

# **FCC Part15 Subpart C Test Report**

## **Spurious Emission Test**

Product Name : Home Gateway, MODEM ADSL ROUTER  
4PORT+ AP RESIDENCIAL

Model No. : HG530

FCC ID : QISHG530

Applicant : Huawei Technologies Co., Ltd.

Address : Administration Building, Huawei Base, Bantian,  
Longgang District, Shenzhen 518129 P.R.C.

Date of Receipt : 23/08/2011

Test Date : 23/08/2011~08/09/2011

Issued Date : 13/09/2011

Report No. : 118S059R-RF-US-P05V01

Report Version : V3.1

This appendix report was based on Quietek report No: 108S031R

Note: By the modify information provided by customer and the technology evaluation of our laboratory, the EUT only test the data of Radiated Emission & Radiated Emission Band Edge.

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.

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# Test Report Certification

Issued Date : 13/09/2011

Report No. : 118S059R-RF-US-P05V01



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RESIDENCIAL

Applicant : Huawei Technologies Co., Ltd.

Address : Administration Building, Huawei Base, Bantian,  
Longgang District, Shenzhen 518129 P.R.C.

Manufacturer : Huawei Technologies Co., Ltd.

Address : Administration Building, Huawei Base, Bantian,  
Longgang District, Shenzhen 518129 P.R.C.

Model No. : HG530

FCC ID : QISHG530

EUT Voltage : DC 12V

Trade Name : HUAWEI

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2008  
(Radiated Emission Test)  
ANSI C63.4: 2009  
ANSI C63.10: 2009

Test Result : Complied

Performed Location : SuZhou EMC laboratory  
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(Engineering Supervisor: Marlin Chen)

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We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

|                      |                         |
|----------------------|-------------------------|
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| <b>Germany</b>       | <b>: TUV Rheinland</b>  |
| <b>Norway</b>        | <b>: Nemko, DNV</b>     |
| <b>USA</b>           | <b>: FCC, NVLAP</b>     |
| <b>Japan</b>         | <b>: VCCI</b>           |

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/tw/emc/accreditations/accreditations.htm>  
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>  
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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## 1. General Information

### 1.1. EUT Description

|                     |                                                                  |
|---------------------|------------------------------------------------------------------|
| Product Name        | Home Gateway, MODEM ADSL ROUTER 4PORT+ AP RESIDENCIAL            |
| Trade Name          | HUAWEI                                                           |
| Model No.           | HG530                                                            |
| EUT Voltage         | DC 12V                                                           |
| Frequency Range     | 802.11b/g/n(20MHz): 2412~2462MHz<br>802.11n(40MHz): 2422~2452MHz |
| Channel Number      | 802.11b/g/n(20MHz): 11<br>802.11n(40MHz): 7                      |
| Tech. of Modulation | 802.11b: DSSS                                                    |
|                     | 802.11g/n: OFDM                                                  |
| Data Rate           | 802.11g: 6/9/12/18/24/36/48/54 Mbps                              |
|                     | 802.11b: 1/2/5.5/11 Mbps                                         |
|                     | 802.11n: up to 135 Mbps                                          |
| Channel Control     | Auto                                                             |
| Antenna Delivery    | 1*Tx + 1*Rx                                                      |
| Antenna Type        | PCB                                                              |
| Peak Antenna Gain   | 4dBi for 2.4GHz band                                             |

Note: The product has two kinds of patterns: Including the WPS function and non-WPS function.

Two kinds of the patterns both have the outer coverings of picture frame and waterfall.

The difference between HG530TRD and HG530TRA is:

- 1, the name of PCB board changes from HG530TRA to HG530TRD.
- 2, add one design of LDO U11.
- 3, There is one switched power supply does not install component.
- 4, the package of U14 changes from TO-253 to SOT223.
- 5, This test changed antenna on the basis of original HG530TRD single board, the other is same.

| Component     |                                                                                                                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Adapter #1 | <p>SWITCHING POWER ADAPTER</p> <p>Manufacturer: Dongguan Shilong Fuhua Electronic Co.,Ltd.</p> <p>Model: UE06L4-120050SPAU</p> <p>Input: 100-240V~, 50/60Hz, 0.2A</p> <p>Output: 12VDC, 0.5A</p> |
| AC Adapter #2 | <p>Switching Adapter</p> <p>Manufacturer: ShenZhen Frecom Electronics Co., Ltd.</p> <p>Model: FPS005USA-120050</p> <p>Input: 100-240V~, 50/60Hz, 300mA</p> <p>Output: 12VDC, 0.5A</p>            |

Note: Adapter #1 tested in this report.

# Channel List

| 802.11b/g/n(20MHz) Working Frequency of Each Channel: |           |         |           |         |           |         |           |
|-------------------------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                                               | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 01                                                    | 2412 MHz  | 02      | 2417 MHz  | 03      | 2422 MHz  | 04      | 2427 MHz  |
| 05                                                    | 2432 MHz  | 06      | 2437 MHz  | 07      | 2442 MHz  | 08      | 2447 MHz  |
| 09                                                    | 2452 MHz  | 10      | 2457 MHz  | 11      | 2462 MHz  | N/A     | N/A       |
| 802.11n(40MHz) Working Frequency of Each Channel:     |           |         |           |         |           |         |           |
| Channel                                               | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 03                                                    | 2422 MHz  | 04      | 2427 MHz  | 05      | 2432 MHz  | 06      | 2437 MHz  |
| 07                                                    | 2442 MHz  | 08      | 2447 MHz  | 09      | 2452 MHz  | N/A     | N/A       |

## 1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

| Test Mode                            |
|--------------------------------------|
| Mode 1: Transmit by 802.11b          |
| Mode 2: Transmit by 802.11g          |
| Mode 3: Transmit by 802.11 n (20MHz) |
| Mode 4: Transmit by 802.11n (40MHz)  |

Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

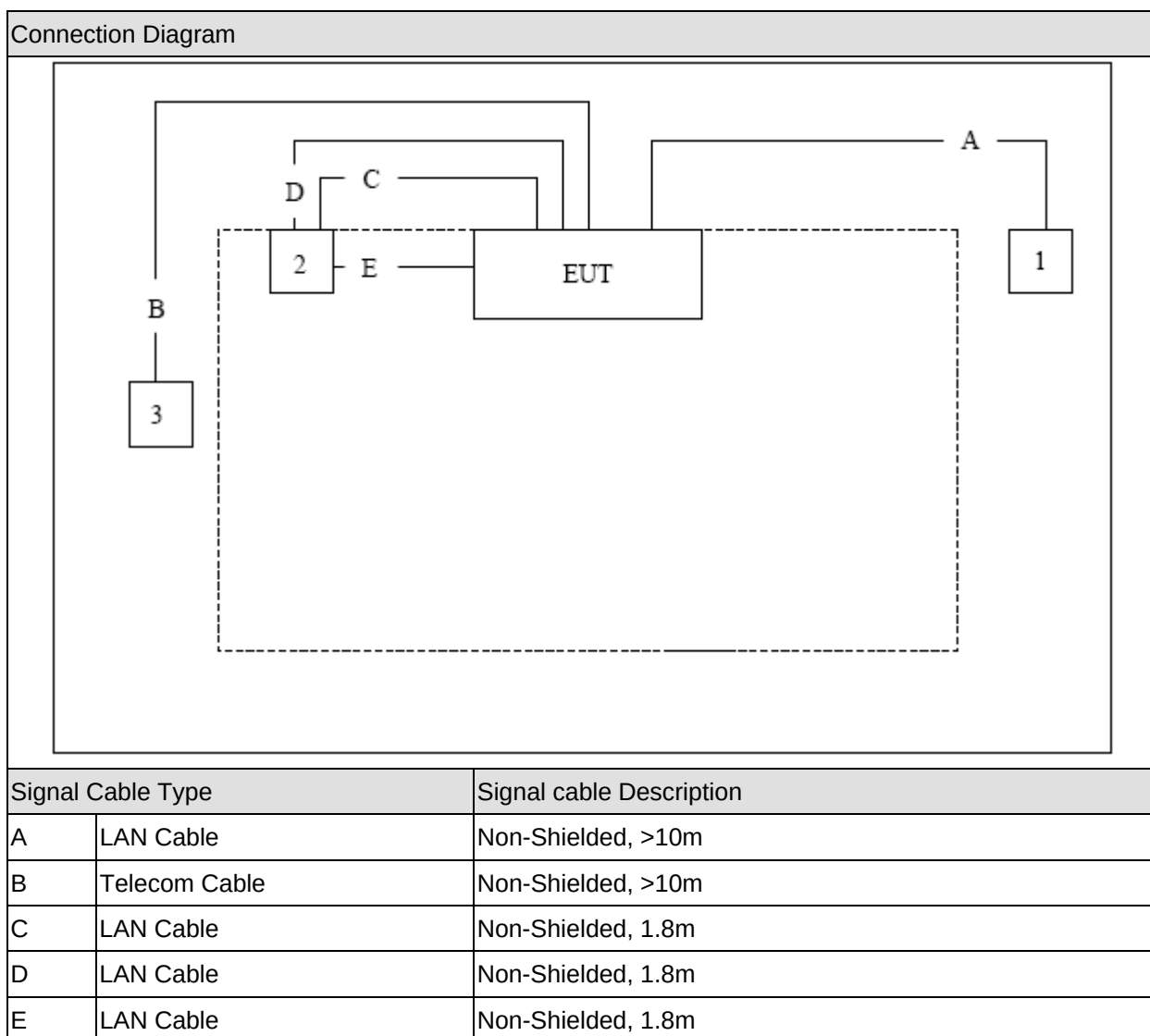


### 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product |            | Manufacturer | Model No.   | Serial No.    | Power Cord         |
|---------|------------|--------------|-------------|---------------|--------------------|
| 1       | Notebook   | DELL         | PP19L       | JH097 A01     | Power by adapter   |
| 2       | Rounter    | D-Link       | DIR-605     | PK11496006143 | Non-Shielded, 1.8m |
| 3       | IP Express | ZyXEL        | IES-1248-71 | S523825530    | Non-Shielded, 1.8m |

## 1.4. Configuration of Tested System



**1.5. EUT Exercise Software**

|   |                                                                                                     |
|---|-----------------------------------------------------------------------------------------------------|
| 1 | Setup the EUT and simulators as shown on above                                                      |
| 2 | Turn on the power of equipment.                                                                     |
| 3 | Input the commands in Super Terminal of Notebook (1), make the EUT transmit or receive, start test. |

## 2. Technical Test

### 2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

| Performed Test Item         | Normative References                                       | Test Performed | Deviation |
|-----------------------------|------------------------------------------------------------|----------------|-----------|
| Radiated Emission           | FCC CFR Title 47 Part 15 Subpart C: 2008<br>Section 15.209 | Yes            | No        |
| Radiated Emission Band Edge | FCC CFR Title 47 Part 15 Subpart C: 2008<br>15.247(d)      | Yes            | No        |

## 2.2. Test Environment

| Items                      | Required (IEC 68-1) | Actual   |
|----------------------------|---------------------|----------|
| Temperature (°C)           | 15-35               | 21       |
| Humidity (%RH)             | 25-75               | 50       |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |

### 3. Power Output

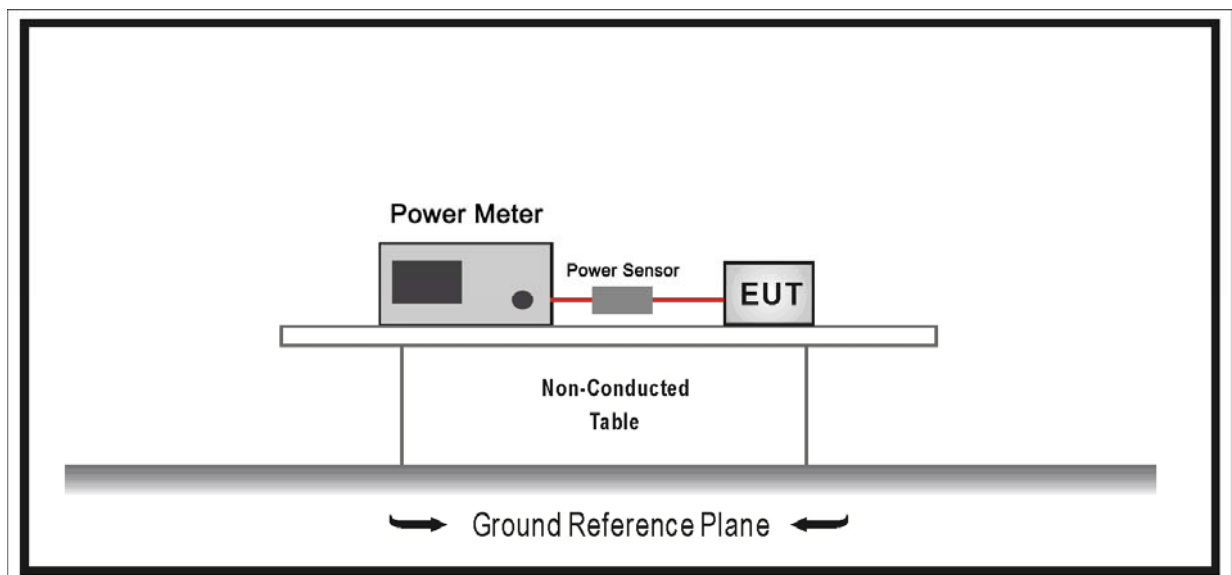
#### 3.1. Test Equipment

Power Output / TR-8

| Instrument                 | Manufacturer | Type No. | Serial No. | Cal. Date  |
|----------------------------|--------------|----------|------------|------------|
| Wideband Peak Power Meter  | Anritsu      | ML2495A  | 0905006    | 2012.01.12 |
| Power Sensor               | Anritsu      | MA2411B  | 0846014    | 2012.01.12 |
| Temperature/Humidity Meter | zhicheng     | ZC1-2    | TR8-TH     | 2012.05.04 |

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

#### 3.2. Test Setup



#### 3.3. Limit

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

### **3.4. Test Procedure**

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

Use the wideband power meter to test peak power and record the result.

### **3.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 1.27$  dB

### 3.6. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (blue marker) for final test of each channel.

| MCS Index<br>for 802.11n | Spatial<br>Streams | Data Rate (Mbps) |         |                 |          |                 |          |
|--------------------------|--------------------|------------------|---------|-----------------|----------|-----------------|----------|
|                          |                    | 802.11b          | 802.11g | 20MHz Bandwidth |          | 40MHz Bandwidth |          |
|                          |                    |                  |         | 800ns GI        | 400ns GI | 800ns GI        | 400ns GI |
| 0                        | 1                  | 1                | 6       | 6.5             | 7.2      | 13.5            | 15.0     |
| 1                        | 1                  | 2                | 9       | 13.0            | 14.4     | 27.0            | 30.0     |
| 2                        | 1                  | 5.5              | 12      | 19.5            | 21.7     | 40.5            | 45.0     |
| 3                        | 1                  | 11               | 18      | 26.0            | 28.9     | 54.0            | 60.0     |
| 4                        | 1                  | ---              | 24      | 39.0            | 43.3     | 81.0            | 90.0     |
| 5                        | 1                  | ---              | 36      | 52.0            | 57.8     | 108.0           | 120.0    |
| 6                        | 1                  | ---              | 48      | 58.5            | 65.0     | 121.5           | 135.0    |
| 7                        | 1                  | ---              | 54      | 65.0            | 72.2     | 135.0           | 150.0    |



|           |   |              |
|-----------|---|--------------|
| Product   | : | Home Gateway |
| Test Item | : | Power Output |

| Test Mode    | Channel No. | Frequency (MHz) | Conducted Power (dBm) | Limit (dBm) | Result |
|--------------|-------------|-----------------|-----------------------|-------------|--------|
| 802.11b      | 01          | 2412            | 15.18                 | 30          | Pass   |
|              | 06          | 2437            | 15.16                 | 30          | Pass   |
|              | 11          | 2462            | 16.41                 | 30          | Pass   |
| 802.11g      | 01          | 2412            | 21.63                 | 30          | Pass   |
|              | 06          | 2437            | 21.82                 | 30          | Pass   |
|              | 11          | 2462            | 21.80                 | 30          | Pass   |
| 802.11n(20M) | 01          | 2412            | 22.04                 | 30          | Pass   |
|              | 06          | 2437            | 22.50                 | 30          | Pass   |
|              | 11          | 2462            | <b>22.52</b>          | 30          | Pass   |
| 802.11n(40M) | 03          | 2422            | 20.11                 | 30          | Pass   |
|              | 06          | 2437            | 21.69                 | 30          | Pass   |
|              | 09          | 2452            | 21.68                 | 30          | Pass   |

## 4. Radiated Emission

### 4.1. Test Equipment

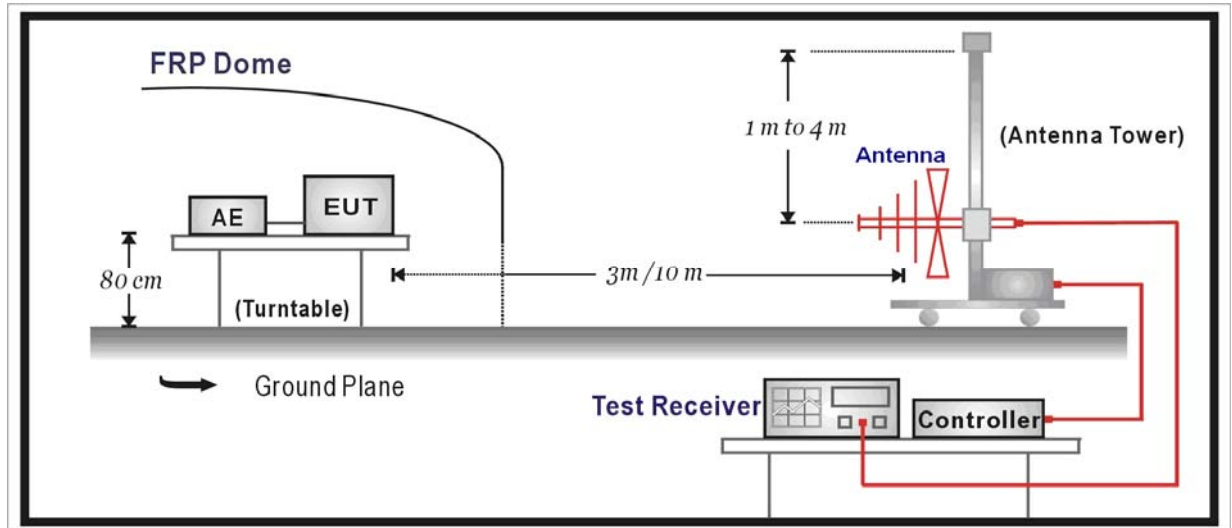
☒ Radiated Emission / AC-5

| Instrument                 | Manufacturer | Type No.         | Serial No.  | Cali. Due Date |
|----------------------------|--------------|------------------|-------------|----------------|
| Spectrum Analyzer          | Agilent      | N9010A           | MY48030494  | 2012.04.23     |
| EMI Test Receiver          | R&S          | ESI26            | 838786/004  | 2012.01.15     |
| Preamplifier               | Quietek      | AP-180C          | CHM-0602013 | 2012.05.05     |
| Preamplifier               | Quietek      | AP-040G          | CHM-0906001 | 2012.05.05     |
| Bilog Antenna              | Teseq GmbH   | CBL6112D         | 27612       | 2012.10.18     |
| Broad-Band Horn Antenna    | Schwarzbeck  | BBHA9120D        | 499         | 2012.06.11     |
| High-Pass Filter           | Wainwright   | WHKX2.8/18G-12SS | SN1         | 2012.03.03     |
| High-Pass Filter           | Wainwright   | WHKX7.0/18G-8SS  | SN16        | 2012.03.03     |
| Lowpass Filter             | Wainwright   | WLKS4500-9SS     | SN2         | 2012.03.03     |
| Temperature/Humidity Meter | Zhicheng     | ZC1-2            | AC5-TH      | 2012.01.14     |

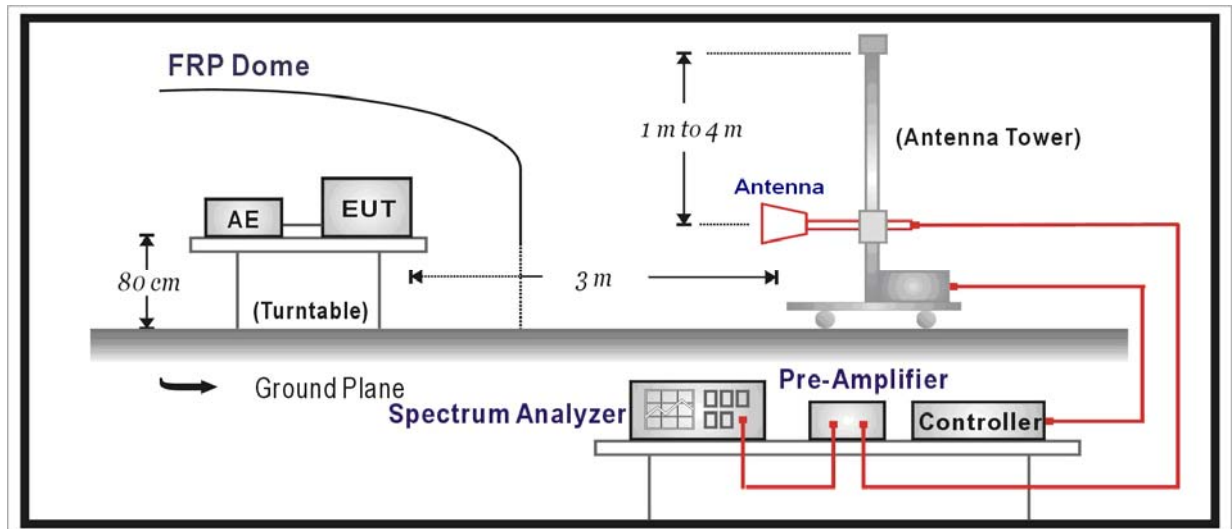
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

## 4.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



#### 4.3. Limit

| FCC Part 15 Subpart C Paragraph 15.209 |              |                |
|----------------------------------------|--------------|----------------|
| Frequency (MHz)                        | Distance (m) | Level (dBuV/m) |
| 30 - 88                                | 3            | 40             |
| 88 - 216                               | 3            | 43.5           |
| 216 - 960                              | 3            | 46             |
| Above 960                              | 3            | 54             |

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

#### 4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the "cone of radiation" of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

#### 4.5. Uncertainty

The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB  
below 1G is defined as  $\pm 3.8$  dB

#### 4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

802.11b

| CH | Antenna | Frequen<br>cy<br>(MHz) | Reading<br>Level<br>(dBuV/m) | Factor<br>(dB) | Measure<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector |
|----|---------|------------------------|------------------------------|----------------|------------------------------|-------------------|----------------|----------|
| 1  | V       | 2410.7                 | 65.0                         | 31.1           | 96.1                         | Fundamental       | /              | PK       |
|    | H       | 291.5                  | 14.2                         | 7.9            | 22.1                         | 46                | -23.9          | QP       |
|    | H       | 318.9                  | 8.3                          | 15.3           | 23.6                         | 46                | -22.4          | QP       |
|    | V       | 3210.0                 | 65.6                         | -15.8          | 49.8                         | 54(note1)         | -4.2           | PK       |
|    | V       | 4824.0                 | 68.5                         | -11.9          | 56.6                         | 74                | -17.4          | PK       |
|    | V       | 4824.0                 | 63.2                         | -11.9          | 51.3                         | 54(note1)         | -2.7           | AV       |
|    | V       | 7236.0                 | 48.2                         | -3.2           | 45.0                         | 54(note1)         | -9.0           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 6  | V       | 2435.3                 | 66.4                         | 30.9           | 97.3                         | Fundamental       | /              | PK       |
|    | H       | 523.1                  | 9.4                          | 19.6           | 29.0                         | 46                | -17.0          | QP       |
|    | H       | 650.0                  | 5.4                          | 21.4           | 26.8                         | 46                | -19.2          | QP       |
|    | V       | 3244.0                 | 66.7                         | -16.0          | 50.7                         | 54(note1)         | -3.3           | PK       |
|    | V       | 4876.0                 | 66.8                         | -11.7          | 55.1                         | 74                | -18.9          | PK       |
|    | V       | 4876.0                 | 64.6                         | -11.7          | 52.9                         | 54(note1)         | -1.1           | AV       |
|    | V       | 7311.0                 | 47.3                         | -3.0           | 44.3                         | 54(note1)         | -9.7           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 11 | V       | 2462.1                 | 60.6                         | 31.2           | 91.8                         | Fundamental       | /              | PK       |
|    | H       | 568.2                  | 5.2                          | 20.6           | 25.8                         | 46                | -20.2          | QP       |
|    | H       | 749.9                  | 6.9                          | 22.6           | 29.5                         | 46                | -16.5          | QP       |
|    | V       | 3278.0                 | 67.5                         | -16.1          | 51.4                         | 54(note1)         | -2.6           | PK       |
|    | V       | 4927.0                 | 65.5                         | -11.5          | 54.0                         | 74                | -20.0          | PK       |
|    | V       | 4927.0                 | 63.7                         | -11.5          | 52.2                         | 54                | -1.8           | AV       |
|    | V       | 7386.0                 | 48.2                         | -2.7           | 45.5                         | 54(note1)         | -8.5           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |

Note 1: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11g

| CH | Antenna | Frequen<br>cy<br>(MHz) | Reading<br>Level<br>(dBuV/m) | Factor<br>(dB) | Measure<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector |
|----|---------|------------------------|------------------------------|----------------|------------------------------|-------------------|----------------|----------|
| 1  | V       | 2411.6                 | 66.0                         | 31.1           | 97.1                         | Fundamental       | /              | PK       |
|    | H       | 344.4                  | 10.7                         | 15.9           | 26.6                         | 46                | -19.4          | QP       |
|    | H       | 516.2                  | 9.6                          | 19.5           | 29.1                         | 46                | -16.9          | QP       |
|    | V       | 3210.0                 | 65.6                         | -15.8          | 49.8                         | 54(note1)         | -4.2           | PK       |
|    | V       | 4824.0                 | 72.5                         | -11.9          | 60.6                         | 74                | -13.4          | PK       |
|    | V       | 4824.0                 | 57.9                         | -11.9          | 46.0                         | 54                | -8.0           | AV       |
|    | V       | 7236.0                 | 48.0                         | -3.2           | 44.8                         | 54(note1)         | -9.2           | PK       |
|    | H       | 24000                  | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 6  | V       | 2435.1                 | 66.9                         | 30.9           | 97.8                         | Fundamental       | /              | PK       |
|    | H       | 625.0                  | 6.2                          | 21.3           | 27.5                         | 46                | -18.5          | QP       |
|    | H       | 777.1                  | 8.6                          | 22.4           | 31.0                         | 46                | -15.0          | QP       |
|    | V       | 3244.0                 | 67.2                         | -16.0          | 51.2                         | 54(note1)         | -2.8           | PK       |
|    | V       | 4876.0                 | 72.6                         | -11.7          | 60.9                         | 74                | -13.1          | PK       |
|    | V       | 4876.0                 | 58.6                         | -11.7          | 46.9                         | 54                | -7.1           | AV       |
|    | V       | 7311.0                 | 48.5                         | -3.0           | 45.5                         | 54(note1)         | -8.5           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 11 | V       | 2461.8                 | 62.6                         | 31.2           | 93.8                         | Fundamental       | /              | PK       |
|    | H       | 599.9                  | 6.6                          | 20.8           | 27.4                         | 46                | -18.6          | QP       |
|    | H       | 777.1                  | 8.4                          | 22.4           | 30.8                         | 46                | -15.2          | QP       |
|    | V       | 3278.0                 | 67.9                         | -16.1          | 51.8                         | 54(note1)         | -2.2           | PK       |
|    | V       | 4927.0                 | 72.5                         | -11.5          | 61.0                         | 74                | -13.0          | PK       |
|    | V       | 4927.0                 | 56.4                         | -11.5          | 44.9                         | 54                | -9.1           | AV       |
|    | V       | 7386.0                 | 47.6                         | -2.7           | 44.9                         | 54(note1)         | -9.1           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |

Note 1: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11n(20MHz)

| CH | Antenna | Frequen<br>cy<br>(MHz) | Reading<br>Level<br>(dBuV/m) | Factor<br>(dB) | Measure<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector |
|----|---------|------------------------|------------------------------|----------------|------------------------------|-------------------|----------------|----------|
| 1  | V       | 2415.7                 | 68.1                         | 31.1           | 99.2                         | Fundamental       | /              | PK       |
|    | V       | 361.9                  | 7.8                          | 16.4           | 24.2                         | 46                | -21.8          | QP       |
|    | V       | 413.9                  | 6.4                          | 18.3           | 24.7                         | 46                | -21.3          | QP       |
|    | V       | 3210.0                 | 66.3                         | -15.8          | 50.5                         | 54(note1)         | -3.5           | PK       |
|    | V       | 4824.0                 | 71.6                         | -11.9          | 59.7                         | 74                | -14.3          | PK       |
|    | V       | 4824.0                 | 57.8                         | -11.9          | 45.9                         | 54                | -8.1           | AV       |
|    | V       | 7236.0                 | 49.3                         | -3.2           | 46.1                         | 54(note1)         | -7.9           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 6  | V       | 2439.3                 | 68.8                         | 30.9           | 99.7                         | Fundamental       | /              | PK       |
|    | V       | 624.9                  | 9.1                          | 21.3           | 30.4                         | 46                | -15.6          | QP       |
|    | V       | 649.9                  | 8.5                          | 21.4           | 29.9                         | 46                | -16.1          | QP       |
|    | V       | 3244.0                 | 67.5                         | -16.0          | 51.5                         | 54(note1)         | -2.5           | PK       |
|    | V       | 4876.0                 | 72.7                         | -11.7          | 61.0                         | 74                | -13.0          | PK       |
|    | V       | 4876.0                 | 58.2                         | -11.7          | 46.5                         | 54                | -7.5           | AV       |
|    | V       | 7311.0                 | 47.6                         | -3.0           | 44.6                         | 54(note1)         | -9.4           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 11 | V       | 2464.6                 | 63.5                         | 31.2           | 94.7                         | Fundamental       | /              | PK       |
|    | V       | 526.6                  | 8.1                          | 19.7           | 27.8                         | 46                | -18.2          | QP       |
|    | V       | 550.0                  | 6.7                          | 20.7           | 27.4                         | 46                | -18.6          | QP       |
|    | V       | 3278.0                 | 67.9                         | -16.1          | 51.8                         | 54(note1)         | -2.2           | PK       |
|    | V       | 4927.0                 | 70.8                         | -11.5          | 59.3                         | 74                | -14.7          | PK       |
|    | V       | 4927.0                 | 55.4                         | -11.5          | 43.9                         | 54                | -10.1          | AV       |
|    | V       | 7386.0                 | 47.7                         | -2.7           | 45.0                         | 54(note1)         | -9.0           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |

Note 1: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## 802.11n(40MHz)

| CH | Antenna | Frequen<br>cy<br>(MHz) | Reading<br>Level<br>(dBuV/m) | Factor<br>(dB) | Measure<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector |
|----|---------|------------------------|------------------------------|----------------|------------------------------|-------------------|----------------|----------|
| 3  | V       | 2415.6                 | 68.5                         | 31.1           | 99.6                         | Fundamental       | /              | PK       |
|    | V       | 288.8                  | 6.7                          | 14.1           | 20.8                         | 46                | -25.2          | QP       |
|    | V       | 318.2                  | 7.2                          | 15.2           | 22.4                         | 46                | -23.6          | QP       |
|    | V       | 3227.0                 | 66.3                         | -15.9          | 50.4                         | 54(note1)         | -3.6           | PK       |
|    | V       | 4844.0                 | 69.0                         | -11.5          | 57.5                         | 74                | -16.5          | PK       |
|    | V       | 4844.0                 | 55.0                         | -11.5          | 43.5                         | 54                | -10.5          | AV       |
|    | V       | 7266.0                 | 47.4                         | -3.2           | 44.2                         | 54(note1)         | -9.8           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 6  | V       | 2435.3                 | 69.2                         | 30.9           | 100.1                        | Fundamental       | /              | PK       |
|    | V       | 361.9                  | 7.8                          | 16.4           | 24.2                         | 46                | -21.8          | QP       |
|    | V       | 413.9                  | 6.4                          | 18.3           | 24.7                         | 46                | -21.3          | QP       |
|    | V       | 3244.0                 | 66.9                         | -16.0          | 50.9                         | 54(note1)         | -3.1           | PK       |
|    | V       | 4876.0                 | 69.0                         | -11.7          | 57.3                         | 74                | -16.7          | PK       |
|    | V       | 4876.0                 | 55.5                         | -11.7          | 43.8                         | 54                | -10.2          | AV       |
|    | V       | 7311.0                 | 47.7                         | -3.0           | 44.7                         | 54(note1)         | -9.3           | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |
| 9  | V       | 2446.9                 | 62.9                         | 31.2           | 94.1                         | Fundamental       | /              | PK       |
|    | V       | 728.1                  | 5.6                          | 22.3           | 27.9                         | 46                | -18.1          | QP       |
|    | V       | 777.1                  | 8.4                          | 22.4           | 30.8                         | 46                | -15.2          | QP       |
|    | V       | 3261.0                 | 66.7                         | -16.0          | 50.7                         | 54(note1)         | -3.3           | PK       |
|    | V       | 4910.0                 | 68.5                         | -11.5          | 57.0                         | 74                | -17.0          | PK       |
|    | V       | 4910.0                 | 54.0                         | -11.5          | 42.5                         | 54                | -11.5          | AV       |
|    | V       | 7356.0                 | 46.8                         | -2.8           | 44.0                         | 54(note1)         | -10.0          | PK       |
|    | H       | 24000.0                | 59.1                         | -8.9           | 50.2                         | 54(note1)         | -3.8           | PK       |

Note 1: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.



## 5. Radiated Emission Band Edge

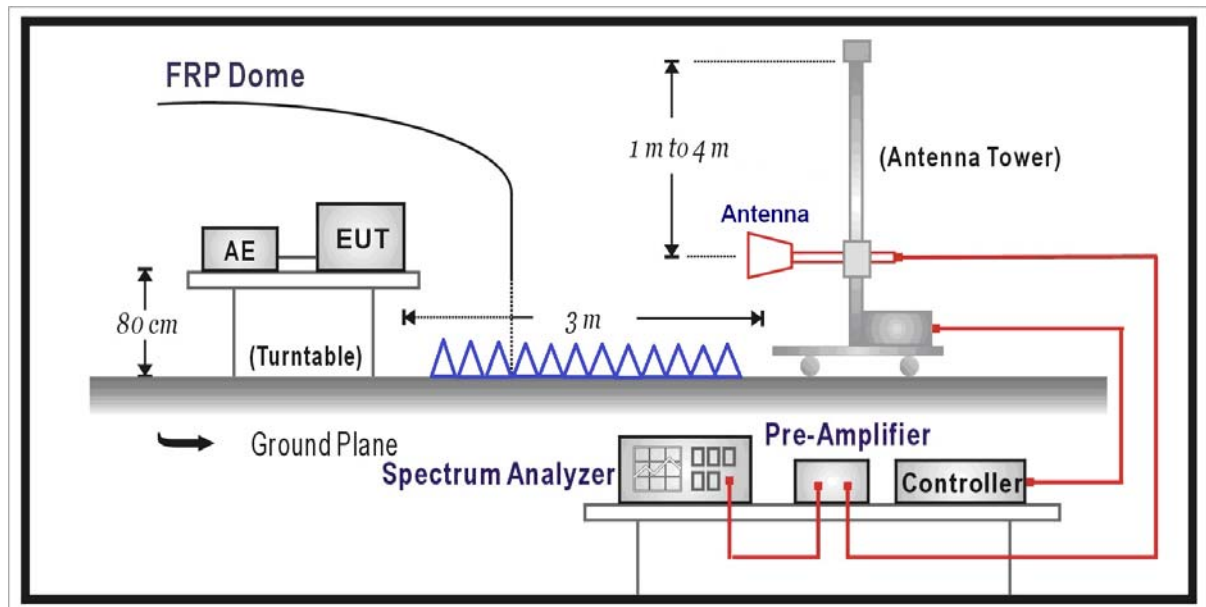
### 5.1. Test Equipment

☒ Radiated Emission Band Edge / AC-5

| Instrument                 | Manufacturer | Type No.  | Serial No.  | Cali. Due Date |
|----------------------------|--------------|-----------|-------------|----------------|
| Spectrum Analyzer          | Agilent      | N9010A    | MY48030494  | 2012.04.23     |
| EMI Test Receiver          | R&S          | ESCI      | 100573      | 2012.04.23     |
| Preamplifier               | Quietek      | AP-025C   | CHM-0511006 | 2012.04.12     |
| Preamplifier               | Quietek      | AP-180C   | CHM-0602013 | 2012.03.07     |
| Bilog Type Antenna         | Schaffner    | CBL6112B  | 2932        | 2011.10.18     |
| Broad-Band Horn Antenna    | Schwarzbeck  | BBHA9120D | 499         | 2012.06.11     |
| 50ohm Coaxial Switch       | Anritsu      | MP59B     | 6200464462  | 2012.05.05     |
| Temperature/Humidity Meter | zhicheng     | ZC1-2     | AC5-TH      | 2012.01.14     |

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

## 5.2. Test Setup



## 5.3. Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

## 5.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

## 5.5. Uncertainty

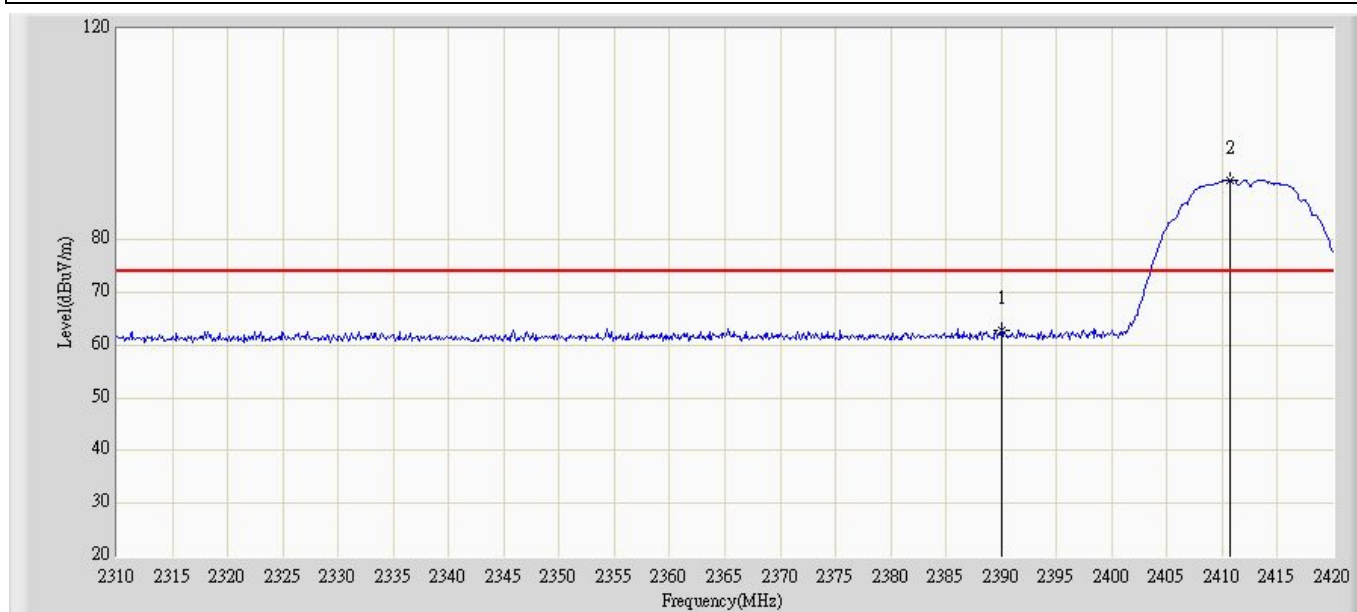
The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB

## 5.6. Test Result

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

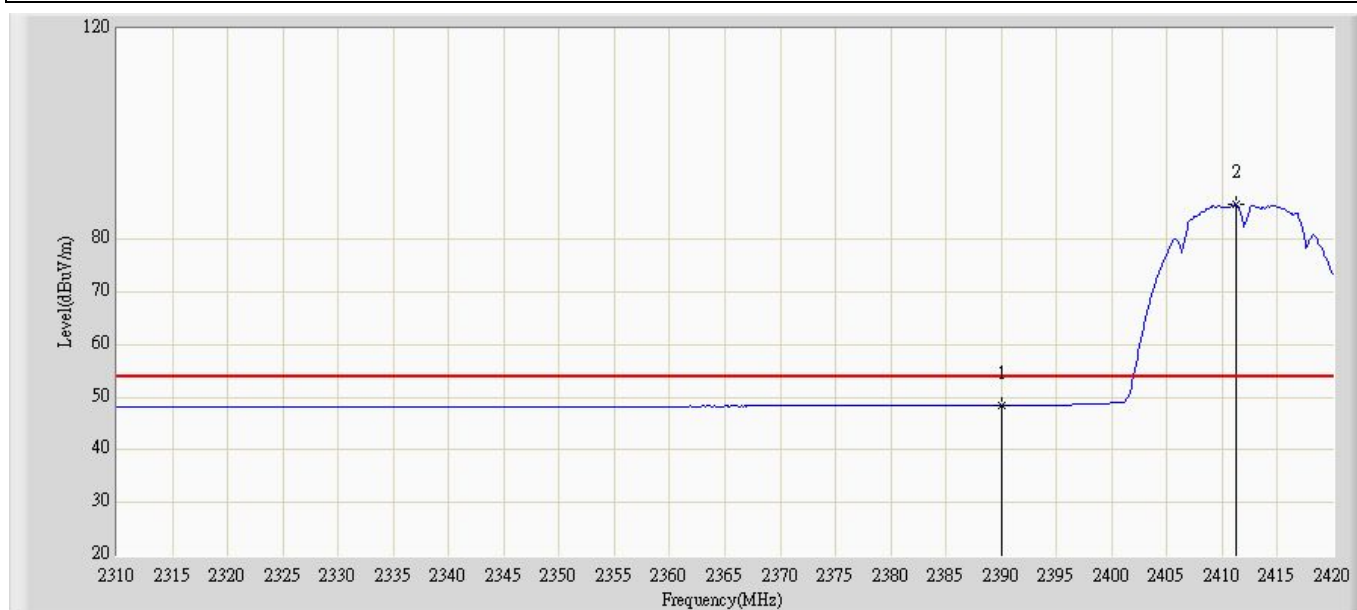
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 14:05 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2412MHz by 802.11b           |                          |



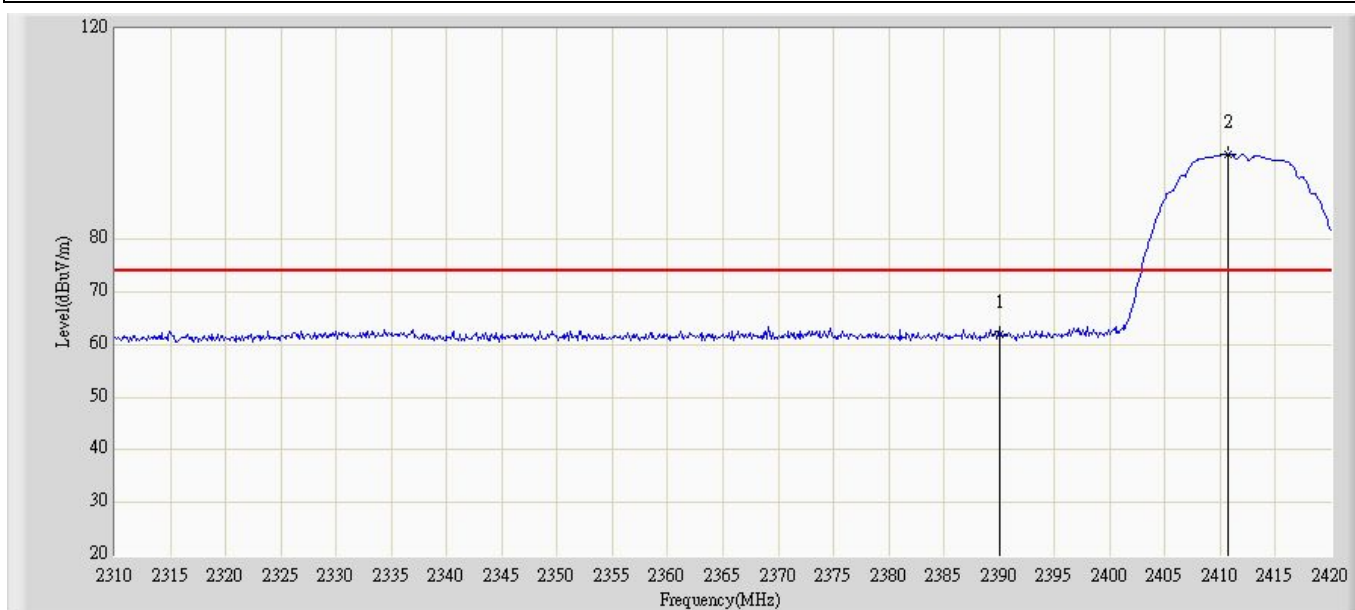
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      |      | 2390.000        | 62.944                 | 31.759               | -11.056         | 74.000         | 31.185 | PK   |
| 2  |      | *    | 2410.760        | 91.327                 | 60.147               | N/A             | N/A            | 31.180 | PK   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 14:29 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2412MHz by 802.11b           |                          |



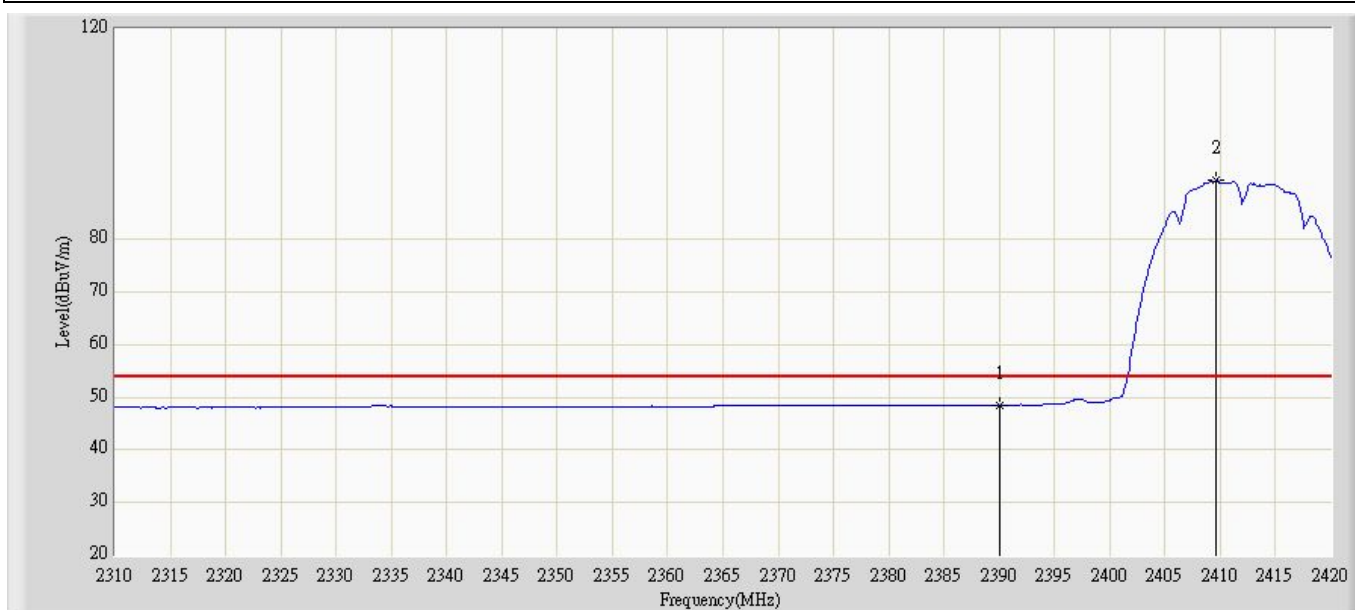
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      |      | 2390.000        | 48.440                 | 17.255               | -5.560          | 54.000         | 31.185 | AV   |
| 2  |      | *    | 2411.200        | 86.621                 | 55.441               | N/A             | N/A            | 31.180 | AV   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 15:06 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2412MHz by 802.11b           |                          |



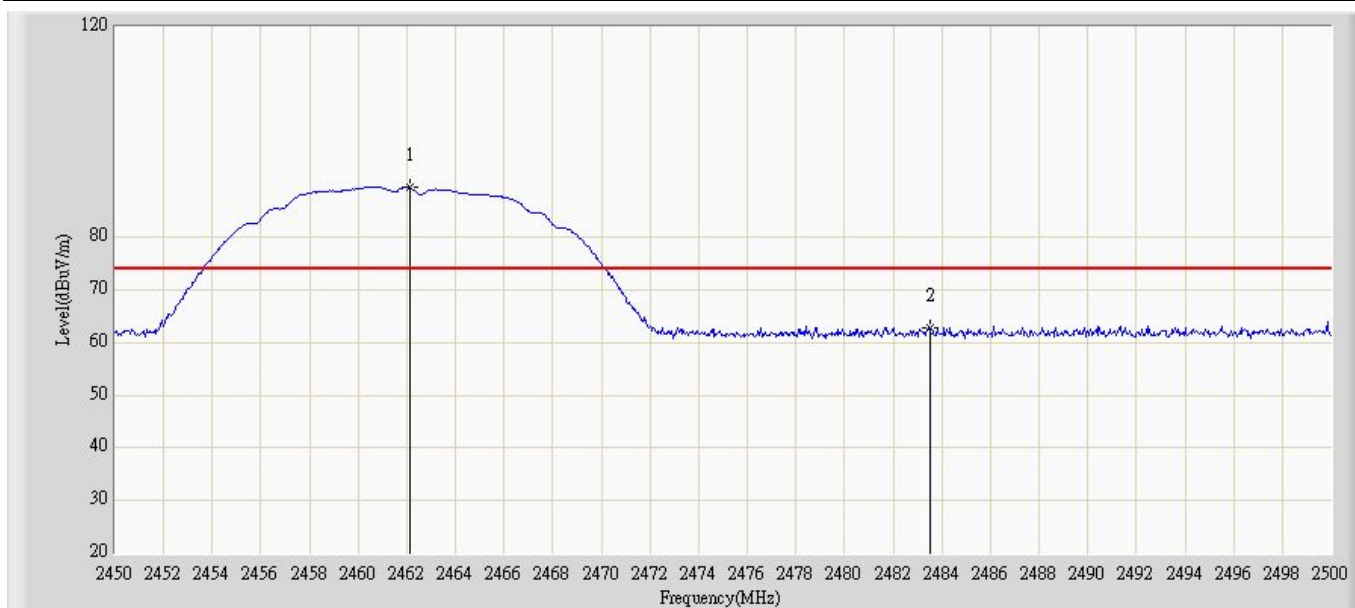
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 61.904                    | 30.719                  | -12.096            | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2410.760           | 96.184                    | 65.004                  | N/A                | N/A               | 31.180 | PK   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 15:13 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2412MHz by 802.11b           |                          |



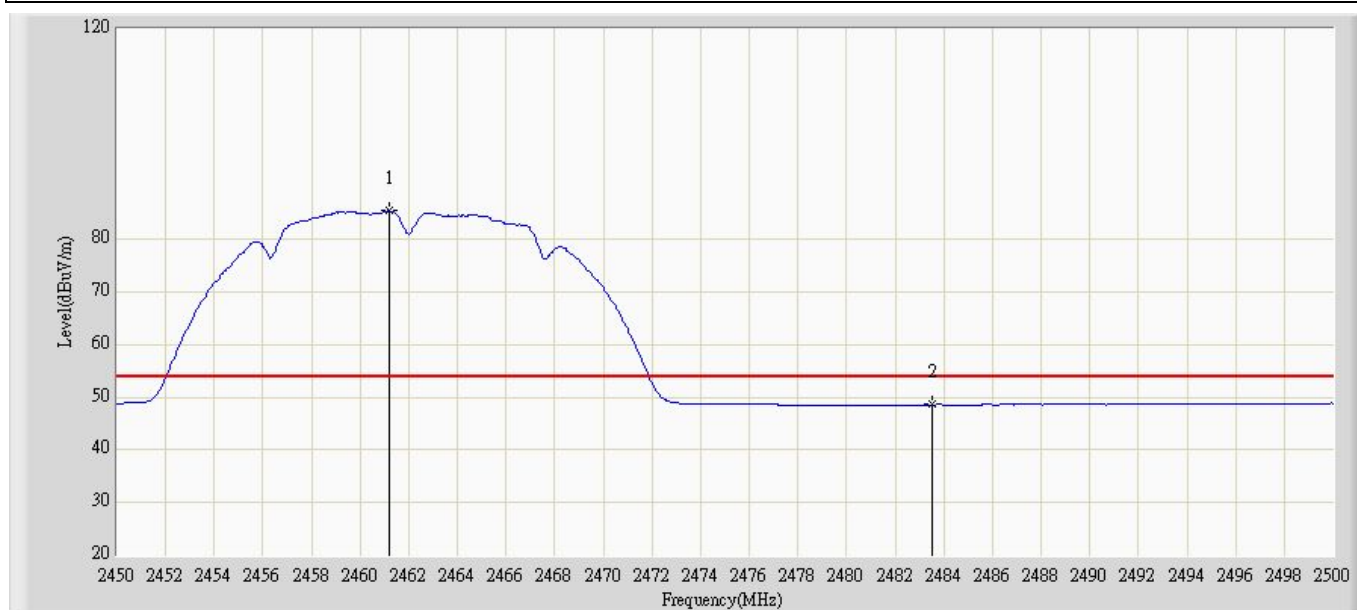
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 48.547                    | 17.362                  | -5.453             | 54.000            | 31.185 | AV   |
| 2  |      | *    | 2409.660           | 91.276                    | 60.096                  | N/A                | N/A               | 31.180 | AV   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 15:16 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2462MHz by 802.11b           |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2462.100           | 89.495                    | 58.292                  | N/A                | N/A               | 31.203 | PK   |
| 2  |      |      | 2483.500           | 62.814                    | 31.605                  | -11.186            | 74.000            | 31.209 | PK   |

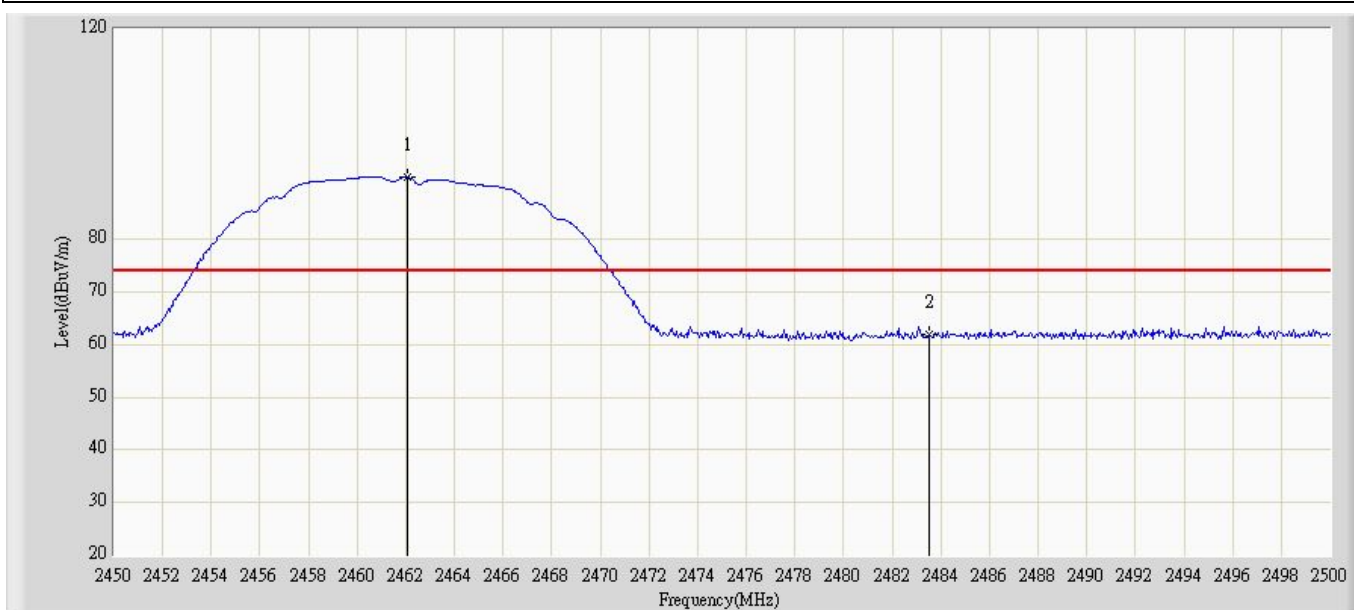
|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 15:23 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2462MHz by 802.11b           |                          |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2461.200        | 85.477                 | 54.275               | N/A             | N/A            | 31.202 | AV   |
| 2  |      |      | 2483.500        | 48.595                 | 17.386               | -5.405          | 54.000         | 31.209 | AV   |



|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 15:59 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2462MHz by 802.11b           |                          |



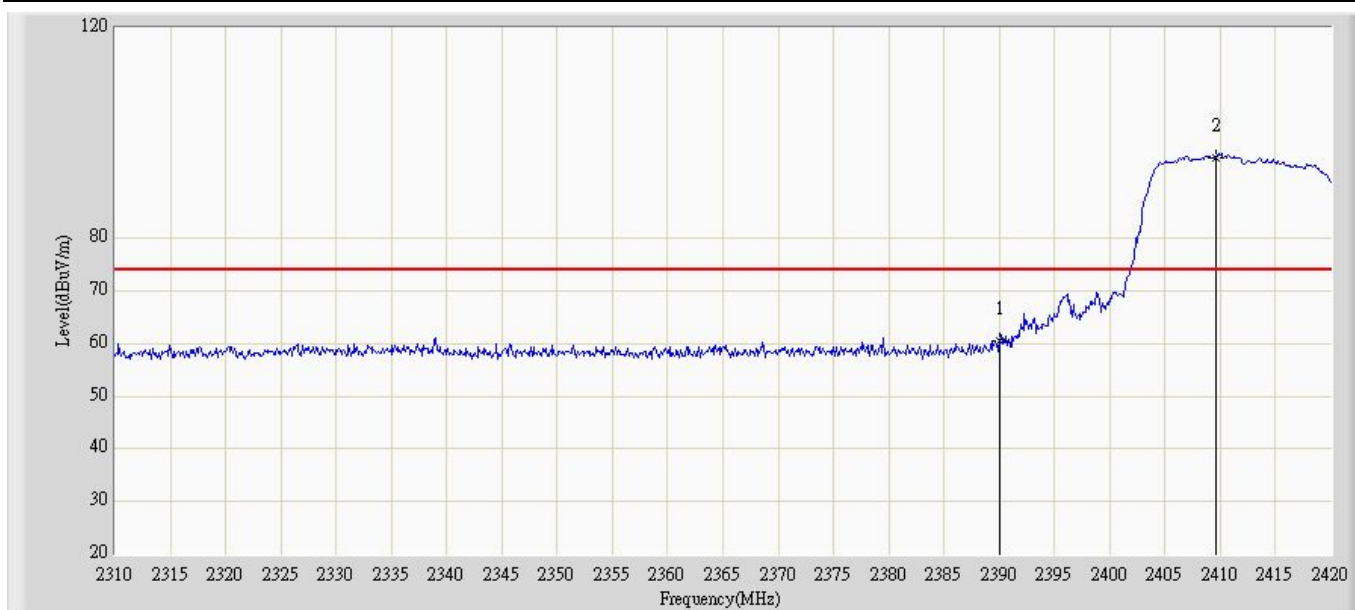
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2462.050        | 91.842                 | 60.639               | N/A             | N/A            | 31.203 | PK   |
| 2  |      |      | 2483.500        | 61.849                 | 30.640               | -12.151         | 74.000         | 31.209 | PK   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 16:05 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode1: Transmit at channel 2462MHz by 802.11b           |                          |



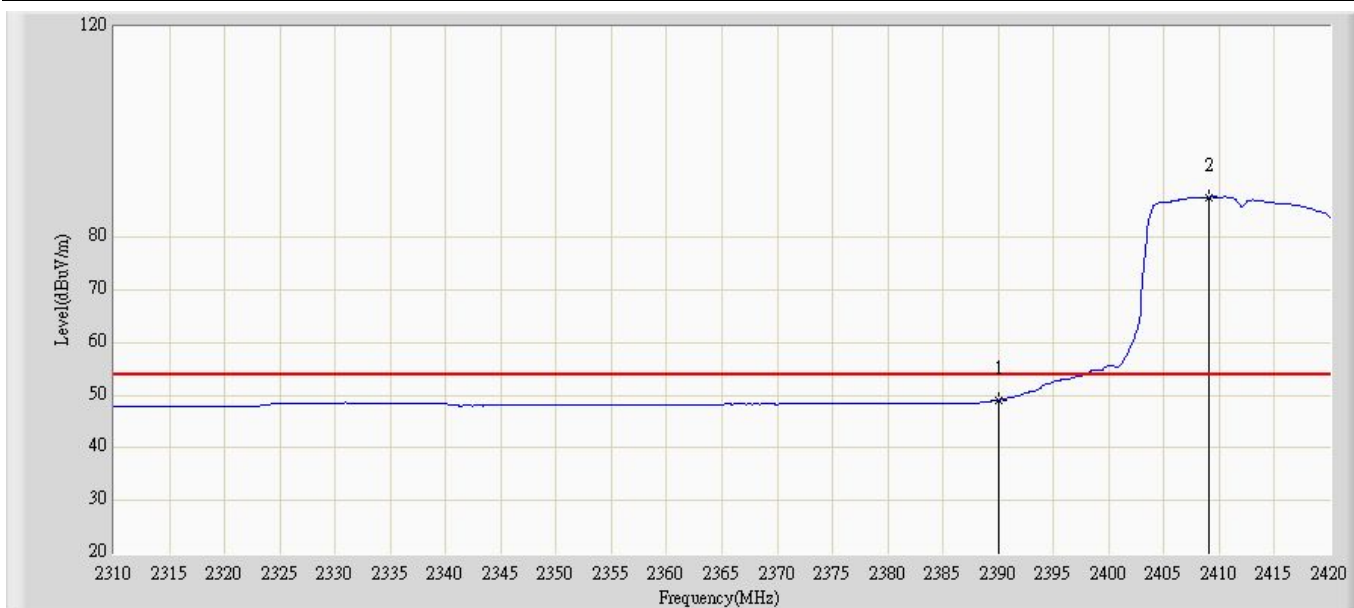
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2459.100           | 86.318                    | 55.118                  | N/A                | N/A               | 31.200 | AV   |
| 2  |      |      | 2483.500           | 48.494                    | 17.285                  | -5.506             | 54.000            | 31.209 | AV   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 16:20 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode2: Transmit at channel 2412MHz by 802.11g           |                          |



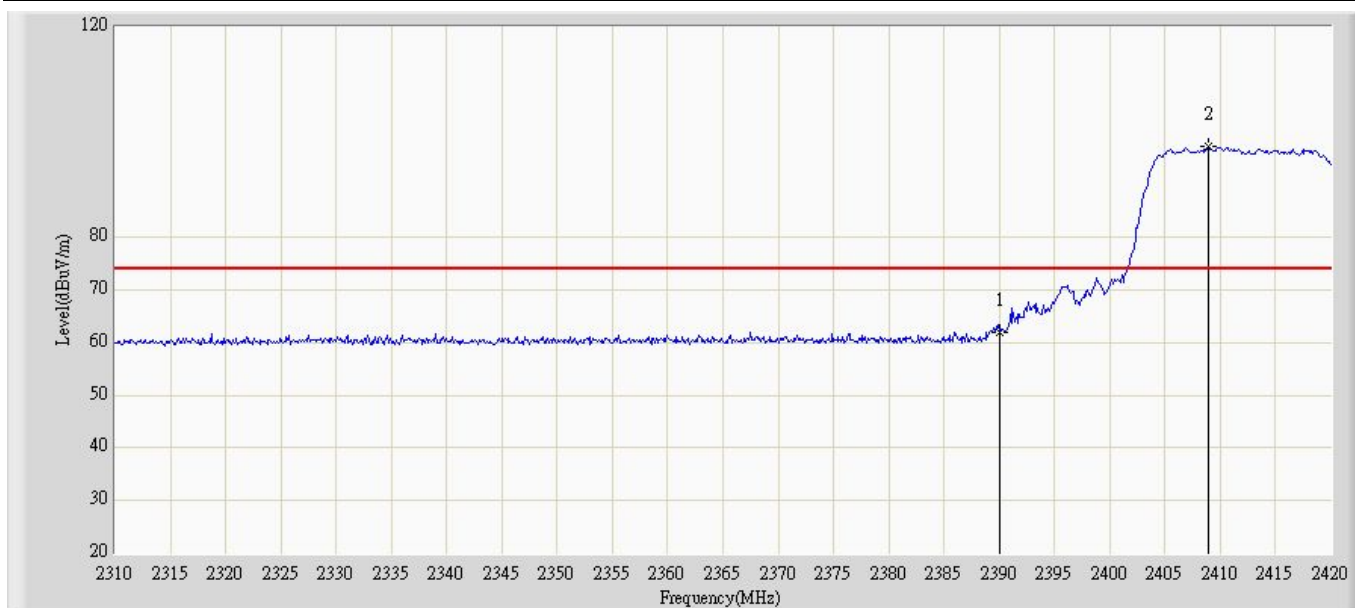
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 60.561                    | 29.376                  | -13.439            | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2409.660           | 95.340                    | 64.160                  | N/A                | N/A               | 31.180 | PK   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/30 - 13:35 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode2: Transmit at channel 2412MHz by 802.11g           |                          |



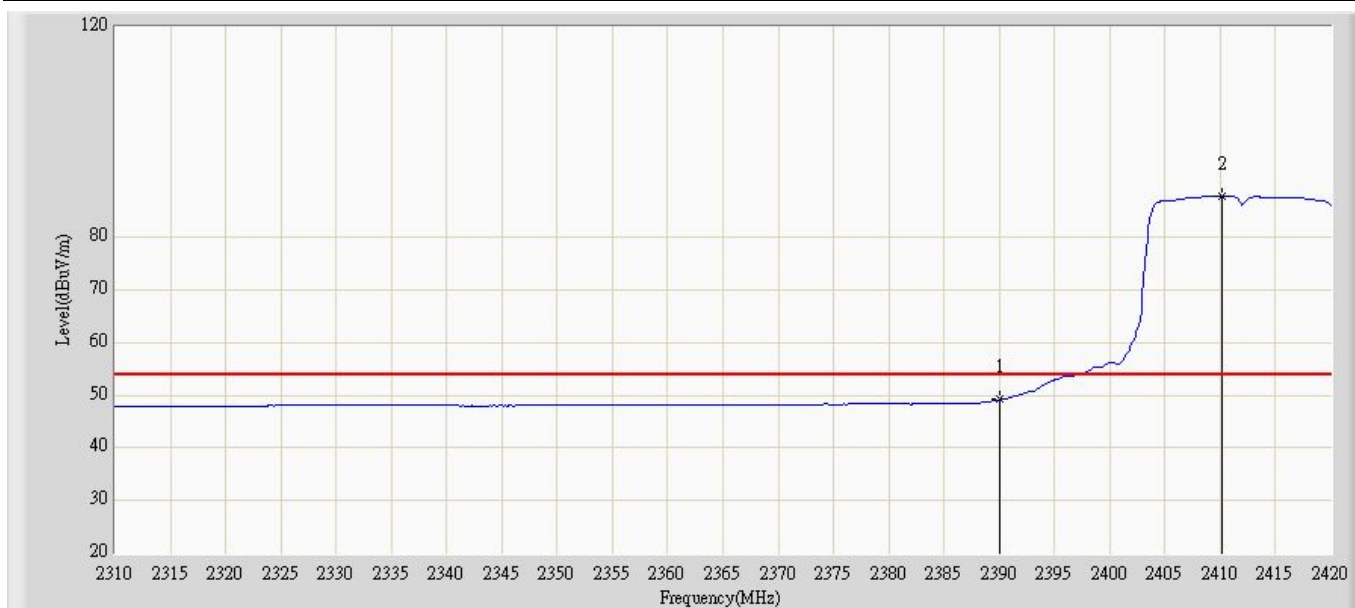
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 49.117                    | 17.932                  | -4.883             | 54.000            | 31.185 | AV   |
| 2  |      | *    | 2409.000           | 87.592                    | 56.412                  | N/A                | N/A               | 31.180 | AV   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 16:15 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode2: Transmit at channel 2412MHz by 802.11g           |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 61.977                    | 30.792                  | -12.023            | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2408.890           | 97.208                    | 66.028                  | N/A                | N/A               | 31.180 | PK   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/29 - 16:18 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode2: Transmit at channel 2412MHz by 802.11g           |                          |



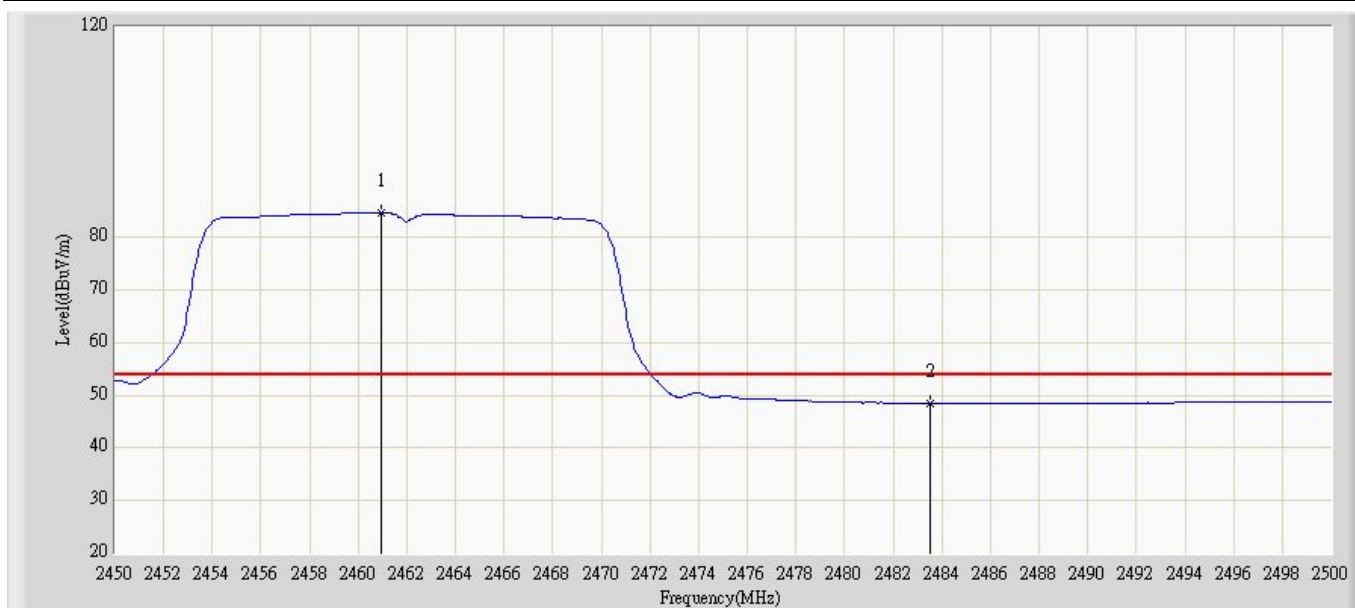
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 49.174                    | 17.989                  | -4.826             | 54.000            | 31.185 | AV   |
| 2  |      | *    | 2410.210           | 87.856                    | 56.676                  | N/A                | N/A               | 31.180 | AV   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/30 - 15:57 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at channel 2462MHz by 802.11g          |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2458.700           | 92.381                    | 61.181                  | N/A                | N/A               | 31.200 | PK   |
| 2  |      |      | 2483.500           | 61.123                    | 29.914                  | -12.877            | 74.000            | 31.209 | PK   |

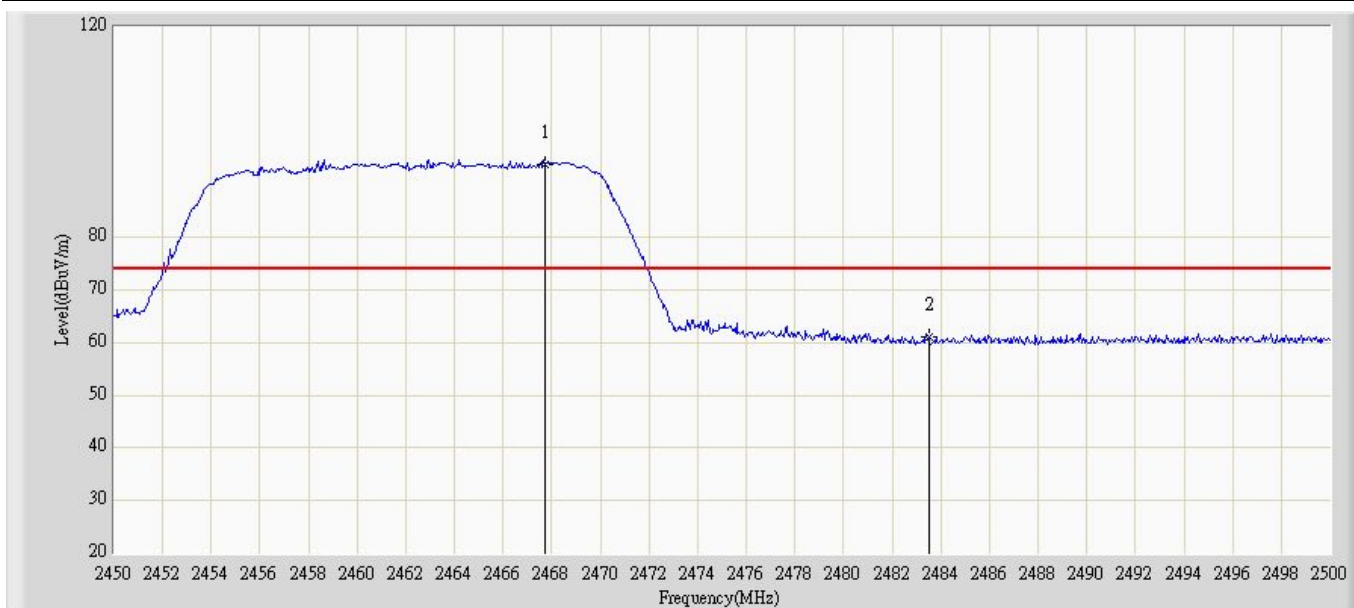
|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/30 - 16:11 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at channel 2462MHz by 802.11g          |                          |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2460.950        | 84.764                 | 53.562               | N/A             | N/A            | 31.202 | AV   |
| 2  |      |      | 2483.500        | 48.531                 | 17.322               | -5.469          | 54.000         | 31.209 | AV   |

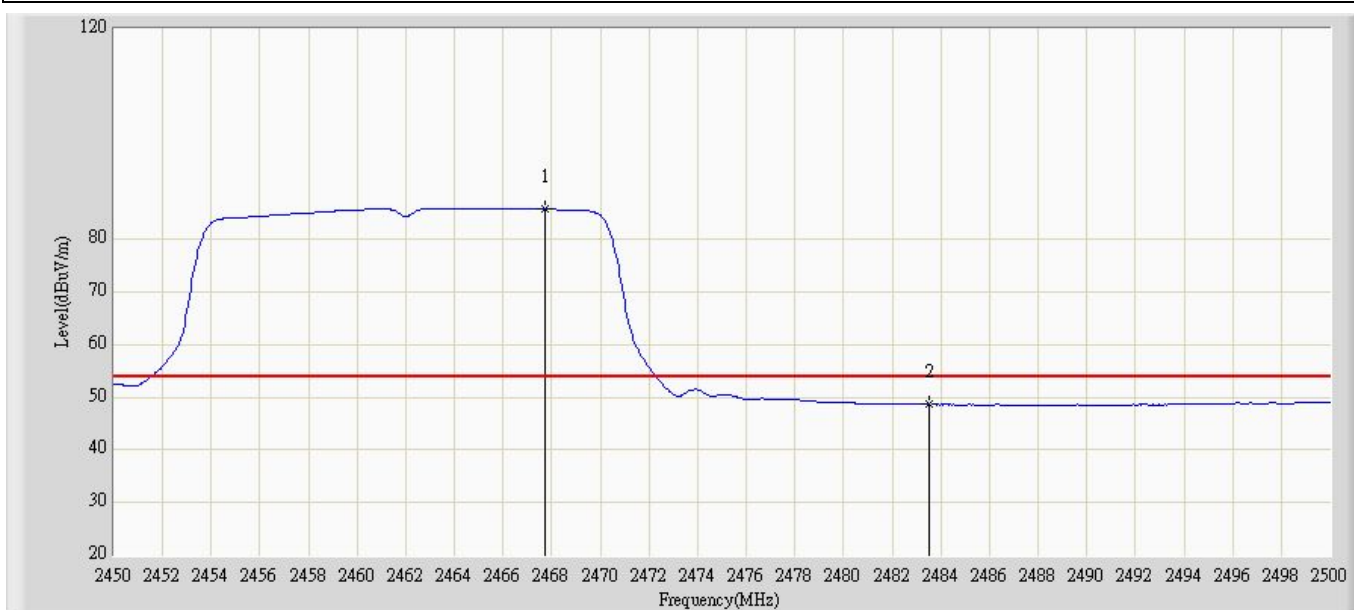


|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/30 - 16:13 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at channel 2462MHz by 802.11g          |                          |



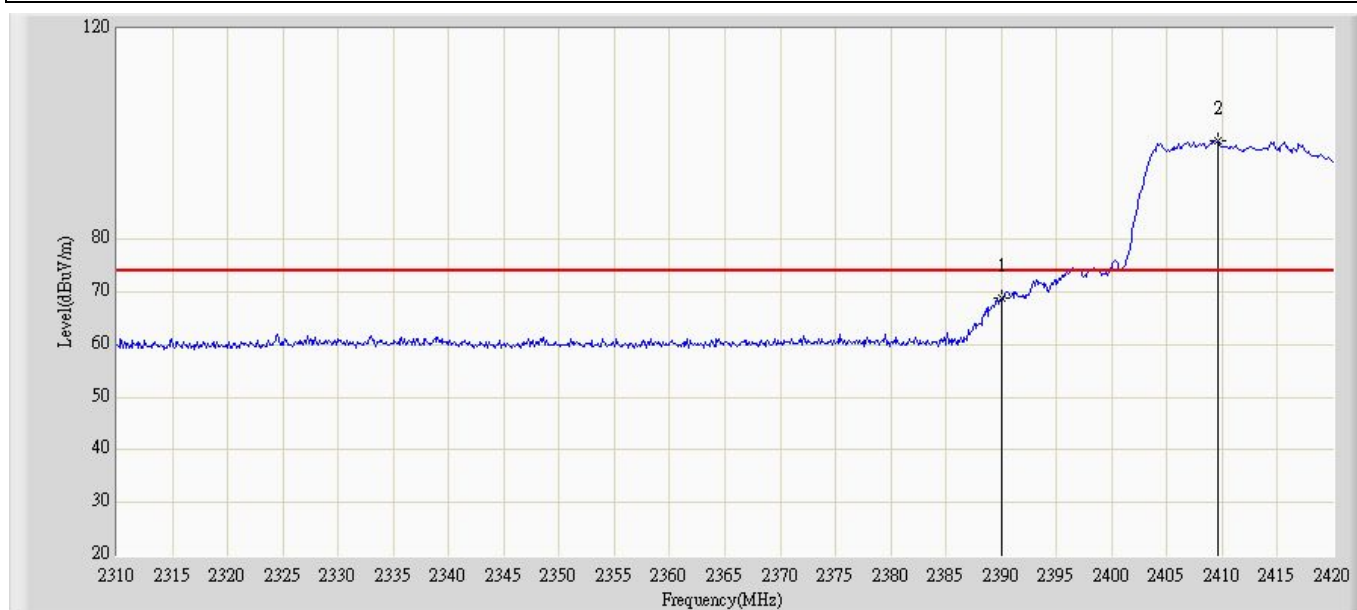
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2467.700           | 93.873                    | 62.669                  | N/A                | N/A               | 31.204 | PK   |
| 2  |      |      | 2483.500           | 60.998                    | 29.789                  | -13.002            | 74.000            | 31.209 | PK   |

|                                                               |                          |
|---------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                |                          |
| Site: AC5                                                     | Time: 2011/08/30 - 16:17 |
| Limit: FCC_Part15.209_RE(3m)                                  | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                 | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at channel 2462MHz by 802.11g          |                          |



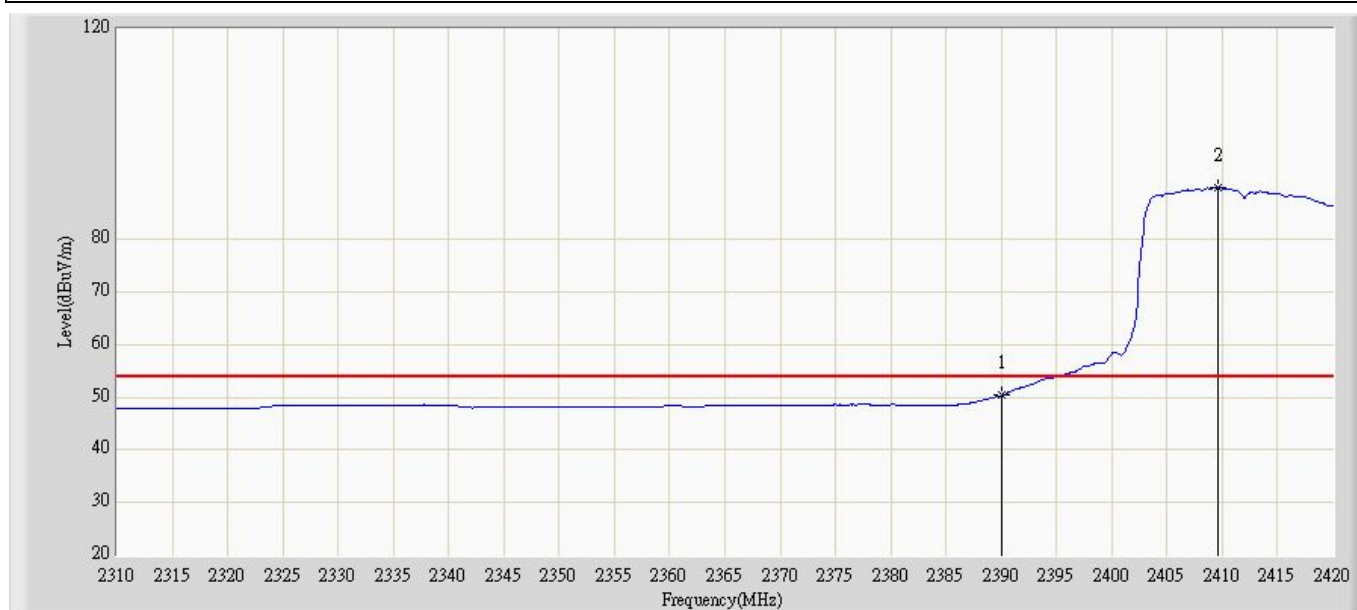
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2467.700        | 85.750                 | 54.546               | N/A             | N/A            | 31.204 | AV   |
| 2  |      |      | 2483.500        | 48.626                 | 17.417               | -5.374          | 54.000         | 31.209 | AV   |

|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:20 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2412MHz by 802.11n ( 20MHz ) |                          |



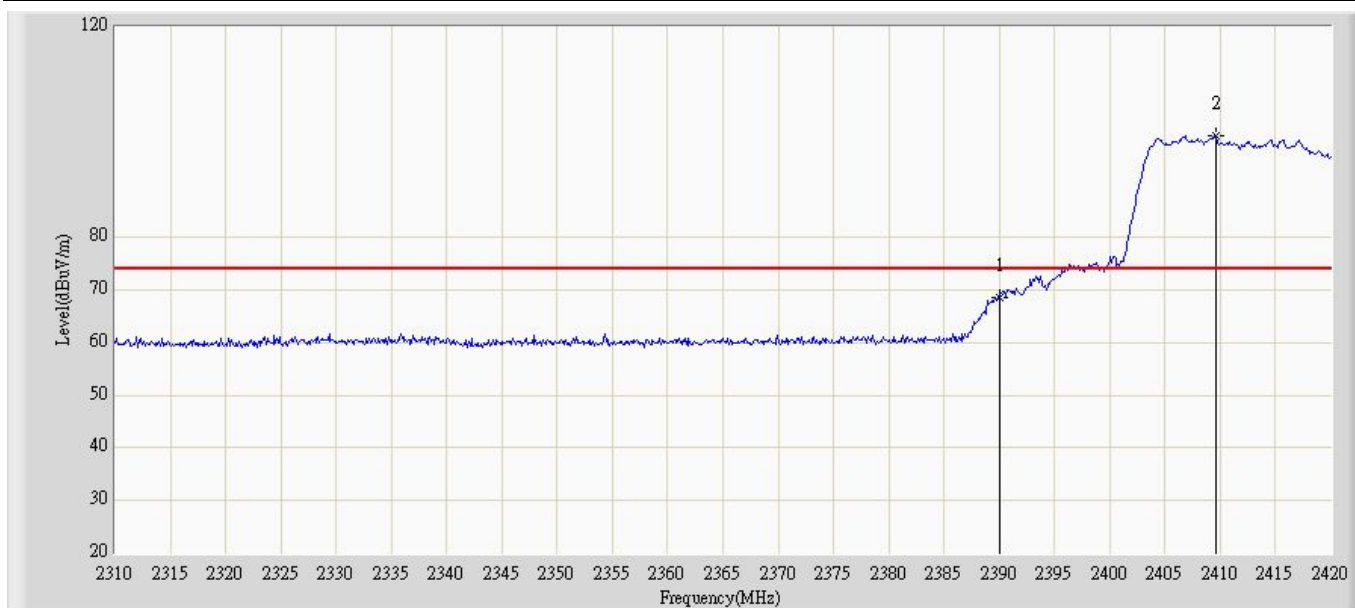
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 68.741                    | 37.556                  | -5.259             | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2409.660           | 98.610                    | 67.430                  | N/A                | N/A               | 31.180 | PK   |

|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:29 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2412MHz by 802.11n ( 20MHz ) |                          |



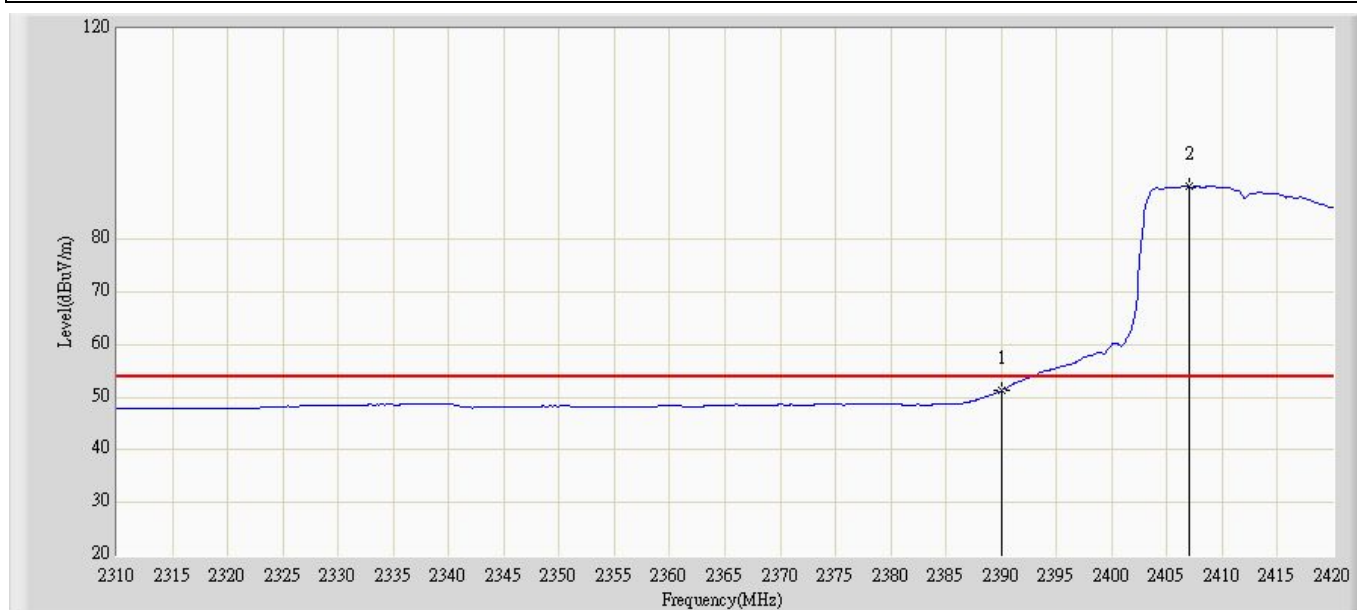
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 50.406                    | 19.221                  | -3.594             | 54.000            | 31.185 | AV   |
| 2  |      | *    | 2409.660           | 89.727                    | 58.547                  | N/A                | N/A               | 31.180 | AV   |

|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:30 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2412MHz by 802.11n ( 20MHz ) |                          |



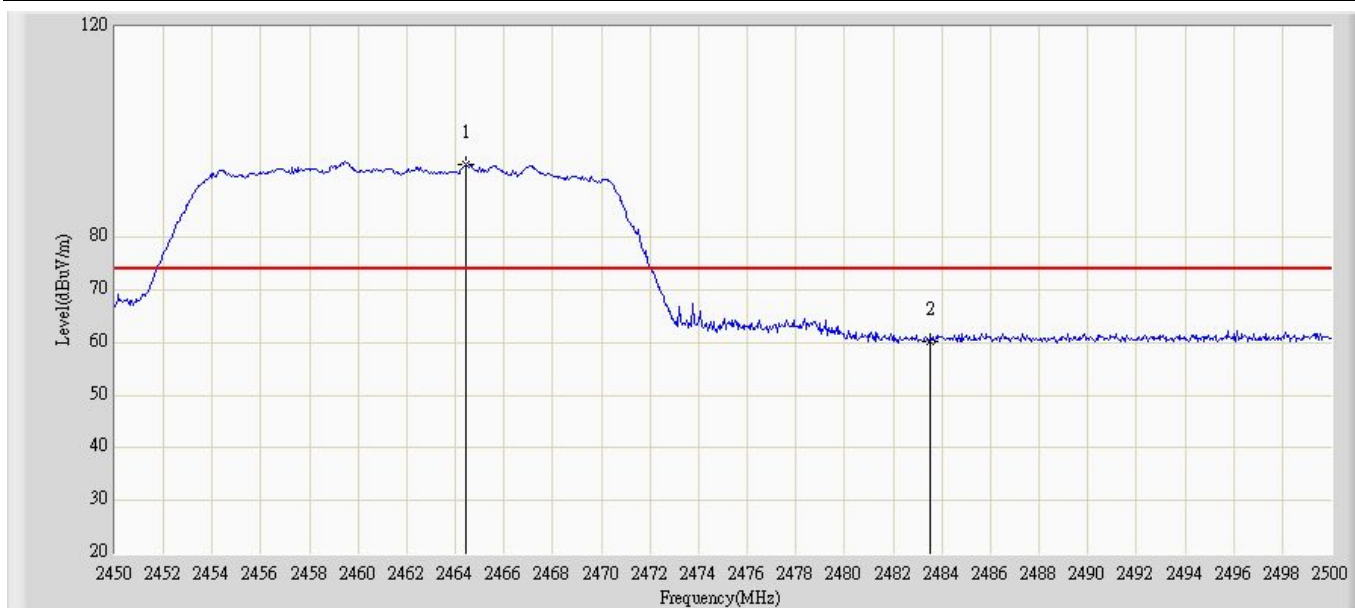
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 68.583                    | 37.398                  | -5.417             | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2409.550           | 99.354                    | 68.174                  | N/A                | N/A               | 31.180 | PK   |

|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:35 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2412MHz by 802.11n ( 20MHz ) |                          |



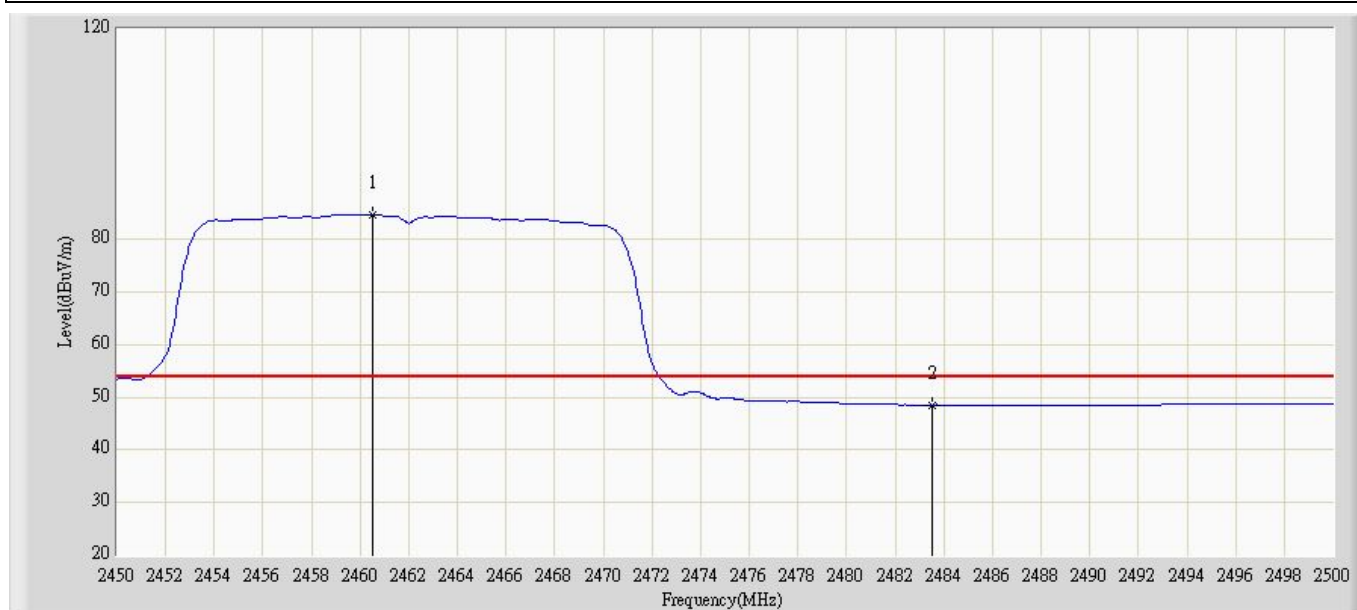
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 51.322                    | 20.137                  | -2.678             | 54.000            | 31.185 | AV   |
| 2  |      | *    | 2407.020           | 90.029                    | 58.848                  | N/A                | N/A               | 31.180 | AV   |

|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:37 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2462MHz by 802.11n ( 20MHz ) |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2464.450           | 93.761                    | 62.558                  | N/A                | N/A               | 31.204 | PK   |
| 2  |      |      | 2483.500           | 60.198                    | 28.989                  | -13.802            | 74.000            | 31.209 | PK   |

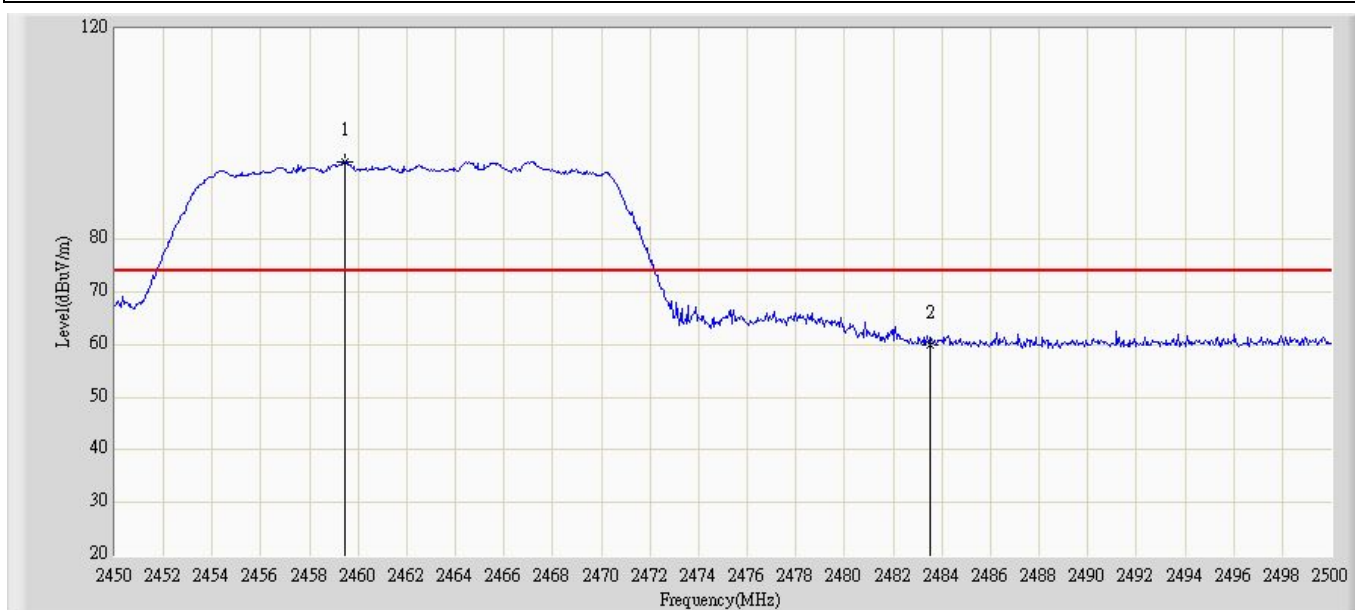
|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:49 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2462MHz by 802.11n ( 20MHz ) |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2460.500           | 84.756                    | 53.555                  | N/A                | N/A               | 31.201 | AV   |
| 2  |      |      | 2483.500           | 48.562                    | 17.353                  | -5.438             | 54.000            | 31.209 | AV   |



|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:50 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2462MHz by 802.11n ( 20MHz ) |                          |



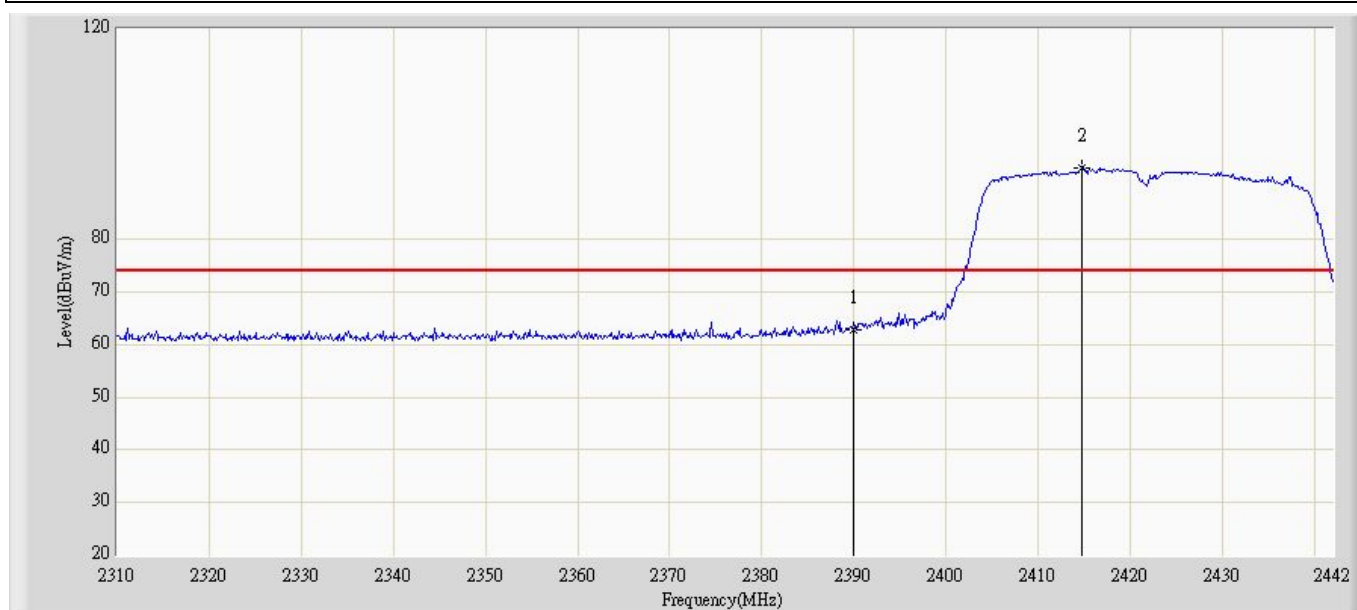
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2459.450        | 94.787                 | 63.587               | N/A             | N/A            | 31.200 | PK   |
| 2  |      |      | 2483.500        | 60.037                 | 28.828               | -13.963         | 74.000         | 31.209 | PK   |

|                                                                |                          |
|----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                 |                          |
| Site: AC5                                                      | Time: 2011/08/30 - 16:53 |
| Limit: FCC_Part15.209_RE(3m)                                   | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                  | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL  | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at channel 2462MHz by 802.11n ( 20MHz ) |                          |



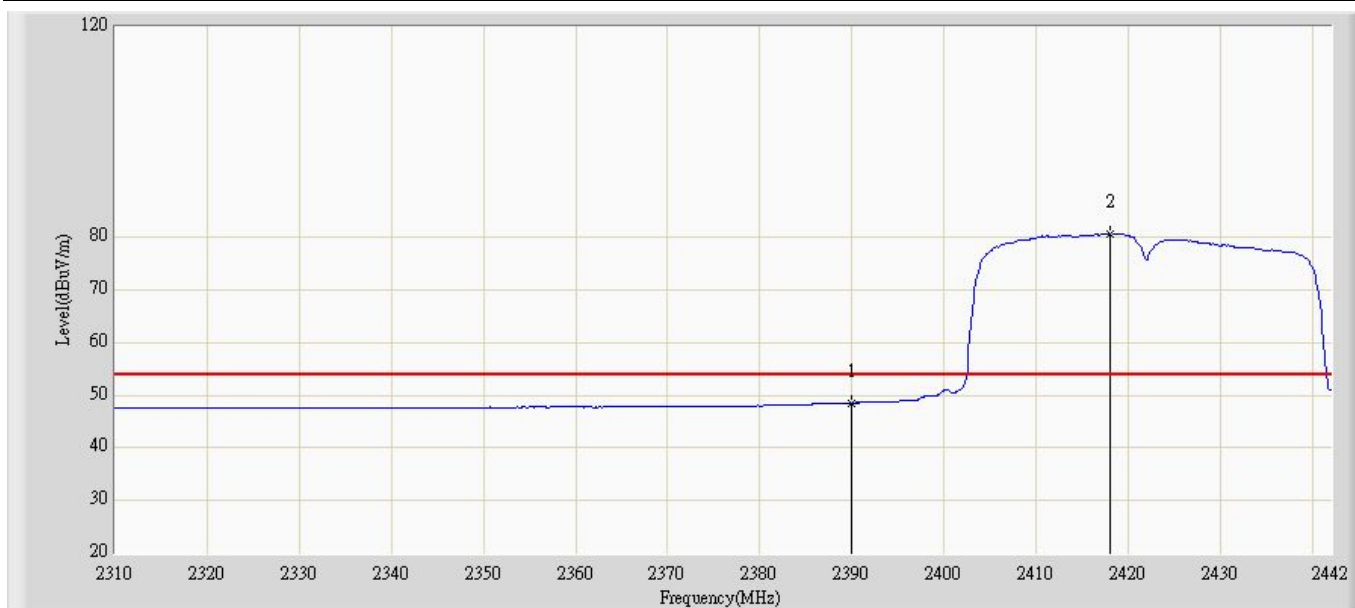
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2460.400        | 85.546                 | 54.345               | N/A             | N/A            | 31.201 | AV   |
| 2  |      |      | 2483.500        | 48.722                 | 17.513               | -5.278          | 54.000         | 31.209 | AV   |

|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 16:57 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2422MHz by 802.11n ( 40MHz ) |                          |



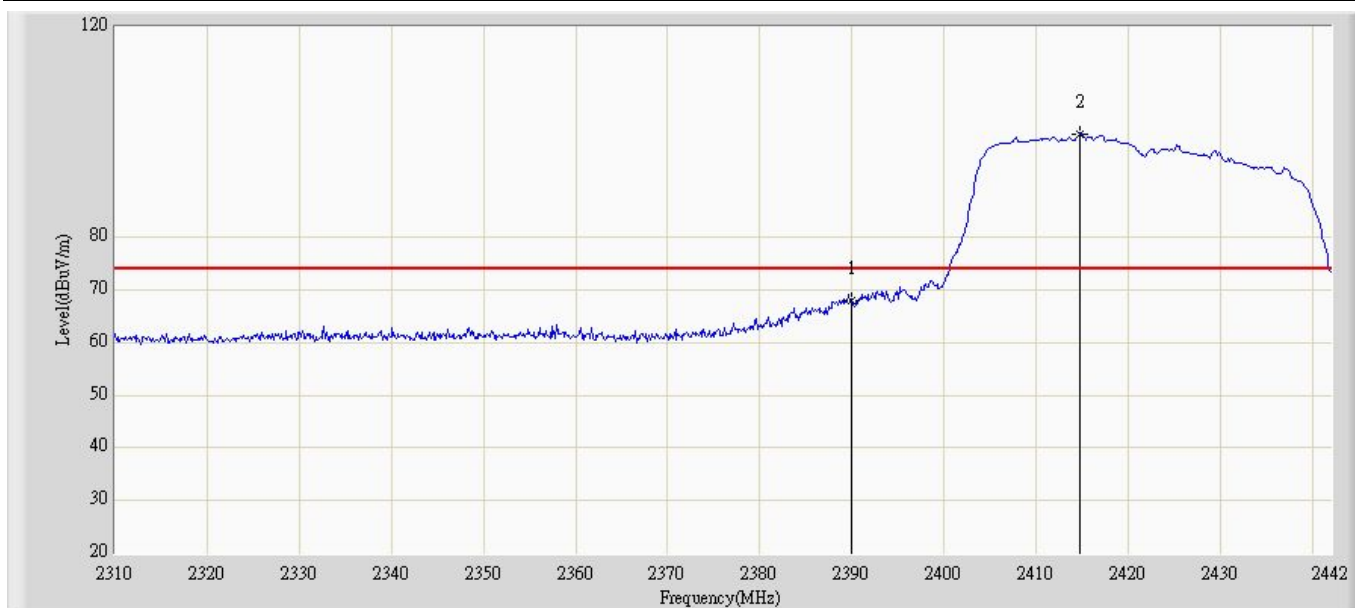
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 62.890                    | 31.705                  | -11.110            | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2414.676           | 93.496                    | 62.315                  | N/A                | N/A               | 31.181 | PK   |

|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:01 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2422MHz by 802.11n ( 40MHz ) |                          |



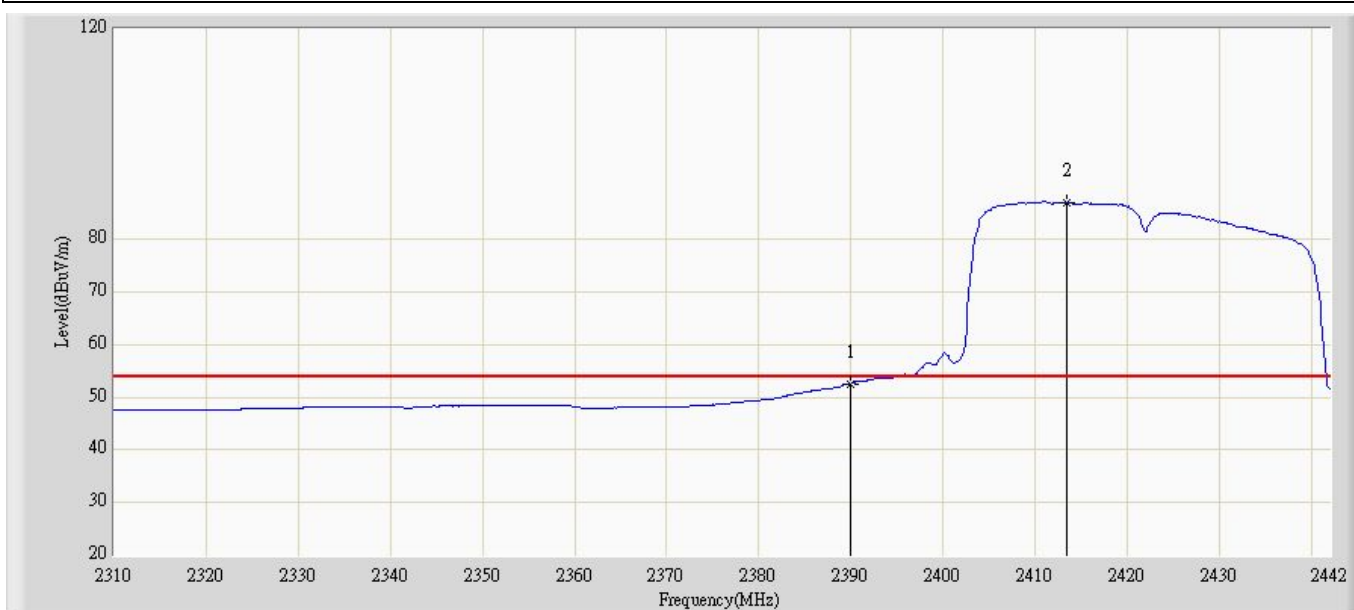
| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 48.546                    | 17.361                  | -5.454             | 54.000            | 31.185 | AV   |
| 2  |      | *    | 2418.108           | 80.733                    | 49.550                  | N/A                | N/A               | 31.183 | AV   |

|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:02 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2422MHz by 802.11n ( 40MHz ) |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      |      | 2390.000           | 68.116                    | 36.931                  | -5.884             | 74.000            | 31.185 | PK   |
| 2  |      | *    | 2414.676           | 99.713                    | 68.532                  | N/A                | N/A               | 31.181 | PK   |

|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:06 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2422MHz by 802.11n ( 40MHz ) |                          |



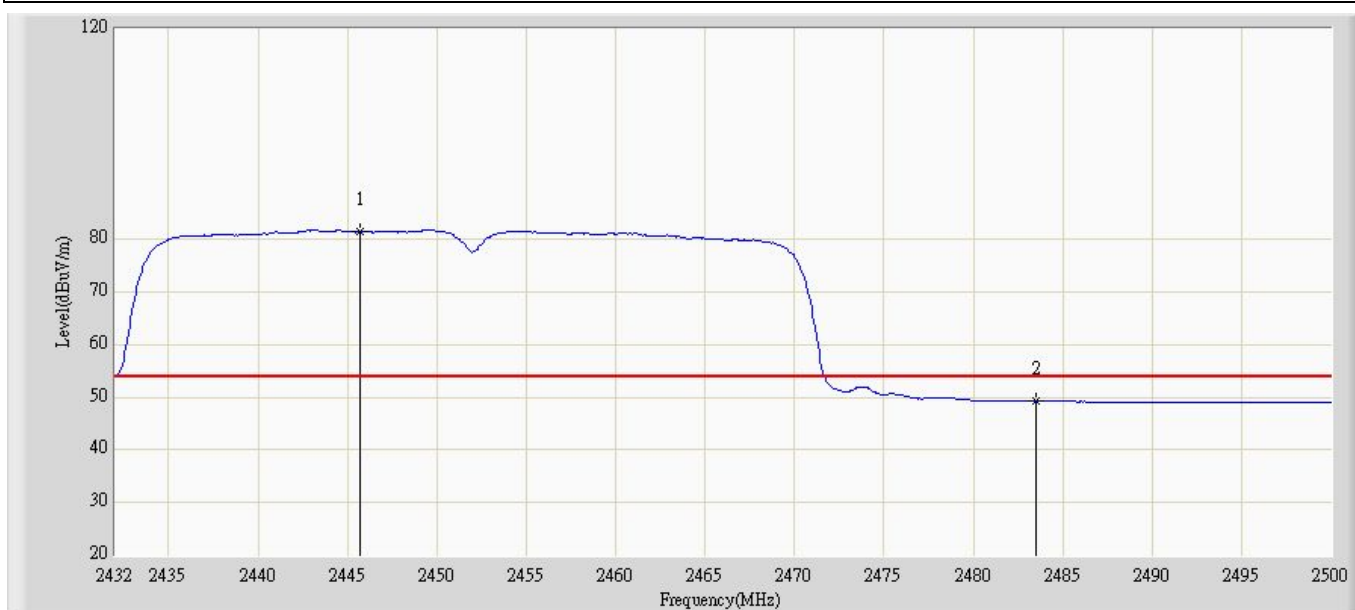
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      |      | 2390.000        | 52.587                 | 21.402               | -1.413          | 54.000         | 31.185 | AV   |
| 2  |      | *    | 2413.488        | 86.974                 | 55.793               | N/A             | N/A            | 31.181 | AV   |

|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:10 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2452MHz by 802.11n ( 40MHz ) |                          |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2467.224        | 91.388                 | 60.184               | N/A             | N/A            | 31.204 | PK   |
| 2  |      |      | 2483.500        | 60.891                 | 29.682               | -13.109         | 74.000         | 31.209 | PK   |

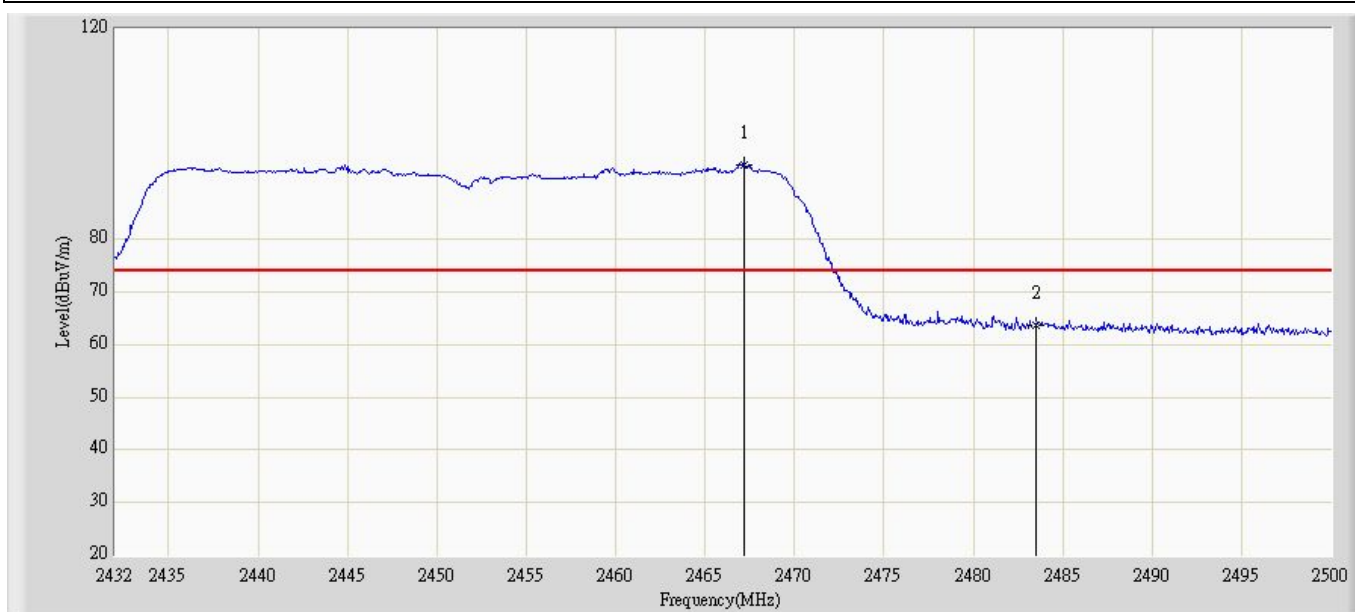
|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:33 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Horizontal     |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2452MHz by 802.11n ( 40MHz ) |                          |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2445.736        | 81.437                 | 50.251               | N/A             | N/A            | 31.186 | AV   |
| 2  |      |      | 2483.500        | 49.293                 | 18.084               | -4.707          | 54.000         | 31.209 | AV   |

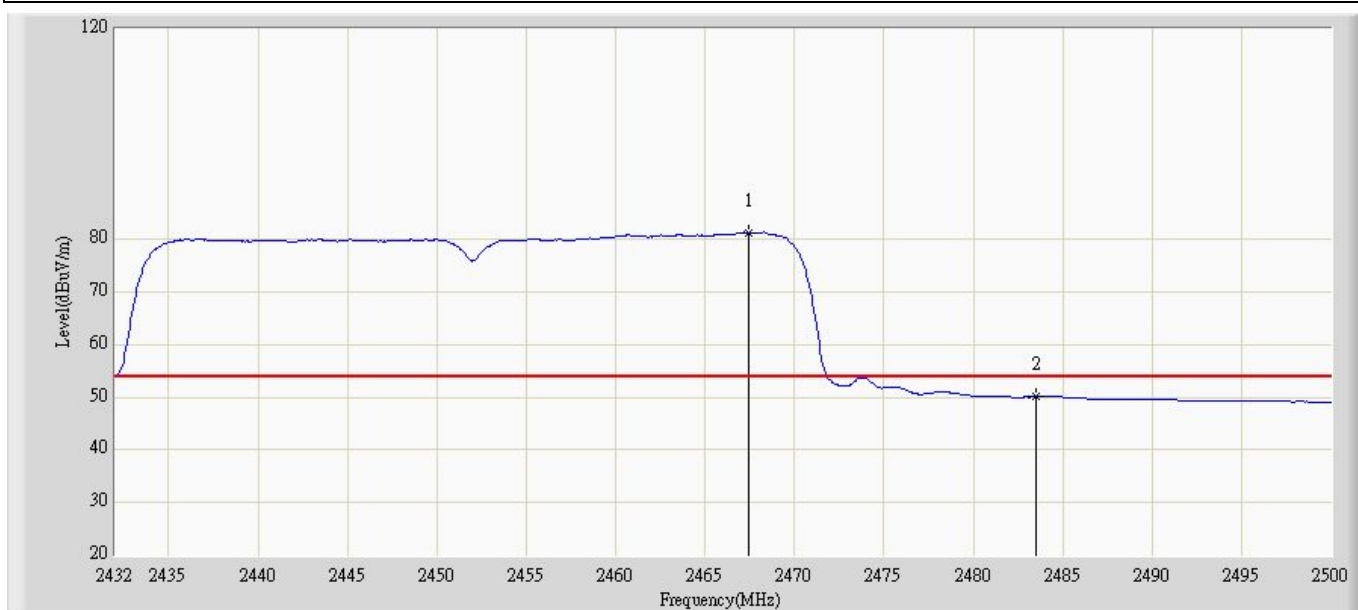


|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:48 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2452MHz by 802.11n ( 40MHz ) |                          |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1  |      | *    | 2467.224        | 94.153                 | 62.949               | N/A             | N/A            | 31.204 | PK   |
| 2  |      |      | 2483.500        | 63.786                 | 32.577               | -10.214         | 74.000         | 31.209 | PK   |

|                                                                 |                          |
|-----------------------------------------------------------------|--------------------------|
| Engineer: Toms                                                  |                          |
| Site: AC5                                                       | Time: 2011/08/30 - 17:54 |
| Limit: FCC_Part15.209_RE(3m)                                    | Margin: 0                |
| Probe: BBHA9120D_499(1-18GHz)                                   | Polarity: Vertical       |
| EUT: Home Gateway, MODEM ADSL ROUTER 4PORT+<br>AP RESIDENCIAL   | Power: AC 120V/60Hz      |
| Note: Mode 4 : Transmit at channel 2452MHz by 802.11n ( 40MHz ) |                          |



| No | Flag | Mark | Frequency<br>(MHz) | Measure Level<br>(dBuV/m) | Reading Level<br>(dBuV) | Over Limit<br>(dB) | Limit<br>(dBuV/m) | Factor | Type |
|----|------|------|--------------------|---------------------------|-------------------------|--------------------|-------------------|--------|------|
| 1  |      | *    | 2467.428           | 81.340                    | 50.136                  | N/A                | N/A               | 31.204 | AV   |
| 2  |      |      | 2483.500           | 50.087                    | 18.878                  | -3.913             | 54.000            | 31.209 | AV   |