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:** Dec. 16, 2009  
( Carol Liao, Specialist )

**TECHNICAL ACCEPTANCE** : Hank Chung , **DATE:** Dec. 16, 2009  
( Hank Chung, Deputy Manager )

**APPROVED BY** : May Chen , **DATE:** Dec. 16, 2009  
( May Chen, Deputy Manager )

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For [802.11a](#)

| APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407) |  |        |   |
|---|--|--------|---|
| Standard Section  | Test Type  | Result | Remark  |
| 15.407(b)(5)  | AC Power Conducted Emission                                  | PASS   | Meet the requirement of limit.<br>Minimum passing margin is -8.50dB at 1.625MHz |
| 15.407(b/1/2/3)<br>(b)(5)                                 | Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz | PASS   | Meet the requirement of limit.<br>Minimum passing margin is -1.06dB at 10480MHz |
| 15.407(a/1/2/3)   | Peak Transmit Power  | PASS   | Meet the requirement of limit.  |
| 15.407(a)(6)  | Peak Power Excursion   | PASS   | Meet the requirement of limit.  |
| 15.407(a/1/2/3)   | Peak Power Spectral Density                                  | PASS   | Meet the requirement of limit.  |
| 15.407(g)   | Frequency Stability  | PASS   | Meet the requirement of limit.  |

### NOTE:

1. The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.25GHz and 5.725~5.85GHz frequencies band. This report was recorded the RF parameters including 5.15~5.25GHz. For the 2.400 ~ 2.4835GHz and 5.725~5.85GHz RF parameters was recorded in another test report.

## 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  $k=2$ .

| <b>Measurement</b>                | <b>Value</b> |
|-----------------------------------|--------------|
| Conducted emissions               | 2.45 dB      |
| Radiated emissions (30MHz-1GHz)   | 3.94 dB      |
| Radiated emissions (1GHz -18GHz)  | 2.49 dB      |
| Radiated emissions (18GHz -40GHz) | 2.70 dB      |



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                              |   |
|------------------------------|---|
| <b>PRODUCT</b>               | Simultaneous Dual-Band Wireless-N Gigabit Router  |
| <b>MODEL NO.</b>             | E3000   |
| <b>FCC ID</b>                | Q87-E3000   |
| <b>POWER SUPPLY</b>          | DC 12V from power adapter   |
| <b>MODULATION TYPE</b>       | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM   |
| <b>MODULATION TECHNOLOGY</b> | DSSS, OFDM  |
| <b>TRANSFER RATE</b>         | 802.11b: 11 / 5.5 / 2 / 1Mbps<br>802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps<br>802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps<br>Draft 802.11n (20MHz, 800ns GI): 130 / 117 / 104 / 78 / 52 / 39 / 26 / 13 / 6.5 / 5.5 / 5 / 4.5 / 4 / 3.5 / 3 / 2.5 / 2 / 1.5 / 1 Mbps<br>Draft 802.11n (40MHz, 800ns GI): 270 / 243 / 216 / 162 / 108 / 81 / 54 / 27 / 13.5 / 12.15 / 10.8 / 8.1 / 5.4 / 4.05 / 2.7 / 1.35 Mbps |
| <b>FREQUENCY RANGE</b>       | <b>For 15.407</b><br>802.11a: 5.18 ~ 5.24GHz<br><b>For 15.247</b><br>802.11b & 802.11g: 2412 ~ 2462MHz<br>802.11a: 5.745 ~ 5.825GHz   |
| <b>NUMBER OF CHANNEL</b>     | <b>For 15.407</b><br>4 for 802.11a, draft 802.11n (20MHz)<br>2 for draft 802.11n (40MHz)<br><b>For 15.247(2.4GHz)</b><br>11 for 802.11b, 802.11g, draft 802.11n (20MHz)<br>7 for draft 802.11n (40MHz)<br><b>For 15.247(5GHz)</b><br>5 for 802.11a, draft 802.11n (20MHz)<br>2 for draft 802.11n (40MHz)  |





|                             |  |
|-----------------------------|--|
| <b>MAXIMUM OUTPUT POWER</b> | <b>For 15.407</b><br>802.11a: 32.4mW<br>draft 802.11n (20MHz): 32.9mW<br>draft 802.11n (40MHz): 42.3mW<br><b>For 15.247(2.4GHz)</b><br>802.11b: 398.1mW<br>802.11g: 691.8mW<br>draft 802.11n (20MHz): 979.8mW<br>draft 802.11n (40MHz): 583.8mW<br><b>For 15.247(5GHz)</b><br>802.11a: 398.1mW<br>draft 802.11n (20MHz): 789.7mW<br>draft 802.11n (40MHz): 743.9mW |
| <b>ANTENNA TYPE</b>         | Please see note 1  |
| <b>DATA CABLE</b>           | RJ45 cable x 1 (Unshielded, 1.8m)  |
| <b>I/O PORT</b>             | LAN port x 4 ,WAN port x 1, USB port x 1   |
| <b>ASSOCIATED DEVICES</b>   | NA   |

**NOTE:**

1. There are three antennas provided to this EUT, please refer to the following table:

| Transmitter / Circuit | Antenna Gain          |                     | Antenna Type | Connector |
|-----------------------|-----------------------|---------------------|--------------|-----------|
|                       | For 2.4GHz Gain (dBi) | For 5GHz Gain (dBi) |              |           |
| Chain(0)              | 4                     | 3.5                 | PIFA         | NA        |
| Chain(1)              | 4                     | 3.5                 | PIFA         | NA        |
| Chain(2)              | 4                     | 3.5                 | PIFA         | NA        |

2. There are two power adapters provided to this EUT, please refer to the following table:

| Adapter   | Brand  | Model No.       | Spec.   |
|-----------|--------|-----------------|---|
| Adapter 1 | Bestec | NA0241WAA       | Input: 100-240V, 0.5A, 50-60Hz<br>Output: DC12V, 2A<br>DC output cable (unshielded, 1.5m) |
| Adapter 2 | LEADER | MU24-B120200-A1 | Input: 100-240V, 0.5A, 50-60Hz<br>Output: DC12V, 2A<br>DC output cable (unshielded, 1.5m) |

For radiated test, the EUT was pre-tested with above adapters, the worse case was found in adapter 1. Therefore only the test data of the adapter was recorded in this report.

3. For radiated test, The EUT was pre-tested under the following modes:

| Test Mode | Description |
|-----------|-------------|
| Mode A    | Level-set   |
| Mode B    | Tower-set   |

From the above modes, the worse case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

4. The EUT incorporates a MIMO function with draft 802.11n. Physically, the EUT provides two completed transmitters and three completed receivers.
5. The EUT is 2 \* 3 spatial MIMO (2Tx & 3Rx) without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 3 PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas. The 11a and 11bg legacy mode is limited to single transmitter only.
6. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
7. The EUT complies with draft 802.11n standards and backwards compatible with 802.11a, 802.11b, 802.11g products.
8. The above EUT information was declared by 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 5150MHz ~ 5250MHz bands:

Four channels are provided for 802.11a and draft 802.11n (20MHz):

| CHANNEL | FREQUENCY |
|---------|-----------|
| 36      | 5180 MHz  |
| 40      | 5200 MHz  |
| 44      | 5220 MHz  |
| 48      | 5240 MHz  |

Two channels are provided for draft 802.11n (40MHz):

| CHANNEL | FREQUENCY |
|---------|-----------|
| 38      | 5190 MHz  |
| 46      | 5230 MHz  |



### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

| EUT CONFIGURE MODE | APPLICABLE TO |         |         |      | DESCRIPTION |
|--------------------|---------------|---------|---------|------|-------------|
|                    | PLC           | RE < 1G | RE ≥ 1G | APCM |             |
| -                  | √             | √       | √       | √    | -           |

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

### ANTENNA COMBINATION MODE:

| COMBINATION MODE | OPERATION MODE                         | CHAIN(0) (TX) | CHAIN(1) (TX) | CHAIN(2) (TX) |
|------------------|--|---------------|---------------|---------------|
| A                | 802.11 a                               | √             |               |               |
| B                |  |               | √             |               |
| C                | DRAFT<br>802.11n(20MHz) for<br>MCS0~15 | √             | √             |               |
| D                |  |               | √             | √             |
| E                |  | √             |               | √             |
| F                | DRAFT<br>802.11n(40MHz) for<br>MCS0~15 | √             | √             |               |
| G                |  |               | √             | √             |
| H                |  | √             |               | √             |

Note:

1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Antenna 1 ~3 are PIFA antennas.
3. We choose the worst mode (decided by pre-test) for final test. Mode A, C and F the worst modes, was selected as representative mode for this report.

**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) | TX COMBINATION |
|------------------------------------|-------------------|----------------|-----------------------|-----------------|------------------|----------------|
| For 5 GHz<br>Draft 802.11n (40MHz) | 38 to 46          | 38             | OFDM                  | BPSK            | 13.5             | F              |

- The EUT was tested with the following test modes:

| Test Mode | Description |
|-----------|-------------|
| Mode A    | Adapter 1   |
| Mode B    | 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) | TX COMBINATION |
|------------------------------------|-------------------|----------------|-----------------------|-----------------|------------------|----------------|
| For 5 GHz<br>Draft 802.11n (40MHz) | 38 to 46          | 38             | OFDM                  | BPSK            | 13.5             | F              |



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### **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) | TX COMBINATION |
|------------------------------------|-------------------|----------------|-----------------------|-----------------|------------------|----------------|
| 802.11a                            | 36 to 48          | 36, 40, 48     | OFDM                  | BPSK            | 6                | A              |
| For 5 GHz<br>Draft 802.11n (20MHz) | 36 to 48          | 36, 40, 48     | OFDM                  | BPSK            | 6.5              | C              |
| For 5 GHz<br>Draft 802.11n (40MHz) | 38 to 46          | 38, 46         | OFDM                  | BPSK            | 13.5             | F              |

### **CONDUCTED OUT-BAND EMISSION 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) | TX COMBINATION |
|------------------------------------|-------------------|----------------|-----------------------|-----------------|------------------|----------------|
| 802.11a                            | 36 to 48          | 36, 48         | OFDM                  | BPSK            | 6                | A              |
| For 5 GHz<br>Draft 802.11n (20MHz) | 36 to 48          | 36, 48         | OFDM                  | BPSK            | 6.5              | C              |
| For 5 GHz<br>Draft 802.11n (40MHz) | 38 to 46          | 38, 46         | OFDM                  | BPSK            | 13.5             | F              |

### **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) | TX COMBINATION |
|------------------------------------|-------------------|----------------|-----------------------|-----------------|------------------|----------------|
| 802.11a                            | 36 to 48          | 36, 40, 48     | OFDM                  | BPSK            | 6                | A              |
| For 5 GHz<br>Draft 802.11n (20MHz) | 36 to 48          | 36, 40, 48     | OFDM                  | BPSK            | 6.5              | C              |
| For 5 GHz<br>Draft 802.11n (40MHz) | 38 to 46          | 38, 46         | OFDM                  | BPSK            | 13.5             | F              |

### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Simultaneous Dual-Band Wireless-N Gigabit Router. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart E (15.407)**

**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   | NOTEBOOK COMPUTER                                       | DELL  | PP18L     | 6976685584               | FCC DoC         |
| 2   | NOTEBOOK COMPUTER                                       | DELL  | PP19L     | CN-OHC416-70166-5CA-0448 | PIW632500516610 |
| 3   | HUB   | ZyXEL | ES-116P   | S060H02000215            | FCC DoC         |
| 4   | IPOD  | Apple | A1137     | 6U6078FMUPR              | FCC DoC         |
| 5   | NOTEBOOK COMPUTER<br>(For conducted emission test only) | DELL  | PP05L     | CN-04Y212-48643-38E-0145 | FCC DoC         |

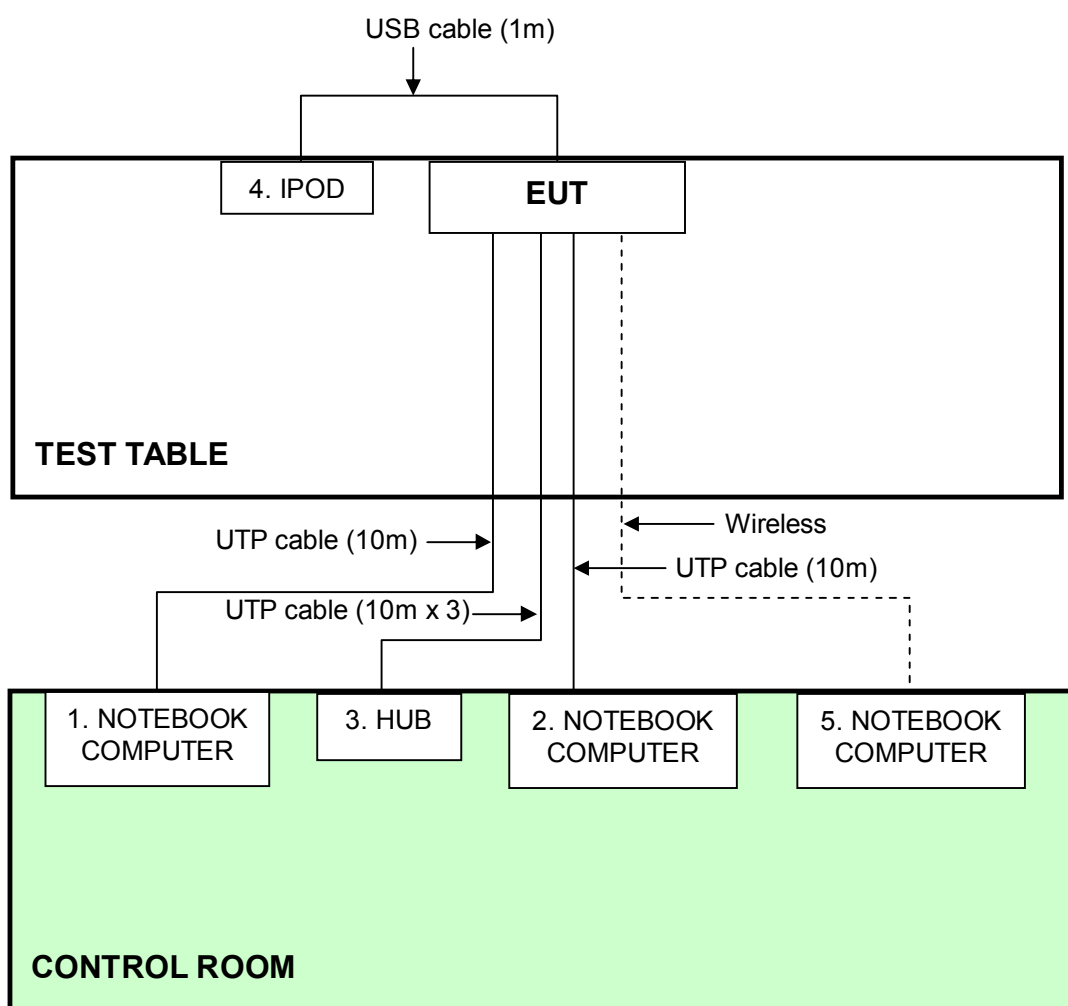
| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS          |
|-----|--|
| 1   | UTP cable (Unshielded, 10m)                                  |
| 2   | UTP cable (Unshielded, 10m)                                  |
| 3   | UTP cable (Unshielded, 10m)                                  |
| 4   | 1 m shielded cable, terminated with USB connector, w/o core. |
| 5   | Wireless   |

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

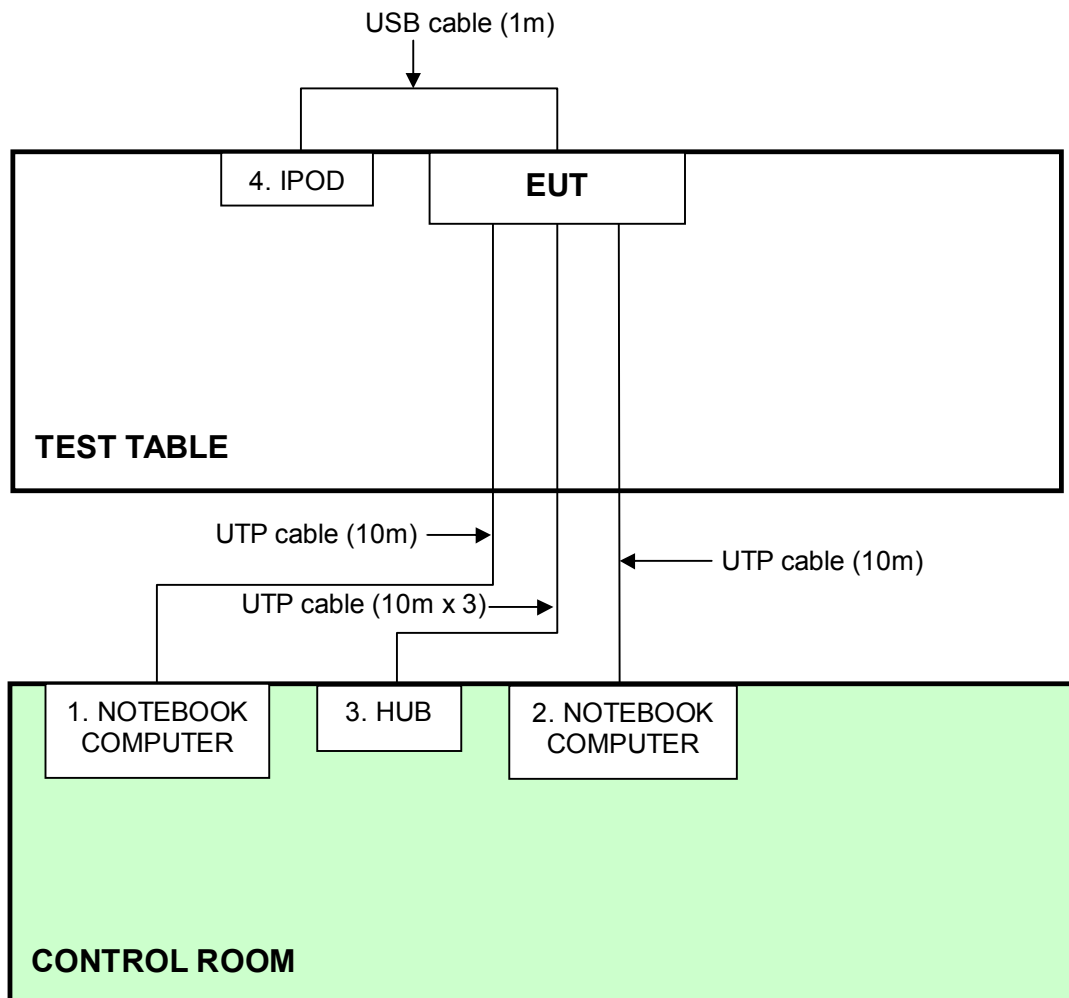


### 3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted Emission test:



For other test:



## 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 $\mu$ 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. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
  3. All emanations from a class A/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 DATE | CALIBRATED UNTIL |
|---|------------------------|------------|-----------------|------------------|
| ROHDE & SCHWARZ<br>Test Receiver                            | ESCS 30                | 100287     | Mar. 05, 2009   | Mar. 04, 2010    |
| Line-Impedance<br>Stabilization Network<br>(for EUT)        | KNW-407                | 8-1395-12  | May 04, 2009    | May 03, 2010     |
| Line-Impedance<br>Stabilization Network<br>(for Peripheral) | ENV-216                | 100072     | June 08, 2009   | June 07, 2010    |
| RF Cable (JYEBAO)   | 5DFB                   | COACAB-001 | Dec 15, 2008    | Dec 14, 2009     |
| 50 ohms Terminator  | 50                     | 3          | Nov. 05, 2008   | Nov. 04, 2009    |
| Software  | BV ADT_Cond_<br>V7.3.7 | 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 test was performed in Shielded Room No. A.
  3. The VCCI Con A Registration No. is C-817.

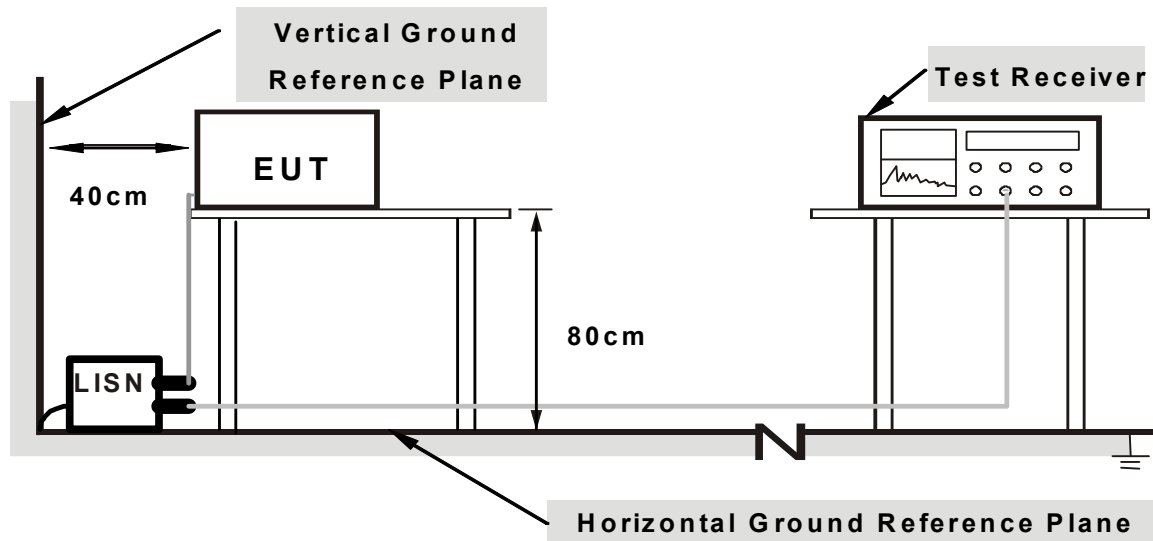
#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT 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
- b. provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was not recorded.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



**Note: 1. Support units were connected to second LISN.**

**2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

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

#### 4.1.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 ~ 3, 5) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “Ping.exe” to enable EUT under transmission/receiving condition continuously via UTP cables and wireless transmission.



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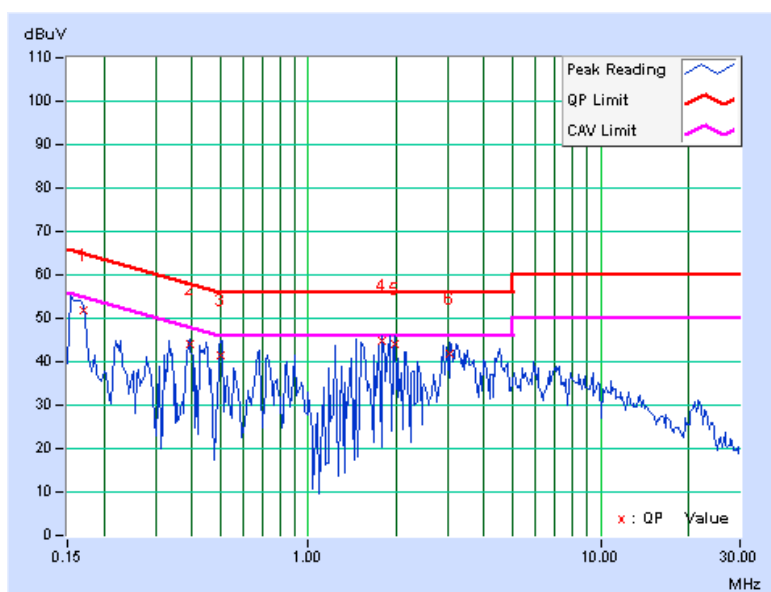
### 4.1.7 TEST RESULTS-Adapter 1

#### DRAFT 802.11n (40MHz) OFDM MODULATION:

| EUT TEST CONDITION       |                         | MEASUREMENT DETAIL |               |
|--------------------------|-------------------------|--------------------|---------------|
| CHANNEL                  | Channel 38              | PHASE              | Line (L)      |
| MODULATION TYPE          | BPSK                    | 6dB BANDWIDTH      | 9 kHz         |
| TRANSFER RATE            | 13.5Mbps                | INPUT POWER        | 120Vac, 60 Hz |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH, 965hPa | TESTED BY          | Timmy Hu      |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |       |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|-------|
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.   |
|    |                |                         | 1                          | 0.170 | 0.23                        | 51.79 | -                  | 52.02 | -              | 64.94 |
| 2  | 0.392          | 0.08                    | 44.05                      | -     | 44.13                       | -     | 58.02              | 48.02 | -13.88         | -     |
| 3  | 0.500          | 0.08                    | 41.48                      | -     | 41.56                       | -     | 56.00              | 46.00 | -14.44         | -     |
| 4  | 1.793          | 0.07                    | 44.65                      | -     | 44.72                       | -     | 56.00              | 46.00 | -11.28         | -     |
| 5  | 1.977          | 0.07                    | 44.12                      | -     | 44.19                       | -     | 56.00              | 46.00 | -11.81         | -     |
| 6  | 3.035          | 0.11                    | 41.62                      | -     | 41.73                       | -     | 56.00              | 46.00 | -14.27         | -     |

- 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.



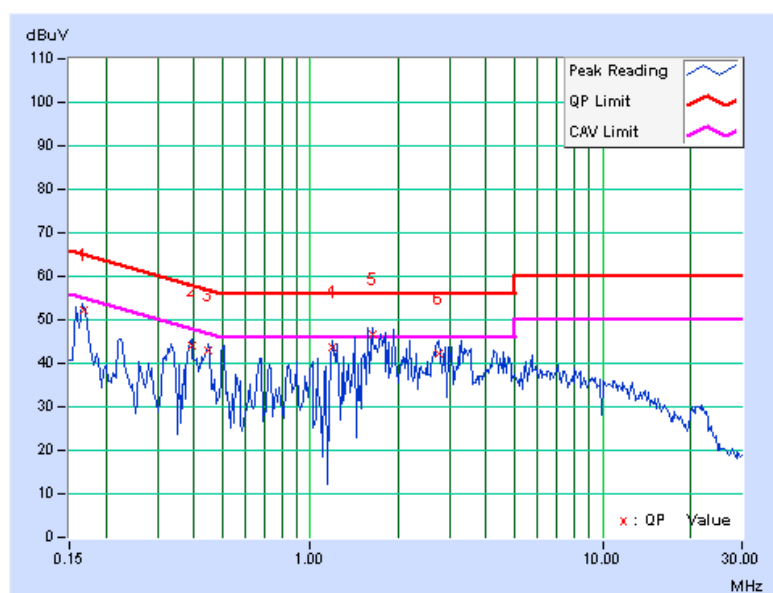


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| EUT TEST CONDITION       |                         | MEASUREMENT DETAIL |               |
|--------------------------|-------------------------|--------------------|---------------|
| CHANNEL                  | Channel 38              | PHASE              | Neutral (N)   |
| MODULATION TYPE          | BPSK                    | 6dB BANDWIDTH      | 9 kHz         |
| TRANSFER RATE            | 13.5Mbps                | INPUT POWER        | 120Vac, 60 Hz |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH, 965hPa | TESTED BY          | Timmy Hu      |

| No       | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |              | Emission Level<br>[dB (uV)] |              | Limit<br>[dB (uV)] |              | Margin<br>(dB) |              |
|----------|----------------|-------------------------|----------------------------|--------------|-----------------------------|--------------|--------------------|--------------|----------------|--------------|
|          |                |                         | Q.P.                       | AV.          | Q.P.                        | AV.          | Q.P.               | AV.          | Q.P.           | AV.          |
|          | 1              | 0.169                   | 0.24                       | 51.95        | -                           | 52.19        | -                  | 65.01        | 55.01          | -12.82       |
| 2        | 0.392          | 0.09                    | 43.87                      | -            | 43.96                       | -            | 58.02              | 48.02        | -14.05         | -            |
| 3        | 0.447          | 0.09                    | 42.89                      | -            | 42.98                       | -            | 56.93              | 46.93        | -13.95         | -            |
| 4        | 1.188          | 0.08                    | 43.51                      | -            | 43.59                       | -            | 56.00              | 46.00        | -12.41         | -            |
| <b>5</b> | <b>1.625</b>   | <b>0.09</b>             | <b>46.65</b>               | <b>37.41</b> | <b>46.74</b>                | <b>37.50</b> | <b>56.00</b>       | <b>46.00</b> | <b>-9.26</b>   | <b>-8.50</b> |
| 6        | 2.742          | 0.12                    | 42.26                      | -            | 42.38                       | -            | 56.00              | 46.00        | -13.62         | -            |

- 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.





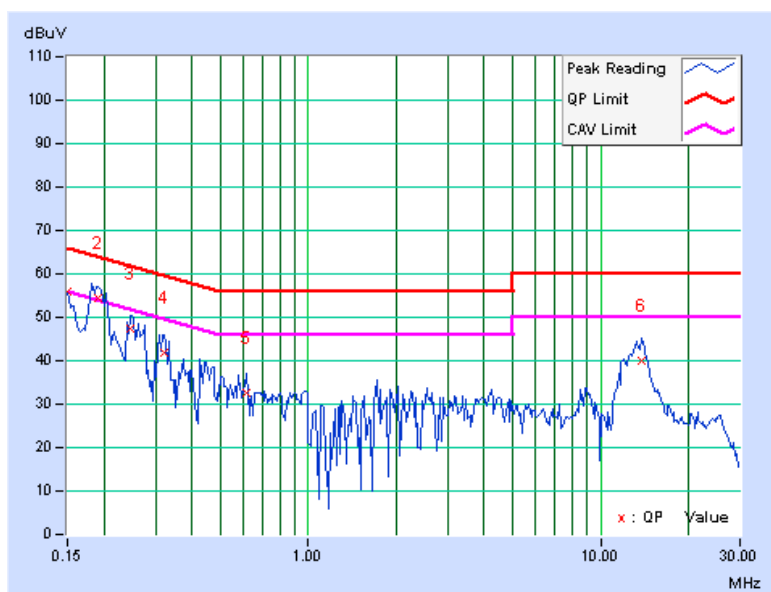
### 4.1.8 TEST RESULTS-Adapter 2

#### DRAFT 802.11n (40MHz) OFDM MODULATION

| EUT TEST CONDITION       |                         | MEASUREMENT DETAIL |               |
|--------------------------|-------------------------|--------------------|---------------|
| CHANNEL                  | Channel 38              | PHASE              | Line (L)      |
| MODULATION TYPE          | BPSK                    | 6dB BANDWIDTH      | 9 kHz         |
| TRANSFER RATE            | 13.5Mbps                | INPUT POWER        | 120Vac, 60 Hz |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH, 965hPa | TESTED BY          | Timmy Hu      |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value [dB (uV)] |       | Emission Level [dB (uV)] |       | Limit [dB (uV)] |       | Margin (dB) |        |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
|    |             |                   | Q.P.                    | AV.   | Q.P.                     | AV.   | Q.P.            | AV.   | Q.P.        | AV.    |
|    |             |                   | 1                       | 0.150 | 0.28                     | 55.58 | -               | 55.86 | -           | 66.00  |
| 2  | 0.191       | 0.19              | 54.19                   | 41.29 | 54.38                    | 41.48 | 63.98           | 53.98 | -9.60       | -12.50 |
| 3  | 0.248       | 0.15              | 47.40                   | -     | 47.55                    | -     | 61.84           | 51.84 | -14.29      | -      |
| 4  | 0.322       | 0.12              | 41.85                   | -     | 41.97                    | -     | 59.66           | 49.66 | -17.69      | -      |
| 5  | 0.611       | 0.07              | 32.44                   | -     | 32.51                    | -     | 56.00           | 46.00 | -23.49      | -      |
| 6  | 13.762      | 0.32              | 39.67                   | -     | 39.99                    | -     | 60.00           | 50.00 | -20.01      | -      |

- 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.





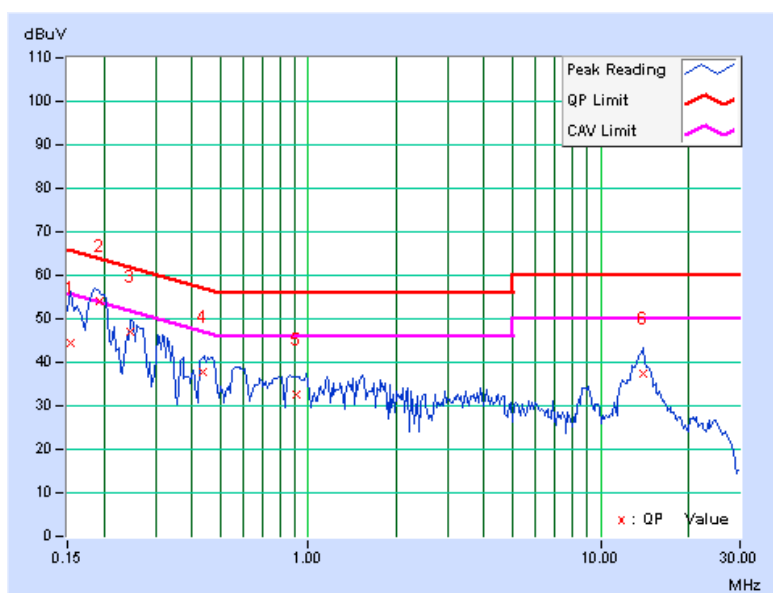


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| EUT TEST CONDITION       |                         | MEASUREMENT DETAIL |               |
|--------------------------|-------------------------|--------------------|---------------|
| CHANNEL                  | Channel 38              | PHASE              | Neutral (N)   |
| MODULATION TYPE          | BPSK                    | 6dB BANDWIDTH      | 9 kHz         |
| TRANSFER RATE            | 13.5Mbps                | INPUT POWER        | 120Vac, 60 Hz |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 65%RH, 965hPa | TESTED BY          | Timmy Hu      |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value [dB (uV)] |       | Emission Level [dB (uV)] |       | Limit [dB (uV)] |       | Margin (dB) |        |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
|    |             |                   | Q.P.                    | AV.   | Q.P.                     | AV.   | Q.P.            | AV.   | Q.P.        | AV.    |
|    |             |                   | 1                       | 0.154 | 0.27                     | 44.28 | -               | 44.55 | -           | 65.79  |
| 2  | 0.193       | 0.19              | 53.81                   | 40.84 | 54.00                    | 41.03 | 63.89           | 53.89 | -9.89       | -12.86 |
| 3  | 0.248       | 0.16              | 46.85                   | -     | 47.01                    | -     | 61.84           | 51.84 | -14.83      | -      |
| 4  | 0.435       | 0.09              | 37.61                   | -     | 37.70                    | -     | 57.15           | 47.15 | -19.45      | -      |
| 5  | 0.912       | 0.08              | 32.69                   | -     | 32.77                    | -     | 56.00           | 46.00 | -23.23      | -      |
| 6  | 14.035      | 0.36              | 36.94                   | -     | 37.30                    | -     | 60.00           | 50.00 | -22.70      | -      |

- 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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

| Frequencies (MHz) | EIRP Limit (dBm) | Equivalent Field Strength at 3m (dB $\mu$ V/m) *note 3 |
|-------------------|------------------|--|
| 5150~5250         | -27              | 68.3   |
| 5250~5350         | -27              | 68.3   |
| 5470~5725         | -27              | 68.3   |
| 5725~5825         | -27 *note 1      | 68.3   |
|                   | -17 *note 2      | 78.3   |

**NOTE:**

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$



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#### 4.2.3 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER           | MODEL NO.                | SERIAL NO.      | CALIBRATED DATE | CALIBRATED UNTIL |
|--------------------------------------|--------------------------|-----------------|-----------------|------------------|
| ROHDE & SCHWARZ Spectrum Analyzer    | FSP40                    | 100036          | Dec. 9, 2008    | Dec. 8, 2009     |
| HP Pre_Amplifier                     | 8449B                    | 3008A01923      | Nov. 10, 2008   | Nov. 9, 2009     |
| ROHDE & SCHWARZ Test Receiver        | ESCS30                   | 847124/029      | Sep. 9, 2008    | Sep. 8, 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.

#### 4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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 10dB 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 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

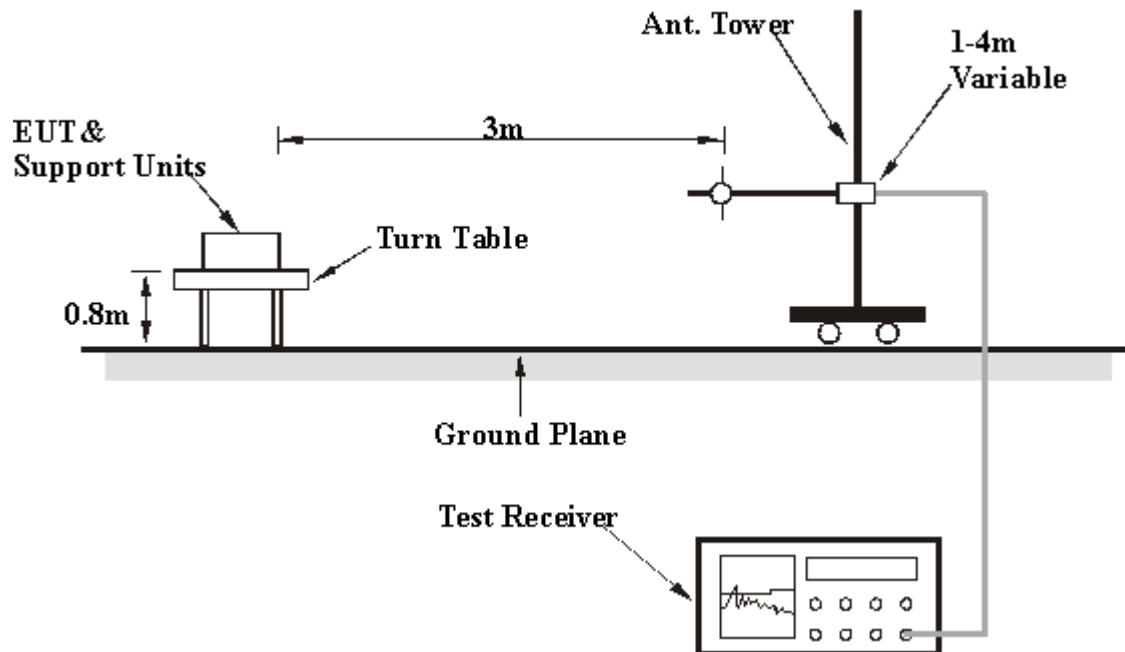
**NOTE:**

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.

#### 4.2.5 DEVIATION FROM TEST STANDARD

No deviation

#### 4.2.6 TEST SETUP



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

#### 4.2.7 EUT OPERATING CONDITION

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 ~ 3) to act as communication partners and placed them outside of testing area.
3. The communication partner runs test program” MFGTEST” to enable EUT under transmission condition continuously at specific channel frequency via UTP cables.

## Below 1GHz Test Data

### 4.2.8 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA : DRAFT 802.11n (40MHz) OFDM MODULATION

| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |               |
|--------------------------|-------------------------------|--------------------|---------------|
| CHANNEL                  | Channel 38                    | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 30.0deg. C, 61.0%RH<br>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   | 125.00      | 25.98 QP                | 43.50          | -17.52      | 1.54 H             | 24                   | 12.91            | 13.07                    |
| 2   | 200.01      | 25.10 QP                | 43.50          | -18.40      | 1.02 H             | 356                  | 12.71            | 12.39                    |
| 3   | 250.00      | 41.00 QP                | 46.00          | -5.00       | 1.02 H             | 236                  | 26.75            | 14.25                    |
| 4   | 375.00      | 36.32 QP                | 46.00          | -9.68       | 1.02 H             | 32                   | 17.51            | 18.81                    |
| 5   | 500.00      | 36.24 QP                | 46.00          | -9.76       | 1.11 H             | 52                   | 13.75            | 22.49                    |
| 6   | 625.00      | 38.53 QP                | 46.00          | -7.47       | 1.58 H             | 79                   | 13.25            | 25.29                    |
| 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   | 125.00      | 29.80 QP                | 43.50          | -13.70      | 1.04 V             | 180                  | 16.73            | 13.07                    |
| 2   | 200.01      | 24.30 QP                | 43.50          | -19.20      | 1.30 V             | 356                  | 11.91            | 12.39                    |
| 3   | 240.00      | 25.14 QP                | 46.00          | -20.86      | 1.81 V             | 330                  | 11.26            | 13.88                    |
| 4   | 250.00      | 32.56 QP                | 46.00          | -13.44      | 1.02 V             | 335                  | 18.31            | 14.25                    |
| 5   | 375.01      | 36.47 QP                | 46.00          | -9.53       | 1.73 V             | 14                   | 17.66            | 18.81                    |
| 6   | 500.00      | 34.25 QP                | 46.00          | -11.75      | 1.58 V             | 79                   | 11.76            | 22.49                    |
| 7   | 625.00      | 40.46 QP                | 46.00          | -5.54       | 1.75 V             | 27                   | 15.18            | 25.28                    |
| 8   | 875.00      | 44.23 QP                | 46.00          | -1.77       | 1.19 V             | 359                  | 14.94            | 29.29                    |

- 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.



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### Above 1GHz Test Data

#### 4.2.9 TEST RESULTS

##### 802.11a OFDM MODULATION

| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 36                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | 5150.00     | 59.46 PK                | 74.00          | -14.54      | 1.04 H             | 159                  | 22.20            | 37.26                    |
| 2   | 5150.00     | 46.21 AV                | 54.00          | -7.79       | 1.04 H             | 159                  | 8.95             | 37.26                    |
| 3   | *5180.00    | 109.90 PK               |                |             | 1.02 H             | 146                  | 72.64            | 37.26                    |
| 4   | *5180.00    | 96.80 AV                |                |             | 1.02 H             | 146                  | 59.54            | 37.26                    |
| 5   | #10360.00   | 66.20 PK                | 68.30          | -2.10       | 1.47 H             | 51                   | 19.56            | 46.64                    |
| 6   | 15540.00    | 69.90 PK                | 74.00          | -4.10       | 1.24 H             | 51                   | 22.35            | 47.55                    |
| 7   | 15540.00    | 52.90 AV                | 54.00          | -1.10       | 1.24 H             | 51                   | 5.35             | 47.55                    |
| 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   | 5000.50     | 57.81 PK                | 74.00          | -16.19      | 1.00 V             | 14                   | 20.55            | 37.26                    |
| 2   | 5000.50     | 49.07 AV                | 54.00          | -4.93       | 1.00 V             | 14                   | 11.81            | 37.26                    |
| 3   | *5180.00    | 104.88 PK               |                |             | 1.00 V             | 208                  | 67.62            | 37.26                    |
| 4   | *5180.00    | 92.62 AV                |                |             | 1.00 V             | 208                  | 55.36            | 37.26                    |
| 5   | #10360.00   | 65.19 PK                | 68.30          | -3.11       | 1.37 V             | 317                  | 18.55            | 46.64                    |
| 6   | 15540.00    | 65.78 PK                | 74.00          | -8.22       | 1.08 V             | 319                  | 18.23            | 47.55                    |
| 7   | 15540.00    | 48.84 AV                | 54.00          | -5.16       | 1.08 V             | 319                  | 1.29             | 47.55                    |

- 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.





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| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 40                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | *5200.00    | 110.20 PK               |                |             | 1.00 H             | 143                  | 72.94            | 37.26                    |
| 2   | *5200.00    | 96.90 AV                |                |             | 1.00 H             | 143                  | 59.64            | 37.26                    |
| 3   | #10400.00   | 66.30 PK                | 68.30          | -2.00       | 1.38 H             | 47                   | 19.63            | 46.67                    |
| 4   | 15600.00    | 67.80 PK                | 74.00          | -6.20       | 1.18 H             | 47                   | 20.36            | 47.44                    |
| 5   | 15600.00    | 50.50 AV                | 54.00          | -3.50       | 1.18 H             | 47                   | 3.06             | 47.44                    |
| 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   | *5200.00    | 106.23 PK               |                |             | 1.01 V             | 348                  | 68.97            | 37.26                    |
| 2   | *5200.00    | 94.17 AV                |                |             | 1.01 V             | 348                  | 56.91            | 37.26                    |
| 3   | #10400.00   | 64.70 PK                | 68.30          | -3.60       | 1.45 V             | 318                  | 18.03            | 46.67                    |
| 4   | 15600.00    | 65.48 PK                | 74.00          | -8.52       | 1.14 V             | 5                    | 18.04            | 47.44                    |
| 5   | 15600.00    | 49.59 AV                | 54.00          | -4.41       | 1.14 V             | 5                    | 2.15             | 47.44                    |

- 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.



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| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 48                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | *5240.00    | 110.40 PK               |                |             | 1.00 H             | 142                  | 73.14            | 37.26                    |
| 2   | *5240.00    | 97.20 AV                |                |             | 1.00 H             | 142                  | 59.94            | 37.26                    |
| 3   | 5350.00     | 53.03 PK                | 74.00          | -20.97      | 1.04 H             | 157                  | 15.77            | 37.26                    |
| 4   | 5350.00     | 42.52 AV                | 54.00          | -11.48      | 1.04 H             | 157                  | 5.26             | 37.26                    |
| 5   | #10480.00   | 67.24 PK                | 68.30          | -1.06       | 1.29 H             | 59                   | 20.51            | 46.73                    |
| 6   | 15720.00    | 66.10 PK                | 74.00          | -7.90       | 1.14 H             | 57                   | 18.89            | 47.21                    |
| 7   | 15720.00    | 46.90 AV                | 54.00          | -7.10       | 1.14 H             | 57                   | -0.31            | 47.21                    |

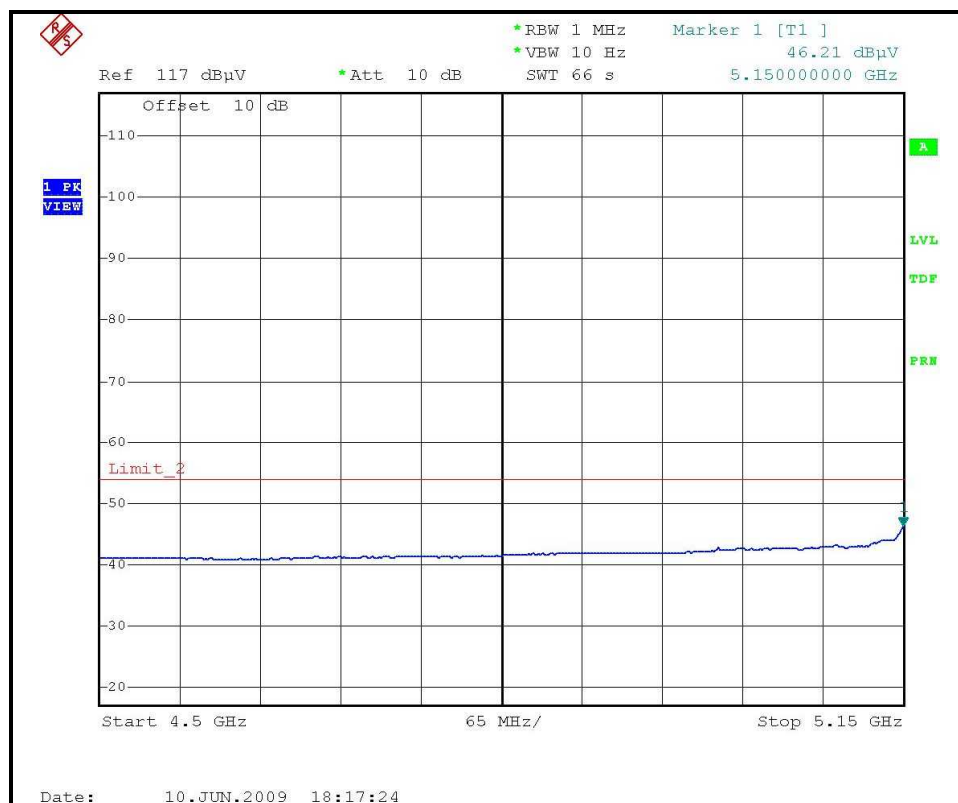
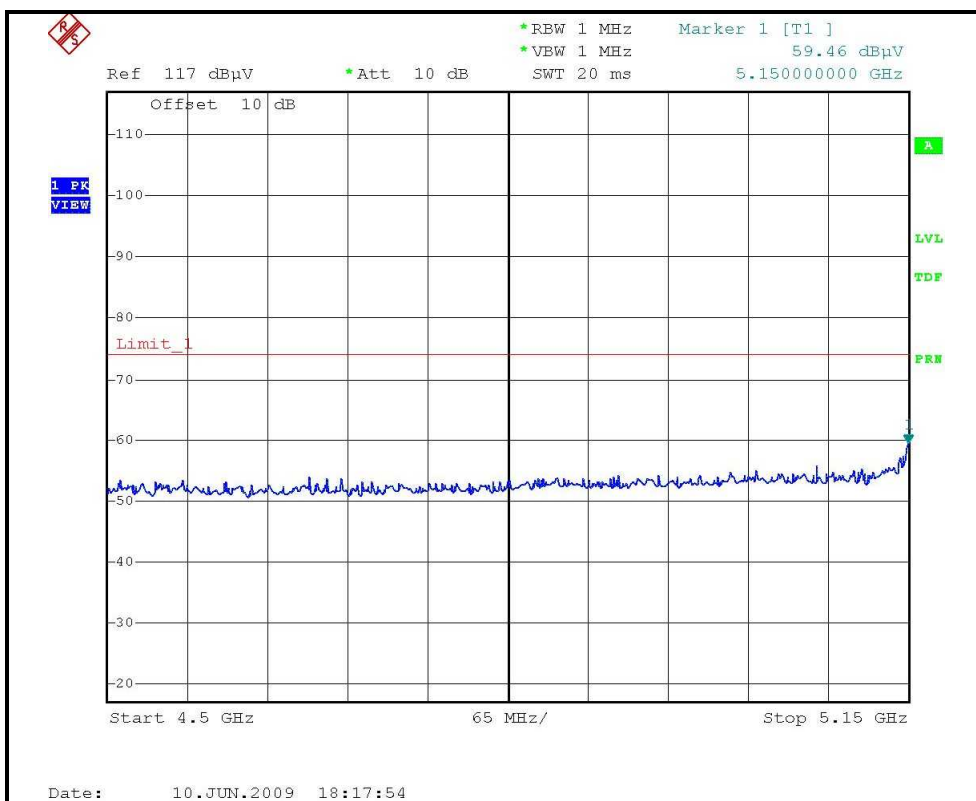
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 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   | *5240.00    | 104.38 PK               |                |             | 1.30 V             | 2                    | 67.12            | 37.26                    |
| 2   | *5240.00    | 92.04 AV                |                |             | 1.30 V             | 2                    | 54.78            | 37.26                    |
| 3   | 5350.00     | 56.89 PK                | 74.00          | -17.11      | 1.00 V             | 167                  | 19.63            | 37.26                    |
| 4   | 5350.00     | 43.31 AV                | 54.00          | -10.69      | 1.00 V             | 167                  | 6.05             | 37.26                    |
| 5   | #10480.00   | 64.62 PK                | 68.30          | -3.68       | 1.52 V             | 317                  | 17.89            | 46.73                    |
| 6   | 15720.00    | 62.36 PK                | 74.00          | -11.64      | 1.13 V             | 235                  | 15.15            | 47.21                    |
| 7   | 15720.00    | 46.98 AV                | 54.00          | -7.02       | 1.13 V             | 235                  | -0.23            | 47.21                    |

- 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.



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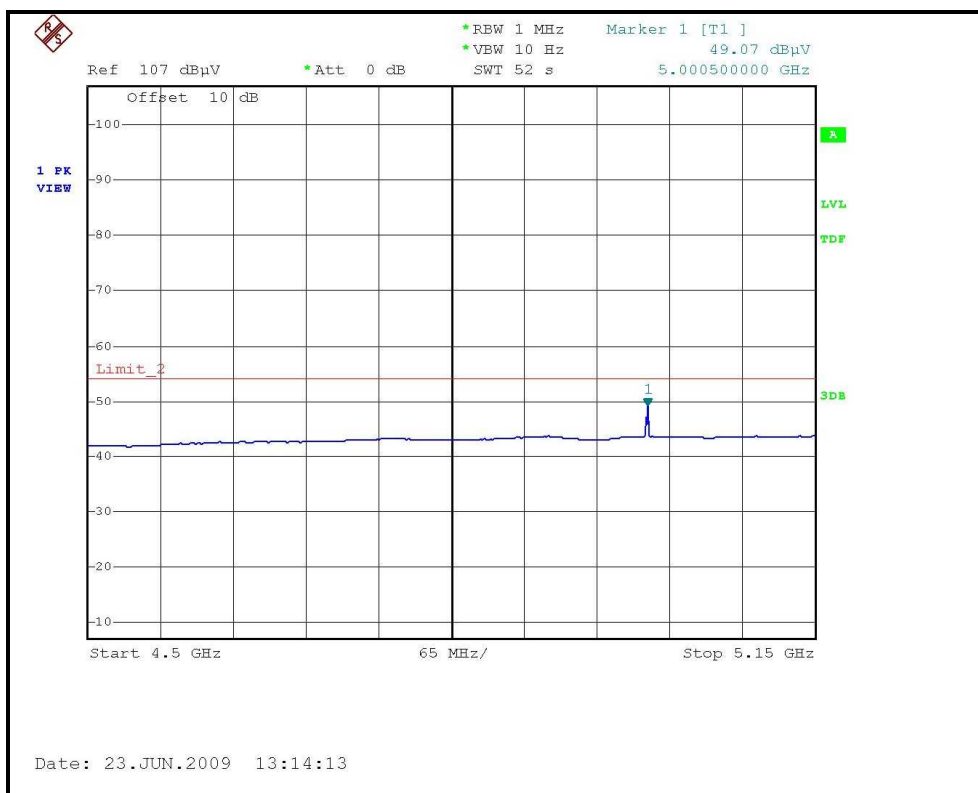
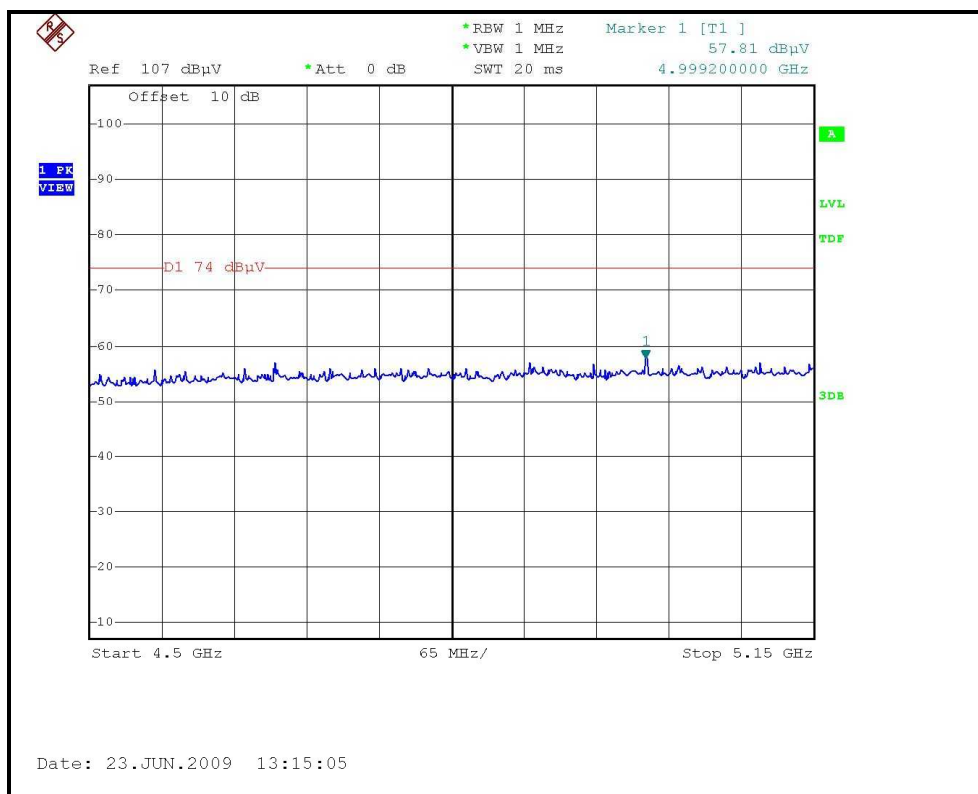
### RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





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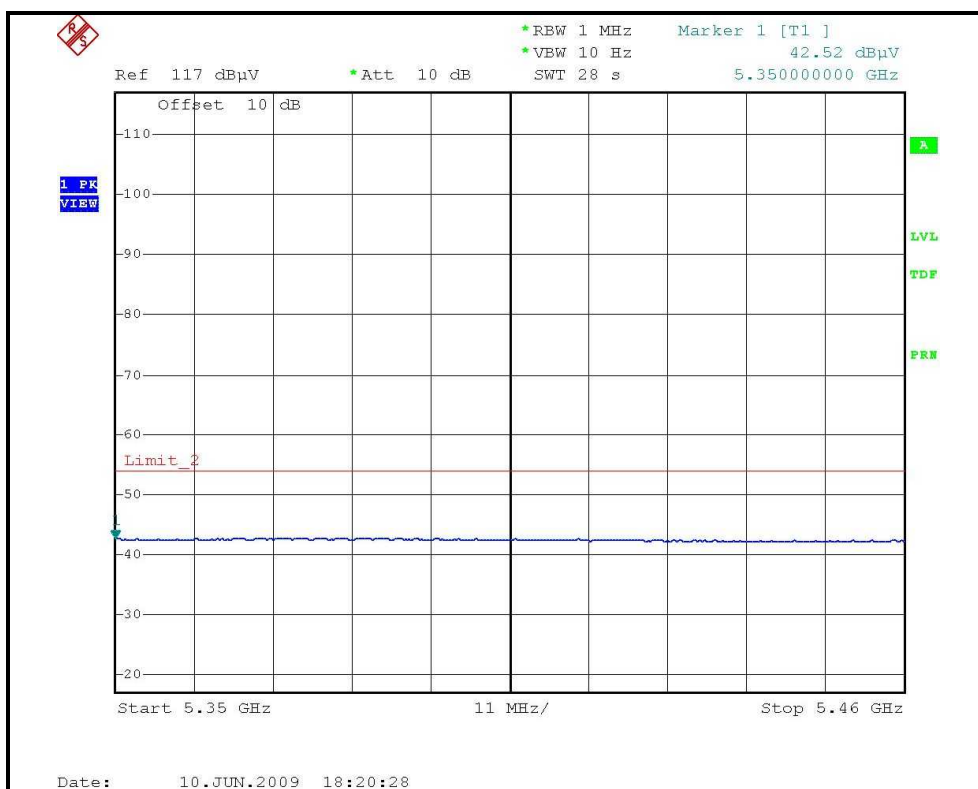
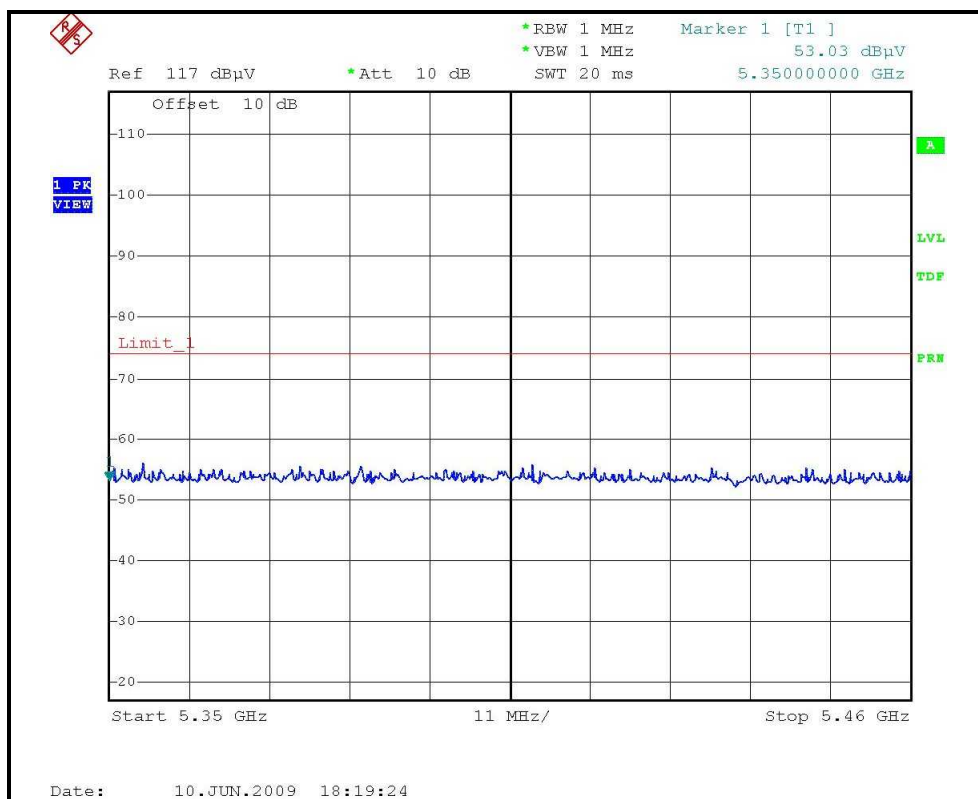
### RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





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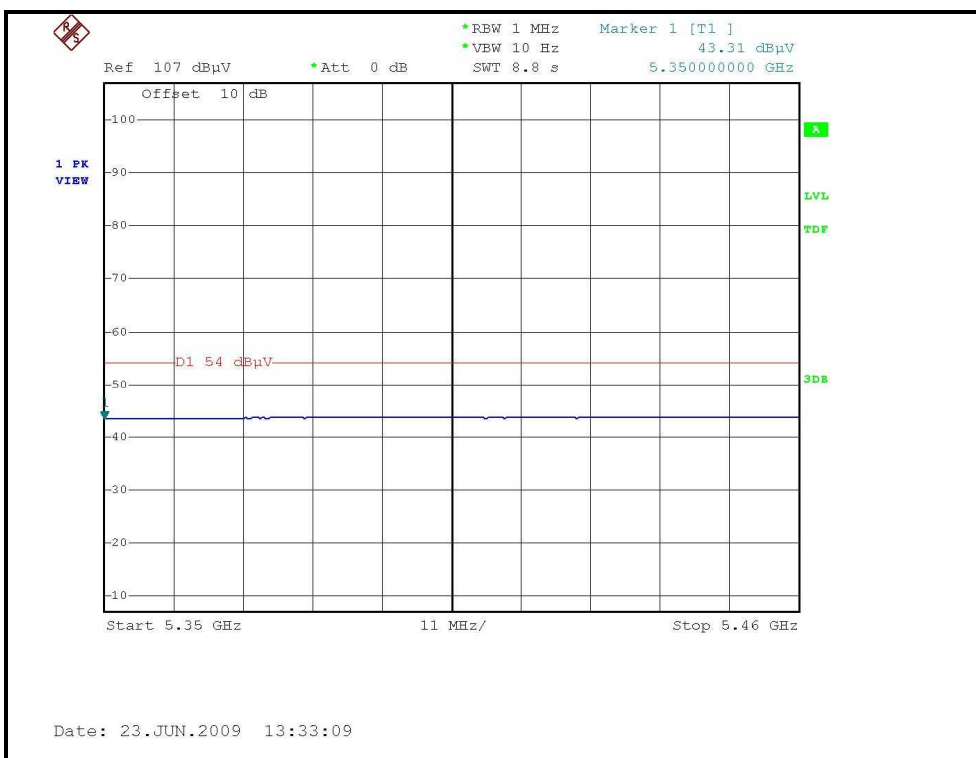
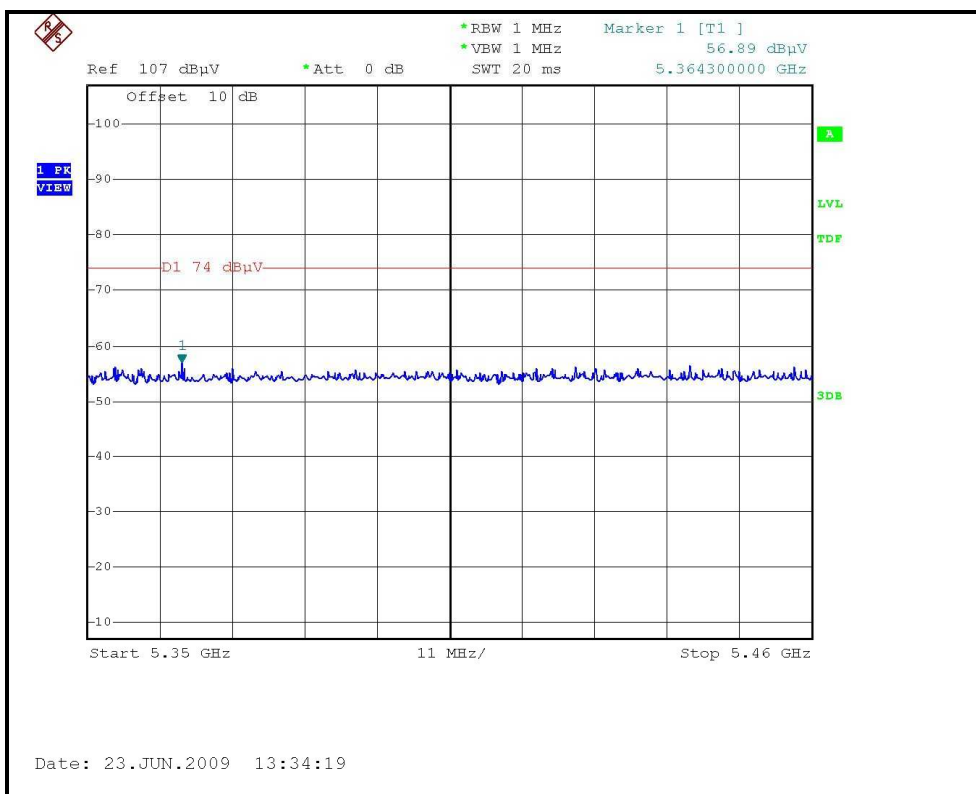
### RESTRICTED BANDEDGE (802.11a MODE, CH48, HORIZONTAL)





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### RESTRICTED BANDEDGE (802.11a MODE, CH48, VERTICAL)





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**DRAFT 802.11n (20MHz) OFDM MODULATION**

| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 36                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | 5150.00     | 56.20 PK                | 74.00          | -17.80      | 1.34 H             | 103                  | 18.94            | 37.26                    |
| 2   | 5150.00     | 45.89 AV                | 54.00          | -8.11       | 1.34 H             | 103                  | 8.63             | 37.26                    |
| 3   | *5180.00    | 108.60 PK               |                |             | 1.31 H             | 108                  | 71.34            | 37.26                    |
| 4   | *5180.00    | 96.20 AV                |                |             | 1.31 H             | 108                  | 58.94            | 37.26                    |
| 5   | #10360.00   | 63.90 PK                | 68.30          | -4.40       | 1.45 H             | 46                   | 17.26            | 46.64                    |
| 6   | 15540.00    | 64.90 PK                | 74.00          | -9.10       | 1.19 H             | 62                   | 17.35            | 47.55                    |
| 7   | 15540.00    | 49.75 AV                | 54.00          | -4.25       | 1.19 H             | 62                   | 2.20             | 47.55                    |
| 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   | 5150.00     | 53.84 PK                | 74.00          | -20.16      | 1.00 V             | 194                  | 16.58            | 37.26                    |
| 2   | 5150.00     | 43.06 AV                | 54.00          | -10.94      | 1.00 V             | 194                  | 5.80             | 37.26                    |
| 3   | *5180.00    | 103.30 PK               |                |             | 1.00 V             | 192                  | 66.04            | 37.26                    |
| 4   | *5180.00    | 91.10 AV                |                |             | 1.00 V             | 192                  | 53.84            | 37.26                    |
| 5   | #10360.00   | 61.30 PK                | 68.30          | -7.00       | 1.44 V             | 193                  | 14.66            | 46.64                    |
| 6   | 15540.00    | 61.80 PK                | 74.00          | -12.20      | 1.28 V             | 231                  | 14.25            | 47.55                    |
| 7   | 15540.00    | 46.90 AV                | 54.00          | -7.10       | 1.28 V             | 231                  | -0.65            | 47.55                    |

- 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.



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| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 40                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | *5200.00    | 108.40 PK               |                |             | 1.34 H             | 109                  | 71.14            | 37.26                    |
| 2   | *5200.00    | 96.10 AV                |                |             | 1.34 H             | 109                  | 58.84            | 37.26                    |
| 3   | #10400.00   | 63.40 PK                | 68.30          | -4.90       | 1.26 H             | 261                  | 16.73            | 46.67                    |
| 4   | 15600.00    | 65.00 PK                | 74.00          | -9.00       | 1.19 H             | 57                   | 17.56            | 47.44                    |
| 5   | 15600.00    | 49.72 AV                | 54.00          | -4.28       | 1.19 H             | 57                   | 2.28             | 47.44                    |
| 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   | *5200.00    | 104.23 PK               |                |             | 1.00 V             | 354                  | 66.97            | 37.26                    |
| 2   | *5200.00    | 91.52 AV                |                |             | 1.00 V             | 354                  | 54.26            | 37.26                    |
| 3   | #10400.00   | 62.16 PK                | 68.30          | -6.14       | 1.64 V             | 314                  | 15.49            | 46.67                    |
| 4   | 15600.00    | 64.67 PK                | 74.00          | -9.33       | 1.03 V             | 153                  | 17.23            | 47.44                    |
| 5   | 15600.00    | 49.70 AV                | 54.00          | -4.30       | 1.03 V             | 153                  | 2.26             | 47.44                    |

- 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.





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| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 48                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | *5240.00    | 108.40 PK               |                |             | 1.36 H             | 88                   | 71.14            | 37.26                    |
| 2   | *5240.00    | 96.14 AV                |                |             | 1.36 H             | 88                   | 58.88            | 37.26                    |
| 3   | 5350.00     | 54.57 PK                | 74.00          | -19.43      | 1.34 H             | 105                  | 17.31            | 37.26                    |
| 4   | 5350.00     | 43.19 AV                | 54.00          | -10.81      | 1.34 H             | 105                  | 5.93             | 37.26                    |
| 5   | #10480.00   | 65.80 PK                | 68.30          | -2.50       | 1.41 H             | 36                   | 19.07            | 46.73                    |
| 6   | 15720.00    | 64.90 PK                | 74.00          | -9.10       | 1.30 H             | 72                   | 17.69            | 47.21                    |
| 7   | 15720.00    | 49.82 AV                | 54.00          | -4.18       | 1.30 H             | 72                   | 2.61             | 47.21                    |

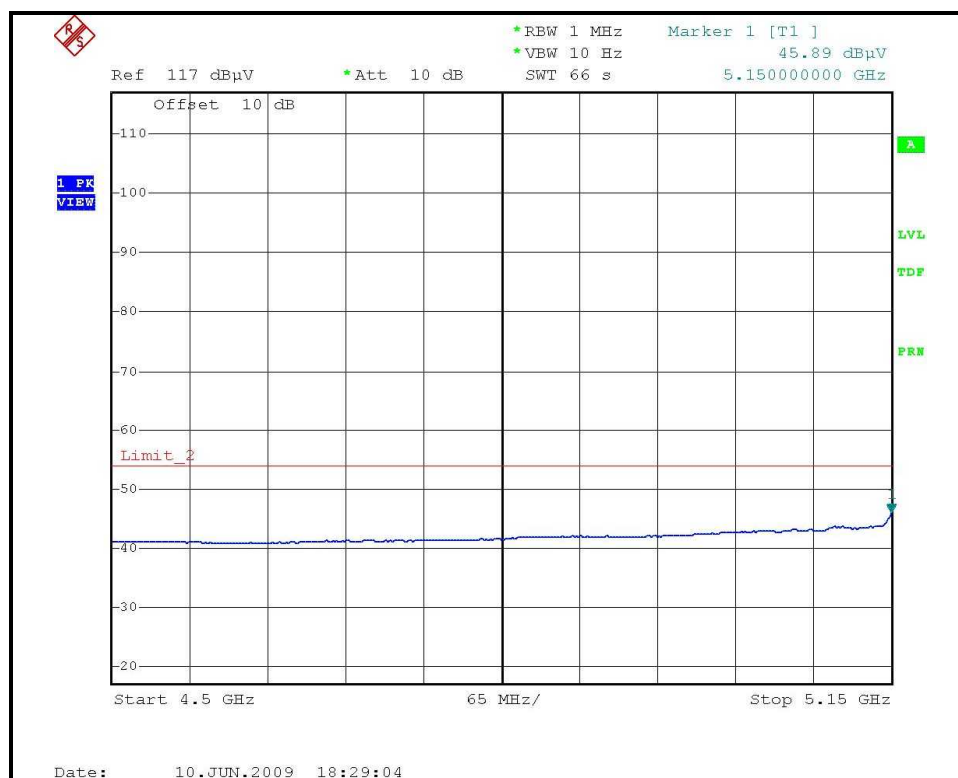
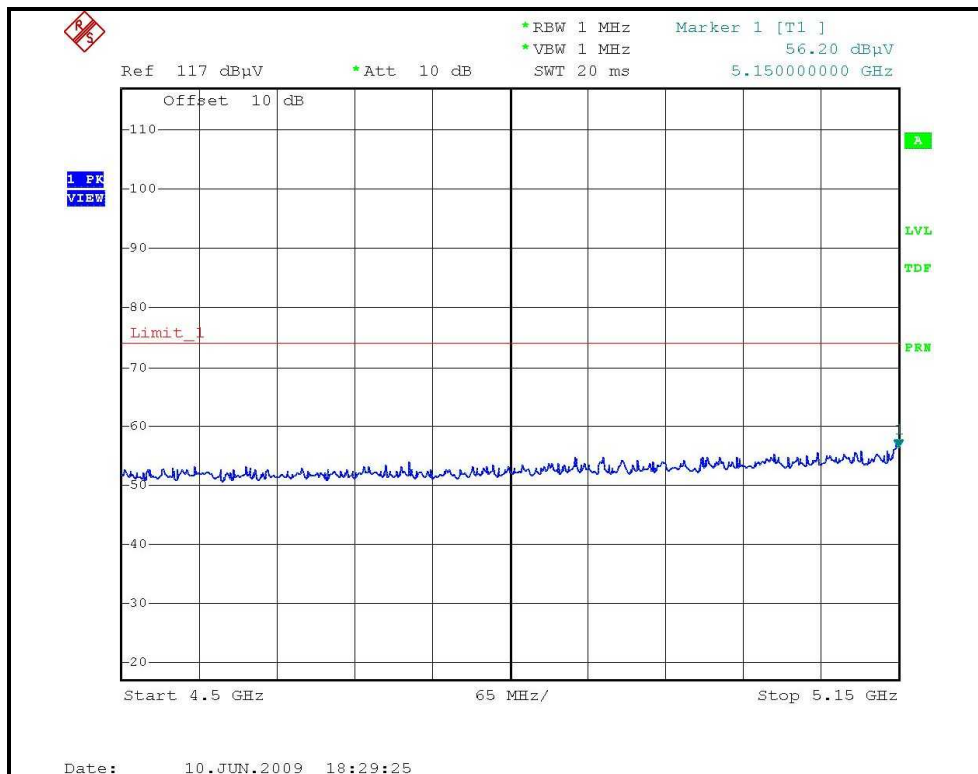
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 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   | *5240.00    | 104.87 PK               |                |             | 1.00 V             | 342                  | 67.61            | 37.26                    |
| 2   | *5240.00    | 92.77 AV                |                |             | 1.00 V             | 342                  | 55.51            | 37.26                    |
| 3   | 5350.00     | 57.07 PK                | 74.00          | -16.93      | 1.00 V             | 42                   | 19.81            | 37.26                    |
| 4   | 5350.00     | 43.20 AV                | 54.00          | -10.80      | 1.00 V             | 42                   | 5.94             | 37.26                    |
| 5   | #10480.00   | 64.06 PK                | 68.30          | -4.24       | 1.63 V             | 314                  | 17.33            | 46.73                    |
| 6   | 15720.00    | 62.82 PK                | 74.00          | -11.18      | 1.01 V             | 162                  | 15.61            | 47.21                    |
| 7   | 15720.00    | 48.21 AV                | 54.00          | -5.79       | 1.01 V             | 162                  | 1.00             | 47.21                    |

- 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.



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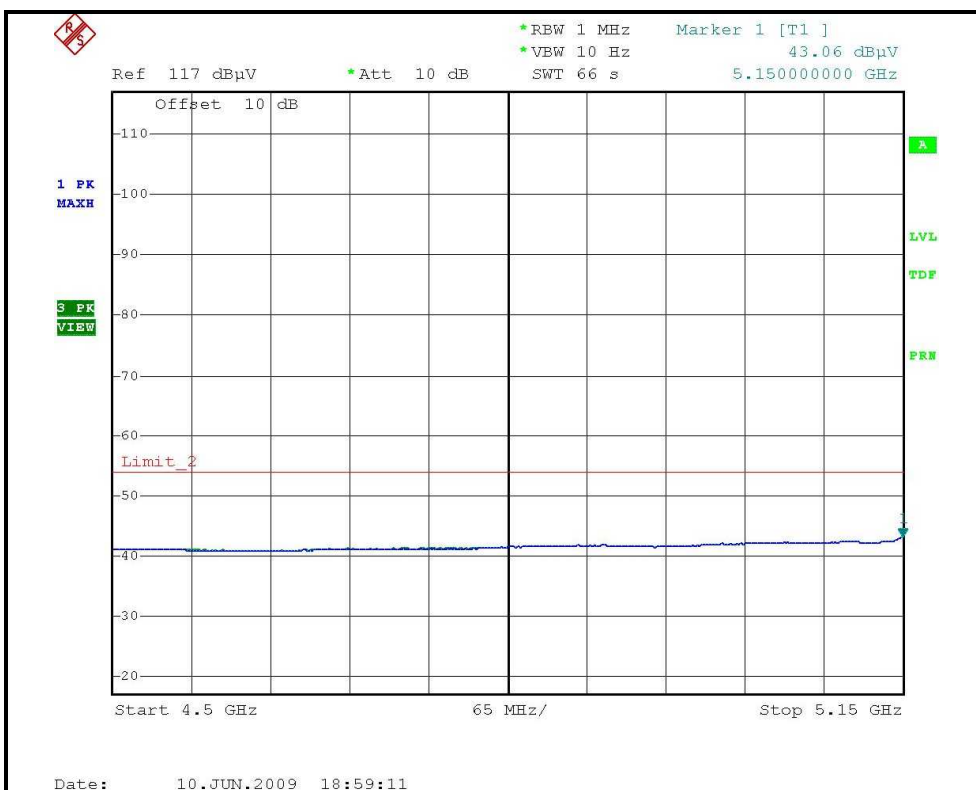
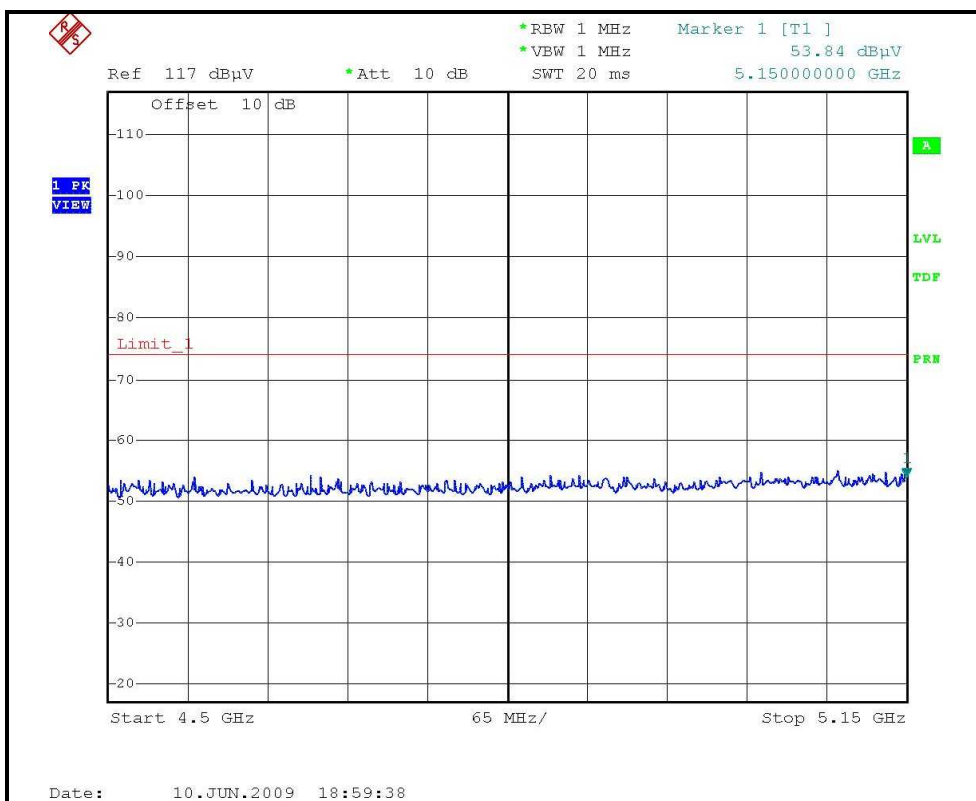
### RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH36, HORIZONTAL )





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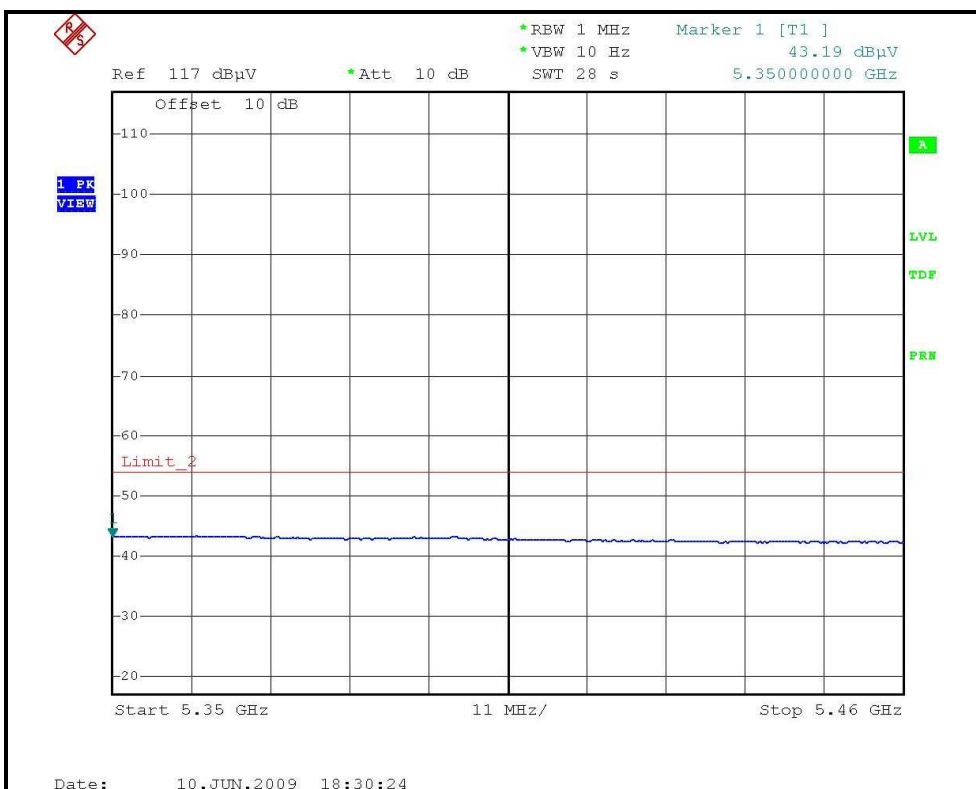
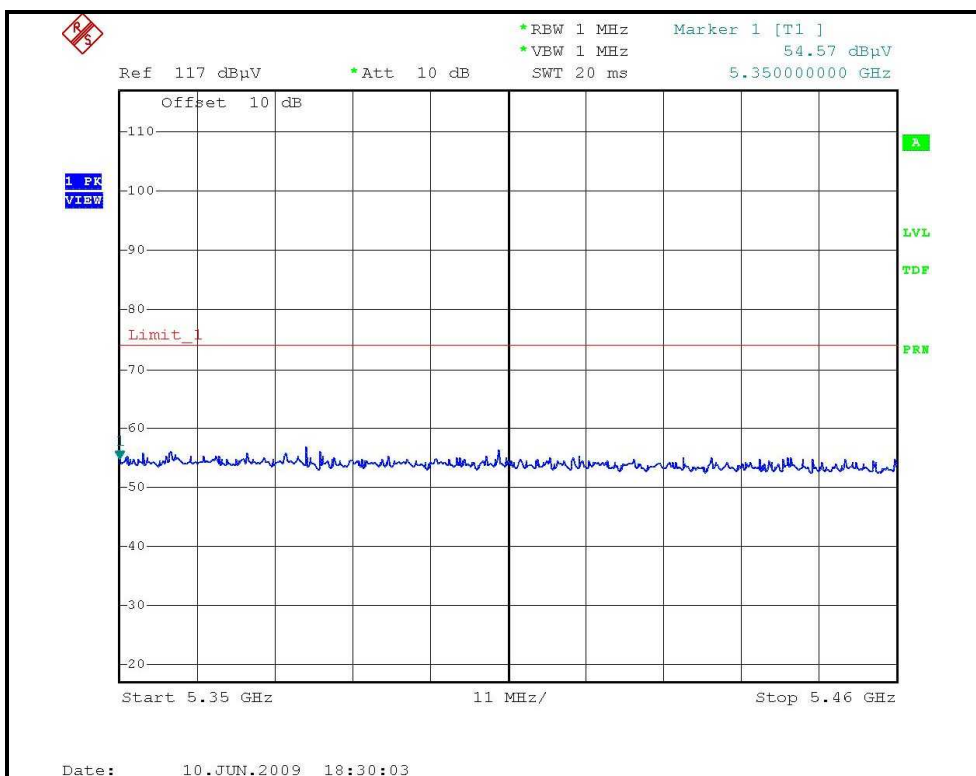
### RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH36, VERTICAL )





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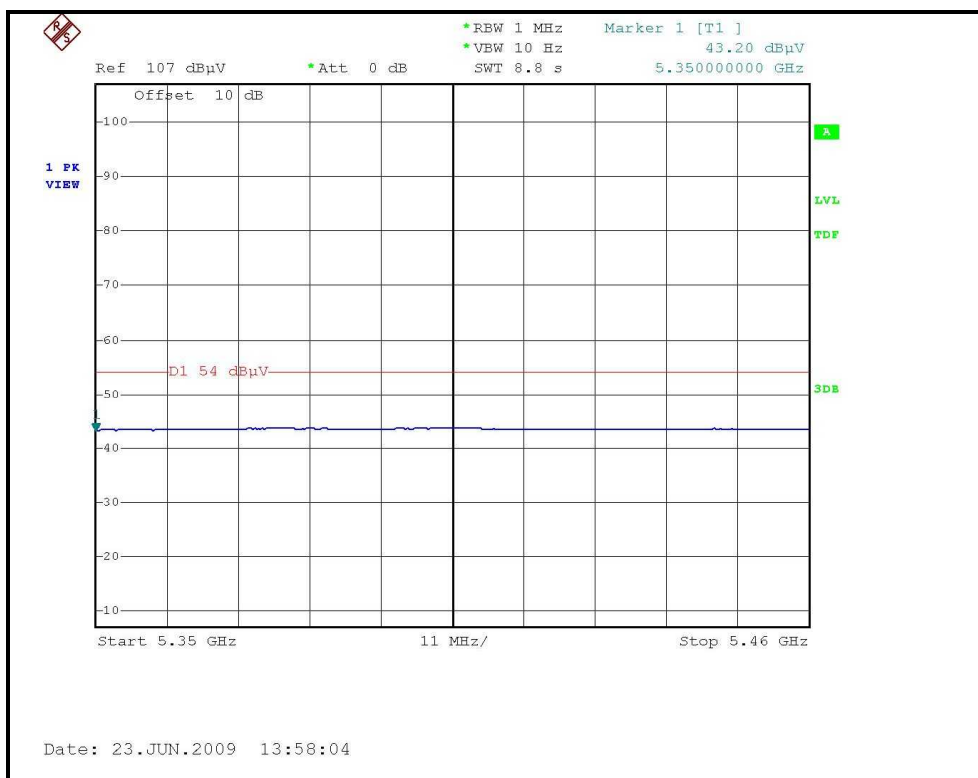
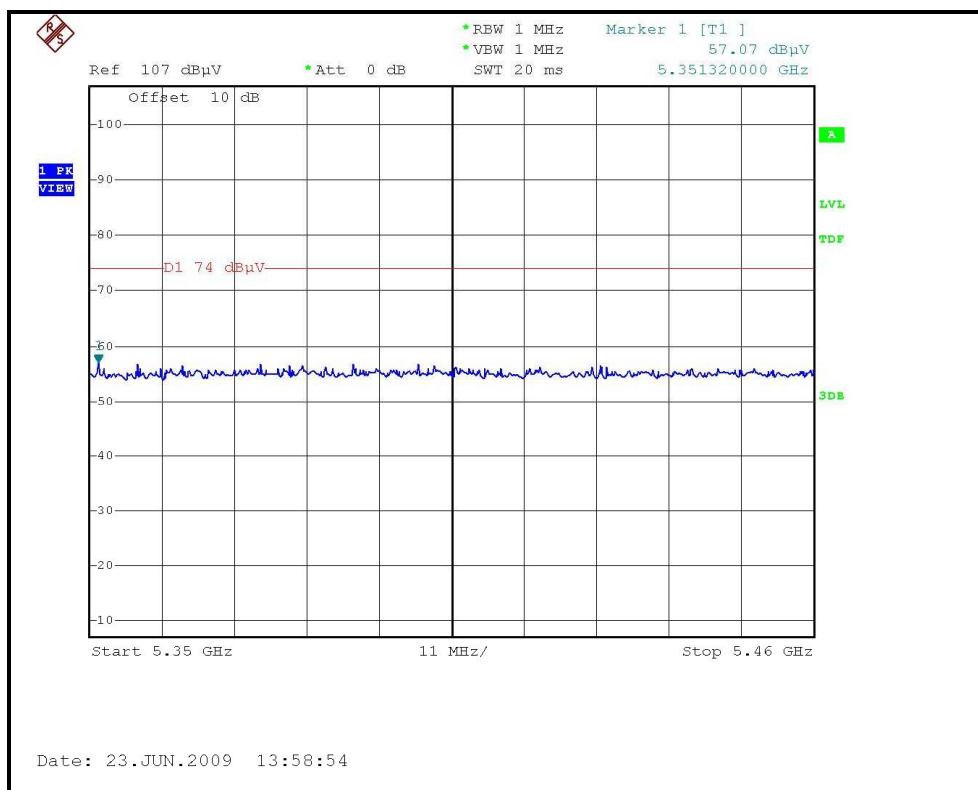
### RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE, CH48, HORIZONTAL )





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### RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH48, VERTICAL )





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### DRAFT 802.11n (40MHz) OFDM MODULATION

| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 38                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | 5150.00     | 63.83 PK                | 74.00          | -10.17      | 1.45 H             | 83                   | 26.57            | 37.26                    |
| 2   | 5150.00     | 50.66 AV                | 54.00          | -3.34       | 1.45 H             | 83                   | 13.40            | 37.26                    |
| 3   | *5190.00    | 106.40 PK               |                |             | 1.37 H             | 79                   | 69.14            | 37.26                    |
| 4   | *5190.00    | 92.10 AV                |                |             | 1.37 H             | 79                   | 54.84            | 37.26                    |
| 5   | #10380.00   | 61.00 PK                | 68.30          | -7.30       | 1.39 H             | 255                  | 14.35            | 46.65                    |
| 6   | 15570.00    | 62.70 PK                | 74.00          | -11.30      | 1.31 H             | 39                   | 15.20            | 47.50                    |
| 7   | 15570.00    | 48.90 AV                | 54.00          | -5.10       | 1.31 H             | 39                   | 1.40             | 47.50                    |

| 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   | 5150.00     | 64.68 PK                | 74.00          | -9.32       | 1.26 V             | 358                  | 27.42            | 37.26                    |
| 2   | 5150.00     | 49.85 AV                | 54.00          | -4.15       | 1.26 V             | 358                  | 12.59            | 37.26                    |
| 3   | *5190.00    | 104.41 PK               |                |             | 1.21 V             | 357                  | 67.15            | 37.26                    |
| 4   | *5190.00    | 90.33 AV                |                |             | 1.21 V             | 357                  | 53.07            | 37.26                    |
| 5   | #10380.00   | 60.21 PK                | 68.30          | -8.09       | 1.47 V             | 317                  | 13.56            | 46.65                    |
| 6   | 15570.00    | 60.66 PK                | 74.00          | -13.34      | 1.02 V             | 127                  | 13.16            | 47.50                    |
| 7   | 15570.00    | 47.37 AV                | 54.00          | -6.63       | 1.02 V             | 127                  | -0.13            | 47.50                    |

- 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. “ \* “: Fundamental frequency.
  6. “#“: The radiated frequency is out the restricted band.



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| EUT TEST CONDITION       |                               | MEASUREMENT DETAIL |                           |
|--------------------------|-------------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 46                    | FREQUENCY RANGE    | 1 ~ 40GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60 Hz                 | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 29.0deg. C, 65.0%RH<br>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   | *5230.00    | 106.90 PK               |                |             | 1.38 H             | 87                   | 69.64            | 37.26                    |
| 2   | *5230.00    | 92.32 AV                |                |             | 1.38 H             | 87                   | 55.06            | 37.26                    |
| 3   | 5350.00     | 53.58 PK                | 74.00          | -20.42      | 1.43 H             | 95                   | 16.32            | 37.26                    |
| 4   | 5350.00     | 42.83 AV                | 54.00          | -11.17      | 1.43 H             | 95                   | 5.57             | 37.26                    |
| 5   | #10460.00   | 62.60 PK                | 68.30          | -5.70       | 1.33 H             | 64                   | 15.88            | 46.72                    |
| 6   | 15690.00    | 65.30 PK                | 74.00          | -8.70       | 1.39 H             | 63                   | 18.03            | 47.27                    |
| 7   | 15690.00    | 50.10 AV                | 54.00          | -3.90       | 1.39 H             | 63                   | 2.83             | 47.27                    |

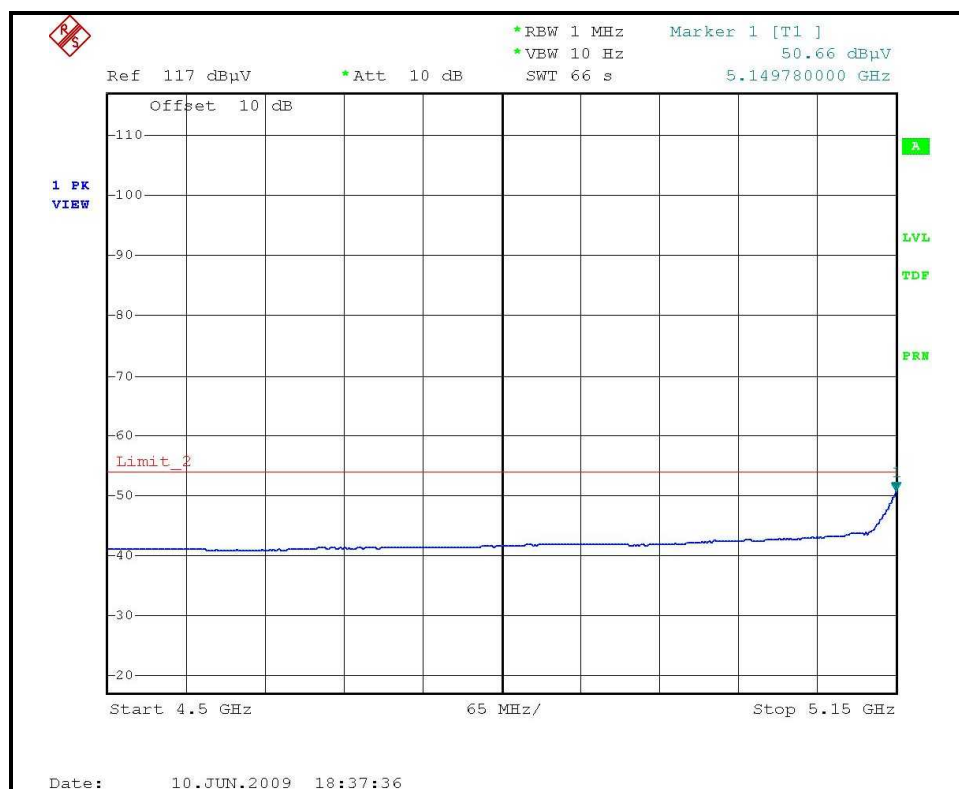
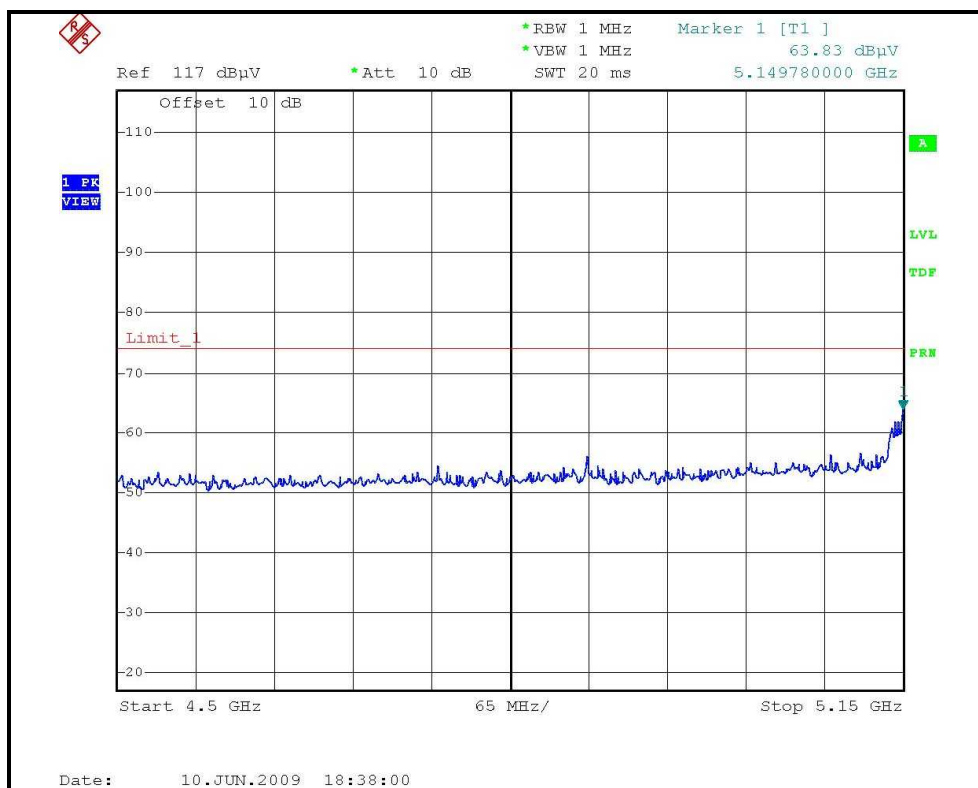
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 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   | *5230.00    | 103.00 PK               |                |             | 1.26 V             | 12                   | 65.74            | 37.26                    |
| 2   | *5230.00    | 89.16 AV                |                |             | 1.26 V             | 12                   | 51.90            | 37.26                    |
| 3   | 5350.00     | 57.26 PK                | 74.00          | -16.74      | 1.00 V             | 78                   | 20.00            | 37.26                    |
| 4   | 5350.00     | 43.17 AV                | 54.00          | -10.83      | 1.00 V             | 78                   | 5.91             | 37.26                    |
| 5   | #10460.00   | 61.77 PK                | 68.30          | -6.53       | 1.48 V             | 315                  | 15.05            | 46.72                    |
| 6   | 15690.00    | 61.88 PK                | 74.00          | -12.12      | 1.00 V             | 164                  | 14.61            | 47.27                    |
| 7   | 15690.00    | 47.56 AV                | 54.00          | -6.44       | 1.00 V             | 164                  | 0.29             | 47.27                    |

- 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.



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### RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH38, HORIZONTAL)

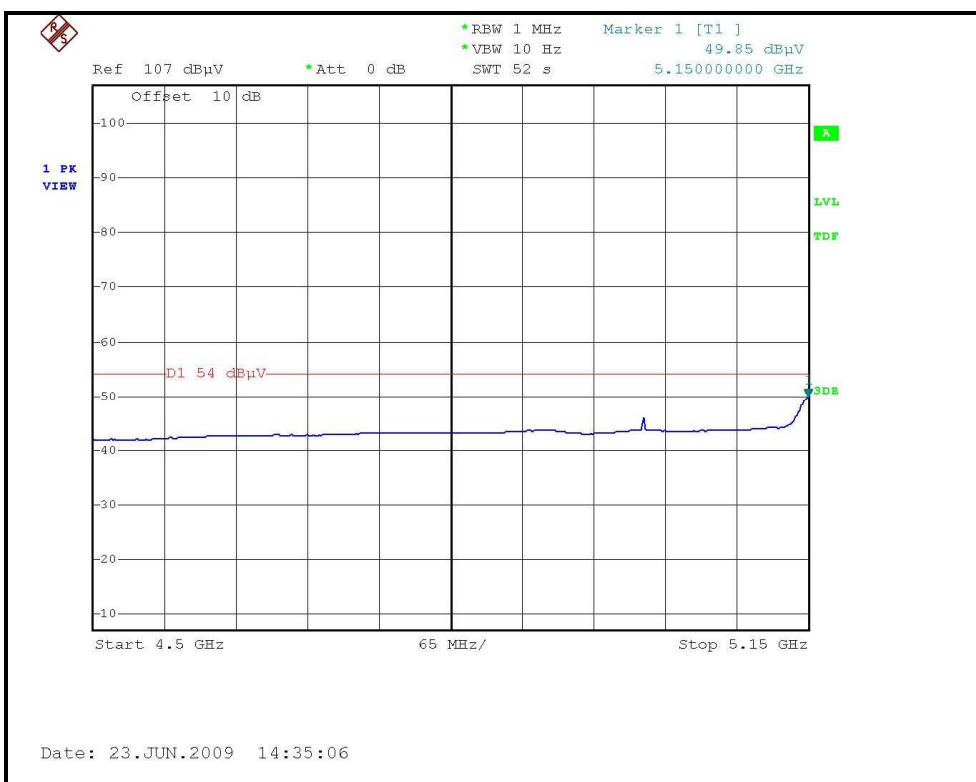
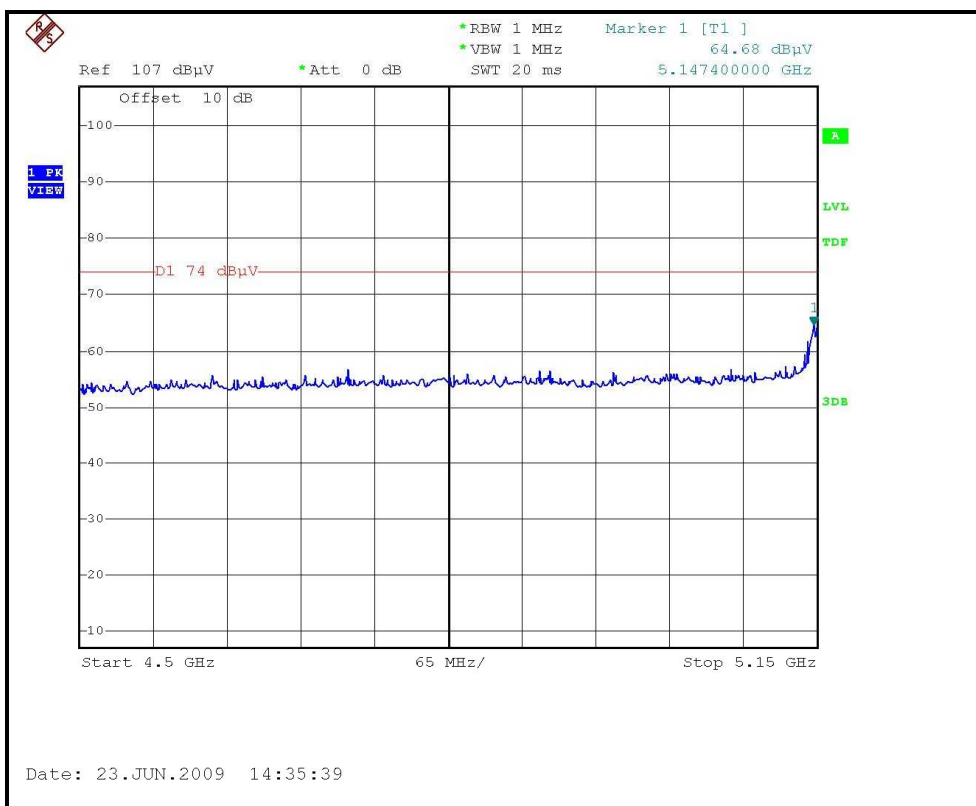






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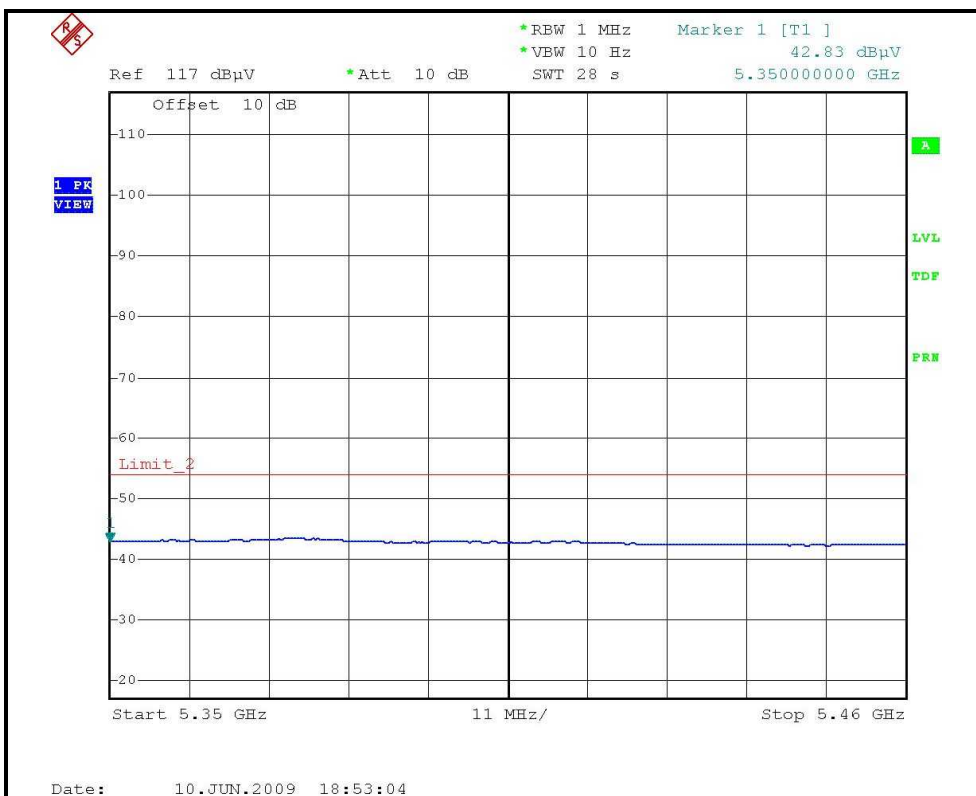
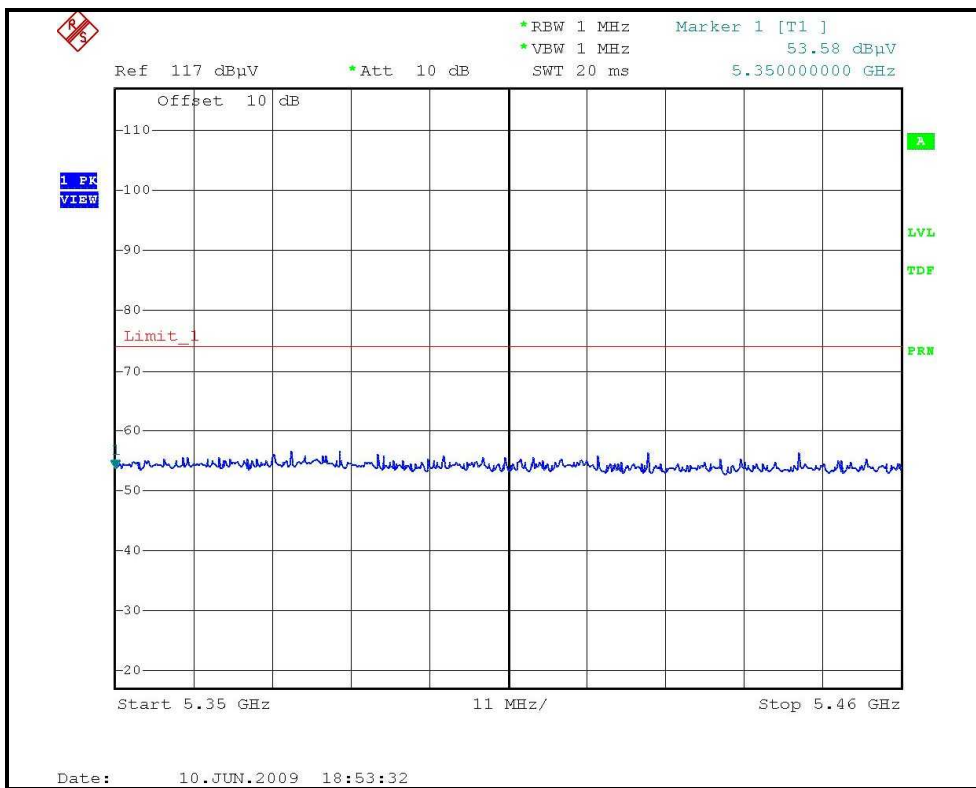
### RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH38, VERTICAL )





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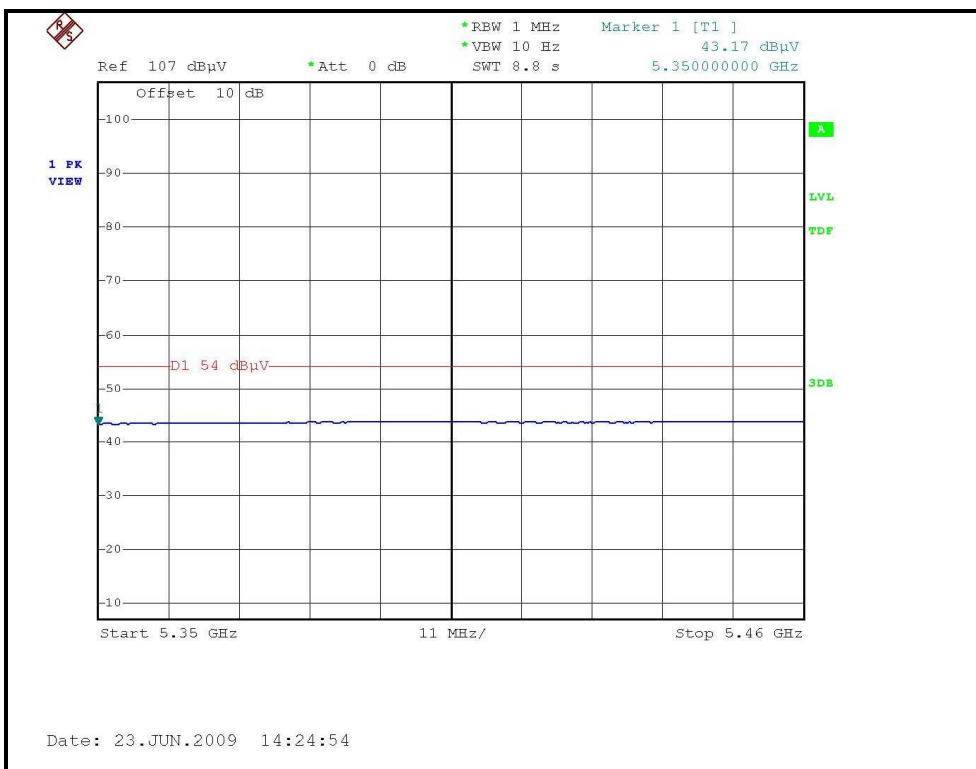
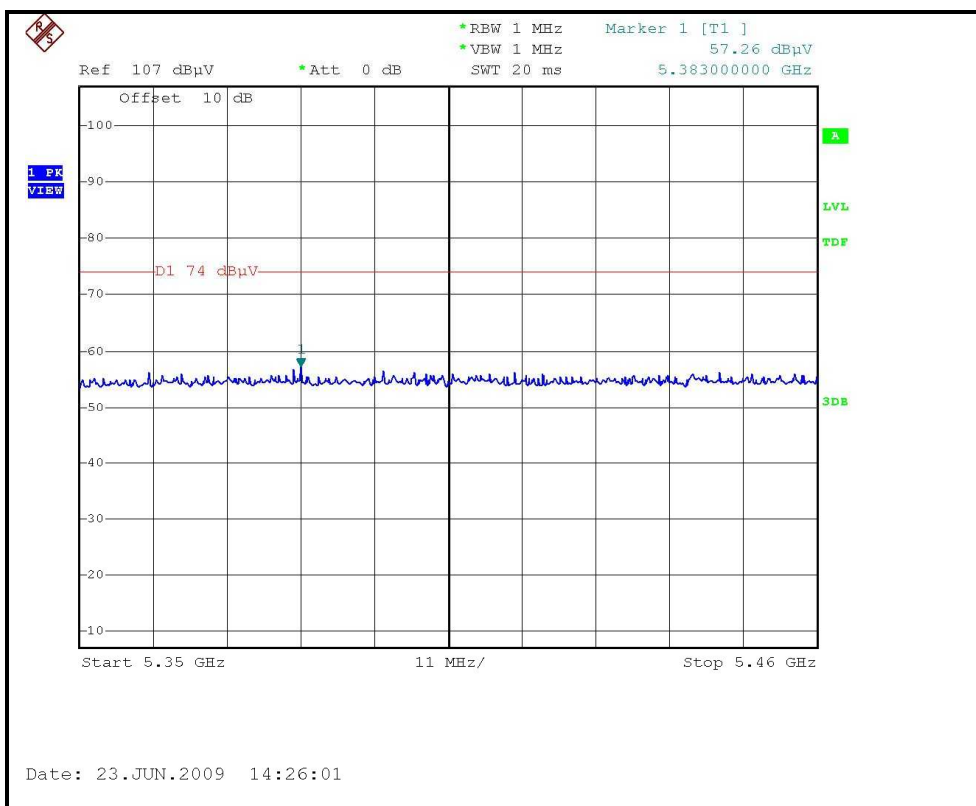
### RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH46, HORIZONTAL)





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### RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH46, VERTICAL)



### 4.3 PEAK TRANSMIT POWER MEASUREMENT

#### 4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

| Frequency Band   | Limit   |
|------------------|---|
| 5.15 – 5.25GHz   | The lesser of 50mW (17dBm) or 4dBm + 10logB   |
| 5.25 – 5.35GHz   | The lesser of 250mW (24dBm) or 11dBm + 10logB |
| 5.47 – 5.725GHz  | The lesser of 250mW (24dBm) or 11dBm + 10logB |
| 5.725 – 5.825GHz | The lesser of 1W (30dBm) or 17dBm + 10logB    |

**NOTE:** Where B is the 26dB emission bandwidth in MHz.

#### 4.3.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER  | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|-----------------------------|-----------|------------|-----------------|------------------|
| ADVANTEST SPECTRUM ANALYZER | U3772     | 160100280  | July 26, 2008   | July 25, 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.

#### 4.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

**NOTE:**

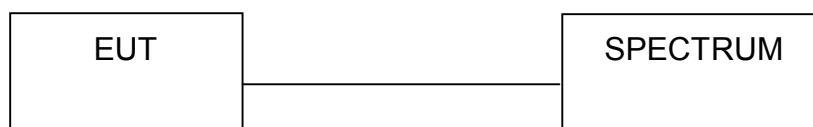
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

#### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.3.5 TEST SETUP



#### 4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



#### 4.3.7 TEST RESULTS

##### 802.11a OFDM MODULATION:

|                        |               |                                 |                        |
|------------------------|---------------|---------------------------------|------------------------|
| <b>MODULATION TYPE</b> | BPSK          | <b>TRANSFER RATE</b>            | 6Mbps                  |
| <b>INPUT POWER</b>     | 120Vac, 60 Hz | <b>ENVIRONMENTAL CONDITIONS</b> | 25deg.C, 60%RH, 965hPa |
| <b>TESTED BY</b>       | Rex Huang     |                                 |                        |

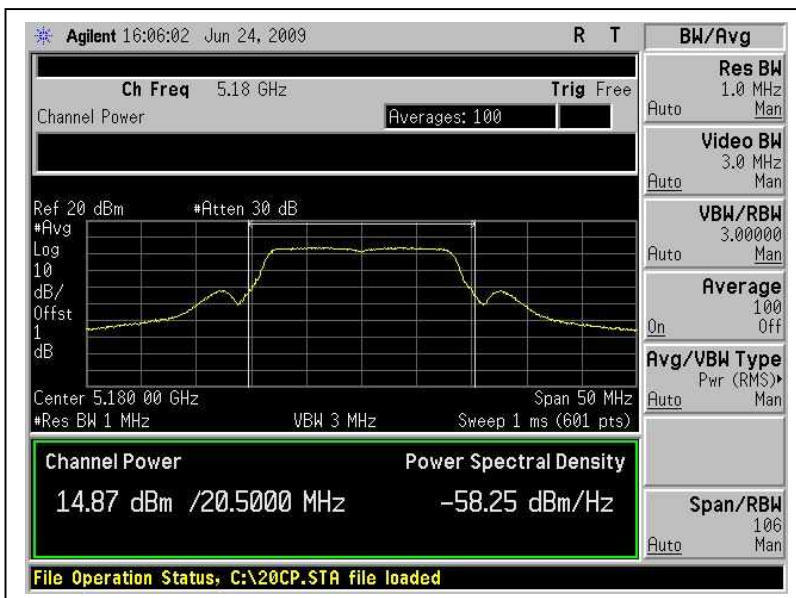
| CHANNEL | CHANNEL FREQUENCY (MHz) | PEAK POWER OUTPUT (dBm) | PEAK POWER OUTPUT (mW) | PEAK POWER LIMIT (dBm) | 26dBc Occupied Bandwidth (MHz) | PASS/FAIL |
|---------|-------------------------|-------------------------|------------------------|------------------------|--------------------------------|-----------|
| 36      | 5180                    | 14.9                    | 30.9                   | 17                     | 20.5                           | PASS      |
| 40      | 5200                    | 15.0                    | 31.6                   | 17                     | 20.5                           | PASS      |
| 48      | 5240                    | 15.1                    | 32.4                   | 17                     | 20.67                          | PASS      |

**NOTE:** The 26dBc Occupied Bandwidth plot, please refer to the following pages.

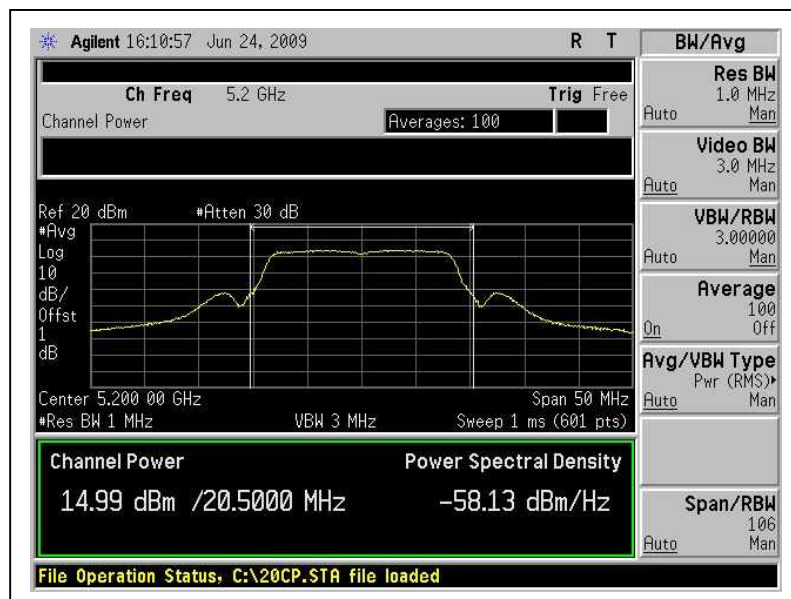


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### Peak Power Output: CH36



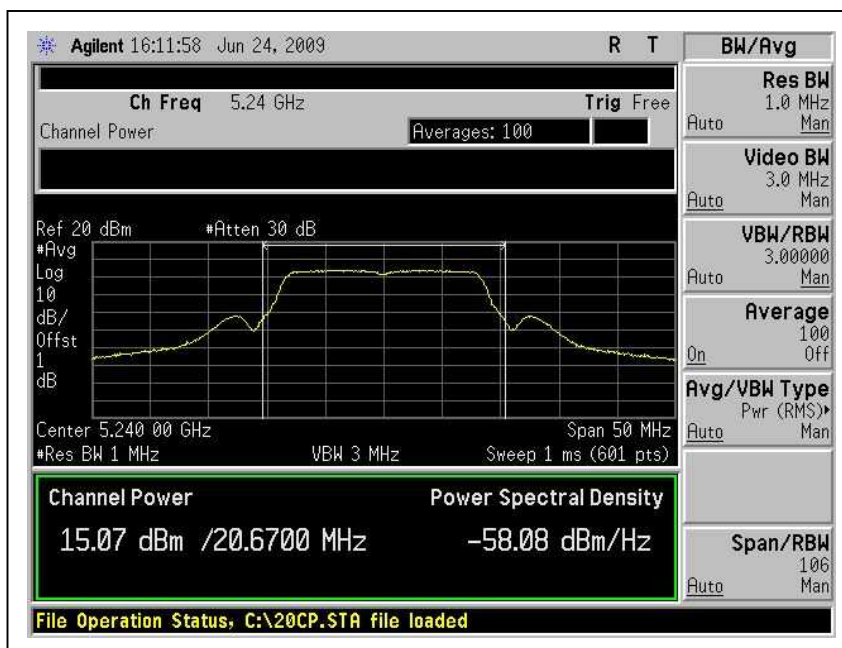
### CH40





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# CH48





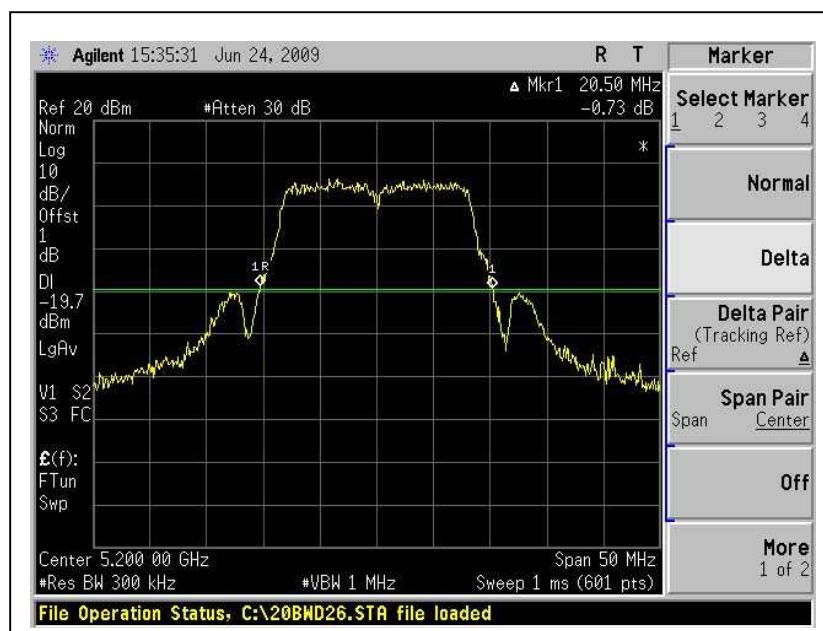


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### 26dB Occupied Bandwidth: CH36



### CH40





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# CH48

