

# FCC TEST REPORT

**REPORT NO.:** RF950802H08

**MODEL NO.:** 1065

**RECEIVED:** Aug. 03, 2006

**TESTED:** Aug. 03 to 07, 2006

**ISSUED:** Aug. 08, 2006

**APPLICANT:** Microsoft® Corporation

**ADDRESS:** One Microsoft Way Redmond, WA 98052

**ISSUED BY:** Advance Data Technology Corporation

**LAB LOCATION:** No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien,  
Taiwan, R.O.C.

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## 1 CERTIFICATION

**PRODUCT :** Microsoft Wireless Notebook Presenter Mouse 8000  
**BRAND NAME :** Microsoft®  
**MODEL NO. :** 1065  
**APPLICANT :** Microsoft® Corporation  
**TESTED DATE:** Aug. 03 to 07, 2006  
**TEST ITEM :** ENGINEERING SAMPLE  
**STANDARDS :** 47 CFR Part 15, Subpart C (Section 15.247),  
ANSI C63.4-2003

The above equipment (Model: 1065) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :** Carol Liao , **DATE:** Aug. 08, 2006  
( Carol Liao )

**TECHNICAL**  
**ACCEPTANCE :** Hank Chung , **DATE:** Aug. 08, 2006  
Responsible for RF ( Hank Chung )

**APPROVED BY :** May Chen , **DATE:** Aug. 08, 2006  
(May Chen, Deputy Manager )

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: 47 CFR Part 15, Subpart C |                                                                                          |        |                                                                                   |
|---------------------------------------------|------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|
| Standard Section                            | Test Type and Limit                                                                      | Result | REMARK                                                                            |
| 15.207                                      | AC Power Conducted Emission                                                              | NA     | Power supply is 1.5VDC from battery                                               |
| 15.247(b)(1)                                | Number of Hopping Frequency Used Spec.: At least 75 channels                             | PASS   | Meet the requirement of limit                                                     |
| 15.247(a)(1)(ii)                            | Dwell Time on Each Channel Spec. : Max. 0.4 second within 31.6 second                    | PASS   | Meet the requirement of limit                                                     |
| 15.247(a)(1)(I)-(ii)                        | Hopping Channel Separation Spec. : Min. 25 kHz or 20 dB bandwidth, which ever is greater | PASS   | Meet the requirement of limit                                                     |
| 15.247(a)(1)                                | Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System                | PASS   | Report reference                                                                  |
| 15.247(b)                                   | Maximum Peak Output Power Spec.: max. 1W                                                 | PASS   | Meet the requirement of limit                                                     |
| 15.247(c)                                   | Transmitter Radiated Emissions Spec.: Table 15.209                                       | PASS   | Meet the requirement of limit<br>Minimum passing margin is -15.60dB at 7440.00MHz |
| 15.247(c)                                   | Band Edge Measurement                                                                    | PASS   | Meet the requirement of limit                                                     |

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                              |                                                  |
|------------------------------|--------------------------------------------------|
| <b>PRODUCT</b>               | Microsoft Wireless Notebook Presenter Mouse 8000 |
| <b>MODEL NO.</b>             | 1065                                             |
| <b>FCC ID</b>                | C3K1065                                          |
| <b>POWER SUPPLY</b>          | DC 1.5V from from battery                        |
| <b>MODULATION TYPE</b>       | GFSK                                             |
| <b>MODULATION TECHNOLOGY</b> | FHSS                                             |
| <b>PACKET TYPE</b>           | DH1                                              |
| <b>FREQUENCY RANGE</b>       | 2402MHz ~ 2480MHz                                |
| <b>NUMBER OF CHANNEL</b>     | 79                                               |
| <b>OUTPUT POWER</b>          | 1.164mW                                          |
| <b>ANTENNA TYPE</b>          | Monopole antenna with -1.55dBi antenna gain      |
| <b>DATA CABLE</b>            | NA                                               |
| <b>INTERFACE</b>             | NA                                               |
| <b>ASSOCIATED DEVICES</b>    | NA                                               |

**NOTE:**

1. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

### 3.2 DESCRIPTION OF TEST MODES

Seventy-nine channels are provided to this EUT.

| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| 0       | 2402        | 20      | 2422        | 40      | 2442        | 60      | 2462        |
| 1       | 2403        | 21      | 2423        | 41      | 2443        | 61      | 2463        |
| 2       | 2404        | 22      | 2424        | 42      | 2444        | 62      | 2464        |
| 3       | 2405        | 23      | 2425        | 43      | 2445        | 63      | 2465        |
| 4       | 2406        | 24      | 2426        | 44      | 2446        | 64      | 2466        |
| 5       | 2407        | 25      | 2427        | 45      | 2447        | 65      | 2467        |
| 6       | 2408        | 26      | 2428        | 46      | 2448        | 66      | 2468        |
| 7       | 2409        | 27      | 2429        | 47      | 2449        | 67      | 2469        |
| 8       | 2410        | 28      | 2430        | 48      | 2450        | 68      | 2470        |
| 9       | 2411        | 29      | 2431        | 49      | 2451        | 69      | 2471        |
| 10      | 2412        | 30      | 2431        | 50      | 2452        | 70      | 2472        |
| 11      | 2413        | 31      | 2433        | 51      | 2453        | 71      | 2473        |
| 12      | 2414        | 32      | 2434        | 52      | 2454        | 72      | 2474        |
| 13      | 2415        | 33      | 2435        | 53      | 2455        | 73      | 2475        |
| 14      | 2416        | 34      | 2436        | 54      | 2456        | 74      | 2476        |
| 15      | 2417        | 35      | 2437        | 55      | 2457        | 75      | 2477        |
| 16      | 2418        | 36      | 2438        | 56      | 2458        | 76      | 2478        |
| 17      | 2419        | 37      | 2439        | 57      | 2459        | 77      | 2479        |
| 18      | 2420        | 38      | 2440        | 58      | 2460        | 78      | 2480        |
| 19      | 2421        | 39      | 2441        | 59      | 2461        |         |             |

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

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

Where PLC: Power Line Conducted Emission

RE<1G RE: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

#### **Radiated Emission Test (Below 1 GHz):**

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

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

| Available Channel | Tested Channel | Modulation Technology | Modulation Type |
|-------------------|----------------|-----------------------|-----------------|
| 0 to 78           | 0              | FHSS                  | GFSK            |

#### **Radiated Emission Test (Above 1 GHz):**

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

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

| Available Channel | Tested Channel | Modulation Technology | Modulation Type |
|-------------------|----------------|-----------------------|-----------------|
| 0 to 78           | 0,39,78        | FHSS                  | GFSK            |

#### **Bandedge Measurement:**

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

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

| Available Channel | Tested Channel | Modulation Technology | Modulation Type |
|-------------------|----------------|-----------------------|-----------------|
| 0 to 78           | 0, 78          | FHSS                  | GFSK            |

#### **Antenna Port Conducted Measurement:**

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

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

| Available Channel | Tested Channel | Modulation Technology | Modulation Type |
|-------------------|----------------|-----------------------|-----------------|
| 0 to 78           | 0, 39, 78      | FHSS                  | GFSK            |

### **3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a Microsoft Wireless Notebook Presenter Mouse 8000. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C. (15.247)**

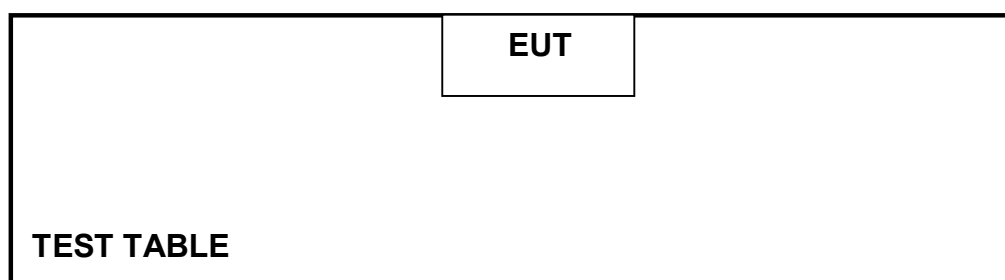
**ANSI C63.4 : 2003**

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

### 3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

### 3.6 CONFIGURATION OF SYSTEM UNDER TEST



**NOTE:** 1. Please refer to the photos of test configuration in Item 5 also.

## 4 TEST PROCEDURES AND RESULTS

### 4.1 CONDUCTED EMISSION MEASUREMENT

NA

### 4.2 NUMBER OF HOPPING FREQUENCY USED

#### 4.2.1 LIMIT OF HOPPING FREQUENCY USED

At least 75 hopping frequencies, and should be equally spaced.

#### 4.2.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| R&S SPECTRUM ANALYZER      | FSP40     | 100036     | Dec. 09, 2006    |

**Note:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

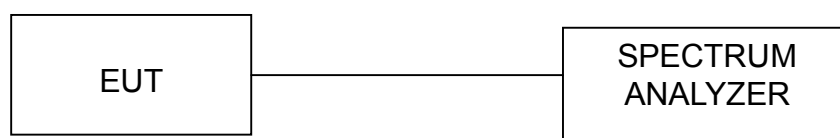
#### 4.2.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

#### 4.2.4 DEVIATION FROM TEST STANDARD

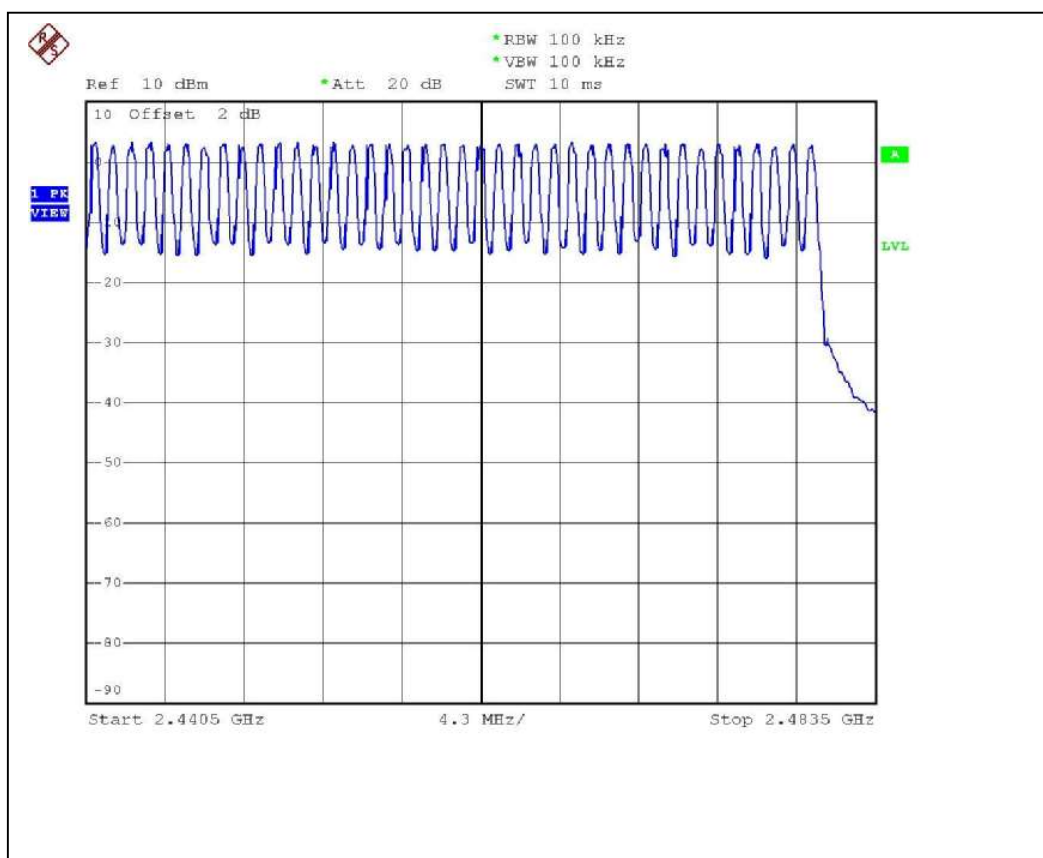
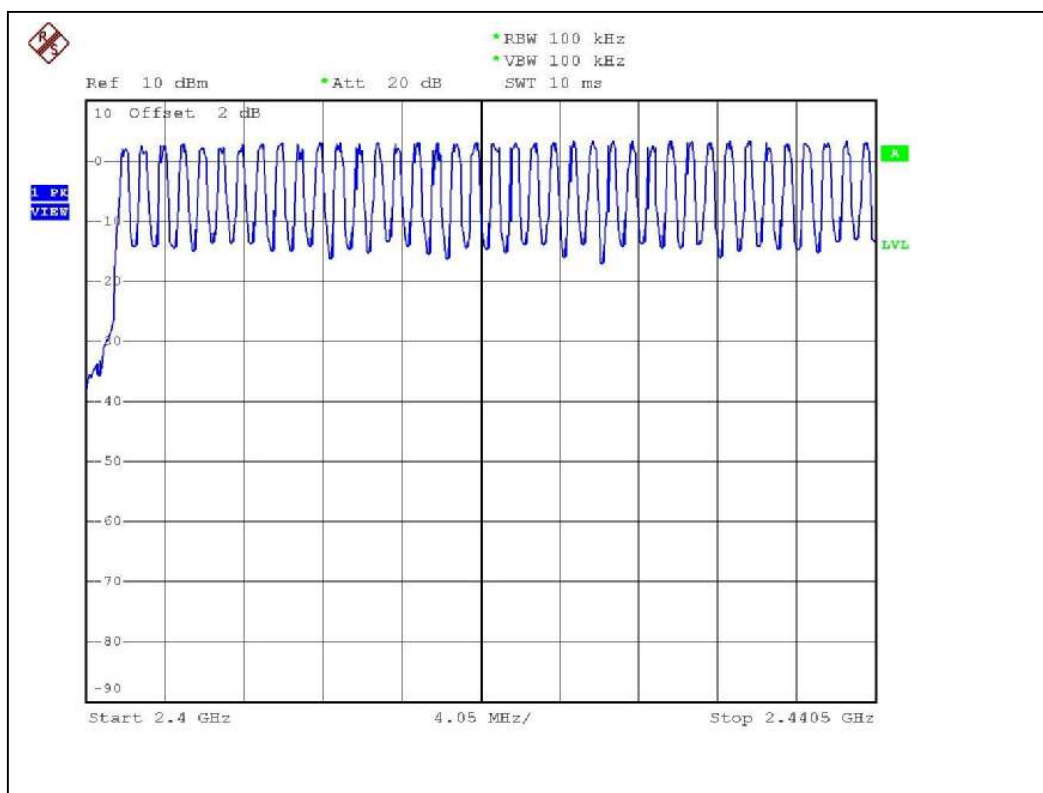
No deviation

#### 4.2.5 TEST SETUP



#### 4.2.6 TEST RESULTS

There are 79 hopping frequencies in the hopping mode. Please refer to next two pages for the test result. On the plots, it shows that the hopping frequencies are equally spaced.



### 4.3 DWELL TIME ON EACH CHANNEL

#### 4.3.1 LIMIT OF DWELL TIME USED

For FHSS, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 31.6 second period. For hybrid systems, the average time of occupancy on any frequency should not exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

#### 4.3.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| R&S SPECTRUM ANALYZER      | FSP40     | 100036     | Dec. 09, 2006    |

**Note:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.3.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.

#### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation

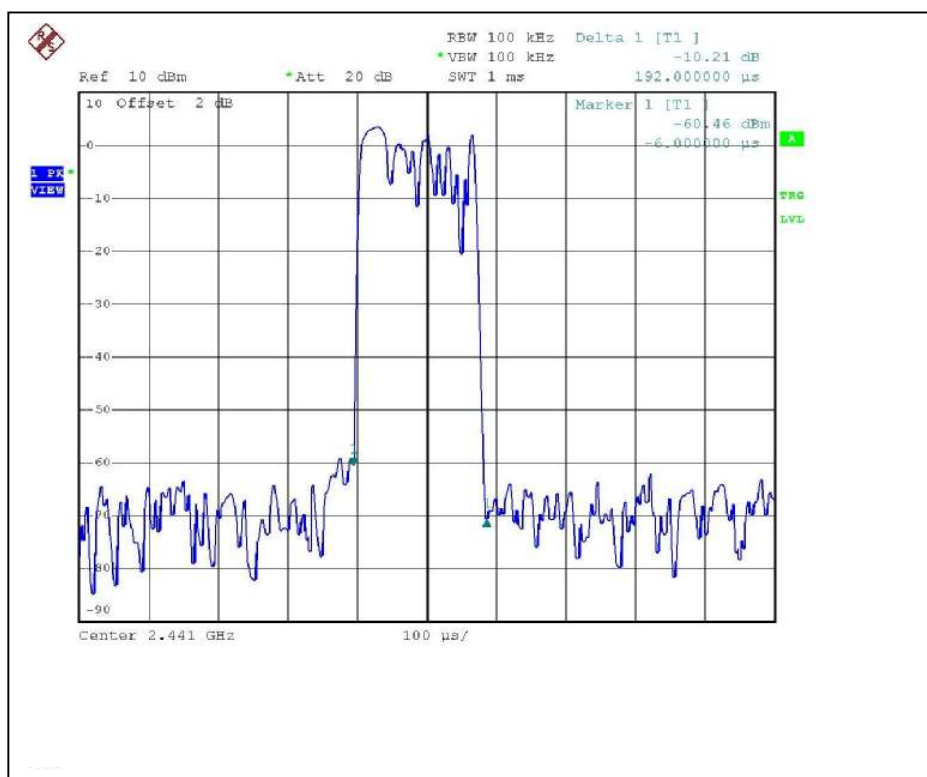
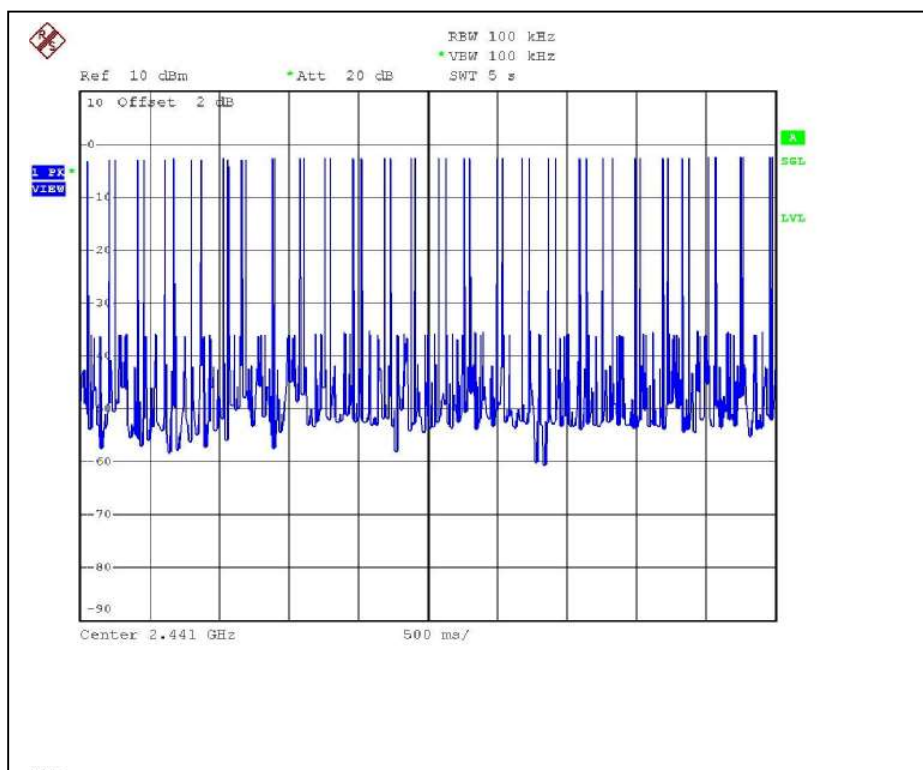
#### 4.3.5 TEST SETUP



#### 4.3.6 TEST RESULTS

| Number of transmission in a<br>31.6 (79Hopping*0.4) | Length of<br>transmission<br>time (msec) | Result<br>(msec) | Limit<br>(msec) |
|-----------------------------------------------------|------------------------------------------|------------------|-----------------|
| 50 (times / 5 sec) *6.32=316.00 times               | 0.190                                    | 60.04            | 400             |

Test plots of the transmitting time slot are shown on next page.



## 4.4 CHANNEL BANDWIDTH

### 4.4.1 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| R&S SPECTRUM ANALYZER      | FSP40     | 100036     | Dec. 09, 2006    |

**Note:**

1. The measurement uncertainty is less than  $\pm 2.6\text{dB}$ , which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

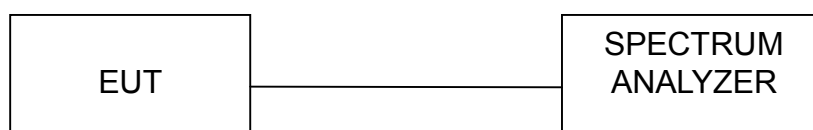
#### 4.4.2 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

#### 4.4.3 DEVIATION FROM TEST STANDARD

No deviation

#### 4.4.4 TEST SETUP



#### 4.4.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

#### 4.4.6 TEST RESULTS

|                                 |                             |                    |          |
|---------------------------------|-----------------------------|--------------------|----------|
| <b>MODULATION TYPE</b>          | GFSK                        | <b>INPUT POWER</b> | DC 1.5V  |
| <b>ENVIRONMENTAL CONDITIONS</b> | 26deg. C, 64%RH,<br>956 hPa | <b>TESTED BY</b>   | Sky Liao |

| CHANNEL | CHANNEL FREQUENCY (MHz) | 20dB BANDWIDTH (kHz) |
|---------|-------------------------|----------------------|
| 0       | 2402                    | 804                  |
| 39      | 2441                    | 925                  |
| 78      | 2480                    | 795                  |

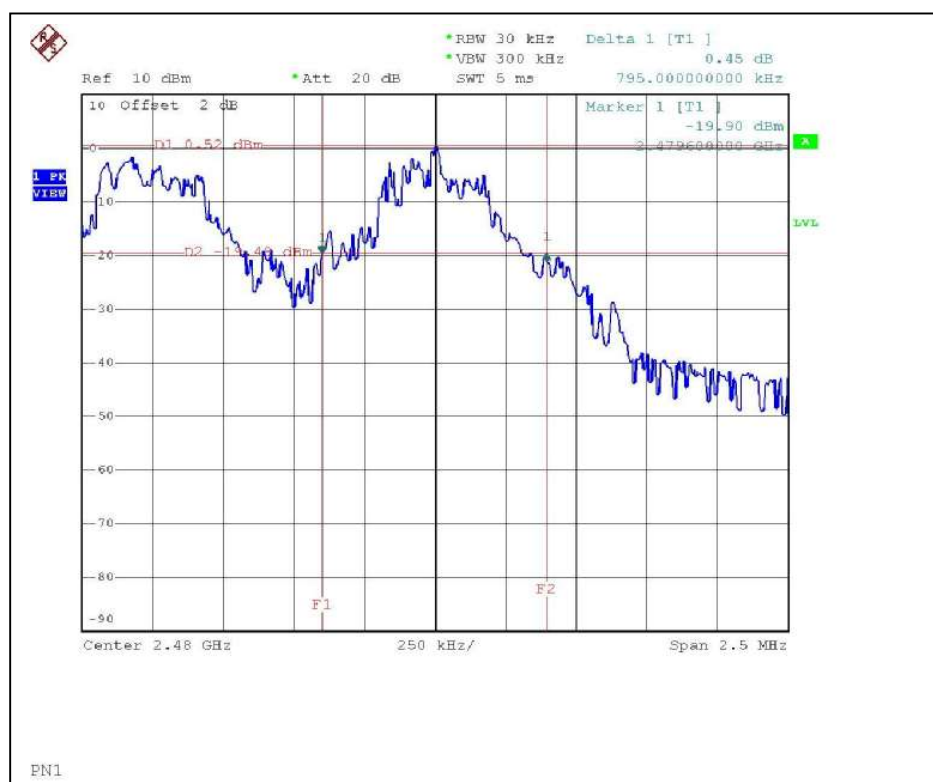
#### Channel 0



## Channel 39



## Channel 78



## 4.5 HOPPING CHANNEL SEPARATION

### 4.5.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25 kHz or 20dB hopping channel bandwidth (whichever is greater).

### 4.5.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| R&S SPECTRUM ANALYZER      | FSP40     | 100036     | Dec. 09, 2006    |

**Note:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

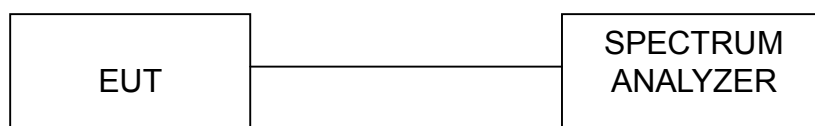
#### 4.5.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

#### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.5.5 TEST SETUP



#### 4.5.6 TEST RESULTS

|                                 |                             |                    |          |
|---------------------------------|-----------------------------|--------------------|----------|
| <b>MODULATION TYPE</b>          | GFSK                        | <b>INPUT POWER</b> | DC 1.5V  |
| <b>ENVIRONMENTAL CONDITIONS</b> | 26deg. C, 64%RH,<br>956 hPa | <b>TESTED BY</b>   | Sky Liao |

| Channel | Frequency (MHz) | Adjacent Channel Separation | Minimum Limit (kHz) | Pass / Fail |
|---------|-----------------|-----------------------------|---------------------|-------------|
| 0       | 2402            | 1.005MHz                    | 804                 | PASS        |
| 39      | 2441            | 0.985MHz                    | 925                 | PASS        |
| 78      | 2480            | 0.995MHz                    | 795                 | PASS        |

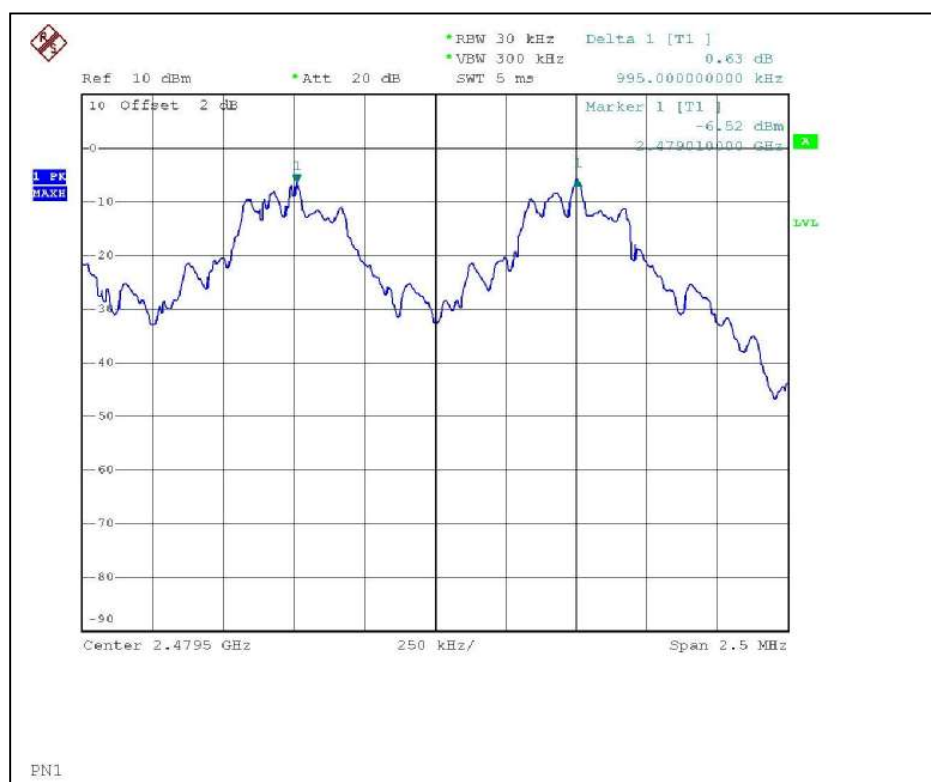
#### Channel 0



## Channel 39



## Channel 78



## 4.6 MAXIMUM PEAK OUTPUT POWER

### 4.6.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 1W.

### 4.6.2 INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| R&S SPECTRUM ANALYZER      | FSP40     | 100036     | Dec. 09, 2006    |
| Agilent SIGNAL GENERATOR   | E8257C    | MY43320668 | Dec. 07, 2006    |
| TEKTRONIX OSCILLOSCOPE     | TDS380    | B016335    | Jun. 21, 2007    |
| NARDA DETECTOR             | 4503A     | FSCM99899  | NA               |

**NOTE:**

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

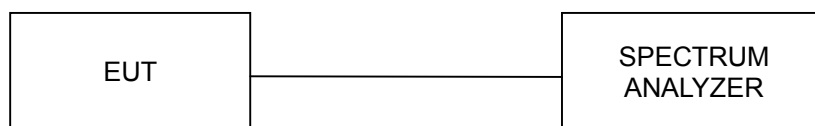
#### 4.6.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3 MHz RBW and 3 MHz VBW.
4. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
5. Repeat above procedures until all frequencies measured were complete.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



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

#### 4.6.6 EUT OPERATING CONDITION

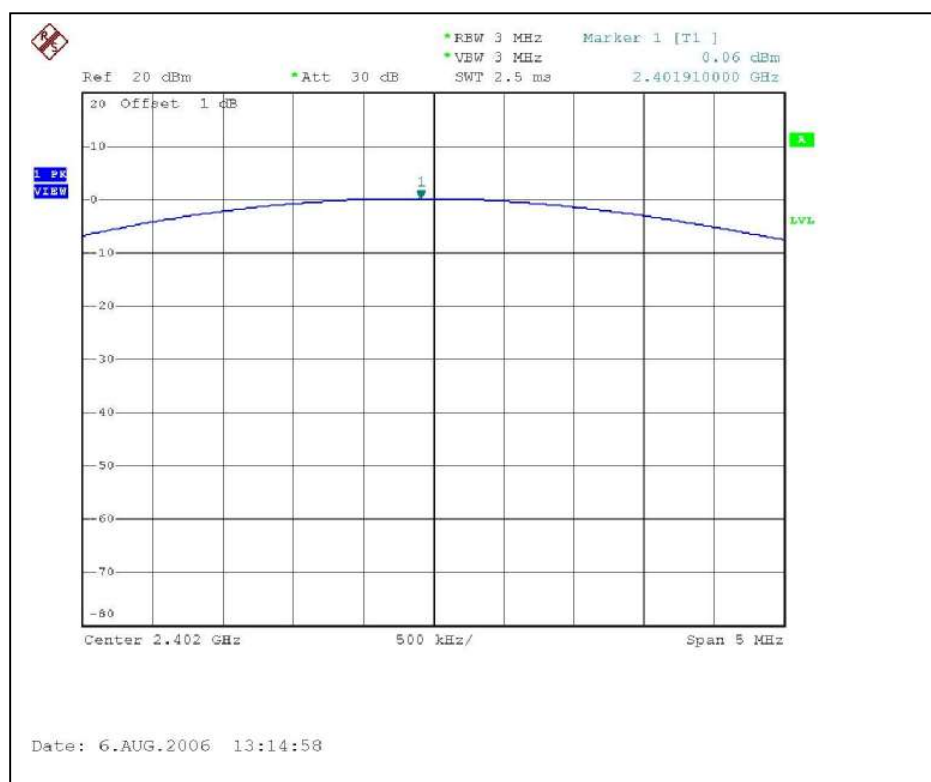
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

#### 4.6.7 TEST RESULTS

|                                 |                             |                    |          |
|---------------------------------|-----------------------------|--------------------|----------|
| <b>MODULATION TYPE</b>          | GFSK                        | <b>INPUT POWER</b> | DC 1.5V  |
| <b>ENVIRONMENTAL CONDITIONS</b> | 26deg. C, 64%RH,<br>956 hPa | <b>TESTED BY</b>   | Sky Liao |

| CHANNEL | CHANNEL FREQUENCY (MHz) | PEAK POWER OUTPUT (mW) | PEAK POWER OUTPUT (dBm) | PEAK POWER LIMIT (dBm) | PASS/FAIL |
|---------|-------------------------|------------------------|-------------------------|------------------------|-----------|
| 0       | 2402                    | 1.164                  | 0.06                    | 30                     | PASS      |
| 39      | 2441                    | 0.951                  | -0.22                   | 30                     | PASS      |
| 78      | 2480                    | 0.853                  | -0.69                   | 30                     | PASS      |

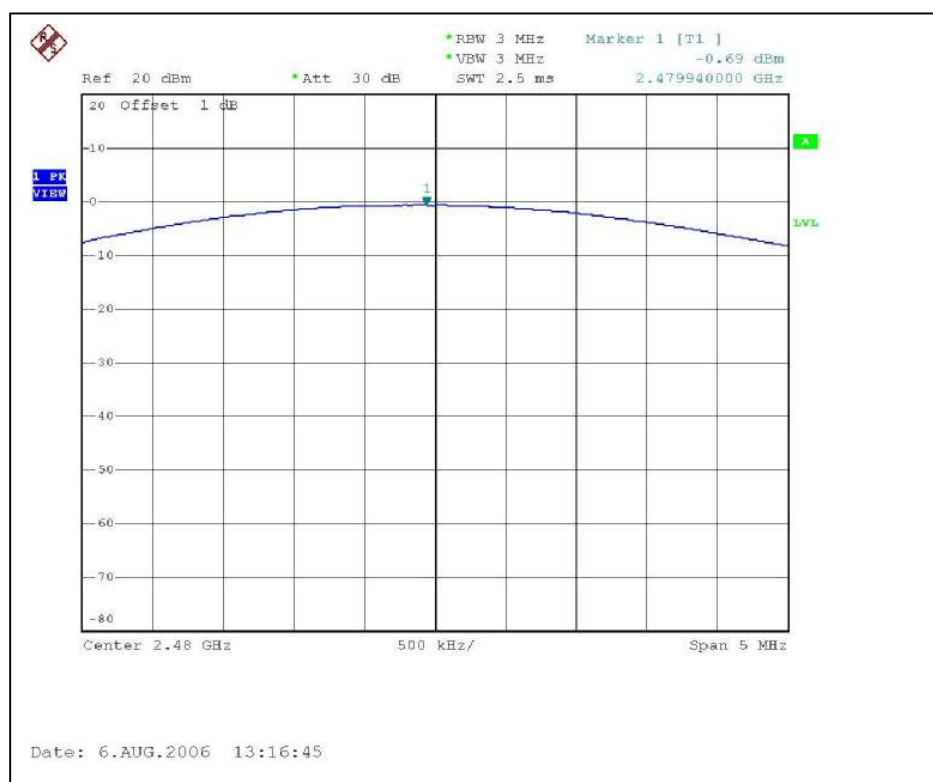
#### Channel 0



## Channel 39



## Channel 78



## 4.7 RADIATED EMISSION MEASUREMENT

### 4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

| Frequencies<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                                |

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

#### 4.7.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER       | MODEL NO.              | SERIAL NO.          | CALIBRATED UNTIL |
|----------------------------------|------------------------|---------------------|------------------|
| ADVANTEST Spectrum Analyzer      | R3271A                 | 85060311            | July 03, 2007    |
| HP Pre_Amplifier                 | 8449B                  | 3008A01922          | Oct. 02, 2006    |
| ROHDE & SCHWARZ<br>Test Receiver | ESCS30                 | 100375              | Sep. 19, 2006    |
| CHASE Broadband Antenna          | VULB9168               | 138                 | Dec. 11, 2006    |
| Schwarzbeck Horn_Antenna         | BBHA9120               | D124                | Dec. 27, 2006    |
| Schwarzbeck Horn_Antenna         | BBHA 9170              | BBHA9170153         | Jan. 05, 2007    |
| SCHWARZBECK<br>Biconical Antenna | VHBA9123               | 459                 | Jun. 08, 2009    |
| SCHWARZBECK<br>Periodic Antenna  | UPA6108                | 1148                | Jun. 08, 2009    |
| RF Switches (ARNITSU)            | CS-201                 | 1565157             | NA               |
| RF CABLE (Chaintek)              | SF102                  | 22054-2             | Nov. 16, 2006    |
| RF Cable(RICHTEC)                | 9913-30M N-N<br>Cable  | STCCAB-30M-<br>1GHz | Jul. 15, 2007    |
| Software                         | ADT_Radiated_V<br>5.14 | NA                  | NA               |
| CHANCE MOST<br>Antenna Tower     | AT-100                 | 0203                | NA               |
| CHANCE MOST Turn Table           | TT-100                 | 0203                | NA               |

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Biconical and Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824A-3.
7. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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

#### 4.7.3 TEST PROCEDURES

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

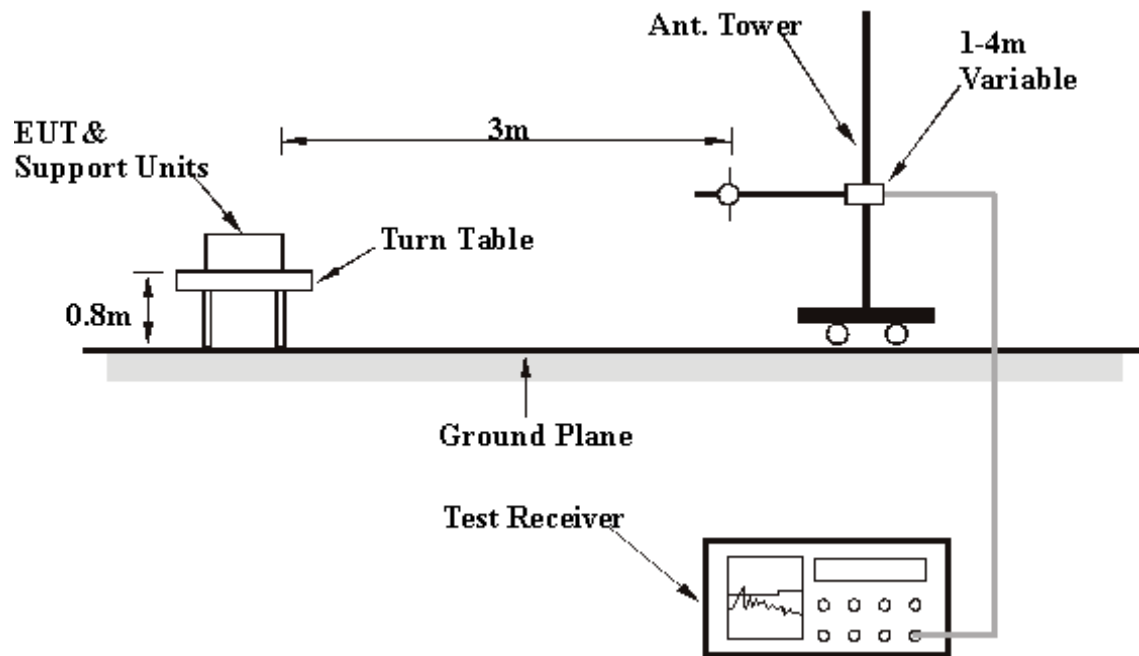
**NOTE:**

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

#### 4.7.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.7.5 TEST SETUP



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

#### 4.7.6 TEST RESULTS

|                                 |                           |                          |            |
|---------------------------------|---------------------------|--------------------------|------------|
| <b>CHANNEL</b>                  | 0                         | <b>FREQUENCY RANGE</b>   | Below 1GHz |
| <b>INPUT POWER</b>              | DC 1.5V                   | <b>DETECTOR FUNCTION</b> | Quasi-Peak |
| <b>ENVIRONMENTAL CONDITIONS</b> | 24 deg. C, 62%RH, 956 hPa | <b>TESTED BY</b>         | Sky Liao   |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No.                                                 | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                   | 199.98      | 24.30 QP                | 43.50          | -19.20      | 1.20 H             | 105                  | -1.60            | 25.90                    |
| 2                                                   | 226.96      | 21.60 QP                | 46.00          | -24.40      | 1.42 H             | 108                  | -4.30            | 25.90                    |
| 3                                                   | 275.50      | 25.10 QP                | 46.00          | -20.90      | 1.22 H             | 18                   | -0.80            | 25.90                    |
| 4                                                   | 624.95      | 28.90 QP                | 46.00          | -17.10      | 1.02 H             | 326                  | 3.00             | 25.90                    |
| 5                                                   | 740.32      | 29.50 QP                | 46.00          | -16.50      | 1.00 H             | 225                  | 3.60             | 25.90                    |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No.                                               | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                 | 174.91      | 20.10 QP                | 43.50          | -23.40      | 1.83 V             | 26                   | -5.80            | 25.90                    |
| 2                                                 | 250.01      | 24.60 QP                | 46.00          | -21.40      | 1.30 V             | 65                   | -1.30            | 25.90                    |
| 3                                                 | 300.00      | 24.80 QP                | 46.00          | -21.20      | 1.02 V             | 64                   | -1.10            | 25.90                    |
| 4                                                 | 625.01      | 27.10 QP                | 46.00          | -18.90      | 1.00 V             | 150                  | 1.20             | 25.90                    |
| 5                                                 | 832.23      | 28.20 QP                | 46.00          | -17.80      | 1.06 V             | 2                    | 2.30             | 25.90                    |

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

|                                 |                              |                          |                          |
|---------------------------------|------------------------------|--------------------------|--------------------------|
| <b>CHANNEL</b>                  | Channel 0                    | <b>FREQUENCY RANGE</b>   | 1 ~25GHz                 |
| <b>INPUT POWER</b>              | DC 1.5V                      | <b>DETECTOR FUNCTION</b> | Peak(PK)<br>Average (AV) |
| <b>ENVIRONMENTAL CONDITIONS</b> | 24 deg. C, 60%RH,<br>956 hPa | <b>TESTED BY</b>         | Sky Liao                 |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                |                               |                   |                |                          |                            |                        |                                |
|----------------------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| No.                                                            | Freq.<br>(MHz) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Antenna<br>Height<br>(m) | Table<br>Angle<br>(Degree) | Raw<br>Value<br>(dBuV) | Correction<br>Factor<br>(dB/m) |
| 1                                                              | 2390.00        | 42.00 PK                      | 74.00             | -32.00         | 1.24 H                   | 24                         | 12.20                  | 29.80                          |
| 1                                                              | 2390.00        | 12.00 AV                      | 54.00             | -42.00         | 1.24 H                   | 24                         | -17.80                 | 29.80                          |
| 2                                                              | *2402.00       | 95.50 PK                      |                   |                | 1.24 H                   | 24                         | 65.70                  | 29.80                          |
| 2                                                              | *2402.00       | 65.50 AV                      |                   |                | 1.24 H                   | 24                         | 35.70                  | 29.80                          |
| 3                                                              | 4804.00        | 54.30 PK                      | 74.00             | -19.70         | 1.11 H                   | 25                         | 19.40                  | 34.90                          |
| 3                                                              | 4804.00        | 24.30 AV                      | 54.00             | -29.70         | 1.11 H                   | 25                         | -10.60                 | 34.90                          |
| 4                                                              | 7206.00        | 48.40 PK                      | 74.00             | -25.60         | 1.25 H                   | 25                         | 7.40                   | 41.00                          |
| 4                                                              | 7206.00        | 18.10 AV                      | 54.00             | -35.90         | 1.25 H                   | 25                         | -22.90                 | 41.00                          |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                |                               |                   |                |                          |                            |                        |                                |
|--------------------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| No.                                                          | Freq.<br>(MHz) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Antenna<br>Height<br>(m) | Table<br>Angle<br>(Degree) | Raw<br>Value<br>(dBuV) | Correction<br>Factor<br>(dB/m) |
| 1                                                            | 2390.00        | 39.30 PK                      | 74.00             | -34.70         | 1.24 V                   | 25                         | 9.50                   | 29.80                          |
| 1                                                            | 2390.00        | 9.30 AV                       | 54.00             | -44.70         | 1.24 V                   | 25                         | -20.50                 | 29.80                          |
| 2                                                            | *2402.00       | 92.80 PK                      |                   |                | 1.24 V                   | 25                         | 63.00                  | 29.80                          |
| 2                                                            | *2402.00       | 62.80 AV                      |                   |                | 1.24 V                   | 25                         | 33.00                  | 29.80                          |
| 3                                                            | 4804.00        | 52.10 PK                      | 74.00             | -21.90         | 1.45 V                   | 25                         | 17.20                  | 34.90                          |
| 3                                                            | 4804.00        | 22.10 AV                      | 54.00             | -31.90         | 1.45 V                   | 25                         | -12.80                 | 34.90                          |
| 4                                                            | 7206.00        | 47.60 PK                      | 74.00             | -26.40         | 1.00 V                   | 2                          | 6.60                   | 41.00                          |
| 4                                                            | 7206.00        | 17.60 AV                      | 54.00             | -36.40         | 1.00 V                   | 2                          | -23.40                 | 41.00                          |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* ” : Fundamental frequency
  6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625\*5 per 247 ms per channel. Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30\text{dB}$
  7. Average value = peak reading  $-20\log(\text{duty cycle})$

|                                 |                              |                          |                          |
|---------------------------------|------------------------------|--------------------------|--------------------------|
| <b>CHANNEL</b>                  | Channel 39                   | <b>FREQUENCY RANGE</b>   | 1 ~25GHz                 |
| <b>INPUT POWER</b>              | DC 1.5V                      | <b>DETECTOR FUNCTION</b> | Peak(PK)<br>Average (AV) |
| <b>ENVIRONMENTAL CONDITIONS</b> | 24 deg. C, 60%RH,<br>956 hPa | <b>TESTED BY</b>         | Sky Liao                 |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                |                               |                   |                |                          |                            |                        |                                |
|----------------------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| No.                                                            | Freq.<br>(MHz) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Antenna<br>Height<br>(m) | Table<br>Angle<br>(Degree) | Raw<br>Value<br>(dBuV) | Correction<br>Factor<br>(dB/m) |
| 1                                                              | *2441.00       | 93.20 PK                      |                   |                | 1.18 H                   | 22                         | 63.20                  | 30.00                          |
| 1                                                              | *2441.00       | 63.20 AV                      |                   |                | 1.18 H                   | 22                         | 33.20                  | 30.00                          |
| 2                                                              | 4882.00        | 55.10 PK                      | 74.00             | -18.90         | 1.25 H                   | 245                        | 19.90                  | 35.20                          |
| 2                                                              | 4882.00        | 25.10 AV                      | 54.00             | -28.90         | 1.25 H                   | 245                        | -10.10                 | 35.20                          |
| 3                                                              | 7322.00        | 46.30 PK                      | 74.00             | -27.70         | 1.54 H                   | 25                         | 4.90                   | 41.40                          |
| 3                                                              | 7322.00        | 16.30 AV                      | 54.00             | -37.70         | 1.54 H                   | 25                         | -25.10                 | 41.40                          |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                |                               |                   |                |                          |                            |                        |                                |
|--------------------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| No.                                                          | Freq.<br>(MHz) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Antenna<br>Height<br>(m) | Table<br>Angle<br>(Degree) | Raw<br>Value<br>(dBuV) | Correction<br>Factor<br>(dB/m) |
| 1                                                            | *2441.00       | 93.20 PK                      |                   |                | 1.28 V                   | 318                        | 63.20                  | 30.00                          |
| 1                                                            | *2441.00       | 63.20 AV                      |                   |                | 1.28 V                   | 318                        | 33.20                  | 30.00                          |
| 2                                                            | 4882.00        | 54.10 PK                      | 74.00             | -19.90         | 1.00 V                   | 2                          | 18.90                  | 35.20                          |
| 2                                                            | 4882.00        | 24.10 AV                      | 54.00             | -29.90         | 1.00 V                   | 2                          | -11.10                 | 35.20                          |
| 3                                                            | 7322.00        | 46.90 PK                      | 74.00             | -27.10         | 1.00 V                   | 42                         | 5.50                   | 41.40                          |
| 3                                                            | 7322.00        | 16.90 AV                      | 54.00             | -37.10         | 1.00 V                   | 42                         | -24.50                 | 41.40                          |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “ : Fundamental frequency
  6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625\*5 per 247 ms per channel. Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30\text{dB}$
  7. Average value = peak reading  $-20\log(\text{duty cycle})$

|                                 |                              |                          |                          |
|---------------------------------|------------------------------|--------------------------|--------------------------|
| <b>CHANNEL</b>                  | Channel 78                   | <b>FREQUENCY RANGE</b>   | 1 ~25GHz                 |
| <b>INPUT POWER</b>              | DC 1.5V                      | <b>DETECTOR FUNCTION</b> | Peak(PK)<br>Average (AV) |
| <b>ENVIRONMENTAL CONDITIONS</b> | 24 deg. C, 60%RH,<br>956 hPa | <b>TESTED BY</b>         | Sky Liao                 |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No.                                                 | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                   | *2480.00    | 93.10 PK                |                |             | 1.45 H             | 256                  | 62.90            | 30.20                    |
| 1                                                   | *2480.00    | 63.10 AV                |                |             | 1.45 H             | 256                  | 32.90            | 30.20                    |
| 2                                                   | 2483.50     | 40.70 PK                | 74.00          | -33.30      | 1.45 H             | 256                  | 10.50            | 30.20                    |
| 2                                                   | 2483.50     | 10.70 AV                | 54.00          | -43.30      | 1.45 H             | 256                  | -19.50           | 30.20                    |
| 3                                                   | 4960.00     | 46.80 PK                | 74.00          | -27.20      | 1.57 H             | 85                   | 11.30            | 35.50                    |
| 3                                                   | 4960.00     | 16.80 AV                | 54.00          | -37.20      | 1.57 H             | 85                   | -18.70           | 35.50                    |
| 4                                                   | 7440.00     | 58.40 PK                | 74.00          | -15.60      | 1.54 H             | 72                   | 16.60            | 41.80                    |
| 4                                                   | 7440.00     | 28.20 AV                | 54.00          | -25.80      | 1.54 H             | 72                   | -13.60           | 41.80                    |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No.                                               | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1                                                 | *2480.00    | 95.10 PK                |                |             | 1.15 V             | 210                  | 64.90            | 30.20                    |
| 1                                                 | *2480.00    | 65.10 AV                |                |             | 1.15 V             | 210                  | 34.90            | 30.20                    |
| 2                                                 | 2483.50     | 42.70 PK                | 74.00          | -31.30      | 1.15 V             | 210                  | 12.50            | 30.20                    |
| 2                                                 | 2483.50     | 12.70 AV                | 54.00          | -41.30      | 1.15 V             | 210                  | -17.50           | 30.20                    |
| 3                                                 | 4960.00     | 53.40 PK                | 74.00          | -20.60      | 1.25 V             | 25                   | 17.90            | 35.50                    |
| 3                                                 | 4960.00     | 23.40 AV                | 54.00          | -30.60      | 1.25 V             | 25                   | -12.10           | 35.50                    |
| 4                                                 | 7440.00     | 47.20 PK                | 74.00          | -26.80      | 1.54 V             | 24                   | 5.40             | 41.80                    |
| 4                                                 | 7440.00     | 17.20 AV                | 54.00          | -36.80      | 1.54 V             | 24                   | -24.60           | 41.80                    |

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “ : Fundamental frequency
  6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625\*5 per 247 ms per channel. Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30\text{dB}$
  7. Average value = peak reading  $-20\log(\text{duty cycle})$

## 4.8 BAND EDGES MEASUREMENT

### 4.8.1 LIMITS OF BAND EDGES MEASUREMENT

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

### 4.8.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|----------------------------|-----------|------------|------------------|
| R&S SPECTRUM ANALYZER      | FSP40     | 100036     | Dec. 09, 2006    |

**Note:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.8.3 TEST PROCEDURE

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

### 4.8.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.8.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

#### 4.8.6 TEST RESULTS

The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

#### **NOTE (Peak):**

The band edge emission plot on the following first page show 53.35dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.2 is 95.50dBuV/m, so the maximum field strength in restrict band is  $95.50 - 53.35 = 42.15$  dBuV/m which is under 74 dBuV/m limit.

The band edge emission plot on the following first page shows 52.4dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 78 at the item 4.2 is 95.10dBuV/m, so the maximum field strength in restrict band is  $95.10 - 52.4 = 42.7$  dBuV/m which is under 74 dBuV/m limit.

#### **NOTE (Average):**

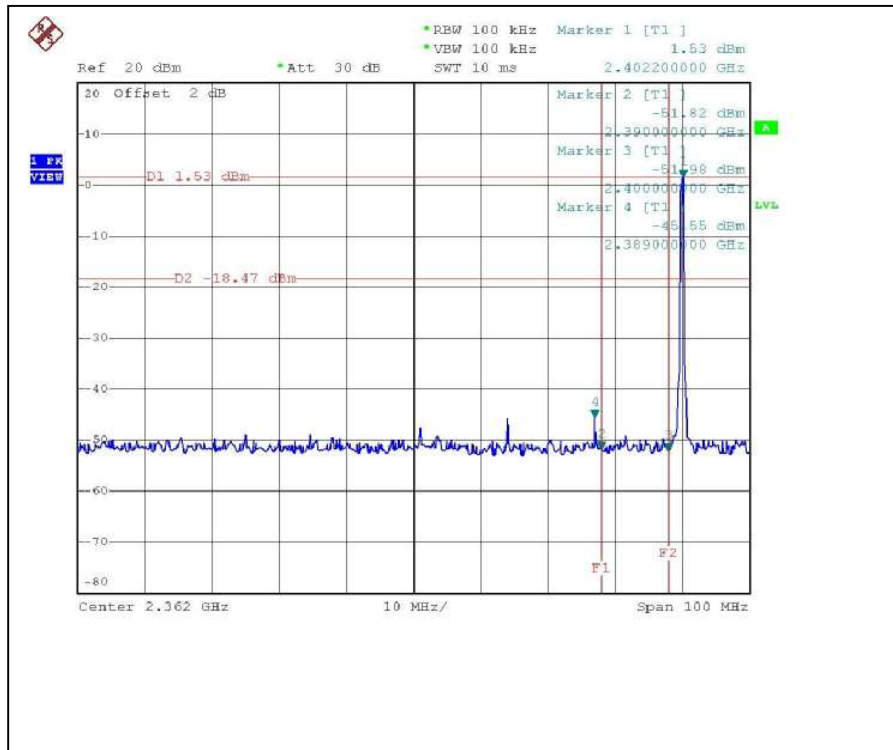
Average value =  $42.15 - 30.00 = 12.15$  dBuV/m, which is under 54dBuV/m limit.

\*The DH1 packet duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on  $0.625 * 5$  per 296.25 ms per channel. Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30$  dB. Average value = peak reading - 30.00.

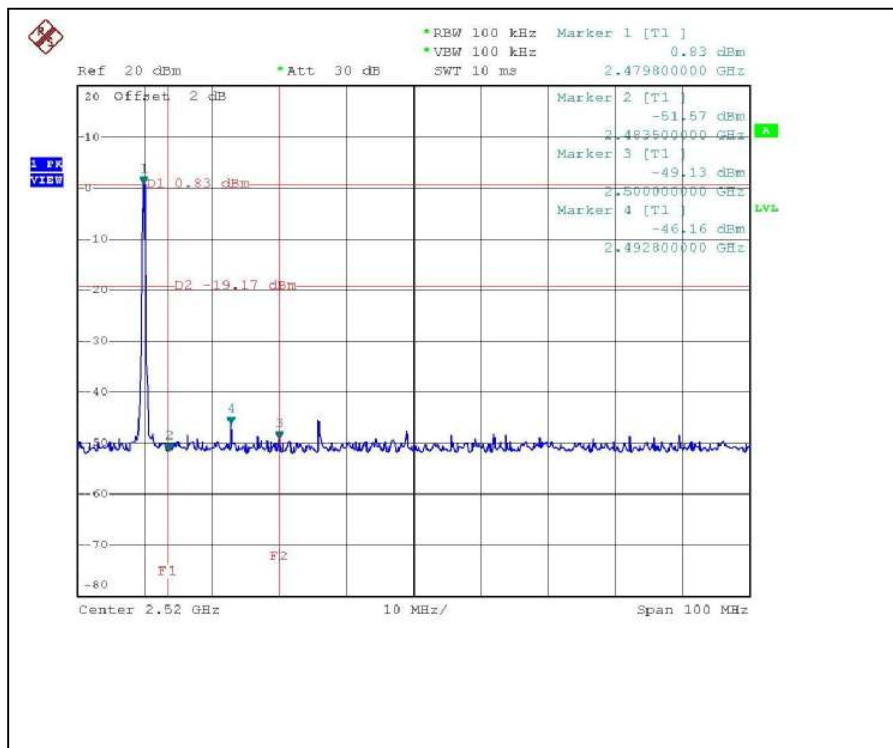
Average value =  $42.7 - 30.00 = 12.7$  dBuV/m, which is under 54dBuV/m limit.

\*The DH1 packet duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on  $0.625 * 5$  per 296.25 ms per channel. Therefore, the duty cycle be equal to:  $20\log(3.125/100) = -30$  dB. Average value = peak reading - 30.00.

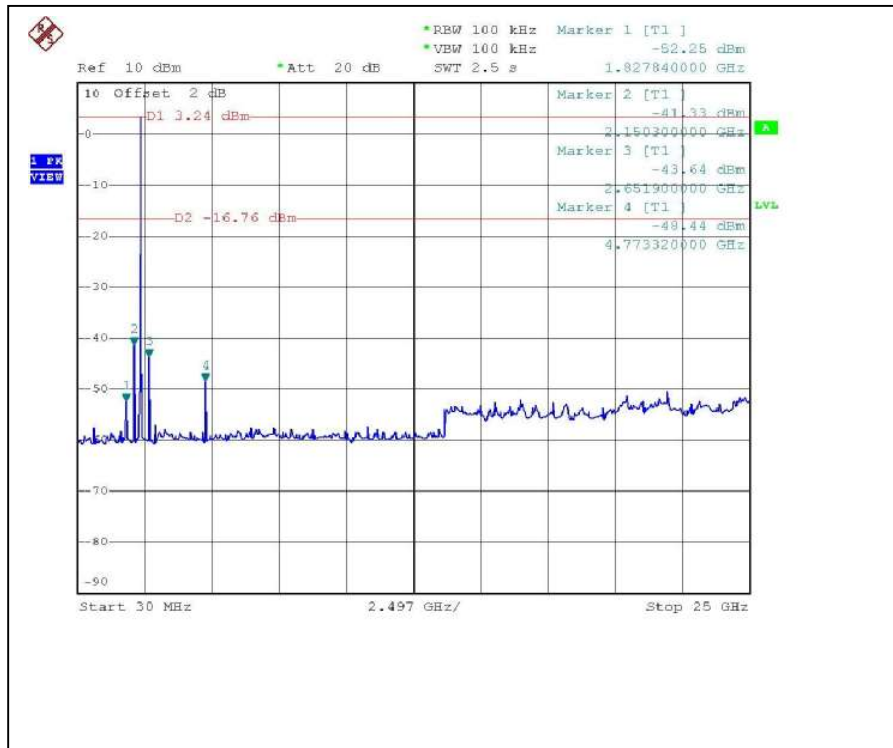
CH0



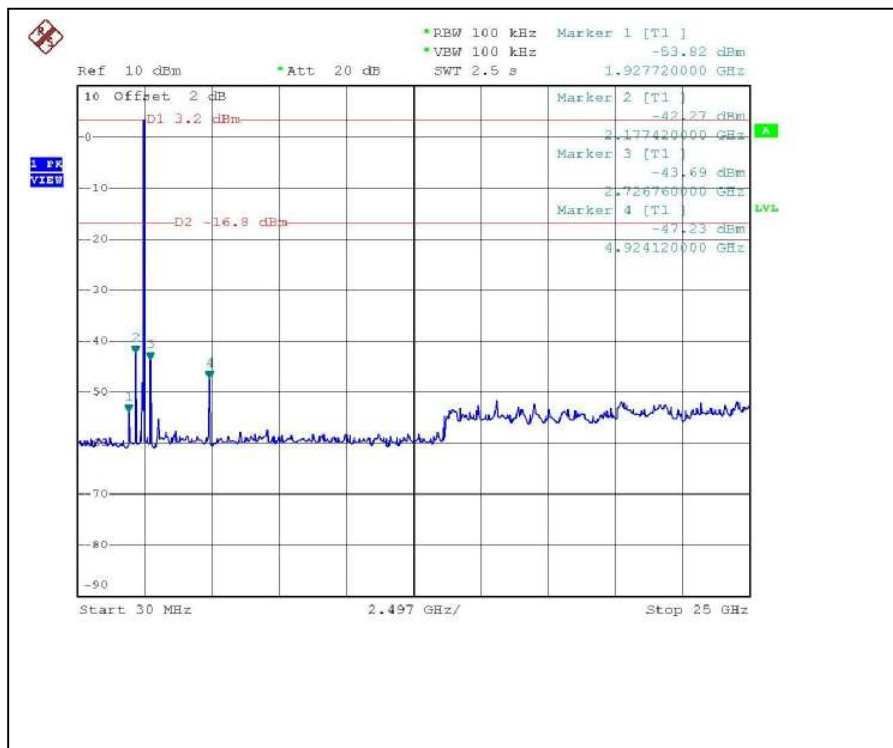
CH78



CH0



CH78



## **4.9 ANTENNA REQUIREMENT**

### **4.9.1 STANDARD APPLICABLE**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **4.9.2 ANTENNA CONNECTED CONSTRUCTION**

The antenna used in this product is Monopole antenna without connector. The maximum Gain of the antenna is -1.55dBi.

## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

### RADIATED EMISSION TEST



## 6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

|                    |                      |
|--------------------|----------------------|
| <b>USA</b>         | FCC, UL, A2LA        |
| <b>Germany</b>     | TUV Rheinland        |
| <b>Japan</b>       | VCCI                 |
| <b>Norway</b>      | NEMKO                |
| <b>Canada</b>      | INDUSTRY CANADA, CSA |
| <b>R.O.C.</b>      | CNLA, BSMI, DGT      |
| <b>Netherlands</b> | Telefication         |
| <b>Singapore</b>   | PSB, GOST-ASIA (MOU) |
| <b>Russia</b>      | CERTIS (MOU)         |

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml).

If you have any comments, please feel free to contact us at the following:

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**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

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

## **APPENDIX-A**

### **MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

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