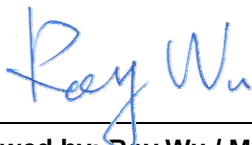


# FCC Test Report

**EQUIPMENT** : Mobile Computer  
**BRAND NAME** : Symbol  
**MODEL NAME** : FR6070  
**FCC ID** : H9PFR6070  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : Digital Transmission System (DTS)  
**APPLICANT** : Symbol Technologies, Inc., A Motorola Company  
230 Victoria Street #12-06/10 Bugis Junction Office Tower  
Singapore 188024

The product sample received on Oct. 30, 2008 and completely tested on Feb. 10, 2009. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Roy Wu / Manager



## SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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## SUMMARY OF TEST RESULT

| Report Section | FCC Rule              | IC Rule   | Description                   | Limit                    | Result | Remark                                  |
|----------------|-----------------------|-----------|-------------------------------|--------------------------|--------|-----------------------------------------|
| 3.1            | 15.247(a)(2)          | A8.2(a)   | 6dB Bandwidth                 | $\geq 0.5\text{MHz}$     | Pass   | -                                       |
| 3.2            | 15.247(b)             | A8.4      | Power Output                  | $\leq 30\text{dBm}$      | Pass   | -                                       |
| 3.3            | 15.247(d)             | A8.5      | Frequency Band Edges          | $\leq 20\text{dBc}$      | Pass   | -                                       |
| 3.4            | 15.247(e)             | A8.2(b)   | Power Spectral Density        | $\leq 8\text{dBm}$       | Pass   | -                                       |
| 3.5            | 15.207                | Gen 7.2.2 | AC Conducted Emission         | 15.207(a)                | Pass   | Under limit<br>12.5 dB at<br>0.150 MHz  |
| 3.6            | 15.247(d)             | A8.5      | Transmitter Radiated Emission | 15.209(a) &<br>15.247(d) | Pass   | Under limit<br>6.86 dB at<br>163.38 MHz |
| 3.7            | 15.203 &<br>15.247(b) | A8.4      | Antenna Requirement           | N/A                      | Pass   | -                                       |



## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FR8O3027A  | Rev. 01 | Initial issue of report | Mar. 16, 2009 |
| FR8O3027A  | Rev. 02 | Update Set-up Photos    | Mar. 18, 2009 |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
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|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |

# 1 General Description

## 1.1 Applicant

Symbol Technologies, Inc., A Motorola Company

230 Victoria Street #12-06/10 Bugis Junction Office Tower Singapore 188024

## 1.2 Manufacturer

Inventec Appliances Corp.

No. 37, Wugong 5th Road, Wugu Industrial Park, Taipei Country 248, Taiwan, R.O.C.

## 1.3 Feature of Equipment Under Test

| Product Feature & Specification   |                                                                                    |
|-----------------------------------|------------------------------------------------------------------------------------|
| Equipment                         | Mobile Computer                                                                    |
| Brand Name                        | Symbol                                                                             |
| Model Name                        | FR6070                                                                             |
| Tx/Rx Frequency Range             | 2400 MHz ~ 2483.5 MHz                                                              |
| Number of Channels                | 11                                                                                 |
| Carrier Frequency of Each Channel | $2412+(n-1)*5$ MHz; $n=1\sim11$                                                    |
| Channel Spacing                   | 5 MHz                                                                              |
| Maximum Output Power to Antenna   | 802.11b : 14.58 dBm<br>802.11g : 12.54 dBm                                         |
| Antenna Type                      | PIFA Antenna with gain -4 dBi                                                      |
| Type of Antenna Connector         | N/A                                                                                |
| HW Version                        | DVT                                                                                |
| SW Version                        | Handy-DVT1-0.26.0050-010709-WWE-P                                                  |
| Type of Modulation                | 802.11b : DSSS (BPSK / QPSK / CCK)<br>802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM) |
| EUT Stage                         | Identical Prototype                                                                |

**Accessories List:**

|                                 |                         |                                                    |
|---------------------------------|-------------------------|----------------------------------------------------|
| <b>Cradle</b>                   | <b>Brand Name</b>       | Symbol                                             |
|                                 | <b>Model Name</b>       | CRD7X00-1                                          |
|                                 | <b>Power Rating</b>     | 12Vdc, 3.33A                                       |
| <b>Cradle Adapter</b>           | <b>Brand Name</b>       | HIPRO                                              |
|                                 | <b>Model Name</b>       | HP-O2040D43                                        |
|                                 | <b>Power Rating</b>     | I/P: 100-240Vac, 50-60Hz, 1.5A; O/P: 12V, 3.33A    |
|                                 | <b>Power Cord Type</b>  | 1.8 meter shielded cable with ferrite core         |
| <b>Product Charging Adapter</b> | <b>Brand Name</b>       | MOTOROLA                                           |
|                                 | <b>Model Name</b>       | EADP-16BB A                                        |
|                                 | <b>Power Rating</b>     | I/P: 100-240Vac, 50-60Hz, 0.4A; O/P: 5.4V, 3A      |
|                                 | <b>Power Cord Type</b>  | 1.83 meter shielded cable without ferrite core     |
| <b>Product Charging Cable 1</b> | <b>Brand Name</b>       | MOTOROLA                                           |
|                                 | <b>Part Number</b>      | 25-102775-01R                                      |
|                                 | <b>Power Rating</b>     | I/P: 5.4V, 3A                                      |
|                                 | <b>Power Cord Type</b>  | 1.35 meter non-shielded cable with ferrite core    |
| <b>Product Charging Cable 2</b> | <b>Brand Name</b>       | MOTOROLA                                           |
|                                 | <b>Part Number</b>      | 25-118708-01R                                      |
|                                 | <b>Power Rating</b>     | I/P: 5.4V, 3A                                      |
|                                 | <b>Power Cord Type</b>  | 1.35 meter non-shielded cable with ferrite core    |
| <b>Battery</b>                  | <b>Brand Name</b>       | MOTOROLA                                           |
|                                 | <b>Part Number</b>      | 82-71364-05                                        |
|                                 | <b>Power Rating</b>     | 3.7Vdc, 3600mAh, 13.3Wh                            |
|                                 | <b>Type</b>             | Li-ion                                             |
| <b>Earphone</b>                 | <b>Brand Name</b>       | Symbol                                             |
|                                 | <b>Part Number</b>      | 90-17C28-001R                                      |
|                                 | <b>Signal Line Type</b> | 1.24 meter non-shielded cable without ferrite core |
| <b>USB Cable</b>                | <b>Brand Name</b>       | MOTOROLA                                           |
|                                 | <b>Part Number</b>      | 25-68596-01R                                       |
|                                 | <b>Type</b>             | 1.58 meter shielded cable without ferrite core     |

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. For accessories equipped with this EUT, please refer to the appendix of the external photo.
3. Product Charging Cable 1 (P/N: 25-102775-01R) and Product Charging Cable 2 (P/N: 25-118708-01R) are exactly the same which was declared by the manufacturer, and only Product Charging Cable 1 (P/N: 25-102775-01R) was performed on all the tests.

## 1.4 Testing Site

|                           |                                                                                                                                                             |           |                                |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL INC.                                                                                                                                  |           |                                |
| <b>Test Site Location</b> | No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park,<br>Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C<br>TEL: +886-3-3273456 / FAX: +886-3-3284978 |           |                                |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                     |           | <b>FCC/IC Registration No.</b> |
|                           | CO05-HY                                                                                                                                                     | 03CH07-HY | TW1022/4086B-1                 |

## 1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 7

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

## 1.6 Ancillary Equipment List

| Equipment          | Brand Name | Model Name  | FCC ID            | Data Cable        | Power Cord                                                 |
|--------------------|------------|-------------|-------------------|-------------------|------------------------------------------------------------|
| WLAN AP            | D-Link     | DWL-7100AP  | KA22003040018-1   | N/A               | Unshielded, 1.8 m                                          |
| Notebook           | DELL       | Vostro 1510 | FCC DoC           | N/A               | AC I/P:<br>Unshielded, 1.2 m<br>DC O/P:<br>Shielded, 1.8 m |
| LCD Monitor        | Lenovo     | 6135-AB1    | FCC DoC           | N/A               | Unshielded, 1.8 m                                          |
| Bluetooth Earphone | Cellink    | BTHS-6025-F | PQY-4710874200357 | N/A               | N/A                                                        |
| i-pod              | Apple      | A1199       | FCC DoC           | Unshielded, 1.0 m | N/A                                                        |

## 2 Test Configuration of Equipment Under Test

### 2.1 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

#### 802.11b

| Channel | Frequency (MHz) | RF Power (dBm)           |        |          |              |
|---------|-----------------|--------------------------|--------|----------|--------------|
|         |                 | 2.4GHz 802.11b Data Rate |        |          |              |
|         |                 | 1 Mbps                   | 2 Mbps | 5.5 Mbps | 11 Mbps      |
| CH 01   | 2412 MHz        | 12.29                    | 12.38  | 13.72    | 14.17        |
| CH 06   | 2437 MHz        | 11.91                    | 12.80  | 14.06    | 14.42        |
| CH 11   | 2462 MHz        | 12.82                    | 12.92  | 14.17    | <b>14.58</b> |

#### 802.11g

| Channel | Frequency (MHz) | RF Power (dBm)           |        |         |         |         |         |              |         |
|---------|-----------------|--------------------------|--------|---------|---------|---------|---------|--------------|---------|
|         |                 | 2.4GHz 802.11g Data Rate |        |         |         |         |         |              |         |
|         |                 | 6 Mbps                   | 9 Mbps | 12 Mbps | 18 Mbps | 24 Mbps | 36 Mbps | 48 Mbps      | 54 Mbps |
| CH 01   | 2412 MHz        | 10.34                    | 10.97  | 11.16   | 11.59   | 11.09   | 11.31   | 11.83        | 11.98   |
| CH 06   | 2437 MHz        | 10.45                    | 11.14  | 11.32   | 11.8    | 11.21   | 11.55   | 12.17        | 11.81   |
| CH 11   | 2462 MHz        | 10.25                    | 10.99  | 11.24   | 11.66   | 11.63   | 11.82   | <b>12.54</b> | 12.1    |

#### Remark:

1. The EUT is programmed to transmit signal continuously for all testing.



## 2.2 Test Mode

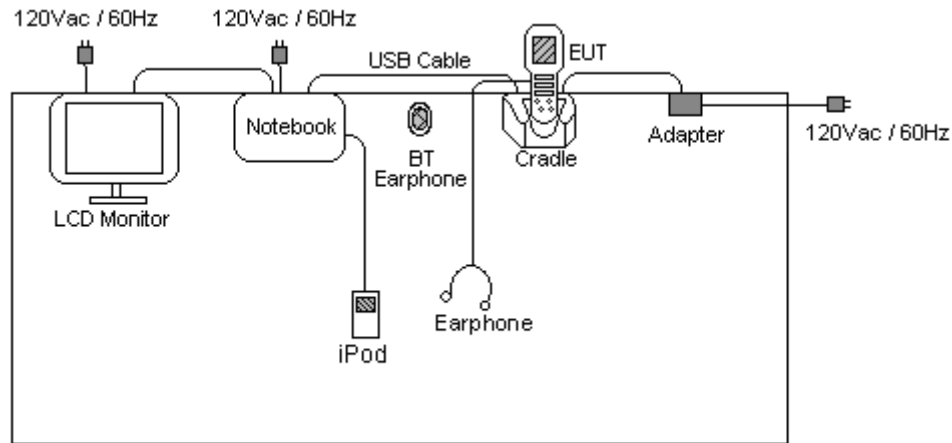
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). Pre-scanned tests were conducted to determine the final configuration from all possible combinations. The following tables are showing the test modes as the worst cases and recorded in this report.

| Test Cases                  |                                                                                                                                                      |                                                                                                                                             |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Test Item                   | Modulation                                                                                                                                           |                                                                                                                                             |
|                             | 802.11b<br>DSSS                                                                                                                                      | 802.11g<br>OFDM                                                                                                                             |
| Conducted<br>TCs            | <ul style="list-style-type: none"> <li>■ Mode 1: CH01_2412 MHz</li> <li>■ Mode 2: CH06_2437 MHz</li> <li>■ Mode 3: CH11_2462 MHz</li> </ul>          | <ul style="list-style-type: none"> <li>■ Mode 4: CH01_2412 MHz</li> <li>■ Mode 5: CH06_2437 MHz</li> <li>■ Mode 6: CH11_2462 MHz</li> </ul> |
| Radiated TCs                | <ul style="list-style-type: none"> <li>■ Mode 1: CH01_2412 MHz</li> <li>■ Mode 2: CH06_2437 MHz</li> <li>■ Mode 3: CH11_2462 MHz</li> </ul>          | <ul style="list-style-type: none"> <li>■ Mode 4: CH01_2412 MHz</li> <li>■ Mode 5: CH06_2437 MHz</li> <li>■ Mode 6: CH11_2462 MHz</li> </ul> |
| AC<br>Conducted<br>Emission | Mode 1 : BT Link + WLAN Link + Earphone + Cradle + Adapter + USB Cable<br>Mode 2 : BT Link + WLAN Link + Earphone + USB Charging Cable with AC Power |                                                                                                                                             |

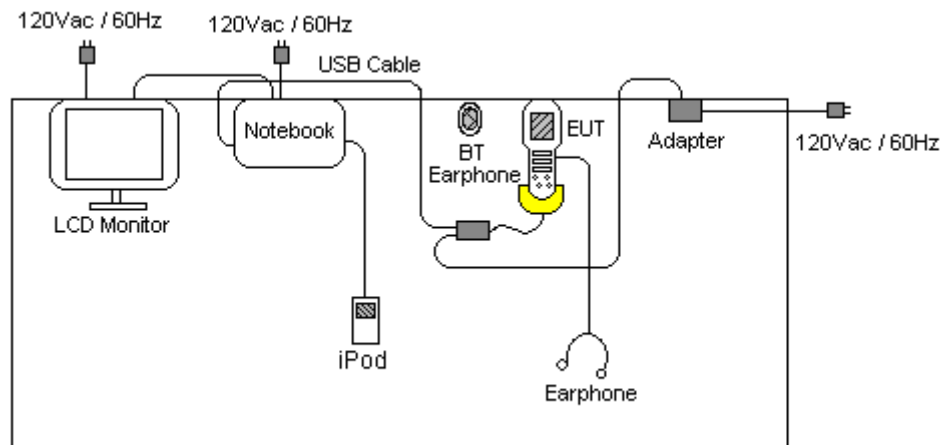
## 2.3 Connection Diagram of Test System

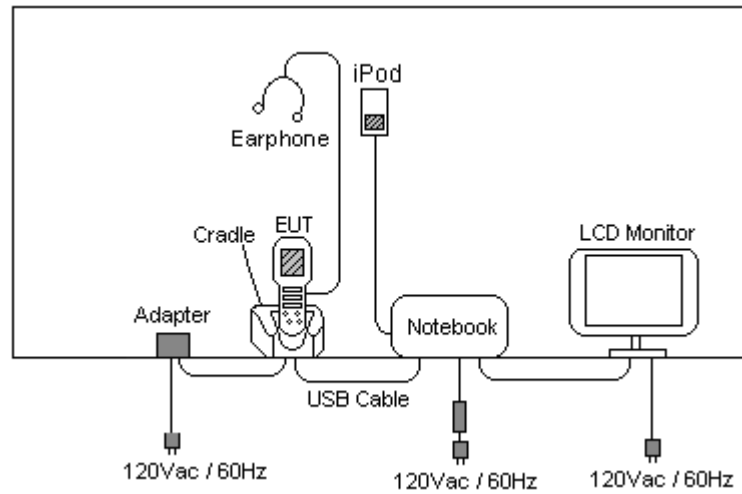
### <Conducted Emission>

EUT with Cradle Mode



EUT with USB Charging cable Mode



**<Radiated Emission>**


## 2.4 RF Utility

The programmed RF utility "My lab Tool" installed in EUT to provide channel selection, power level, data rate and the application type. RF utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

### 3 Test Result

#### 3.1 6dB Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

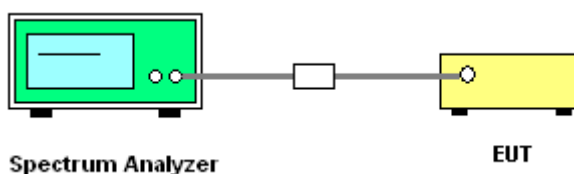
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.  
In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

##### 3.1.4 Test Setup



**3.1.5 Test Result of 6dB Bandwidth**

|                        |              |                            |        |
|------------------------|--------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 1, 2, 3 | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Eric Hum     | <b>Relative Humidity :</b> | 40~41% |

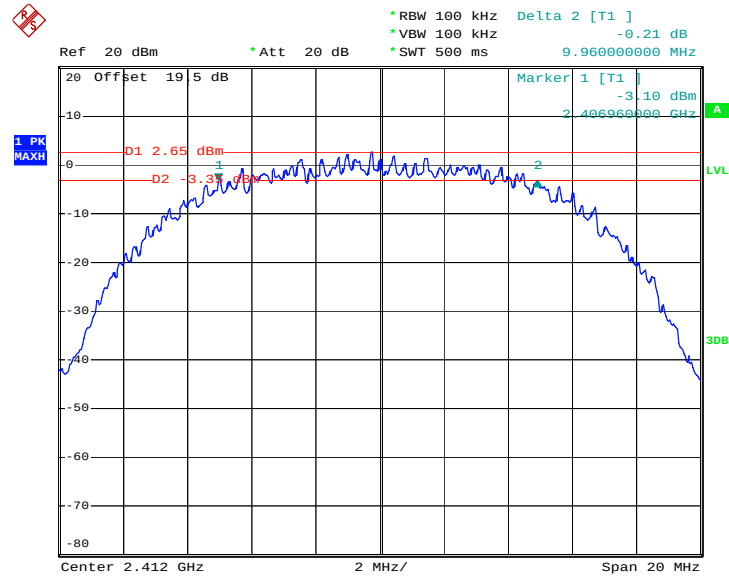
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 6dB Bandwidth Min. Limit (MHz) | Pass/Fail |
|---------|-----------------|---------------------|--------------------------------|-----------|
| 01      | 2412            | 9.96                | 0.5                            | Pass      |
| 06      | 2437            | 9.96                | 0.5                            | Pass      |
| 11      | 2462            | 9.96                | 0.5                            | Pass      |

|                        |              |                            |        |
|------------------------|--------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 4, 5, 6 | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Eric Hum     | <b>Relative Humidity :</b> | 40~41% |

| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 6dB Bandwidth Min. Limit (MHz) | Pass/Fail |
|---------|-----------------|---------------------|--------------------------------|-----------|
| 01      | 2412            | 16.52               | 0.5                            | Pass      |
| 06      | 2437            | 16.52               | 0.5                            | Pass      |
| 11      | 2462            | 16.52               | 0.5                            | Pass      |

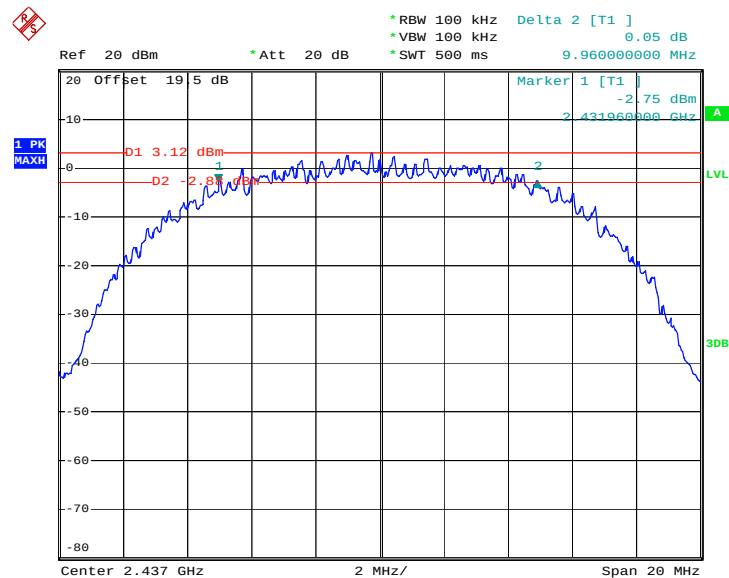
### 3.1.6 Test Result of 6dB Bandwidth Plots

#### Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01

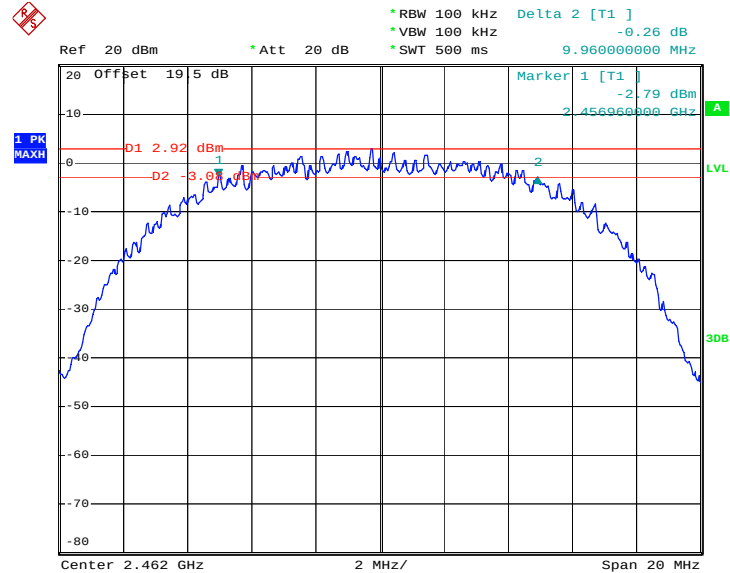


Date: 17.DEC.2008 03:00:17

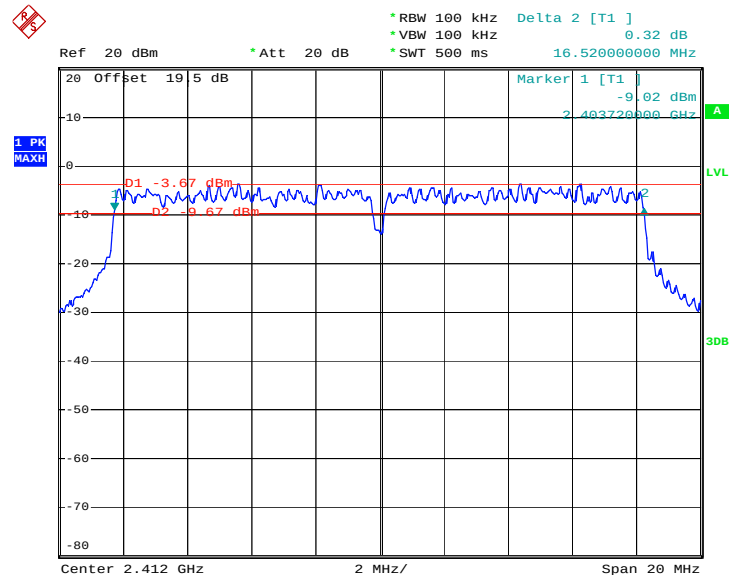
#### Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 17.DEC.2008 03:01:25

**Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11**


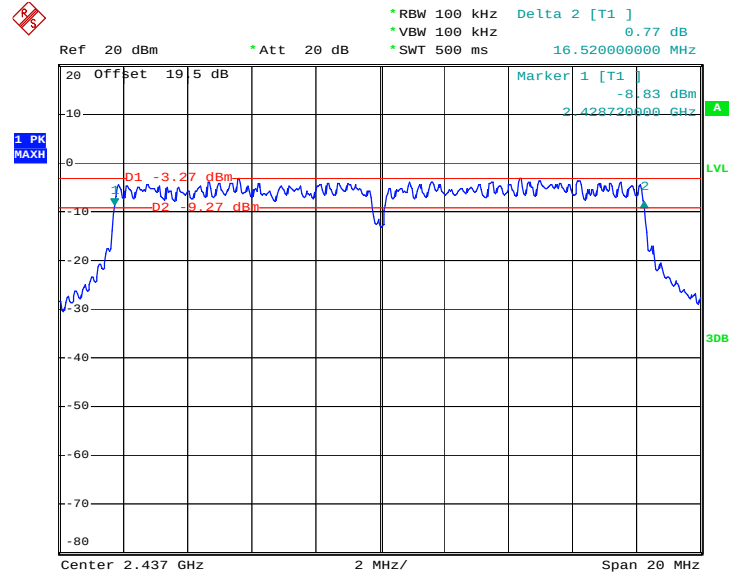
Date: 17.DEC.2008 03:02:26

**Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01**


Date: 17.DEC.2008 05:02:11

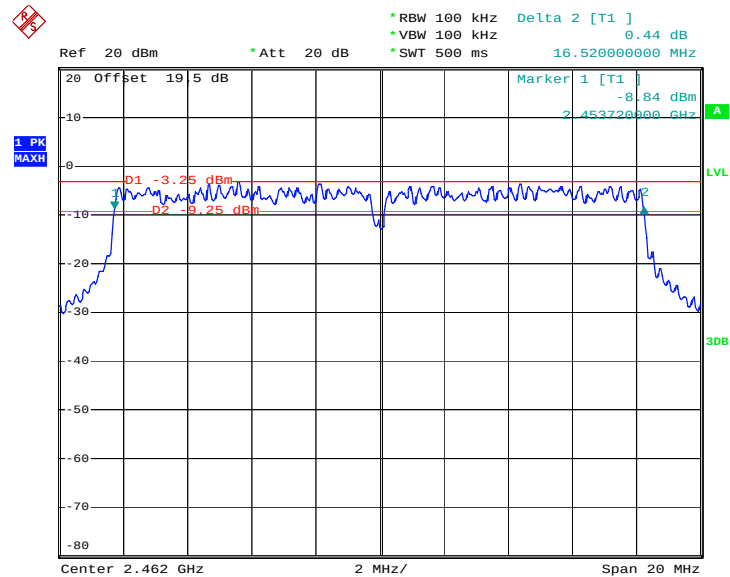


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 17.DEC.2008 05:03:23

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



Date: 17.DEC.2008 05:04:53



## 3.2 Output Power Measurement

### 3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

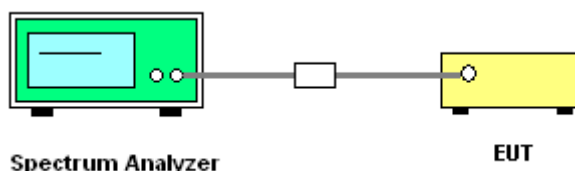
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Measure the power by spectrum analyzer.

### 3.2.4 Test Setup



**3.2.5 Test Result of Output Power**

|                        |              |                            |        |
|------------------------|--------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 1, 2, 3 | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Eric Hum     | <b>Relative Humidity :</b> | 40~41% |

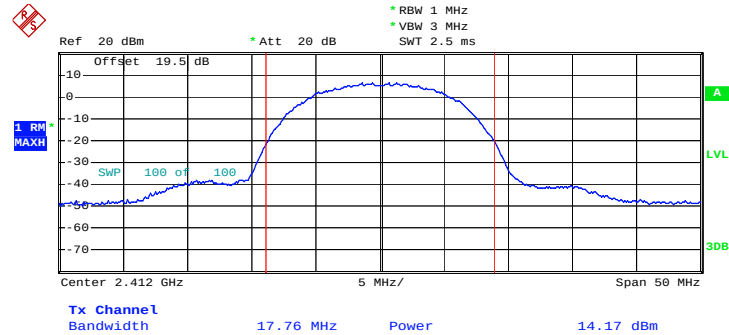
| Channel | Frequency (MHz) | Measured Output Power (dBm) | Max. Limits (dBm) | Pass/Fail |
|---------|-----------------|-----------------------------|-------------------|-----------|
| 01      | 2412            | 14.17                       | 30                | Pass      |
| 06      | 2437            | 14.42                       | 30                | Pass      |
| 11      | 2462            | 14.58                       | 30                | Pass      |

|                        |              |                            |        |
|------------------------|--------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 4, 5, 6 | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Eric Hum     | <b>Relative Humidity :</b> | 40~41% |

| Channel | Frequency (MHz) | Measured Output Power (dBm) | Max. Limits (dBm) | Pass/Fail |
|---------|-----------------|-----------------------------|-------------------|-----------|
| 01      | 2412            | 11.83                       | 30                | Pass      |
| 06      | 2437            | 12.17                       | 30                | Pass      |
| 11      | 2462            | 12.54                       | 30                | Pass      |

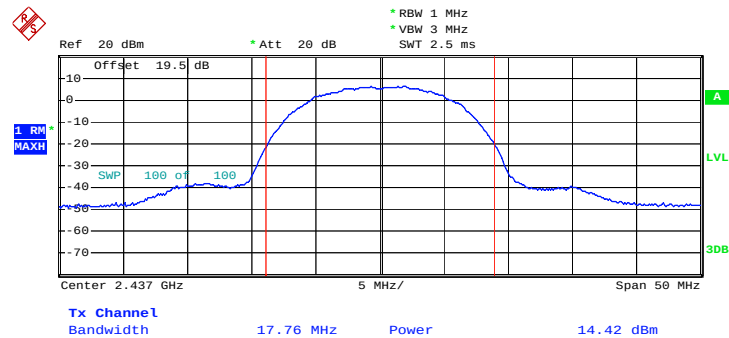
### 3.2.6 Test Result of Output Power Plots

#### Mode 1 : Output Power Plot on 802.11b Channel 01

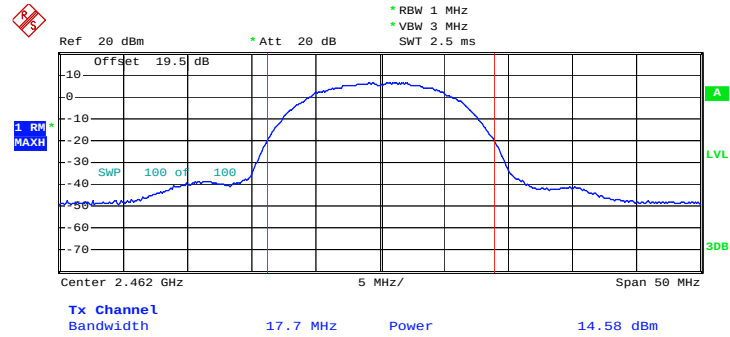


Date: 28.DEC.2008 21:56:02

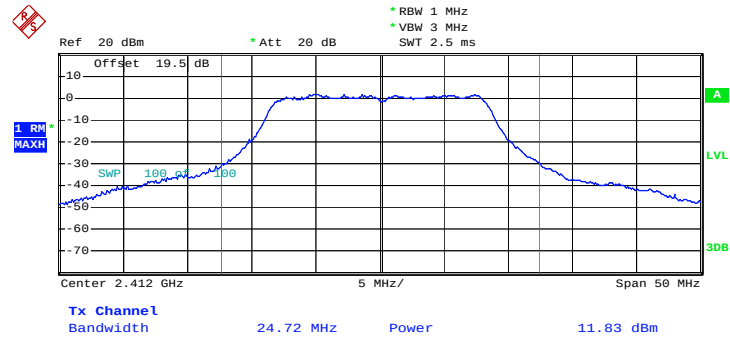
#### Mode 2 : Output Power Plot on 802.11b Channel 06



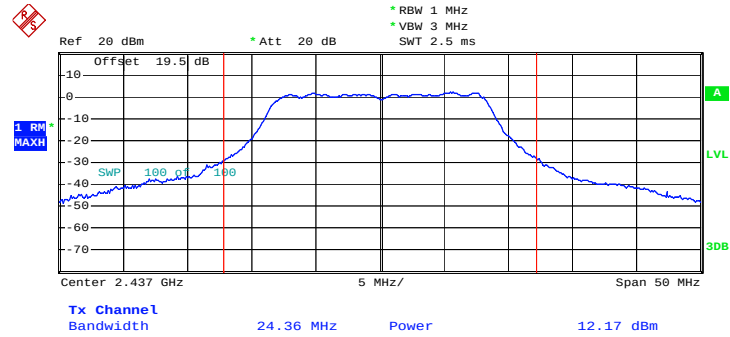
Date: 28.DEC.2008 21:59:35

**Mode 3 : Output Power Plot on 802.11b Channel 11**


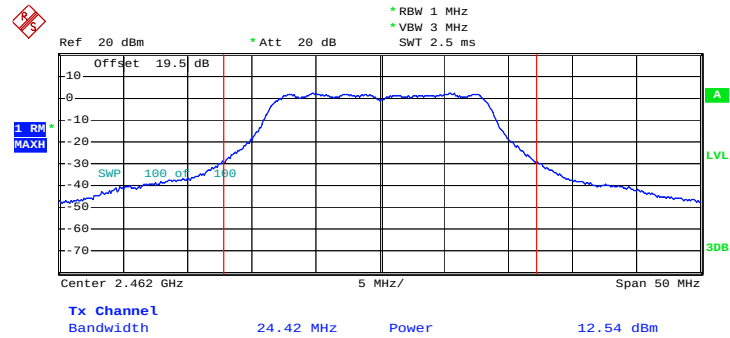
Date: 28.DEC.2008 22:05:36

**Mode 4 : Output Power Plot on 802.11g Channel 01**


Date: 17.DEC.2008 04:37:58

**Mode 5 : Output Power Plot on 802.11g Channel 06**


Date: 17.DEC.2008 04:45:42

**Mode 6 : Output Power Plot on 802.11g Channel 11**


Date: 17.DEC.2008 04:47:35

### 3.3 Band Edges Measurement

#### 3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

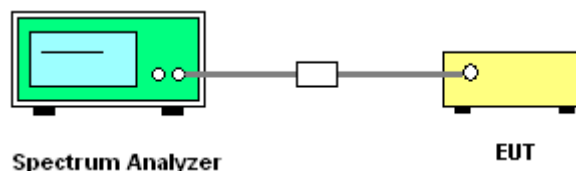
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

#### 3.3.4 Test Setup



### 3.3.5 Test Result of Radiated Band Edges

|                        |         |                            |         |
|------------------------|---------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 1  | <b>Temperature :</b>       | 26~27°C |
| <b>Test Channel :</b>  | 01      | <b>Relative Humidity :</b> | 42~43%  |
| <b>Test Engineer :</b> | Mac Lin |                            |         |

| ANTENNA POLARITY : HORIZONTAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-------------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )          | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2385.62                       | 51.67               | -22.33                  | 74.00                       | 49.57                     | 32.32                       | 5.46                    | 35.68                      | 100                  | 0                       | Peak    |
| 2385.62                       | 38.90               | -15.10                  | 54.00                       | 36.80                     | 32.32                       | 5.46                    | 35.68                      | 100                  | 310                     | Average |

| ANTENNA POLARITY : VERTICAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-----------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )        | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2388.66                     | 50.47               | -23.53                  | 74.00                       | 48.39                     | 32.30                       | 5.46                    | 35.68                      | 100                  | 0                       | Peak    |
| 2388.66                     | 38.29               | -15.71                  | 54.00                       | 36.21                     | 32.30                       | 5.46                    | 35.68                      | 114                  | 328                     | Average |

|                        |         |                            |         |
|------------------------|---------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 3  | <b>Temperature :</b>       | 26~27°C |
| <b>Test Channel :</b>  | 11      | <b>Relative Humidity :</b> | 42~43%  |
| <b>Test Engineer :</b> | Mac Lin |                            |         |

| ANTENNA POLARITY : HORIZONTAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-------------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )          | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2483.50                       | 51.76               | -22.24                  | 74.00                       | 49.77                     | 32.30                       | 5.38                    | 35.70                      | 100                  | 0                       | Peak    |
| 2483.50                       | 42.17               | -11.83                  | 54.00                       | 40.18                     | 32.30                       | 5.38                    | 35.70                      | 129                  | 304                     | Average |

| ANTENNA POLARITY : VERTICAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-----------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )        | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2488.41                     | 49.65               | -24.35                  | 74.00                       | 47.68                     | 32.30                       | 5.37                    | 35.70                      | 100                  | 0                       | Peak    |
| 2488.41                     | 40.05               | -13.95                  | 54.00                       | 38.08                     | 32.30                       | 5.37                    | 35.70                      | 111                  | 306                     | Average |

|                        |         |                            |         |
|------------------------|---------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 4  | <b>Temperature :</b>       | 26~27°C |
| <b>Test Channel :</b>  | 01      | <b>Relative Humidity :</b> | 42~43%  |
| <b>Test Engineer :</b> | Mac Lin |                            |         |

| ANTENNA POLARITY : HORIZONTAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-------------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )          | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2389.99                       | 59.61               | -14.39                  | 74.00                       | 57.51                     | 32.32                       | 5.46                    | 35.68                      | 100                  | 0                       | Peak    |
| 2389.99                       | 44.92               | -9.08                   | 54.00                       | 42.82                     | 32.32                       | 5.46                    | 35.68                      | 100                  | 310                     | Average |

| ANTENNA POLARITY : VERTICAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-----------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )        | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2389.61                     | 59.85               | -14.15                  | 74.00                       | 57.77                     | 32.30                       | 5.46                    | 35.68                      | 100                  | 0                       | Peak    |
| 2389.61                     | 44.68               | -9.32                   | 54.00                       | 42.60                     | 32.30                       | 5.46                    | 35.68                      | 170                  | 308                     | Average |

|                        |         |                            |         |
|------------------------|---------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 6  | <b>Temperature :</b>       | 26~27°C |
| <b>Test Channel :</b>  | 11      | <b>Relative Humidity :</b> | 42~43%  |
| <b>Test Engineer :</b> | Mac Lin |                            |         |

| ANTENNA POLARITY : HORIZONTAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-------------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )          | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2484.61                       | 61.86               | -12.14                  | 74.00                       | 59.87                     | 32.30                       | 5.38                    | 35.70                      | 100                  | 0                       | Peak    |
| 2484.61                       | 44.04               | -9.96                   | 54.00                       | 42.05                     | 32.30                       | 5.38                    | 35.70                      | 103                  | 304                     | Average |

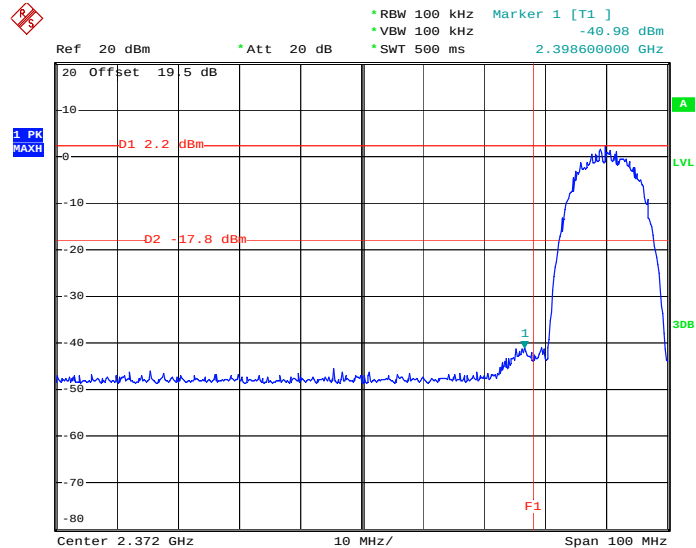
| ANTENNA POLARITY : VERTICAL |                     |                         |                             |                           |                             |                         |                            |                      |                         |         |
|-----------------------------|---------------------|-------------------------|-----------------------------|---------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )        | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV ) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2483.66                     | 56.10               | -17.90                  | 74.00                       | 54.11                     | 32.30                       | 5.38                    | 35.70                      | 100                  | 0                       | Peak    |
| 2483.66                     | 43.02               | -10.98                  | 54.00                       | 41.03                     | 32.30                       | 5.38                    | 35.70                      | 113                  | 306                     | Average |



### 3.3.6 Test Result of Conducted Band Edges

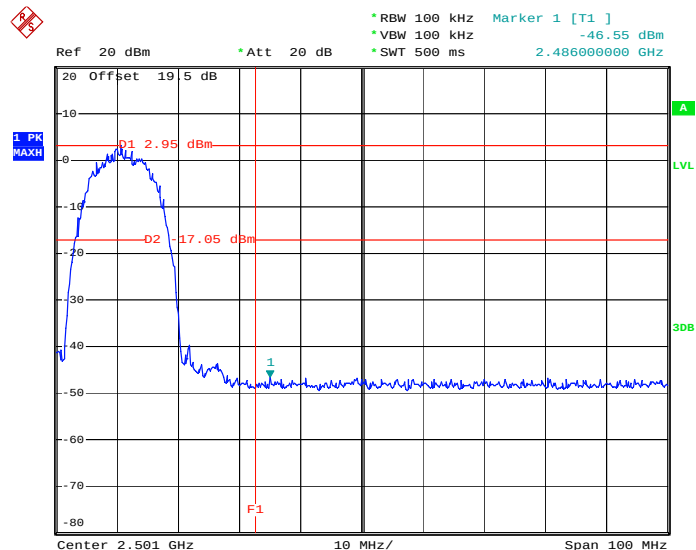
|                 |              |                     |        |
|-----------------|--------------|---------------------|--------|
| Test Mode :     | Mode 1 and 3 | Temperature :       | 23~24℃ |
| Test Channel :  | 01, 11       | Relative Humidity : | 40~41% |
| Test Engineer : | Eric Hum     |                     |        |

#### Low Band Edge Plot on 802.11b Channel 01



Date: 17.DEC.2008 03:04:15

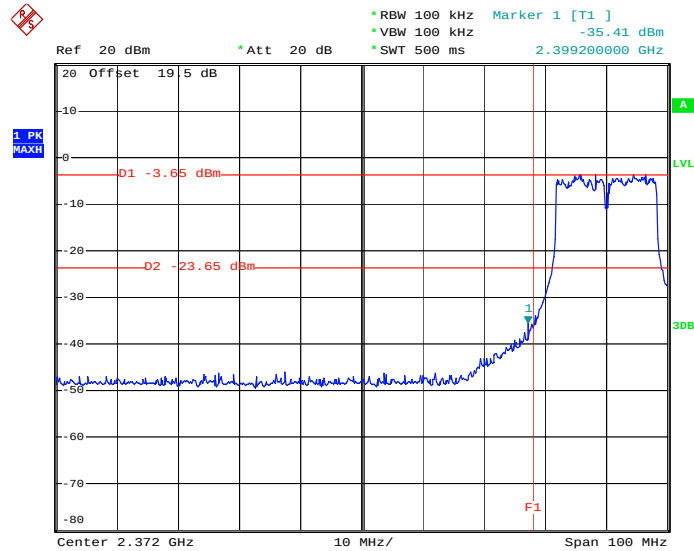
#### High Band Edge Plot on 802.11b Channel 11



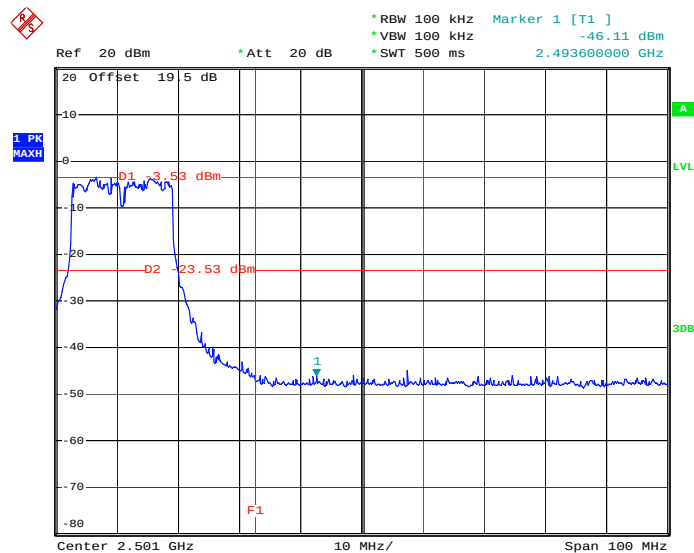
Date: 17.DEC.2008 03:05:54



|                 |              |                     |         |
|-----------------|--------------|---------------------|---------|
| Test Mode :     | Mode 4 and 6 | Temperature :       | 23~24°C |
| Test Channel :  | 01, 11       | Relative Humidity : | 40~41%  |
| Test Engineer : | Eric Hum     |                     |         |

**Low Band Edge Plot on 802.11g Channel 01**

Date: 17.DEC.2008 05:01:07

**High Band Edge Plot on 802.11g Channel 11**

Date: 17.DEC.2008 05:00:18

### 3.4 Power Spectral Density Measurement

#### 3.4.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

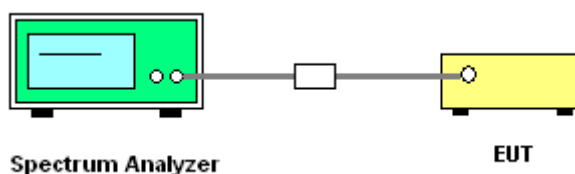
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

#### 3.4.4 Test Setup



**3.4.5 Test Result of Power Spectral Density**

|                        |              |                            |        |
|------------------------|--------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 1, 2, 3 | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Eric Hum     | <b>Relative Humidity :</b> | 40~41% |

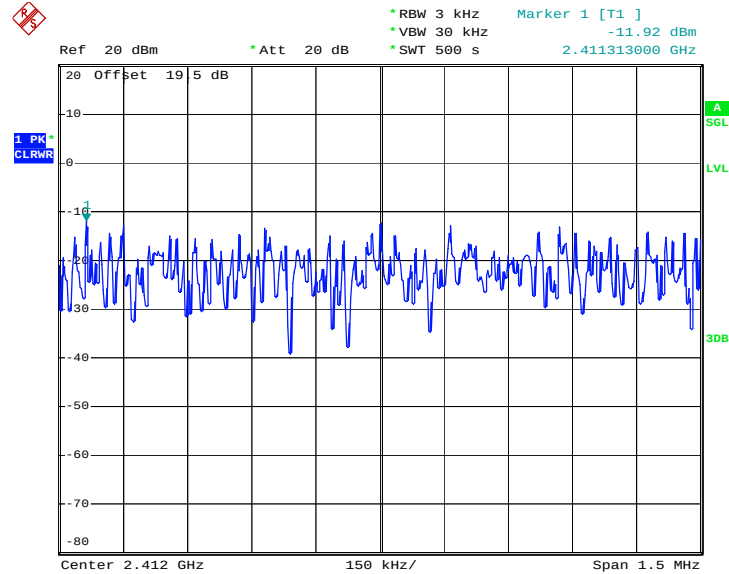
| Channel | Frequency (MHz) | Measured PSD (dBm) | Max. Limits (dBm) | Pass/Fail |
|---------|-----------------|--------------------|-------------------|-----------|
| 01      | 2412            | -11.92             | 8                 | Pass      |
| 06      | 2437            | -11.24             | 8                 | Pass      |
| 11      | 2462            | -10.71             | 8                 | Pass      |

|                        |              |                            |        |
|------------------------|--------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 4, 5, 6 | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Eric Hum     | <b>Relative Humidity :</b> | 40~41% |

| Channel | Frequency (MHz) | Measured PSD (dBm) | Max. Limits (dBm) | Pass/Fail |
|---------|-----------------|--------------------|-------------------|-----------|
| 01      | 2412            | -17.66             | 8                 | Pass      |
| 06      | 2437            | -16.80             | 8                 | Pass      |
| 11      | 2462            | -14.89             | 8                 | Pass      |

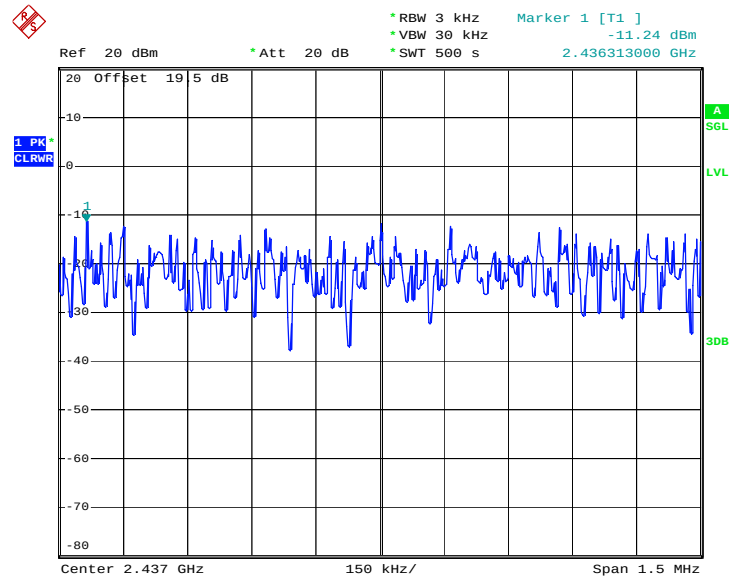
### 3.4.6 Test Result of Power Spectral Density Plots

#### Mode 1 : PSD Plot on 802.11b Channel 01

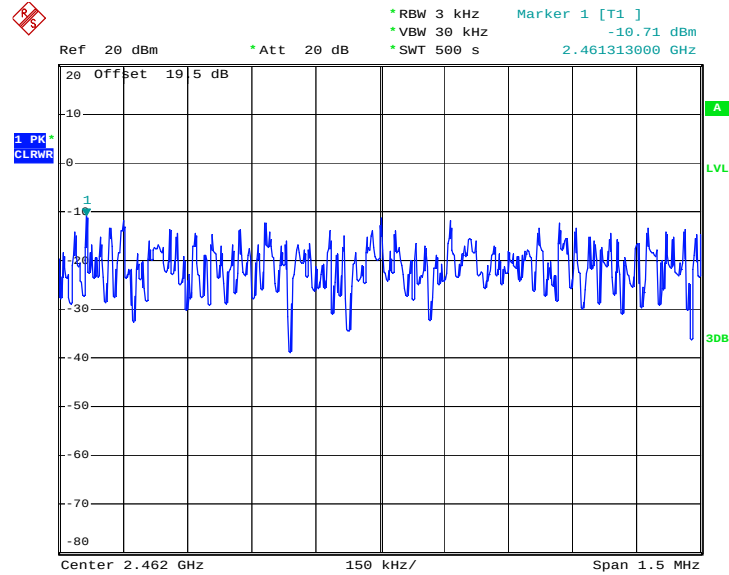


Date: 17.DEC.2008 05:18:43

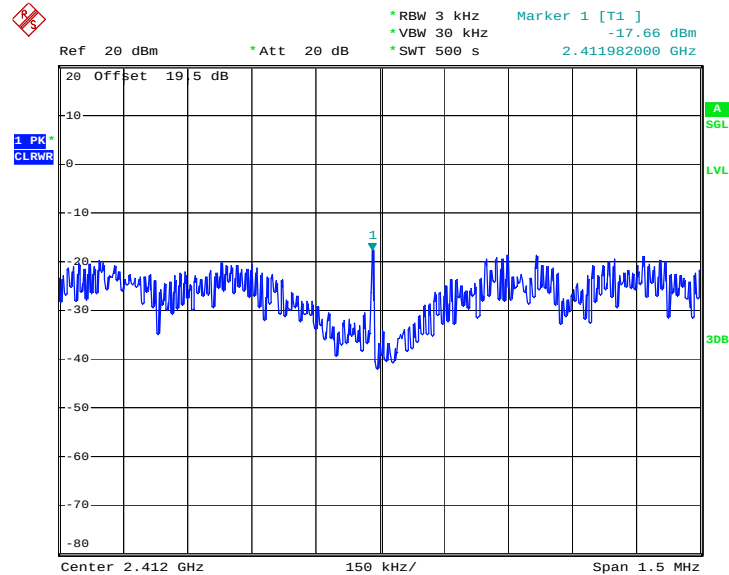
#### Mode 2 : PSD Plot on 802.11b Channel 06



Date: 17.DEC.2008 03:49:03

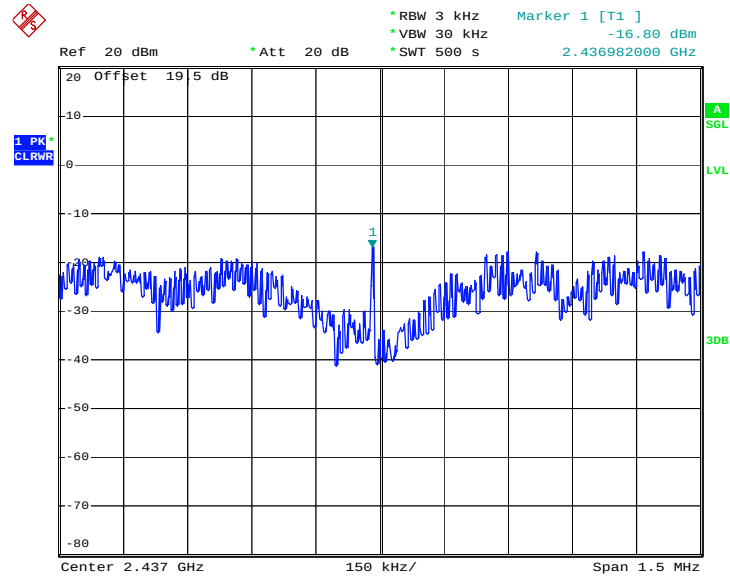
**Mode 3 : PSD Plot on 802.11b Channel 11**


Date: 17.DEC.2008 03:28:39

**Mode 4 : PSD Plot on 802.11g Channel 01**


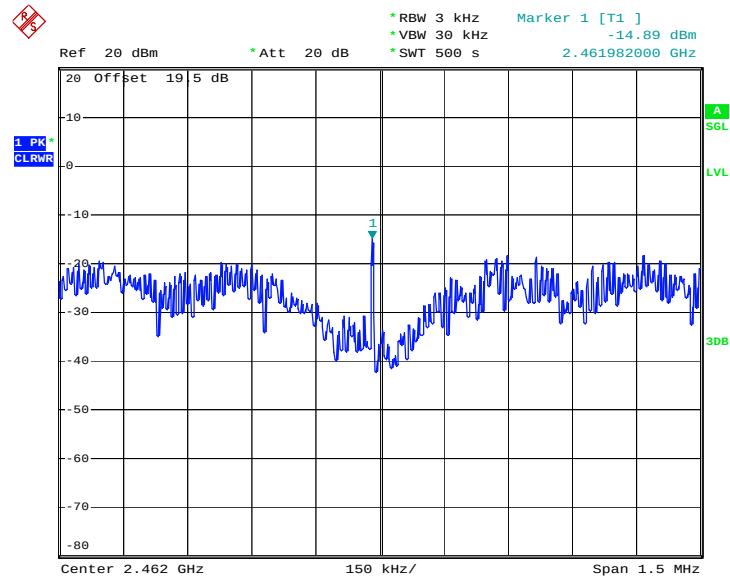
Date: 17.DEC.2008 05:28:30

**Mode 5 : PSD Plot on 802.11g Channel 06**



Date: 17.DEC.2008 05:37:19

**Mode 6 : PSD Plot on 802.11g Channel 11**



Date: 17.DEC.2008 05:46:26

### 3.5 AC Conducted Emission Measurement

#### 3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of emission (MHz) | Conducted limit (dBuV) |           |
|-----------------------------|------------------------|-----------|
|                             | Quasi-peak             | Average   |
| 0.15-0.5                    | 66 to 56*              | 56 to 46* |
| 0.5-5                       | 56                     | 46        |
| 5-30                        | 60                     | 50        |

\*Decreases with the logarithm of the frequency.

#### 3.5.2 Measuring Instruments

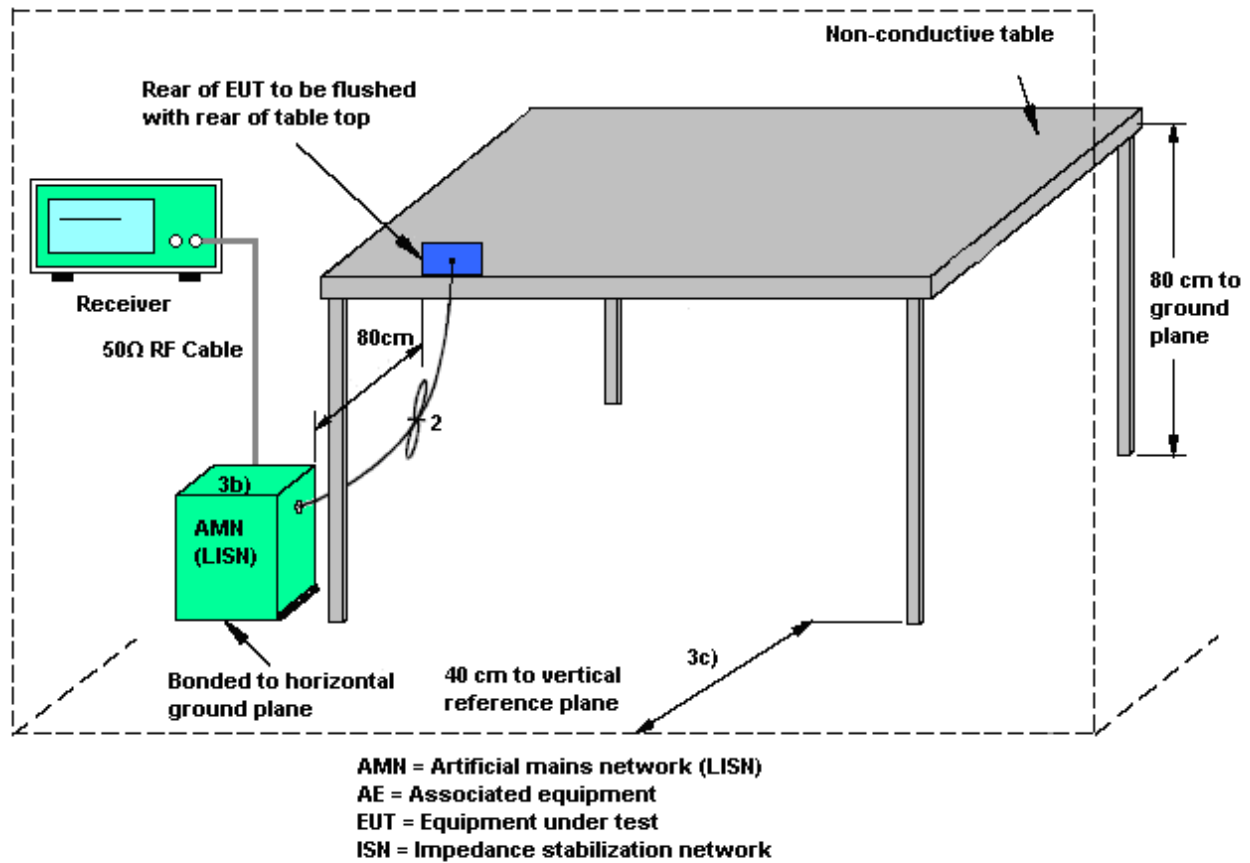
See list of measuring instruments of this test report.

#### 3.5.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

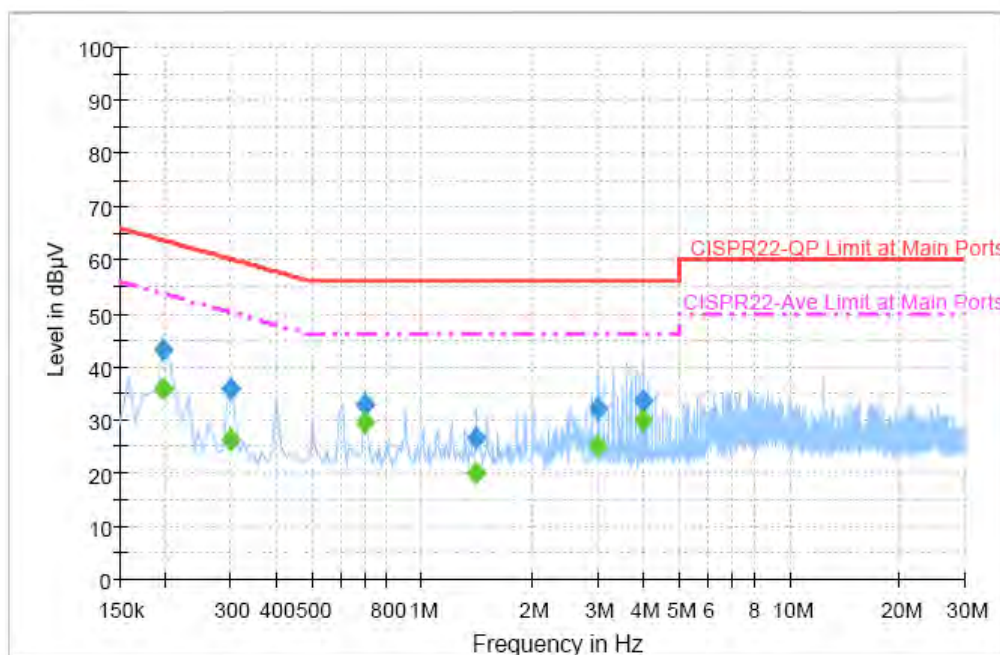


### 3.5.4 Test Setup



### 3.5.5 Test Result of AC Conducted Emission

|                        |                                                                                 |                            |        |
|------------------------|---------------------------------------------------------------------------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 1                                                                          | <b>Temperature :</b>       | 23~24℃ |
| <b>Test Engineer :</b> | Cona Huang                                                                      | <b>Relative Humidity :</b> | 40~41% |
|                        |                                                                                 | <b>Phase :</b>             | Line   |
| <b>Function Type :</b> | BT Link + WLAN Link + Earphone + Cradle + Adapter + USB Cable                   |                            |        |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |        |



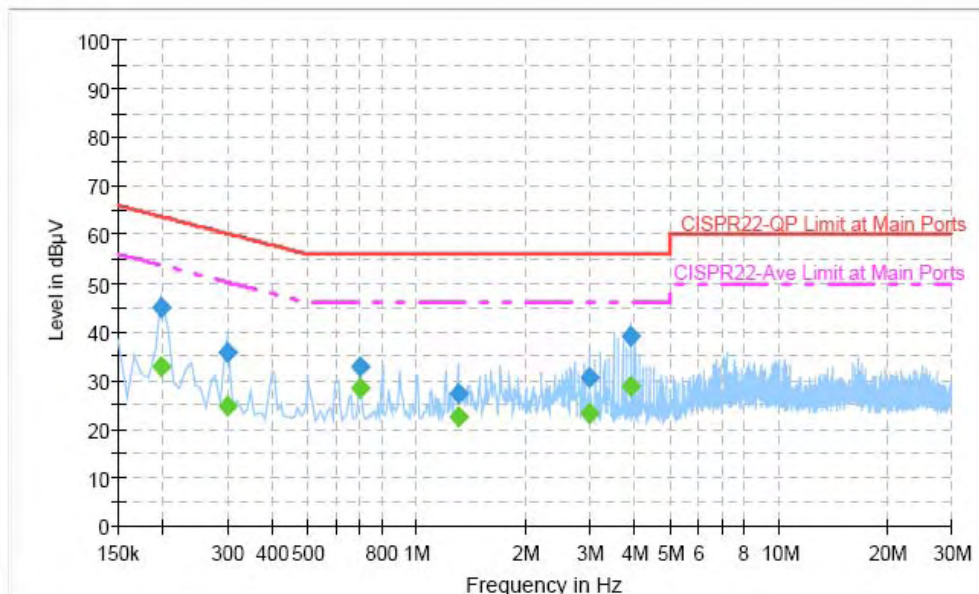
#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|--------|------|------------|-------------|--------------|
| 0.198000        | 43.1             | Off    | L1   | 19.3       | 20.6        | 63.7         |
| 0.302000        | 35.8             | Off    | L1   | 19.3       | 24.4        | 60.2         |
| 0.702000        | 32.8             | Off    | L1   | 19.5       | 23.2        | 56.0         |
| 1.406000        | 26.5             | Off    | L1   | 19.4       | 29.5        | 56.0         |
| 3.014000        | 32.1             | Off    | L1   | 19.5       | 22.9        | 56.0         |
| 4.014000        | 33.7             | Off    | L1   | 19.5       | 22.3        | 56.0         |

#### Final Result 2

| Frequency (MHz) | Average (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|--------|------|------------|-------------|--------------|
| 0.198000        | 35.7           | Off    | L1   | 19.3       | 18.0        | 53.7         |
| 0.302000        | 26.3           | Off    | L1   | 19.3       | 23.9        | 50.2         |
| 0.702000        | 29.5           | Off    | L1   | 19.5       | 16.5        | 46.0         |
| 1.406000        | 20.0           | Off    | L1   | 19.4       | 26.0        | 46.0         |
| 3.014000        | 25.0           | Off    | L1   | 19.5       | 21.0        | 46.0         |
| 4.014000        | 30.0           | Off    | L1   | 19.5       | 16.0        | 46.0         |

|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 1                                                                          | <b>Temperature :</b>       | 23~24°C |
| <b>Test Engineer :</b> | Cona Huang                                                                      | <b>Relative Humidity :</b> | 40~41%  |
|                        |                                                                                 | <b>Phase :</b>             | Neutral |
| <b>Function Type :</b> | BT Link + WLAN Link + Earphone + Cradle + Adapter + USB Cable                   |                            |         |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |



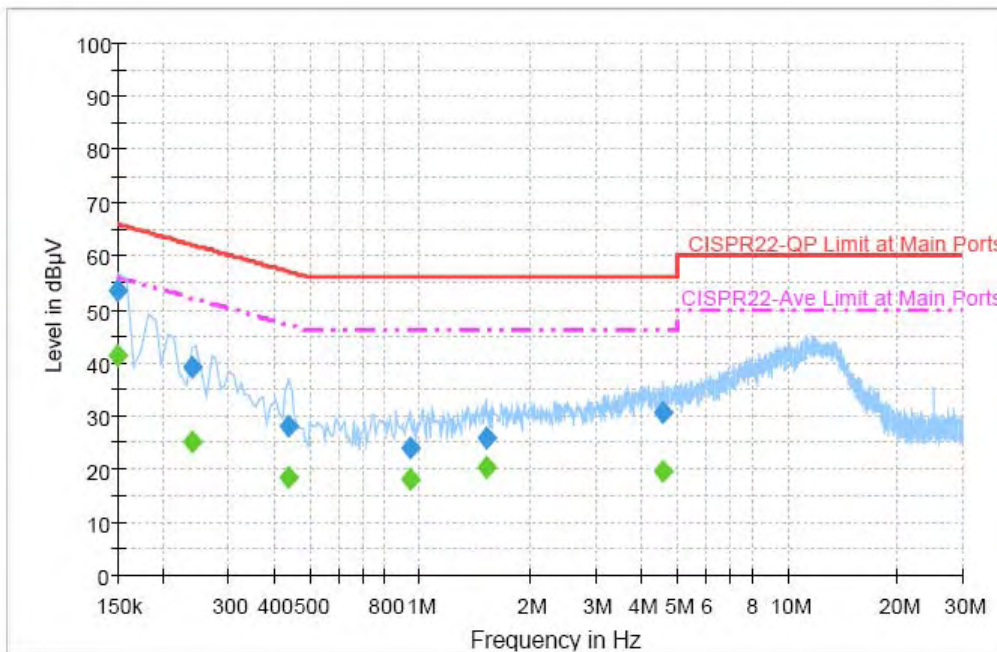
### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|--------|------|------------|-------------|--------------|
| 0.198000        | 45.1             | Off    | N    | 19.3       | 18.6        | 63.7         |
| 0.302000        | 36.0             | Off    | N    | 19.3       | 24.2        | 60.2         |
| 0.702000        | 32.7             | Off    | N    | 19.5       | 23.3        | 56.0         |
| 1.302000        | 27.5             | Off    | N    | 19.4       | 28.5        | 56.0         |
| 3.006000        | 30.7             | Off    | N    | 19.5       | 25.3        | 56.0         |
| 3.918000        | 39.2             | Off    | N    | 19.5       | 16.8        | 56.0         |

### Final Result 2

| Frequency (MHz) | Average (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|--------|------|------------|-------------|--------------|
| 0.198000        | 32.7           | Off    | N    | 19.3       | 21.0        | 53.7         |
| 0.302000        | 24.6           | Off    | N    | 19.3       | 25.6        | 50.2         |
| 0.702000        | 28.6           | Off    | N    | 19.5       | 17.4        | 46.0         |
| 1.302000        | 22.5           | Off    | N    | 19.4       | 23.5        | 46.0         |
| 3.006000        | 23.3           | Off    | N    | 19.5       | 22.7        | 46.0         |
| 3.918000        | 28.6           | Off    | N    | 19.5       | 17.4        | 46.0         |

|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 2                                                                          | <b>Temperature :</b>       | 23~24°C |
| <b>Test Engineer :</b> | Cona Huang                                                                      | <b>Relative Humidity :</b> | 40~41%  |
|                        |                                                                                 | <b>Phase :</b>             | Line    |
| <b>Function Type :</b> | BT Link + WLAN Link + Earphone + USB Charging Cable with AC Power               |                            |         |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |



### Final Result 1

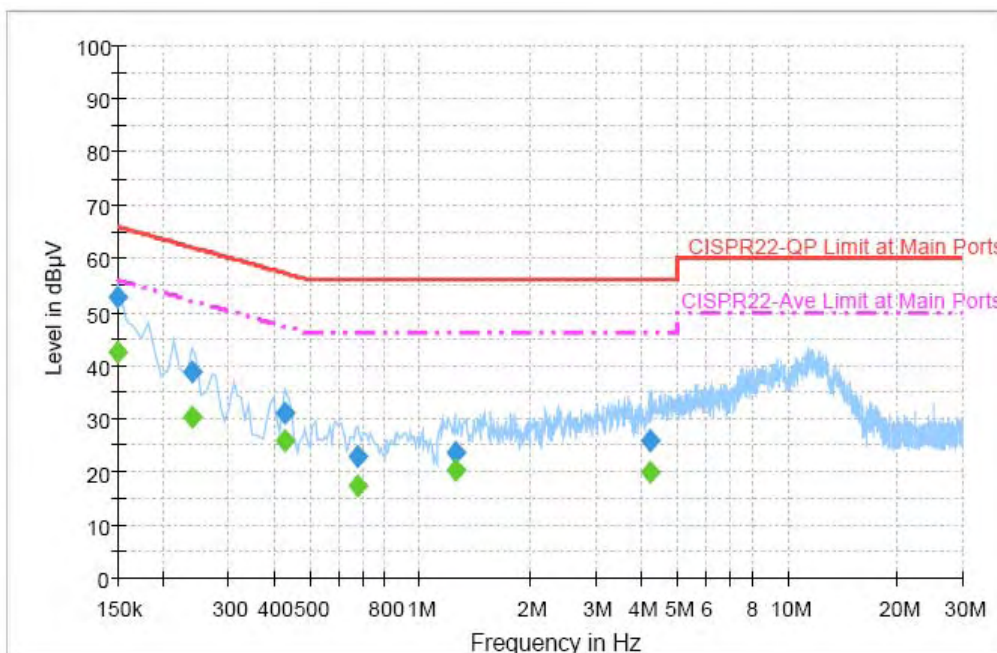
| Frequency (MHz) | QuasiPeak (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|--------|------|------------|-------------|--------------|
| 0.150000        | 53.5             | Off    | L1   | 19.4       | 12.5        | 66.0         |
| 0.238000        | 39.2             | Off    | L1   | 19.4       | 23.0        | 62.2         |
| 0.438000        | 28.0             | Off    | L1   | 19.4       | 29.1        | 57.1         |
| 0.934000        | 23.9             | Off    | L1   | 19.4       | 32.1        | 56.0         |
| 1.510000        | 25.8             | Off    | L1   | 19.4       | 30.2        | 56.0         |
| 4.590000        | 30.6             | Off    | L1   | 19.6       | 25.4        | 56.0         |

### Final Result 2

| Frequency (MHz) | Average (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|--------|------|------------|-------------|--------------|
| 0.150000        | 41.5           | Off    | L1   | 19.4       | 14.5        | 56.0         |
| 0.238000        | 25.1           | Off    | L1   | 19.4       | 27.1        | 52.2         |
| 0.438000        | 18.5           | Off    | L1   | 19.4       | 28.6        | 47.1         |
| 0.934000        | 18.1           | Off    | L1   | 19.4       | 27.9        | 46.0         |
| 1.510000        | 20.3           | Off    | L1   | 19.4       | 25.7        | 46.0         |
| 4.590000        | 19.5           | Off    | L1   | 19.6       | 26.5        | 46.0         |



|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 2                                                                          | <b>Temperature :</b>       | 23~24°C |
| <b>Test Engineer :</b> | Cona Huang                                                                      | <b>Relative Humidity :</b> | 40~41%  |
|                        |                                                                                 | <b>Phase :</b>             | Neutral |
| <b>Function Type :</b> | BT Link + WLAN Link + Earphone + USB Charging Cable with AC Power               |                            |         |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |



### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|--------|------|------------|-------------|--------------|
| 0.150000        | 52.8             | Off    | N    | 19.4       | 13.2        | 66.0         |
| 0.238000        | 38.8             | Off    | N    | 19.4       | 23.4        | 62.2         |
| 0.430000        | 30.8             | Off    | N    | 19.4       | 26.5        | 57.3         |
| 0.678000        | 23.0             | Off    | N    | 19.5       | 33.0        | 56.0         |
| 1.246000        | 23.6             | Off    | N    | 19.5       | 32.4        | 56.0         |
| 4.206000        | 25.8             | Off    | N    | 19.5       | 30.2        | 56.0         |

### Final Result 2

| Frequency (MHz) | Average (dBμV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|--------|------|------------|-------------|--------------|
| 0.150000        | 42.3           | Off    | N    | 19.4       | 13.7        | 56.0         |
| 0.238000        | 30.1           | Off    | N    | 19.4       | 22.1        | 52.2         |
| 0.430000        | 25.9           | Off    | N    | 19.4       | 21.4        | 47.3         |
| 0.678000        | 17.5           | Off    | N    | 19.5       | 28.5        | 46.0         |
| 1.246000        | 20.3           | Off    | N    | 19.5       | 25.7        | 46.0         |
| 4.206000        | 19.8           | Off    | N    | 19.5       | 26.2        | 46.0         |

## 3.6 Radiated Emission Measurement

### 3.6.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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                                |

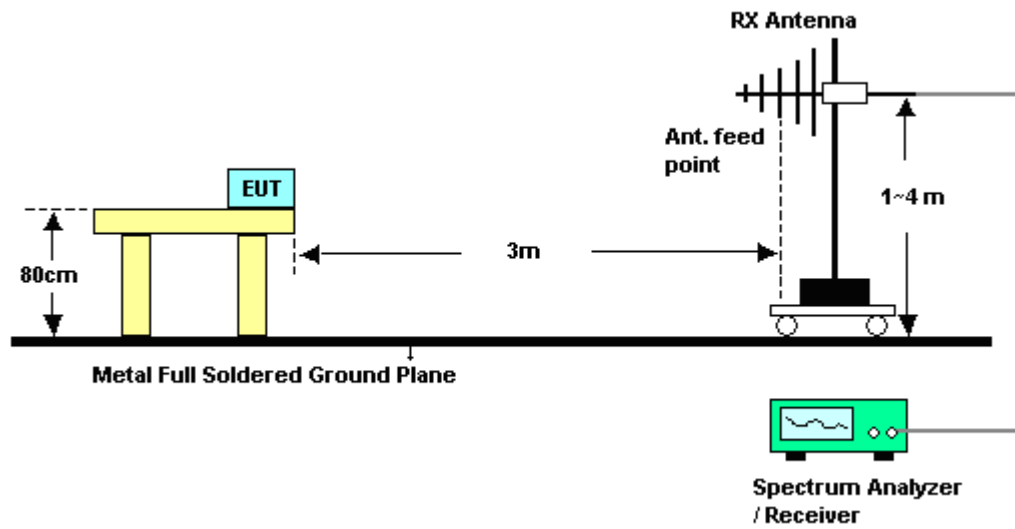
### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

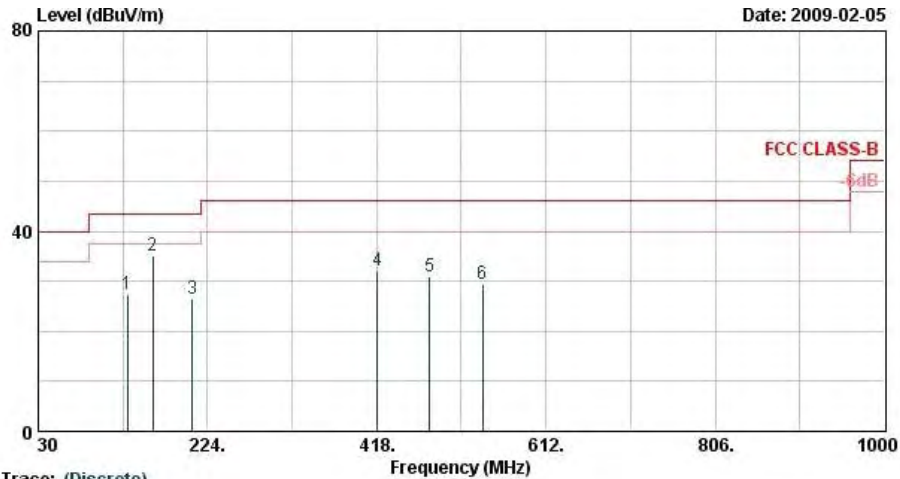
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:  
Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold.
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

### 3.6.4 Test Setup



**3.6.5 Test Result of Radiated Emission < 1GHz**

|                        |         |                            |            |
|------------------------|---------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 1  | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 01      | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        |         |                            |            |

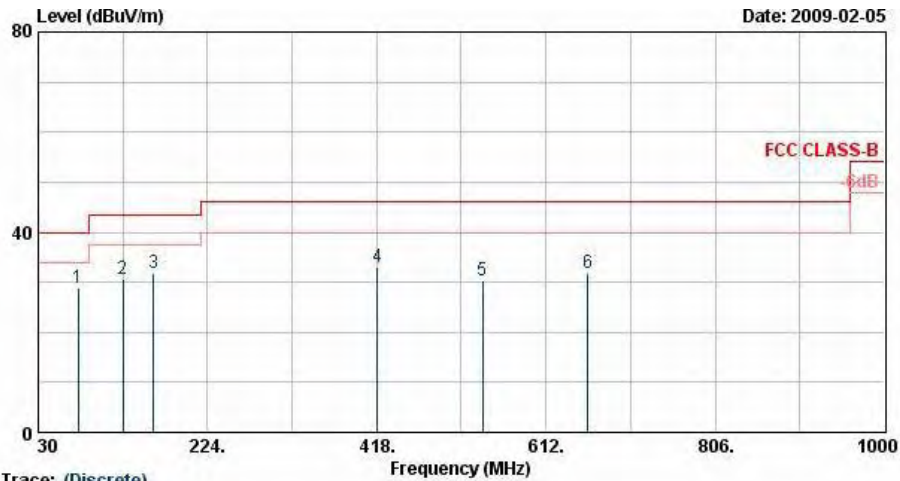


Site : 03CH07-HY  
Condition : 3m BILOG\_081118 HORIZONTAL  
Project : FR 803027

|     | Freq   | Level  | Over   | Limit  | ReadAntenna  | Cable | Preamp | Ant   | Table |          |
|-----|--------|--------|--------|--------|--------------|-------|--------|-------|-------|----------|
|     | MHz    | dBuV/m | Limit  | Line   | Level Factor | Loss  | Factor | Pos   | Pos   | Remark   |
|     |        |        | dB     | dBuV/m | dBuV         | dB/m  | dB     | cm    | deg   |          |
| 1   | 132.33 | 27.24  | -16.26 | 43.50  | 45.34        | 11.88 | 1.37   | 31.34 | ---   | Peak     |
| 2 @ | 161.22 | 35.21  | -8.29  | 43.50  | 55.02        | 9.99  | 1.51   | 31.31 | 100   | 117 Peak |
| 3   | 206.58 | 26.35  | -17.15 | 43.50  | 46.50        | 9.47  | 1.73   | 31.35 | ---   | Peak     |
| 4   | 419.00 | 32.14  | -13.86 | 46.00  | 44.80        | 15.98 | 2.66   | 31.30 | ---   | Peak     |
| 5   | 478.50 | 30.90  | -15.10 | 46.00  | 42.24        | 16.96 | 2.86   | 31.16 | ---   | Peak     |
| 6   | 539.40 | 29.39  | -16.61 | 46.00  | 39.49        | 17.89 | 3.06   | 31.05 | ---   | Peak     |



|                        |         |                            |          |
|------------------------|---------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 1  | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 01      | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        |         |                            |          |

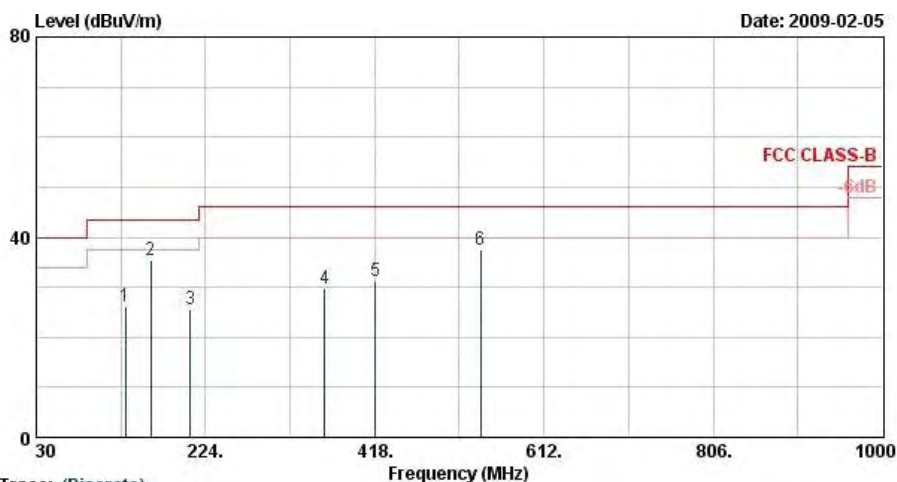


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m BILOG\_081118 VERTICAL  
Project : FR 8O3027

|   | Freq   | Level  | Over   | Limit  | Read  | Antenna | Cable | Preamp | Ant | Table |        |
|---|--------|--------|--------|--------|-------|---------|-------|--------|-----|-------|--------|
|   | MHz    | dBuV/m | Limit  | Line   | Level | Factor  | Loss  | Factor | Pos | Pos   | Remark |
|   |        |        | dB     | dBuV/m | dBuV  | dB/m    | dB    | dB     | cm  | deg   |        |
| 1 | 75.90  | 28.80  | -11.20 | 40.00  | 52.47 | 6.72    | 0.98  | 31.36  | 100 | 275   | Peak   |
| 2 | 126.66 | 30.52  | -12.98 | 43.50  | 48.21 | 12.33   | 1.36  | 31.37  | --- | ---   | Peak   |
| 3 | 162.57 | 31.95  | -11.55 | 43.50  | 51.85 | 9.90    | 1.52  | 31.32  | --- | ---   | Peak   |
| 4 | 419.00 | 32.92  | -13.08 | 46.00  | 45.58 | 15.98   | 2.66  | 31.30  | --- | ---   | Peak   |
| 5 | 539.40 | 30.24  | -15.76 | 46.00  | 40.33 | 17.89   | 3.06  | 31.05  | --- | ---   | Peak   |
| 6 | 659.80 | 31.82  | -14.18 | 46.00  | 40.30 | 18.99   | 3.44  | 30.90  | --- | ---   | Peak   |

|                        |         |                            |            |
|------------------------|---------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 2  | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 06      | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        |         |                            |            |

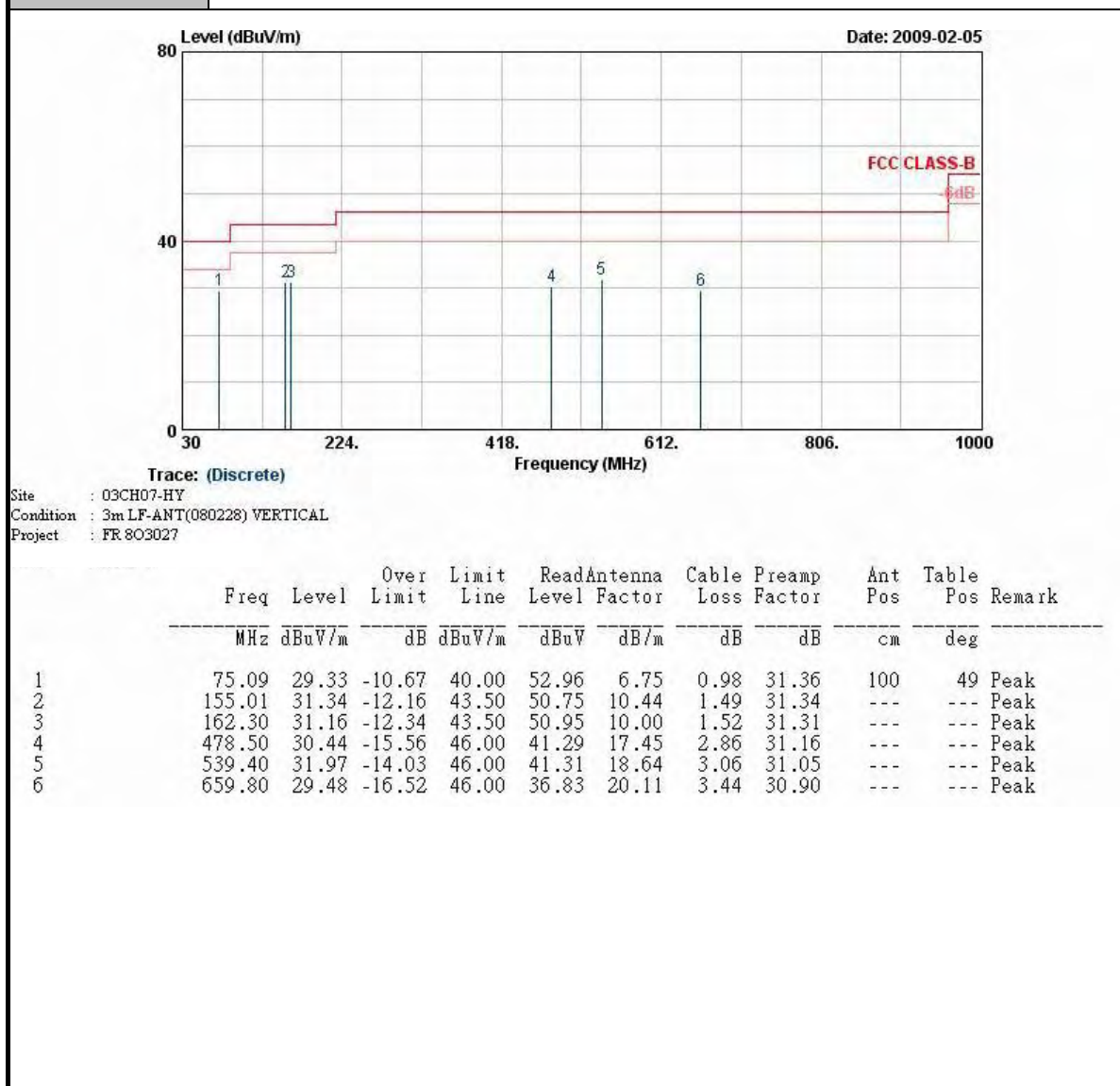


Trace: (Discrete)

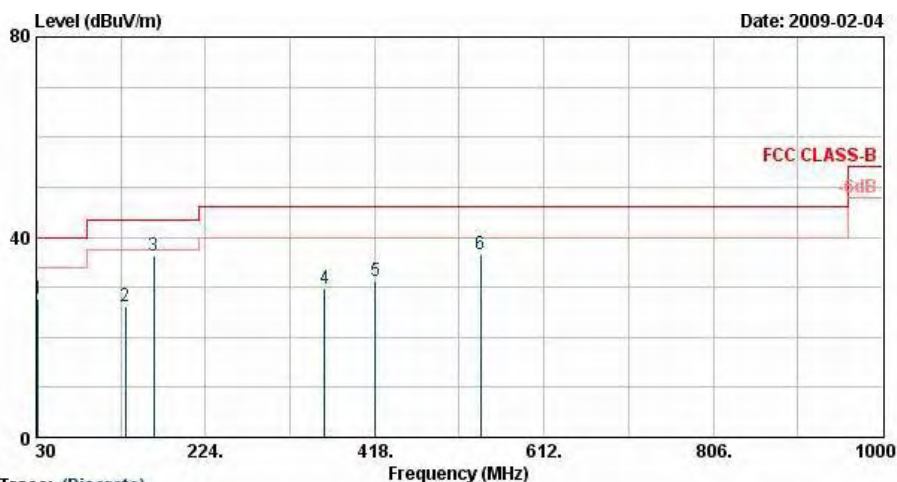
Site : 03CH07-HY  
Condition : 3m LF-ANT(080228) HORIZONTAL  
Project : FR 8O3027

|     | Freq   | Level  | Over   | Limit  | Read  | Antenna | Cable | Preamp | Ant | Table |        |
|-----|--------|--------|--------|--------|-------|---------|-------|--------|-----|-------|--------|
|     | MHz    | dBuV/m | dB     | dBuV/m | dBuV  | dB/m    | dB    | dB     | cm  | deg   | Remark |
| 1   | 132.33 | 26.27  | -17.23 | 43.50  | 44.98 | 11.26   | 1.37  | 31.34  | --- | ---   | Peak   |
| 2 @ | 161.49 | 35.52  | -7.98  | 43.50  | 55.31 | 10.00   | 1.52  | 31.31  | 100 | 27    | Peak   |
| 3   | 206.58 | 25.51  | -17.99 | 43.50  | 45.99 | 9.13    | 1.73  | 31.35  | --- | ---   | Peak   |
| 4   | 360.20 | 29.85  | -16.15 | 46.00  | 44.23 | 14.65   | 2.39  | 31.41  | --- | ---   | Peak   |
| 5   | 419.00 | 31.29  | -14.71 | 46.00  | 43.75 | 16.18   | 2.66  | 31.30  | --- | ---   | Peak   |
| 6   | 539.40 | 37.52  | -8.48  | 46.00  | 46.86 | 18.64   | 3.06  | 31.05  | --- | ---   | Peak   |

|                        |         |                            |          |
|------------------------|---------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 2  | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 06      | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        |         |                            |          |



|                        |         |                            |            |
|------------------------|---------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 3  | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 11      | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        |         |                            |            |

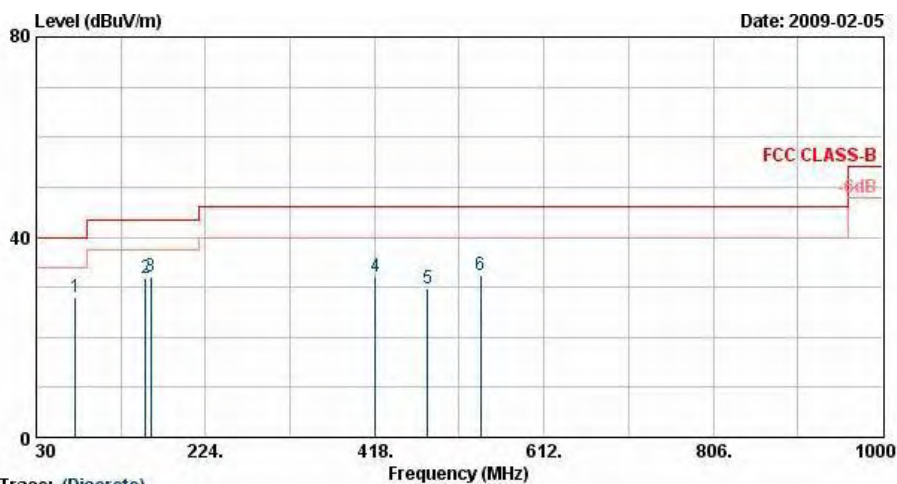


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m BILOG\_081118 HORIZONTAL  
Project : FR 8O3027

|   | Freq   | Level  | Over   | Limit  | Read  | Antenna | Cable | Preamp | Ant | Table |        |
|---|--------|--------|--------|--------|-------|---------|-------|--------|-----|-------|--------|
|   | MHz    | dBuV/m | dB     | dBuV/m | dBuV  | dB/m    | dB    | dB     | cm  | deg   | Remark |
| 1 | 31.89  | 27.72  | -12.28 | 40.00  | 40.51 | 17.82   | 0.66  | 31.26  | --- | ---   | Peak   |
| 2 | 132.33 | 26.09  | -17.41 | 43.50  | 44.19 | 11.88   | 1.37  | 31.34  | --- | ---   | Peak   |
| 3 | 164.73 | 36.16  | -7.34  | 43.50  | 56.14 | 9.81    | 1.53  | 31.32  | 100 | 341   | Peak   |
| 4 | 360.20 | 29.62  | -16.38 | 46.00  | 44.02 | 14.63   | 2.39  | 31.41  | --- | ---   | Peak   |
| 5 | 419.00 | 31.14  | -14.86 | 46.00  | 43.80 | 15.98   | 2.66  | 31.30  | --- | ---   | Peak   |
| 6 | 539.40 | 36.45  | -9.55  | 46.00  | 46.55 | 17.89   | 3.06  | 31.05  | --- | ---   | Peak   |

|                        |         |                            |          |
|------------------------|---------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 3  | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 11      | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        |         |                            |          |



Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m BILOG\_081118 VERTICAL  
Project : FR 8O3027

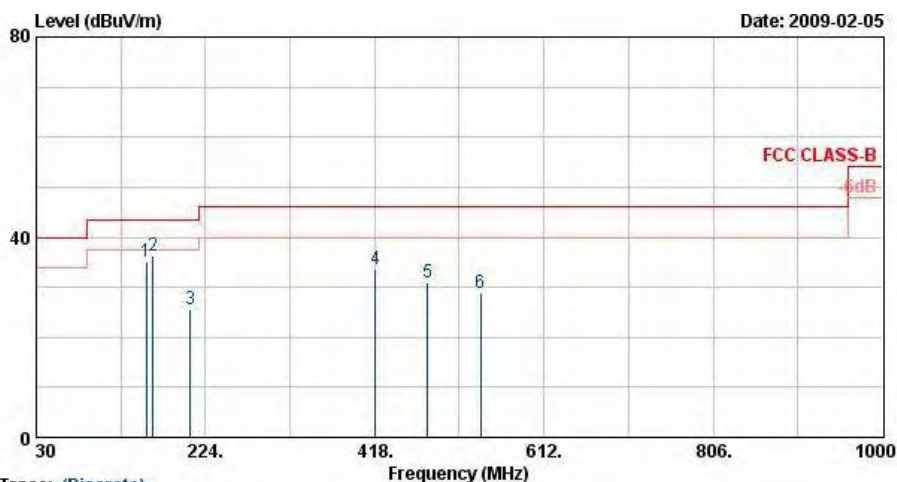
|   | Freq   | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |        |
|---|--------|--------|--------|--------|-------------|-------|--------|-------|-------|--------|
|   | MHz    | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark |
|   |        |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | cm    | deg   |        |
| 1 | 75.09  | 27.98  | -12.02 | 40.00  | 51.72       | 6.64  | 0.98   | 31.36 | ---   | Peak   |
| 2 | 155.01 | 31.80  | -11.70 | 43.50  | 51.46       | 10.19 | 1.49   | 31.34 | ---   | Peak   |
| 3 | 161.49 | 32.09  | -11.41 | 43.50  | 51.95       | 9.94  | 1.52   | 31.31 | 100   | Peak   |
| 4 | 419.00 | 32.17  | -13.83 | 46.00  | 44.83       | 15.98 | 2.66   | 31.30 | ---   | Peak   |
| 5 | 478.50 | 29.76  | -16.24 | 46.00  | 41.10       | 16.96 | 2.86   | 31.16 | ---   | Peak   |
| 6 | 539.40 | 32.50  | -13.50 | 46.00  | 42.60       | 17.89 | 3.06   | 31.05 | ---   | Peak   |



# FCC Test Report

Report No. : FR8O3027A

|                 |         |                     |            |
|-----------------|---------|---------------------|------------|
| Test Mode :     | Mode 4  | Temperature :       | 26~27°C    |
| Test Channel :  | 01      | Relative Humidity : | 42~43%     |
| Test Engineer : | Mac Lin | Polarization :      | Horizontal |
| Remark :        |         |                     |            |

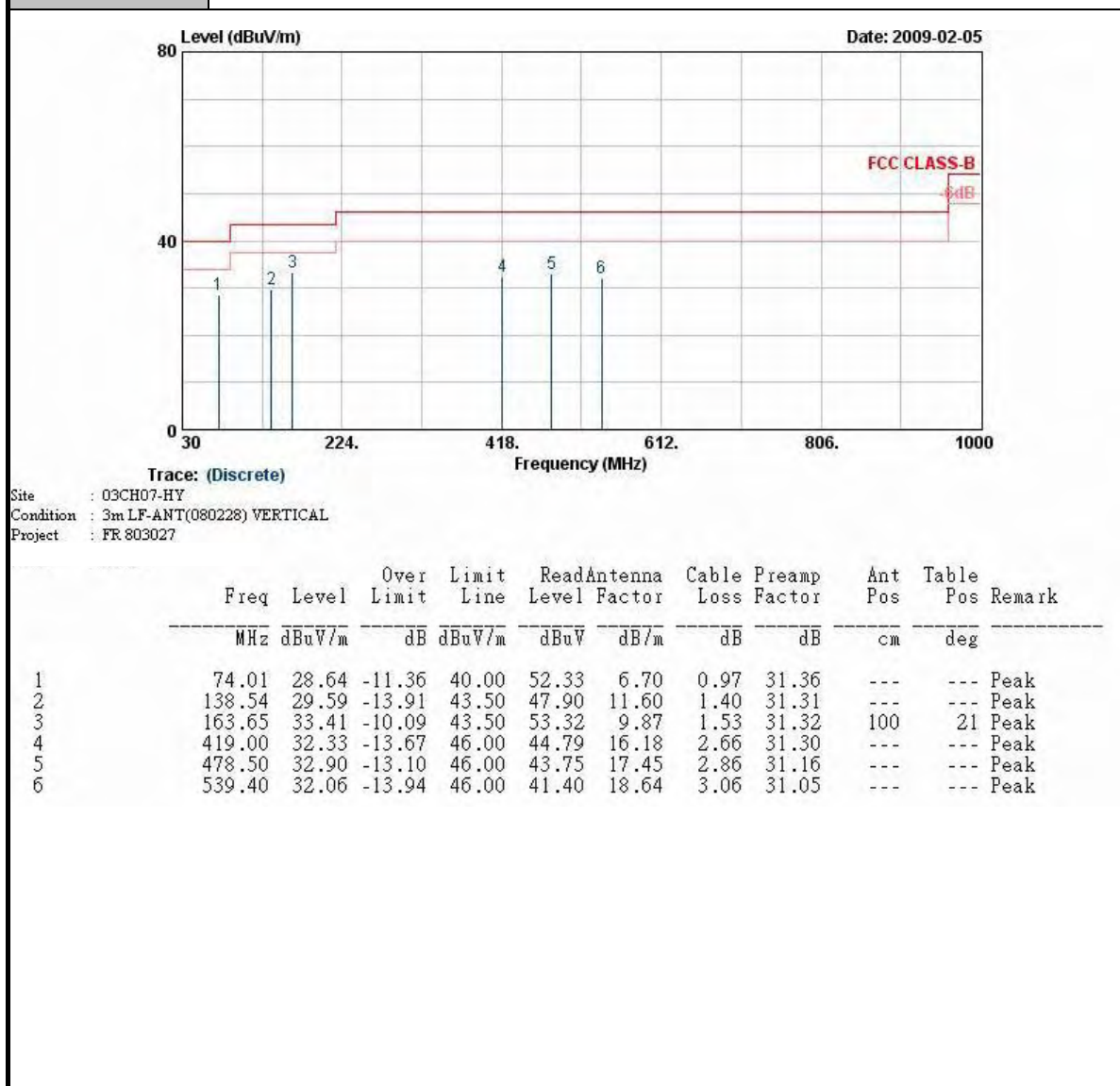


Site : 03CH07-HY  
Condition : FCC CLASS-B 3m BILOG\_081118 HORIZONTAL  
Project : FR 8O3027

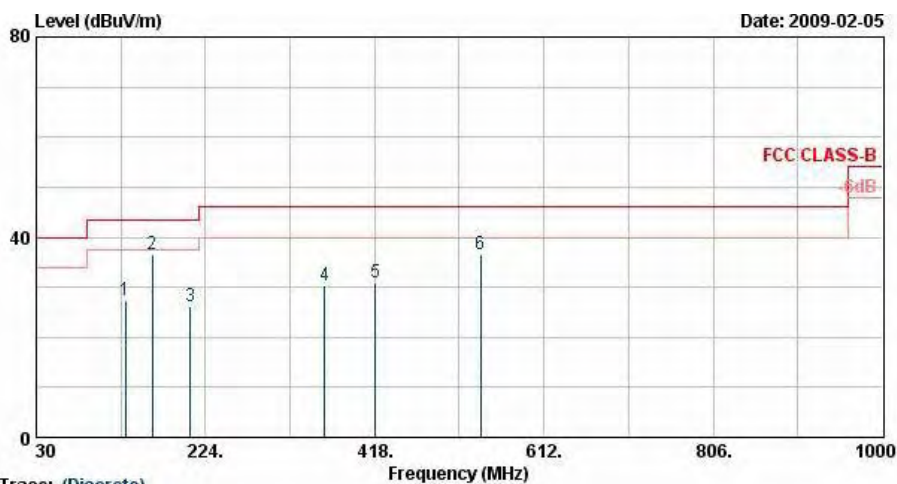
|     | Freq   | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table | Remark  |
|-----|--------|--------|--------|--------|-------------|-------|--------|-------|-------|---------|
|     | MHz    | dBuV/m | dB     | dBuV/m | Level       | Loss  | Factor | Pos   | Pos   |         |
|     |        |        |        |        | dBuV        | dB/m  | dB     | cm    | deg   |         |
| 1   | 156.09 | 35.03  | -8.47  | 43.50  | 54.71       | 10.16 | 1.49   | 31.33 | ---   | Peak    |
| 2 @ | 163.65 | 36.16  | -7.34  | 43.50  | 56.10       | 9.85  | 1.53   | 31.32 | 100   | 63 Peak |
| 3   | 206.58 | 25.51  | -17.99 | 43.50  | 45.66       | 9.47  | 1.73   | 31.35 | ---   | Peak    |
| 4   | 419.00 | 33.72  | -12.28 | 46.00  | 46.38       | 15.98 | 2.66   | 31.30 | ---   | Peak    |
| 5   | 478.50 | 30.87  | -15.13 | 46.00  | 42.21       | 16.96 | 2.86   | 31.16 | ---   | Peak    |
| 6   | 539.40 | 28.74  | -17.26 | 46.00  | 38.84       | 17.89 | 3.06   | 31.05 | ---   | Peak    |



|                        |         |                            |          |
|------------------------|---------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 4  | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 01      | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        |         |                            |          |



|                        |         |                            |            |
|------------------------|---------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 5  | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 06      | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        |         |                            |            |

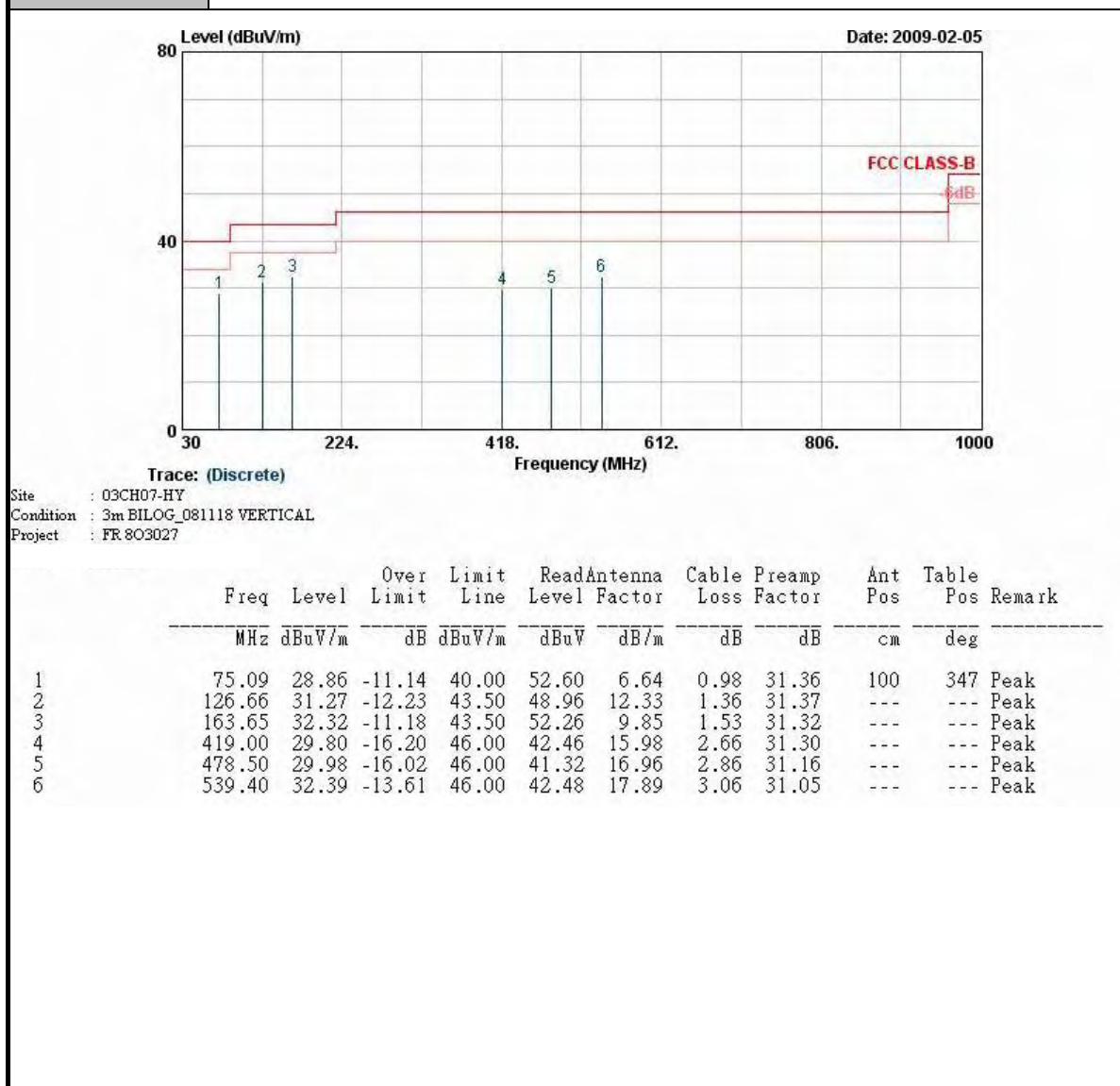


Site : 03CH07-HY  
Condition : 3m BILOG\_081118 HORIZONTAL  
Project : FR 8O3027

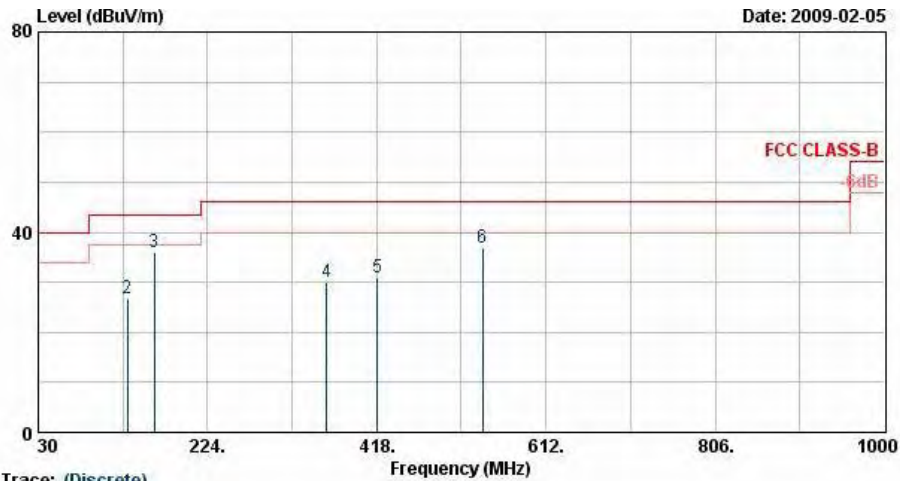
|   | Freq   | Level  | Over   | Limit  | Read  | Antenna | Cable | Preamp | Ant | Table |        |
|---|--------|--------|--------|--------|-------|---------|-------|--------|-----|-------|--------|
|   | MHz    | dBuV/m | dB     | dBuV/m | dBuV  | dB/m    | dB    | dB     | cm  | deg   | Remark |
| 1 | 132.33 | 27.32  | -16.18 | 43.50  | 45.42 | 11.88   | 1.37  | 31.34  | --- | ---   | Peak   |
| 2 | 163.38 | 36.64  | -6.86  | 43.50  | 56.57 | 9.85    | 1.53  | 31.32  | 100 | 274   | Peak   |
| 3 | 206.58 | 26.05  | -17.45 | 43.50  | 46.20 | 9.47    | 1.73  | 31.35  | --- | ---   | Peak   |
| 4 | 360.20 | 30.20  | -15.80 | 46.00  | 44.59 | 14.63   | 2.39  | 31.41  | --- | ---   | Peak   |
| 5 | 419.00 | 30.94  | -15.06 | 46.00  | 43.59 | 15.98   | 2.66  | 31.30  | --- | ---   | Peak   |
| 6 | 539.40 | 36.56  | -9.44  | 46.00  | 46.66 | 17.89   | 3.06  | 31.05  | --- | ---   | Peak   |



|                        |         |                            |          |
|------------------------|---------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 5  | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 06      | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        |         |                            |          |



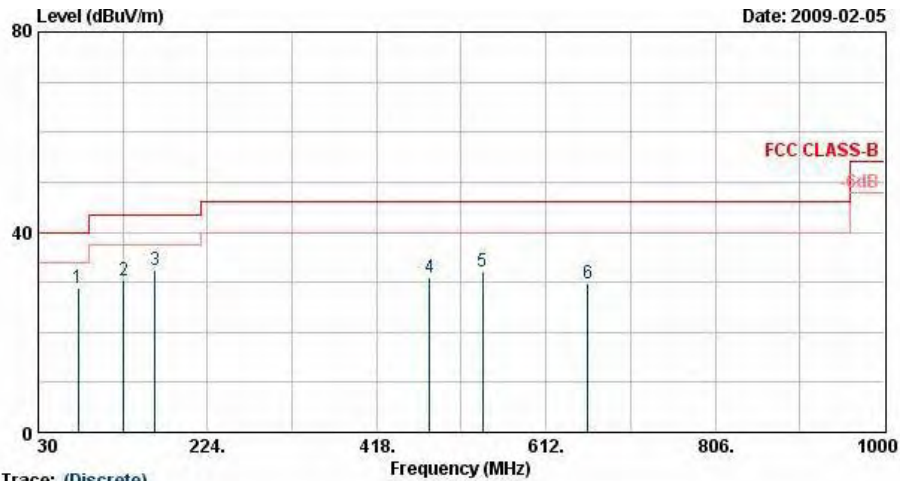
|                        |         |                            |            |
|------------------------|---------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 6  | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 11      | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        |         |                            |            |



Site : 03CH07-HY  
Condition : 3m LF-ANT(080228) HORIZONTAL  
Project : FR 803027

|   | Freq   | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |     |
|---|--------|--------|--------|--------|-------------|-------|--------|-------|-------|-----|
|   | MHz    | dBuV/m | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    | cm    | deg |
| 1 | 30.00  | 25.46  | -14.54 | 40.00  | 37.52       | 18.61 | 0.64   | 31.31 | ---   | --- |
| 2 | 132.33 | 26.64  | -16.86 | 43.50  | 45.36       | 11.26 | 1.37   | 31.34 | ---   | --- |
| 3 | 163.38 | 35.88  | -7.62  | 43.50  | 55.80       | 9.87  | 1.53   | 31.32 | 100   | 24  |
| 4 | 360.20 | 29.96  | -16.04 | 46.00  | 44.33       | 14.65 | 2.39   | 31.41 | ---   | --- |
| 5 | 419.00 | 31.06  | -14.94 | 46.00  | 43.52       | 16.18 | 2.66   | 31.30 | ---   | --- |
| 6 | 539.40 | 36.76  | -9.24  | 46.00  | 46.11       | 18.64 | 3.06   | 31.05 | ---   | --- |

|                        |         |                            |          |
|------------------------|---------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 6  | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 11      | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        |         |                            |          |

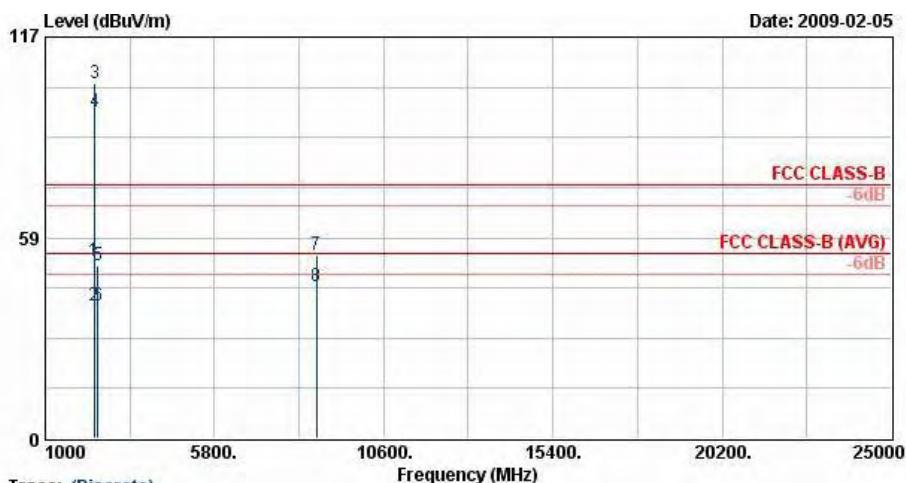


Site : 03CH07-HY  
Condition : 3m LF-ANT(080228) VERTICAL  
Project : FR 803027

|   | Freq   | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |          |
|---|--------|--------|--------|--------|-------------|-------|--------|-------|-------|----------|
|   | MHz    | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark   |
|   |        |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    | cm    | deg      |
| 1 | 75.90  | 29.00  | -11.00 | 40.00  | 52.57       | 6.81  | 0.98   | 31.36 | 100   | 271 Peak |
| 2 | 128.01 | 30.36  | -13.14 | 43.50  | 49.31       | 11.06 | 1.36   | 31.36 | ---   | ---      |
| 3 | 163.65 | 32.41  | -11.09 | 43.50  | 52.32       | 9.87  | 1.53   | 31.32 | ---   | ---      |
| 4 | 478.50 | 30.90  | -15.10 | 46.00  | 41.75       | 17.45 | 2.86   | 31.16 | ---   | ---      |
| 5 | 539.40 | 32.06  | -13.94 | 46.00  | 41.40       | 18.64 | 3.06   | 31.05 | ---   | ---      |
| 6 | 659.80 | 29.62  | -16.38 | 46.00  | 36.98       | 20.11 | 3.44   | 30.90 | ---   | ---      |

**3.6.6 Test Result of Radiated Emission  $\geq 1\text{GHz}$** 

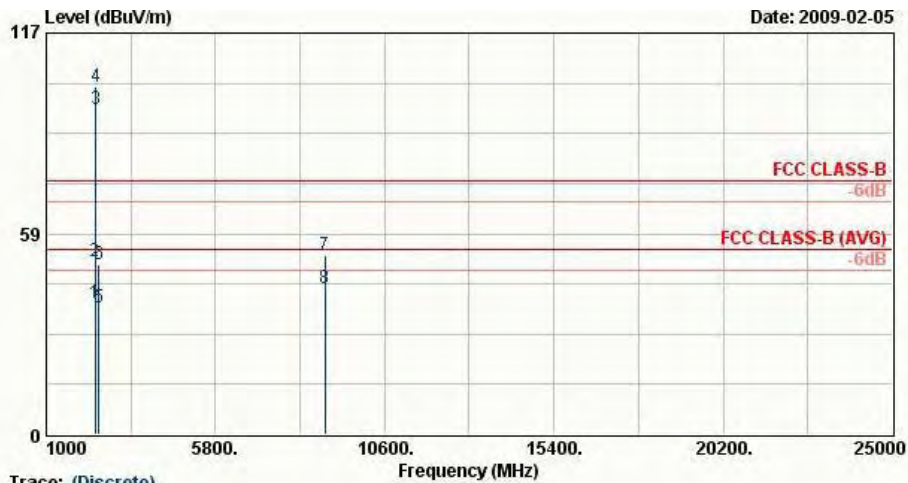
|                        |                                   |                            |            |
|------------------------|-----------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 1                            | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 01                                | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |            |



Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN HORIZONTAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable  | Preamp | Ant    | Table | Remark      |
|-----|---------|--------|--------|--------|-------------|--------|--------|--------|-------|-------------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Factor | Loss   | Factor | Pos   | Pos         |
|     |         |        | dB     | dBuV/m | dBuV        | dB/m   | dB     | dB     | cm    | deg         |
| 1   | 2385.62 | 51.67  | -22.33 | 74.00  | 49.57       | 32.32  | 5.46   | 35.68  | 100   | 0 Peak      |
| 2   | 2385.62 | 38.90  | -15.10 | 54.00  | 36.80       | 32.32  | 5.46   | 35.68  | 100   | 310 Average |
| 3 @ | 2412.00 | 103.34 |        |        | 101.26      | 32.32  | 5.44   | 35.68  | 100   | 0 Peak      |
| 4 @ | 2412.00 | 95.15  |        |        | 93.07       | 32.32  | 5.44   | 35.68  | 100   | 310 Average |
| 5   | 2486.00 | 50.52  | -23.48 | 74.00  | 48.52       | 32.30  | 5.38   | 35.70  | 100   | 0 Peak      |
| 6   | 2486.00 | 38.50  | -15.50 | 54.00  | 36.51       | 32.30  | 5.38   | 35.70  | 100   | 310 Average |
| 7   | 8685.00 | 53.42  | -20.58 | 74.00  | 41.08       | 38.51  | 10.24  | 36.41  | 100   | 0 Peak      |
| 8   | 8685.00 | 44.35  | -9.65  | 54.00  | 32.01       | 38.51  | 10.24  | 36.41  | 100   | 14 Average  |

|                        |                                   |                            |          |
|------------------------|-----------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 1                            | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 01                                | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |          |

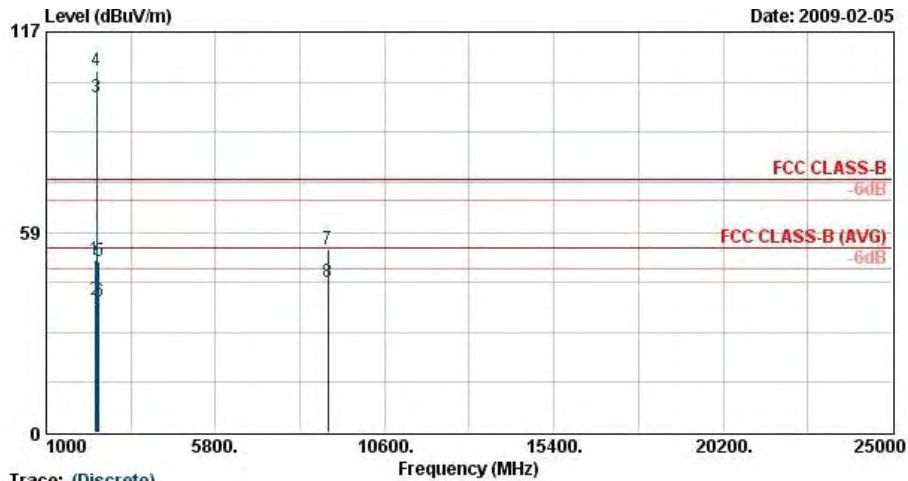


Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN VERTICAL  
Project : FR 8O3027

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |             |
|-----|---------|--------|--------|--------|-------------|-------|--------|-------|-------|-------------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark      |
|     |         |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    | cm    | deg         |
| 1   | 2388.66 | 38.29  | -15.71 | 54.00  | 36.21       | 32.30 | 5.46   | 35.68 | 114   | 328 Average |
| 2   | 2388.66 | 50.47  | -23.53 | 74.00  | 48.39       | 32.30 | 5.46   | 35.68 | 100   | 0 Peak      |
| 3 @ | 2412.00 | 94.74  |        |        | 92.68       | 32.30 | 5.44   | 35.68 | 114   | 328 Average |
| 4 @ | 2412.00 | 101.25 |        |        | 99.18       | 32.30 | 5.44   | 35.68 | 100   | 0 Peak      |
| 5   | 2494.00 | 36.91  | -37.09 | 74.00  | 34.94       | 32.30 | 5.37   | 35.70 | 114   | 328 Average |
| 6   | 2494.00 | 49.62  | -24.38 | 74.00  | 47.65       | 32.30 | 5.37   | 35.70 | 100   | 0 Peak      |
| 7   | 8901.00 | 52.30  | -21.70 | 74.00  | 40.99       | 37.54 | 10.31  | 36.54 | 100   | 0 Peak      |
| 8   | 8901.00 | 42.56  | -11.44 | 54.00  | 31.25       | 37.54 | 10.31  | 36.54 | 100   | 45 Average  |



|                        |                                   |                            |            |
|------------------------|-----------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 2                            | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 06                                | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |            |

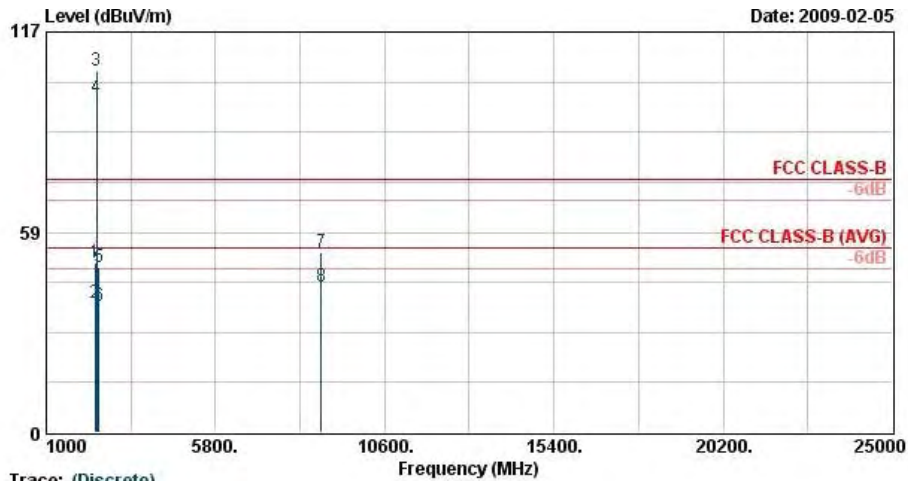


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN HORIZONTAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | Read   | Antenna | Cable | Preamp | Ant | Table |         |
|-----|---------|--------|--------|--------|--------|---------|-------|--------|-----|-------|---------|
|     | MHz     | dBuV/m | Limit  | Line   | Level  | Factor  | Loss  | Factor | Pos | Pos   | Remark  |
|     |         |        | dB     | dBuV/m | dBuV   | dB/m    | dB    | dB     | cm  | deg   |         |
| 1   | 2388.00 | 50.44  | -23.56 | 74.00  | 48.34  | 32.32   | 5.46  | 35.68  | 100 | 0     | Peak    |
| 2   | 2388.00 | 38.57  | -15.43 | 54.00  | 36.47  | 32.32   | 5.46  | 35.68  | 104 | 293   | Average |
| 3 @ | 2437.00 | 97.81  |        |        | 95.71  | 32.32   | 5.46  | 35.68  | 104 | 293   | Average |
| 4 @ | 2437.00 | 105.82 |        |        | 103.78 | 32.31   | 5.41  | 35.69  | 100 | 0     | Peak    |
| 5   | 2486.00 | 49.90  | -24.10 | 74.00  | 47.91  | 32.30   | 5.38  | 35.70  | 100 | 0     | Peak    |
| 6   | 2486.00 | 38.27  | -15.73 | 54.00  | 36.28  | 32.30   | 5.38  | 35.70  | 104 | 293   | Average |
| 7   | 8982.00 | 53.70  | -20.30 | 74.00  | 41.26  | 38.69   | 10.33 | 36.59  | 100 | 0     | Peak    |
| 8   | 8982.00 | 43.86  | -10.14 | 54.00  | 31.42  | 38.69   | 10.33 | 36.59  | 100 | 63    | Average |

|                        |                                   |                            |          |
|------------------------|-----------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 2                            | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 06                                | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |          |

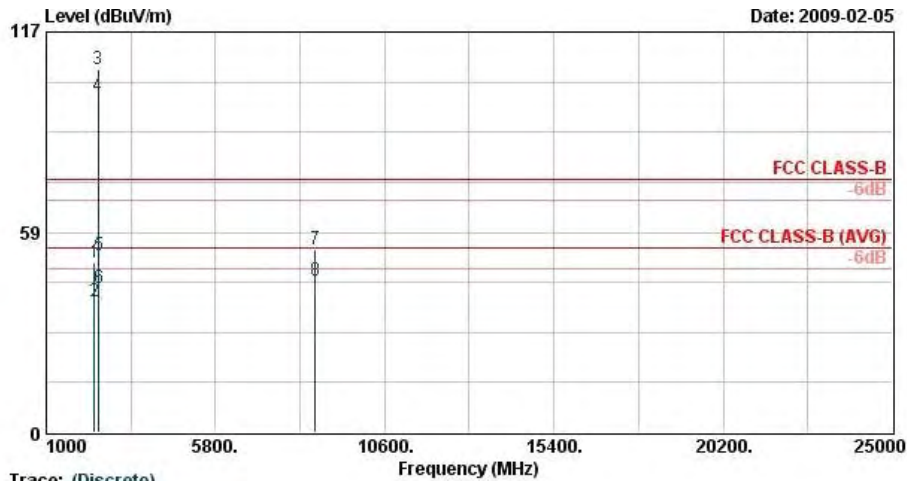


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN VERTICAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |             |
|-----|---------|--------|--------|--------|-------------|-------|--------|-------|-------|-------------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark      |
|     | MHz     | dBuV/m | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    | cm    | deg         |
| 1   | 2390.00 | 49.72  | -24.28 | 74.00  | 47.64       | 32.30 | 5.46   | 35.68 | 100   | 0 Peak      |
| 2   | 2390.00 | 37.77  | -16.23 | 54.00  | 35.69       | 32.30 | 5.46   | 35.68 | 115   | 295 Average |
| 3 @ | 2437.00 | 105.75 |        |        | 103.72      | 32.30 | 5.41   | 35.69 | 100   | 0 Peak      |
| 4 @ | 2437.00 | 97.68  |        |        | 95.65       | 32.30 | 5.41   | 35.69 | 115   | 295 Average |
| 5   | 2492.00 | 48.27  | -25.73 | 74.00  | 46.30       | 32.30 | 5.37   | 35.70 | 100   | 0 Peak      |
| 6   | 2492.00 | 36.93  | -17.07 | 54.00  | 34.96       | 32.30 | 5.37   | 35.70 | 115   | 295 Average |
| 7   | 8802.00 | 52.74  | -21.26 | 74.00  | 41.46       | 37.48 | 10.28  | 36.48 | 100   | 0 Peak      |
| 8   | 8802.00 | 42.76  | -11.24 | 54.00  | 31.48       | 37.48 | 10.28  | 36.48 | 100   | 210 Average |

|                        |                                   |                            |            |
|------------------------|-----------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 3                            | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 11                                | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |            |



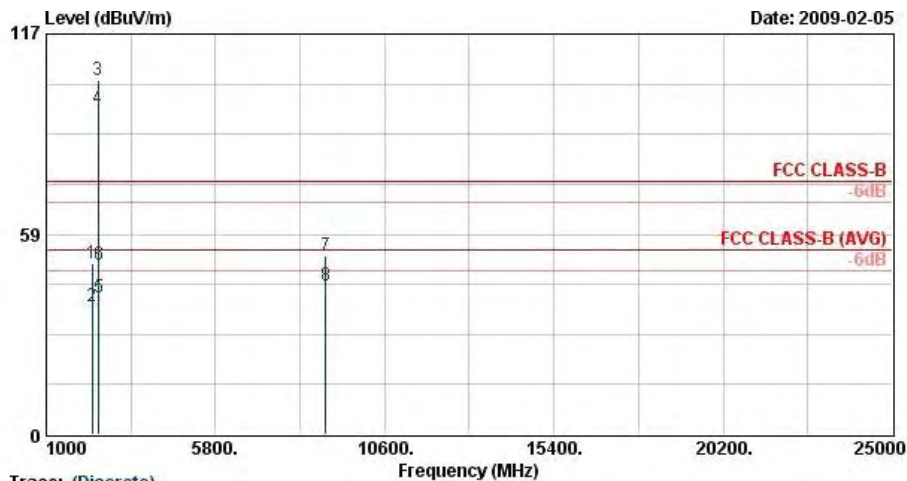
Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN HORIZONTAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | Read   | Antenna | Cable | Preamp | Ant | Table |         |
|-----|---------|--------|--------|--------|--------|---------|-------|--------|-----|-------|---------|
|     | MHz     | dBuV/m | Limit  | Line   | Level  | Factor  | Loss  | Factor | Pos | Pos   | Remark  |
|     |         |        | dB     | dBuV/m | dBuV   | dB/m    | dB    | dB     | cm  | deg   |         |
| 1   | 2366.00 | 49.60  | -24.40 | 74.00  | 47.46  | 32.33   | 5.49  | 35.68  | 100 | 0     | Peak    |
| 2   | 2366.00 | 38.13  | -15.87 | 54.00  | 35.99  | 32.33   | 5.49  | 35.68  | 129 | 304   | Average |
| 3 X | 2462.00 | 106.29 |        |        | 104.27 | 32.31   | 5.40  | 35.69  | 100 | 0     | Peak    |
| 4 @ | 2462.00 | 98.15  |        |        | 96.13  | 32.31   | 5.40  | 35.69  | 129 | 304   | Average |
| 5   | 2483.50 | 51.76  | -22.24 | 74.00  | 49.77  | 32.30   | 5.38  | 35.70  | 100 | 0     | Peak    |
| 6   | 2483.50 | 42.17  | -11.83 | 54.00  | 40.18  | 32.30   | 5.38  | 35.70  | 129 | 304   | Average |
| 7   | 8637.00 | 53.68  | -20.32 | 74.00  | 41.35  | 38.48   | 10.22 | 36.38  | 100 | 0     | Peak    |
| 8   | 8637.00 | 44.26  | -9.74  | 54.00  | 31.93  | 38.48   | 10.22 | 36.38  | 100 | 45    | Average |



|                        |                                   |                            |          |
|------------------------|-----------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 3                            | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 11                                | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |          |

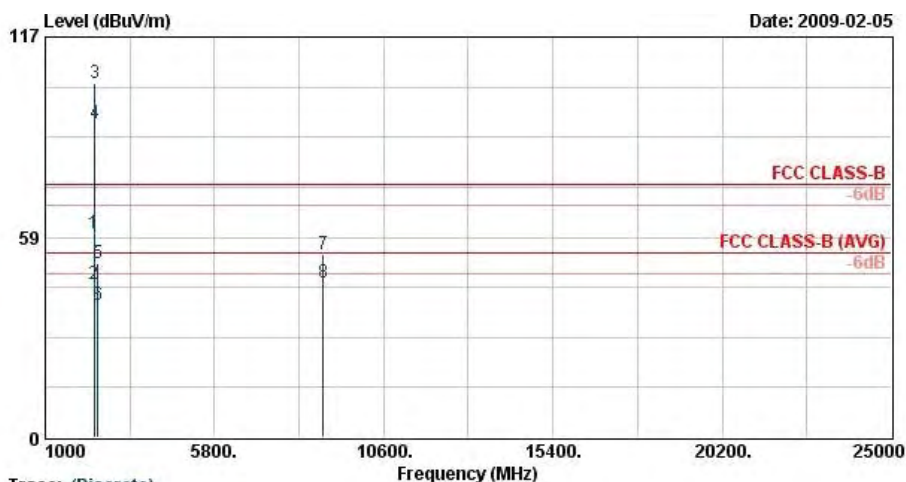


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN VERTICAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | Read   | Antenna | Cable | Preamp | Ant | Table |         |
|-----|---------|--------|--------|--------|--------|---------|-------|--------|-----|-------|---------|
|     | MHz     | dBuV/m | Limit  | Line   | Level  | Factor  | Loss  | Factor | Pos | Pos   | Remark  |
|     |         |        | dB     | dBuV/m | dBuV   | dB/m    | dB    | dB     | cm  | deg   |         |
| 1   | 2310.00 | 49.85  | -24.15 | 74.00  | 47.68  | 32.30   | 5.53  | 35.66  | 100 | 0     | Peak    |
| 2   | 2310.00 | 37.33  | -16.67 | 54.00  | 35.16  | 32.30   | 5.53  | 35.66  | 111 | 306   | Average |
| 3 X | 2462.00 | 103.36 |        |        | 101.35 | 32.30   | 5.40  | 35.69  | 100 | 0     | Peak    |
| 4 @ | 2462.00 | 95.18  |        |        | 93.17  | 32.30   | 5.40  | 35.69  | 111 | 306   | Average |
| 5   | 2488.41 | 40.05  | -13.95 | 54.00  | 38.08  | 32.30   | 5.37  | 35.70  | 111 | 306   | Average |
| 6   | 2488.41 | 49.65  | -24.35 | 74.00  | 47.68  | 32.30   | 5.37  | 35.70  | 100 | 0     | Peak    |
| 7   | 8925.00 | 52.27  | -21.73 | 74.00  | 40.96  | 37.55   | 10.31 | 36.56  | 100 | 0     | Peak    |
| 8   | 8925.00 | 43.68  | -10.32 | 54.00  | 32.37  | 37.55   | 10.31 | 36.56  | 100 | 36    | Average |

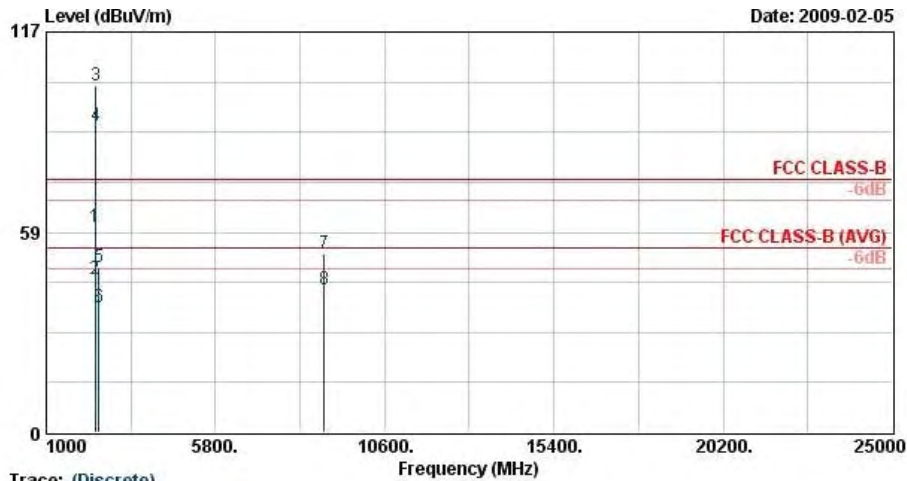
|                        |                                   |                            |            |
|------------------------|-----------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 4                            | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 01                                | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |            |



Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN HORIZONTAL  
Project : FR 8O3027

|     | Freq    | Level  | Over   | Limit  | Read   | Antenna | Cable | Preamp | Ant | Table |         |
|-----|---------|--------|--------|--------|--------|---------|-------|--------|-----|-------|---------|
|     | MHz     | dBuV/m | Limit  | Line   | Level  | Factor  | Loss  | Factor | Pos | Pos   | Remark  |
|     |         |        | dB     | dBuV/m | dBuV   | dB/m    | dB    | dB     | cm  | deg   |         |
| 1   | 2389.99 | 59.61  | -14.39 | 74.00  | 57.51  | 32.32   | 5.46  | 35.68  | 100 | 0     | Peak    |
| 2   | 2389.99 | 44.92  | -9.08  | 54.00  | 42.82  | 32.32   | 5.46  | 35.68  | 100 | 310   | Average |
| 3 X | 2412.00 | 103.37 |        |        | 101.32 | 32.31   | 5.43  | 35.69  | 100 | 0     | Peak    |
| 4 @ | 2412.00 | 91.87  |        |        | 89.79  | 32.32   | 5.44  | 35.68  | 100 | 310   | Average |
| 5   | 2492.00 | 50.92  | -23.08 | 74.00  | 48.95  | 32.30   | 5.37  | 35.70  | 100 | 0     | Peak    |
| 6   | 2492.00 | 38.81  | -15.19 | 54.00  | 36.84  | 32.30   | 5.37  | 35.70  | 100 | 310   | Average |
| 7   | 8874.00 | 53.69  | -20.31 | 74.00  | 41.30  | 38.62   | 10.30 | 36.53  | 100 | 0     | Peak    |
| 8   | 8874.00 | 45.17  | -8.83  | 54.00  | 32.78  | 38.62   | 10.30 | 36.53  | 100 | 12    | Average |

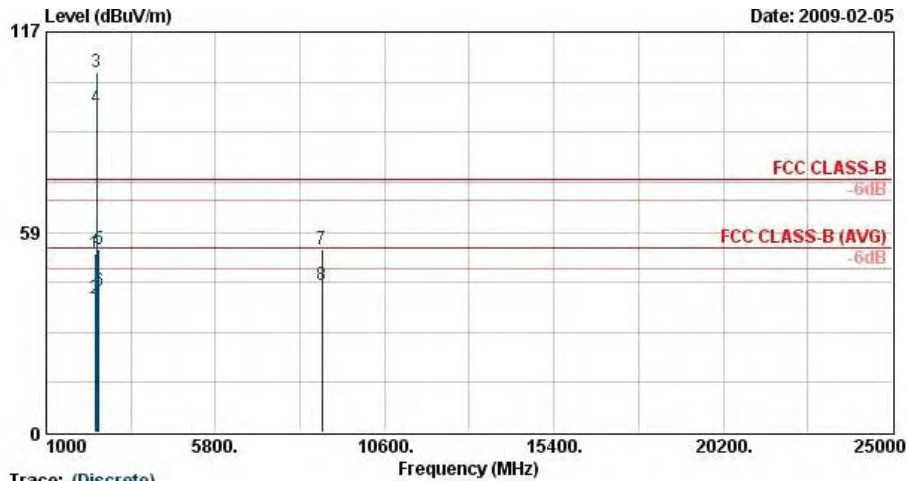
|                        |                                   |                            |          |
|------------------------|-----------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 4                            | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 01                                | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |          |



Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN VERTICAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |             |
|-----|---------|--------|--------|--------|-------------|-------|--------|-------|-------|-------------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark      |
|     |         |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | cm    | deg   |             |
| 1   | 2389.61 | 59.85  | -14.15 | 74.00  | 57.77       | 32.30 | 5.46   | 35.68 | 100   | 0 Peak      |
| 2   | 2389.61 | 44.68  | -9.32  | 54.00  | 42.60       | 32.30 | 5.46   | 35.68 | 170   | 308 Average |
| 3 X | 2412.00 | 101.15 |        |        | 99.11       | 32.30 | 5.43   | 35.69 | 100   | 0 Peak      |
| 4 @ | 2412.00 | 89.67  |        |        | 87.61       | 32.30 | 5.44   | 35.68 | 170   | 308 Average |
| 5   | 2492.00 | 48.27  | -25.73 | 74.00  | 46.30       | 32.30 | 5.37   | 35.70 | 100   | 0 Peak      |
| 6   | 2492.00 | 36.57  | -17.43 | 54.00  | 34.60       | 32.30 | 5.37   | 35.70 | 170   | 308 Average |
| 7   | 8877.00 | 51.99  | -22.01 | 74.00  | 40.70       | 37.52 | 10.30  | 36.53 | 100   | 0 Peak      |
| 8   | 8877.00 | 41.86  | -12.14 | 54.00  | 30.57       | 37.52 | 10.30  | 36.53 | 100   | 37 Average  |

|                        |                                   |                            |            |
|------------------------|-----------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 5                            | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 06                                | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |            |

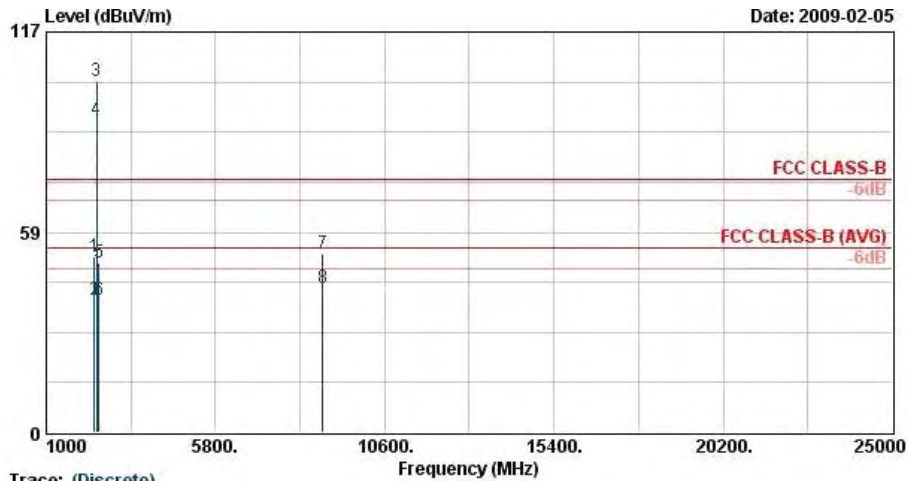


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN HORIZONTAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | Read   | Antenna | Cable | Preamp | Ant | Table |         |
|-----|---------|--------|--------|--------|--------|---------|-------|--------|-----|-------|---------|
|     | MHz     | dBuV/m | Limit  | Line   | Level  | Factor  | Loss  | Factor | Pos | Pos   | Remark  |
|     |         |        | dB     | dBuV/m | dBuV   | dB/m    | dB    | dB     | cm  | deg   |         |
| 1   | 2390.00 | 52.34  | -21.66 | 74.00  | 50.25  | 32.32   | 5.46  | 35.68  | 100 | 0     | Peak    |
| 2   | 2390.00 | 39.26  | -14.74 | 54.00  | 37.16  | 32.32   | 5.46  | 35.68  | 101 | 303   | Average |
| 3 X | 2437.00 | 105.44 |        |        | 103.39 | 32.31   | 5.43  | 35.69  | 100 | 0     | Peak    |
| 4 @ | 2437.00 | 94.71  |        |        | 92.67  | 32.31   | 5.41  | 35.69  | 101 | 303   | Average |
| 5   | 2484.00 | 53.59  | -20.41 | 74.00  | 51.60  | 32.30   | 5.38  | 35.70  | 100 | 0     | Peak    |
| 6   | 2484.00 | 41.24  | -12.76 | 54.00  | 39.25  | 32.30   | 5.38  | 35.70  | 101 | 303   | Average |
| 7   | 8817.00 | 53.33  | -20.67 | 74.00  | 40.96  | 38.59   | 10.28 | 36.50  | 100 | 0     | Peak    |
| 8   | 8817.00 | 43.27  | -10.73 | 54.00  | 30.89  | 38.59   | 10.28 | 36.50  | 100 | 281   | Average |

|                        |                                   |                            |          |
|------------------------|-----------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 5                            | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 06                                | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |          |

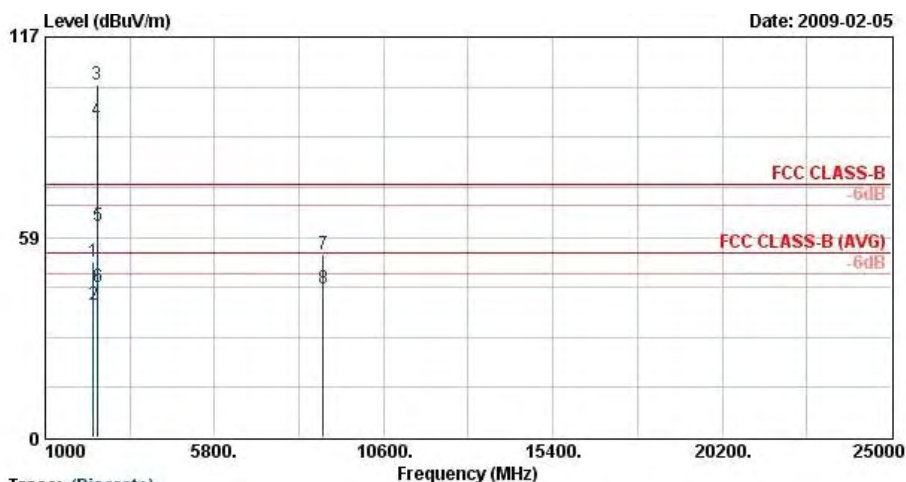


Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN VERTICAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |             |
|-----|---------|--------|--------|--------|-------------|-------|--------|-------|-------|-------------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark      |
|     |         |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    | cm    | deg         |
| 1   | 2374.00 | 51.44  | -22.56 | 74.00  | 49.35       | 32.30 | 5.47   | 35.68 | 100   | 0 Peak      |
| 2   | 2374.00 | 38.87  | -15.13 | 54.00  | 36.77       | 32.30 | 5.47   | 35.68 | 170   | 302 Average |
| 3 X | 2437.00 | 102.67 |        |        | 100.65      | 32.30 | 5.41   | 35.69 | 100   | 0 Peak      |
| 4 @ | 2437.00 | 91.24  |        |        | 89.21       | 32.30 | 5.41   | 35.69 | 170   | 302 Average |
| 5   | 2484.00 | 49.56  | -24.44 | 74.00  | 47.57       | 32.30 | 5.38   | 35.70 | 100   | 0 Peak      |
| 6   | 2484.00 | 38.67  | -15.33 | 54.00  | 36.68       | 32.30 | 5.38   | 35.70 | 170   | 302 Average |
| 7   | 8841.00 | 52.23  | -21.77 | 74.00  | 40.94       | 37.50 | 10.29  | 36.50 | 100   | 0 Peak      |
| 8   | 8841.00 | 42.00  | -12.00 | 54.00  | 30.71       | 37.50 | 10.29  | 36.50 | 100   | 277 Average |

|                        |                                   |                            |            |
|------------------------|-----------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 6                            | <b>Temperature :</b>       | 26~27°C    |
| <b>Test Channel :</b>  | 11                                | <b>Relative Humidity :</b> | 42~43%     |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |            |



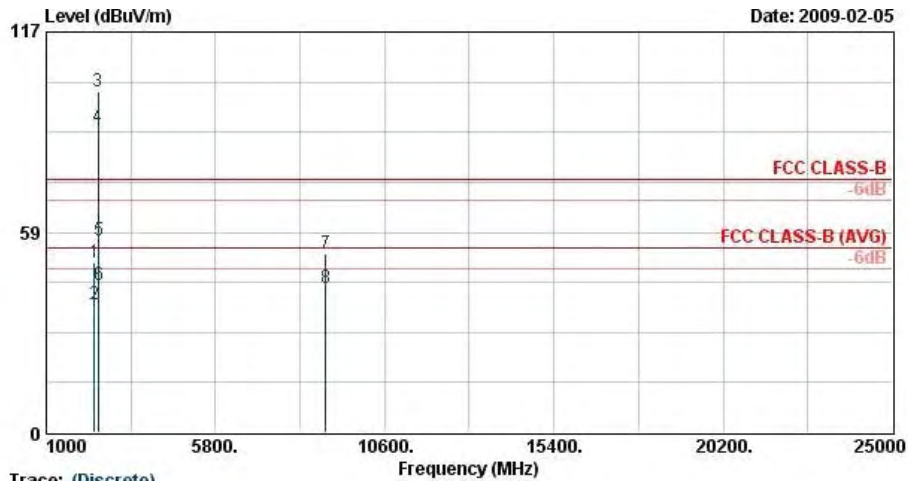
Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN HORIZONTAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | Read   | Antenna | Cable | Preamp | Ant | Table |         |
|-----|---------|--------|--------|--------|--------|---------|-------|--------|-----|-------|---------|
|     | MHz     | dBuV/m | Limit  | Line   | Level  | Factor  | Loss  | Factor | Pos | Pos   | Remark  |
|     |         |        | dB     | dBuV/m | dBuV   | dB/m    | dB    | dB     | cm  | deg   |         |
| 1   | 2358.00 | 51.40  | -22.60 | 74.00  | 49.26  | 32.33   | 5.49  | 35.67  | 100 | 0     | Peak    |
| 2   | 2358.00 | 38.61  | -15.39 | 54.00  | 36.47  | 32.33   | 5.49  | 35.67  | 103 | 304   | Average |
| 3 X | 2462.00 | 103.23 |        |        | 101.22 | 32.31   | 5.40  | 35.70  | 100 | 0     | Peak    |
| 4 @ | 2462.00 | 92.57  |        |        | 90.55  | 32.31   | 5.40  | 35.69  | 103 | 304   | Average |
| 5   | 2484.61 | 61.86  | -12.14 | 74.00  | 59.87  | 32.30   | 5.38  | 35.70  | 100 | 0     | Peak    |
| 6   | 2484.61 | 44.04  | -9.96  | 54.00  | 42.05  | 32.30   | 5.38  | 35.70  | 103 | 304   | Average |
| 7   | 8877.00 | 53.37  | -20.63 | 74.00  | 40.98  | 38.62   | 10.30 | 36.53  | 100 | 0     | Peak    |
| 8   | 8877.00 | 43.48  | -10.52 | 54.00  | 31.09  | 38.62   | 10.30 | 36.53  | 100 | 24    | Average |



|                        |                                   |                            |          |
|------------------------|-----------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 6                            | <b>Temperature :</b>       | 26~27°C  |
| <b>Test Channel :</b>  | 11                                | <b>Relative Humidity :</b> | 42~43%   |
| <b>Test Engineer :</b> | Mac Lin                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | #3 and #4 are Fundamental Signals |                            |          |



Trace: (Discrete)

Site : 03CH07-HY  
Condition : 3m SHF-EHF HORN VERTICAL  
Project : FR 803027

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |             |
|-----|---------|--------|--------|--------|-------------|-------|--------|-------|-------|-------------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark      |
|     |         |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | cm    | deg   |             |
| 1   | 2366.00 | 49.68  | -24.32 | 74.00  | 47.57       | 32.30 | 5.49   | 35.68 | 100   | 0 Peak      |
| 2   | 2366.00 | 37.34  | -16.66 | 54.00  | 35.23       | 32.30 | 5.49   | 35.68 | 113   | 306 Average |
| 3 X | 2462.00 | 99.60  |        |        | 97.60       | 32.30 | 5.40   | 35.70 | 100   | 0 Peak      |
| 4 @ | 2462.00 | 89.23  |        |        | 87.22       | 32.30 | 5.40   | 35.69 | 113   | 306 Average |
| 5   | 2483.66 | 56.10  | -17.90 | 74.00  | 54.11       | 32.30 | 5.38   | 35.70 | 100   | 0 Peak      |
| 6   | 2483.66 | 43.02  | -10.98 | 54.00  | 41.03       | 32.30 | 5.38   | 35.70 | 113   | 306 Average |
| 7   | 8925.00 | 52.36  | -21.64 | 74.00  | 41.05       | 37.55 | 10.31  | 36.56 | 100   | 0 Peak      |
| 8   | 8925.00 | 42.32  | -11.68 | 54.00  | 31.01       | 37.55 | 10.31  | 36.56 | 100   | 14 Average  |

## 3.7 Antenna Requirements

### 3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

### 3.7.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

### 3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipments

| Instrument                | Manufacturer | Model No. | Serial No.  | Characteristics          | Calibration Date | Due Date      | Remark                |
|---------------------------|--------------|-----------|-------------|--------------------------|------------------|---------------|-----------------------|
| Spectrum Analyzer         | R&S          | FSP40     | 100055      | 9kHz~40GHz               | Jun. 26, 2008    | Jun. 25, 2009 | Conducted (TH02-HY)   |
| Power Meter               | Agilent      | E4416A    | GB41292344  | N/A                      | Feb. 21, 2008    | Feb. 20, 2009 | Conducted (TH02-HY)   |
| Power Sensor              | Agilent      | E9327A    | US40441548  | N/A                      | Feb. 21, 2008    | Feb. 20, 2009 | Conducted (TH02-HY)   |
| Bilog Antenna             | SCHAFFNER    | CBL6111C  | 2726        | 30MHz~1GHz               | Nov. 20, 2008    | Nov. 19, 2009 | Radiation (03CH07-HY) |
| Spectrum Analyzer         | R&S          | FSP       | 101067      | 9kHz~30GHz               | Dec. 02, 2008    | Dec. 01, 2009 | Radiation (03CH07-HY) |
| BT Base Station           | R&S          | CBT 2     | 100519      | N/A                      | May 10, 2007     | May 09, 2009  | Radiation (03CH07-HY) |
| SHF-EHF Horn Antenna      | SCHWARZBECK  | BBHA 9170 | BBHA9170251 | 15G - 40GHz              | Oct. 16, 2008    | Oct. 15, 2009 | Radiation (03CH06-HY) |
| Double Ridge Horn Antenna | ESCO         | 3117      | 75962       | 1G~18GHz                 | Aug. 13, 2008    | Aug. 12, 2009 | Radiation (03CH07-HY) |
| Pre Amplifier             | Agilent      | 8449B     | 3008A02362  | 1G~26.5GHz               | Dec. 17, 2008    | Dec. 16, 2009 | Radiation (03CH07-HY) |
| Pre Amplifier             | COM-POWER    | PA-103A   | 161241      | 10~1000MHz.<br>32dB.GAIN | Mar. 31, 2008    | Mar. 30, 2009 | Radiation (03CH07-HY) |
| Double Ridge Horn Antenna | ESCO         | 3117      | 66584       | 1G~18GHz                 | Aug. 06, 2008    | Aug. 05, 2009 | Radiation (03CH07-HY) |
| EMI Receiver              | R&S          | ESCS 30   | 100356      | 9kHz~2.75GHz             | Aug. 01, 2008    | Jul. 31, 2009 | Conduction (CO05-HY)  |
| Two-LISN                  | R&S          | ENV216    | 11-100081   | 9kHz~30MHz               | Nov. 26, 2008    | Nov. 25, 2009 | Conduction (CO05-HY)  |
| Two-LISN                  | R&S          | ENV216    | 11-100080   | 9kHz~30MHz               | Nov. 26, 2008    | Nov. 25, 2009 | Conduction (CO05-HY)  |
| AC Power Source           | APC          | APC-1000W | N/A         | N/A                      | N/A              | N/A           | Conduction (CO05-HY)  |

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

| Contribution                                                           | Uncertainty of $x_i$ |                          | $u(x_i)$ |
|------------------------------------------------------------------------|----------------------|--------------------------|----------|
|                                                                        | dB                   | Probability Distribution |          |
| Receiver reading                                                       | 0.10                 | Normal(k=2)              | 0.05     |
| Cable loss                                                             | 0.10                 | Normal(k=2)              | 0.05     |
| AMN insertion loss                                                     | 2.50                 | Rectangular              | 0.63     |
| Receiver Spec                                                          | 1.50                 | Rectangular              | 0.43     |
| Site imperfection                                                      | 1.39                 | Rectangular              | 0.80     |
| Mismatch                                                               | +0.34/-0.35          | U-shape                  | 0.24     |
| <b>Combined standard uncertainty Uc(y)</b>                             | <b>1.13</b>          |                          |          |
| <b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b> | <b>2.26</b>          |                          |          |

### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

| Contribution                                                           | Uncertainty of $x_i$ |                          | $u(x_i)$ |
|------------------------------------------------------------------------|----------------------|--------------------------|----------|
|                                                                        | dB                   | Probability Distribution |          |
| Receiver reading                                                       | 0.41                 | Normal(k=2)              | 0.21     |
| Antenna factor calibration                                             | 0.83                 | Normal(k=2)              | 0.42     |
| Cable loss calibration                                                 | 0.25                 | Normal(k=2)              | 0.13     |
| Pre Amplifier Gain calibration                                         | 0.27                 | Normal(k=2)              | 0.14     |
| RCV/SPA specification                                                  | 2.50                 | Rectangular              | 0.72     |
| Antenna Factor Interpolation for Frequency                             | 1.00                 | Rectangular              | 0.29     |
| Site imperfection                                                      | 1.43                 | Rectangular              | 0.83     |
| Mismatch                                                               | +0.39/-0.41          | U-shaped                 | 0.28     |
| <b>Combined standard uncertainty Uc(y)</b>                             | <b>1.27</b>          |                          |          |
| <b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b> | <b>2.54</b>          |                          |          |

**Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)**

| Contribution                                                                                                                        | Uncertainty of $x_i$ |                          | $u(x_i)$ | $C_i$ | $C_i * u(x_i)$ |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------|----------|-------|----------------|
|                                                                                                                                     | dB                   | Probability Distribution |          |       |                |
| Receiver reading                                                                                                                    | ±0.10                | Normal(k=1)              | 0.10     | 1     | 0.10           |
| Antenna factor calibration                                                                                                          | ±1.70                | Normal(k=2)              | 0.85     | 1     | 0.85           |
| Cable loss calibration                                                                                                              | ±0.50                | Normal(k=2)              | 0.25     | 1     | 0.25           |
| Receiver Correction                                                                                                                 | ±2.00                | Rectangular              | 1.15     | 1     | 1.15           |
| Antenna Factor Directional                                                                                                          | ±1.50                | Rectangular              | 0.87     | 1     | 0.87           |
| Site imperfection                                                                                                                   | ±2.80                | Triangular               | 1.14     | 1     | 1.14           |
| Mismatch<br>Receiver VSWR $\Gamma_1 = 0.197$<br>Antenna VSWR $\Gamma_2 = 0.194$<br>Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2)$ | +0.34/-0.35          | U-shaped                 | 0.244    | 1     | 0.244          |
| <b>Combined standard uncertainty <math>U_c(y)</math></b>                                                                            | <b>2.36</b>          |                          |          |       |                |
| <b>Measuring uncertainty for a level of confidence of 95% <math>U = 2U_c(y)</math></b>                                              | <b>4.72</b>          |                          |          |       |                |

## 6 Certification of TAF Accreditation



Certificate No. : L1190-081212

財團法人全國認證基金會  
Taiwan Accreditation Foundation

### Certificate of Accreditation

This is to certify that

**Sporton International Inc.**  
**EMC & Wireless Communications Laboratory**  
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,  
Taiwan, R.O.C.

**is accredited in respect of laboratory**

|                                       |                                                                                                                                                                                                                                                            |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Accreditation Criteria</b>         | : ISO/IEC 17025:2005                                                                                                                                                                                                                                       |
| <b>Accreditation Number</b>           | : 1190                                                                                                                                                                                                                                                     |
| <b>Originally Accredited</b>          | : December 15, 2003                                                                                                                                                                                                                                        |
| <b>Effective Period</b>               | : January 10, 2007 to January 09, 2010                                                                                                                                                                                                                     |
| <b>Accredited Scope</b>               | : Testing Field, see described in the Appendix                                                                                                                                                                                                             |
| <b>Specific Accreditation Program</b> | : Accreditation Program for Designated Testing Laboratory for Commodities Inspection<br>Accreditation Program for Telecommunication Equipment Testing Laboratory<br>Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities |



Jay-San Chen  
President, Taiwan Accreditation Foundation  
Date : December 12, 2008

P1, total 18 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP8O3027 as below.