

## FCC 47 CFR PART 15 SUBPART C

Product Type : Handheld Terminal

Applicant : Partner Tech Corp.

Address : 10F, NO.233-2. PAO CHIAO ROAD, HSIN TIEN, TAIPEI,  
TAIWAN, R. O. C.

Trade Name : PARTNER

Model Number : OT-200

Test Specification : FCC 47 CFR PART 15 SUBPART C: Oct., 2009  
Canada RSS-210 ISSUE 7: Jun., 2007  
Canada RSS-Gen ISSUE 2: Jun., 2007  
ANSI C63.4-2003

Issue Date : Jul. 09, 2010

### Issue by

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Taiwan Accreditation Foundation accreditation number: 1330

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**Revision History**

| Rev. | Issue Date    | Revisions     | Revised By |
|------|---------------|---------------|------------|
| 00   | Jul. 09, 2010 | Initial Issue |            |
|      |               |               |            |
|      |               |               |            |
|      |               |               |            |

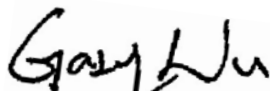
## Verification

Issued Date: 2010/07/09

Product Type : Handheld Terminal  
Applicant : Partner Tech Corp.  
Address : 10F, NO.233-2. PAO CHIAO ROAD, HSIN TIEN, TAIPEI,  
TAIWAN, R. O. C.  
Trade Name : PARTNER  
Model Number : OT-200  
FCC ID : NDPOT200  
EUT Rated Voltage : DC 5.0V, 2.0A  
Test Voltage : 120 Vac / 60 Hz  
Applicable : FCC 47 CFR PART 15 SUBPART C: Oct., 2009  
Standard : Canada RSS-210 ISSUE 7: Jun., 2007  
Canada RSS-Gen ISSUE 2: Jun., 2007  
ANSI C63.4-2003  
Test Result : Complied  
Performing Lab. : A Test Lab Techno Corp.  
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Taiwan Accreditation Foundation accreditation number:  
1330  
<http://www.atl-lab.com.tw/e-index.htm>

The above equipment has been tested by A Test Lab Techno Corp., and found compliance with the requirements set forth in the Electromagnetic Compatibility Directive 2004/108/EC and technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By :   
(Manager) (Miller Lee)

Reviewed By :   
(Testing Engineer) (Gary Wu)

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## 1 General Information

### 1.1 Summary of Test Result

| Standard          |          | Item                                    | Result | Remark |
|-------------------|----------|-----------------------------------------|--------|--------|
| 15.247            | RSS-GEN  |                                         |        |        |
| 15.207            | 7.2.2    | AC Power Conducted Emission             | PASS   | -----  |
| -----             | 6        | Receiver Radiated Emissions             | PASS   | -----  |
| Standard          |          | Item                                    | Result | Remark |
| 15.247            | RSS-210  |                                         |        |        |
| 15.247(c)         | A8.5     | Transmitter Radiated Emissions          | PASS   | -----  |
| 15.247(b)(1)      | A8.4 (2) | Max. Output Power                       | PASS   | -----  |
| 15.247(a)(1)      | A8.1 (1) | 20dB RF Bandwidth                       | PASS   | -----  |
| 15.247(a)(1)(iii) | A8.1 (2) | Carrier Frequency Separation            | PASS   | -----  |
| 15.247(a)(1)(iii) | A8.1 (4) | Number of Hopping                       | PASS   | -----  |
| 15.247(a)(1)(iii) | A8.1 (4) | Time of Occupancy (Dwell Time)          | PASS   | -----  |
| 15.247(c)         | A8.5     | Out of Band Conducted Spurious Emission | PASS   | -----  |
| 15.247(c)         | A8.5     | Band Edge Measurement                   | PASS   | -----  |
| 15.203            | -        | Antenna Requirement                     | PASS   | -----  |

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

### 1.2 Measurement Uncertainty

#### Conducted Emission

The measurement uncertainty is evaluated as  $\pm 2.24$  dB.

#### Radiated Emission

The measurement uncertainty of 30 MHz - 1GHz is evaluated as  $\pm 3.072$ dB.

## 2 EUT Description

|                                        |   |                                                                                                                                  |      |       |            |
|----------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| <b>Product</b>                         | : | Handheld Terminal                                                                                                                |      |       |            |
| <b>Trade Name</b>                      | : | PARTNER                                                                                                                          |      |       |            |
| <b>Model Number</b>                    | : | OT-200                                                                                                                           |      |       |            |
| <b>Applicant</b>                       | : | Partner Tech Corp.<br>10F, NO.233-2. PAO CHIAO ROAD, HSIN TIEN,TAIPEI, TAIWAN, R. O. C.                                          |      |       |            |
| <b>Manufacturer</b>                    | : | Partner Tech Corp.<br>10F, NO.233-2. PAO CHIAO ROAD, HSIN TIEN,TAIPEI, TAIWAN, R. O. C.                                          |      |       |            |
| <b>FCC ID</b>                          | : | NDPOT200                                                                                                                         |      |       |            |
| <b>Serial No.</b>                      | : | T90310700206                                                                                                                     |      |       |            |
| <b>Frequency Range</b>                 | : | 2402 ~ 2480 MHz                                                                                                                  |      |       |            |
| <b>Modulation Type</b>                 | : | GFSK for 1Mbps                                                                                                                   |      |       |            |
|                                        | : | $\pi/4$ -DQPSK for 2Mbps                                                                                                         |      |       |            |
|                                        | : | 8DPSK for 3Mbps                                                                                                                  |      |       |            |
| <b>Antenna Type</b>                    | : | Internal Type                                                                                                                    |      |       |            |
| <b>Antenna Gain</b>                    | : | 2.94 dBi                                                                                                                         |      |       |            |
| <b>RF Output Power<br/>(Conducted)</b> | : | GFSK for 1Mbps                                                                                                                   | 3.44 | dBm / | 0.002208 W |
|                                        | : | $\pi/4$ -DQPSK for 2Mbps                                                                                                         | 3.83 | dBm / | 0.002415 W |
|                                        | : | 8DPSK for 3Mbps                                                                                                                  | 3.89 | dBm / | 0.002449 W |
| <b>Component</b>                       |   |                                                                                                                                  |      |       |            |
| <b>Battery</b>                         | : | PARTNER, OT Series Battery<br>DC 3.7V, 2300mAh                                                                                   |      |       |            |
| <b>Power Adapter (1)</b>               | : | Touch Electronic Co., Ltd., M8-10US05R<br>Input:100-240Vac, 50-60Hz, 0.5A<br>Output: 5.0 Vdc, 2.0A<br>Cable out: Shielded, 1.8 m |      |       |            |
| <b>Power Adapter (2)</b>               | : | CWT, KPC-010B<br>Input:100-240Vac, 50/60Hz, 0.8A<br>Output: 5.0 Vdc, 2.0A<br>Cable out: Shielded, 1.45 m                         |      |       |            |
| <b>Handheld Terminal<br/>Cradle</b>    | : | PARTNER, OT-100 Cradle<br>Rating: 5.0 Vdc, 2.0A                                                                                  |      |       |            |

### 3 Test Methodology

#### 3.1. Mode of Operation

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

| Test Mode                        |
|----------------------------------|
| Mode 1: IDLE Mode                |
| Mode 2: Normal Operation Mode    |
| Mode 3: GFSK Link Mode           |
| Mode 4: $\pi/4$ -DQPSK Link Mode |
| Mode 5: 8DPSK Link Mode          |
| Mode 6: Receiver Mode            |

#### Description of Test Modes

Preliminary tests were performed in different modulation to find the worst case. The modulation shown in the table below is the worst-case. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Modulation Type | Channel | Frequency (MHz) | Packet Type | Peak Conducted Power |         | Worst Case                          |
|-----------------|---------|-----------------|-------------|----------------------|---------|-------------------------------------|
|                 |         |                 |             | (dBm)                | (W)     |                                     |
| GFSK            | Low     | 2402            | DH1         | 3.44                 | 0.00221 | <input type="checkbox"/>            |
|                 | Low     | 2402            | DH3         | 3.42                 | 0.00220 | <input type="checkbox"/>            |
|                 | Low     | 2402            | DH5         | 3.35                 | 0.00216 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | DH1         | 3.03                 | 0.00201 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | DH3         | 3.08                 | 0.00203 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | DH5         | 3.09                 | 0.00204 | <input type="checkbox"/>            |
|                 | High    | 2480            | DH1         | 1.74                 | 0.00149 | <input type="checkbox"/>            |
|                 | High    | 2480            | DH3         | 1.73                 | 0.00149 | <input type="checkbox"/>            |
|                 | High    | 2480            | DH5         | 1.73                 | 0.00149 | <input type="checkbox"/>            |
| $\pi/4$ -DQPSK  | Low     | 2402            | 2DH1        | 3.76                 | 0.00238 | <input type="checkbox"/>            |
|                 | Low     | 2402            | 2DH3        | 3.83                 | 0.00242 | <input type="checkbox"/>            |
|                 | Low     | 2402            | 2DH5        | 3.81                 | 0.00240 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | 2DH1        | 3.39                 | 0.00218 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | 2DH3        | 3.40                 | 0.00219 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | 2DH5        | 3.33                 | 0.00215 | <input type="checkbox"/>            |
|                 | High    | 2480            | 2DH1        | 1.98                 | 0.00158 | <input type="checkbox"/>            |
|                 | High    | 2480            | 2DH3        | 2.00                 | 0.00158 | <input type="checkbox"/>            |
|                 | High    | 2480            | 2DH5        | 2.01                 | 0.00159 | <input type="checkbox"/>            |
| 8DPSK           | Low     | 2402            | 3DH1        | 3.89                 | 0.00245 | <input checked="" type="checkbox"/> |
|                 | Low     | 2402            | 3DH3        | 3.82                 | 0.00241 | <input type="checkbox"/>            |
|                 | Low     | 2402            | 3DH5        | 3.82                 | 0.00241 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | 3DH1        | 3.42                 | 0.00220 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | 3DH3        | 3.40                 | 0.00219 | <input type="checkbox"/>            |
|                 | Middle  | 2441            | 3DH5        | 3.44                 | 0.00221 | <input type="checkbox"/>            |
|                 | High    | 2480            | 3DH1        | 2.11                 | 0.00163 | <input type="checkbox"/>            |
|                 | High    | 2480            | 3DH3        | 1.99                 | 0.00158 | <input type="checkbox"/>            |
|                 | High    | 2480            | 3DH5        | 2.04                 | 0.00160 | <input type="checkbox"/>            |

### Tested System Details

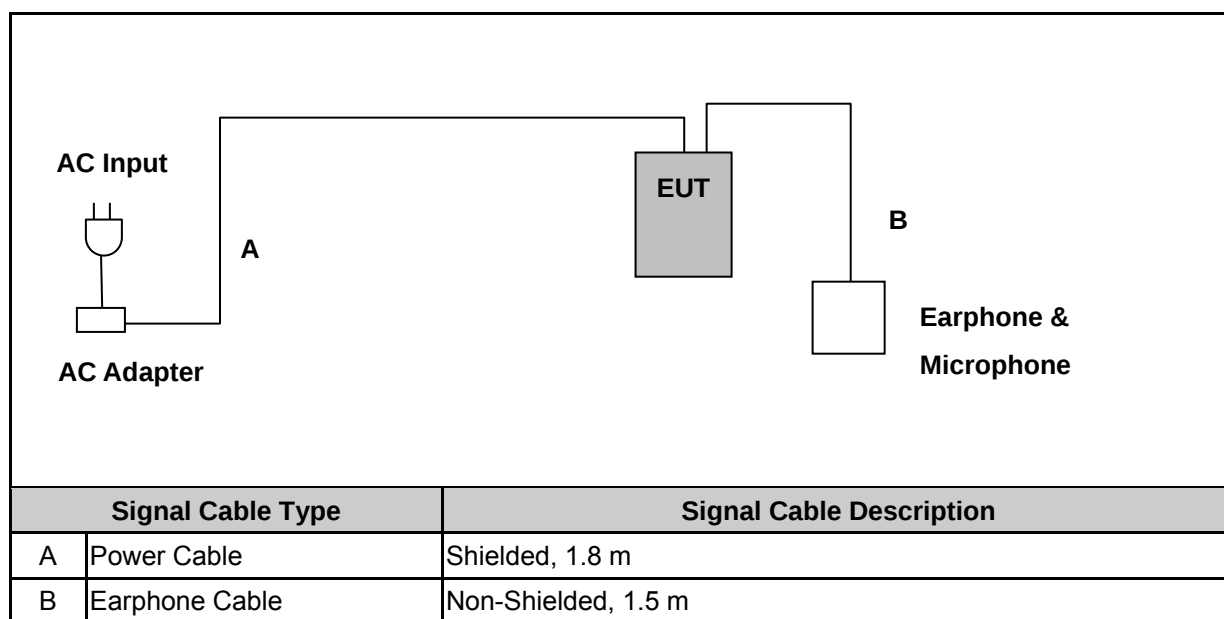
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

|    | Product          | Manufacturer | Model Number | Serial Number | Power Cord |
|----|------------------|--------------|--------------|---------------|------------|
| 1. | Bluetooth Tester | R & S        | CBT          | 100350        | NA         |

### 3.2. EUT Exercise Software

|    |                                                           |
|----|-----------------------------------------------------------|
| 1. | Setup the EUT and Bluetooth Tester (CBT) as shown on 3.3. |
| 2. | Turn on the power of all equipment.                       |
| 3. | EUT run test program.                                     |
| 4. | Open Bluetooth function link to CBT.                      |

### 3.3. Configuration of Test System Details



### 3.4. Test Site Environment

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

## 4 Conducted Emission Measurement

### 4.1. Limit

| Frequency (MHz) | Quasi-peak | Average  |
|-----------------|------------|----------|
| 0.15 - 0.5      | 66 to 56   | 56 to 46 |
| 0.50 - 5.0      | 56         | 46       |
| 5.0 - 30.0      | 60         | 50       |

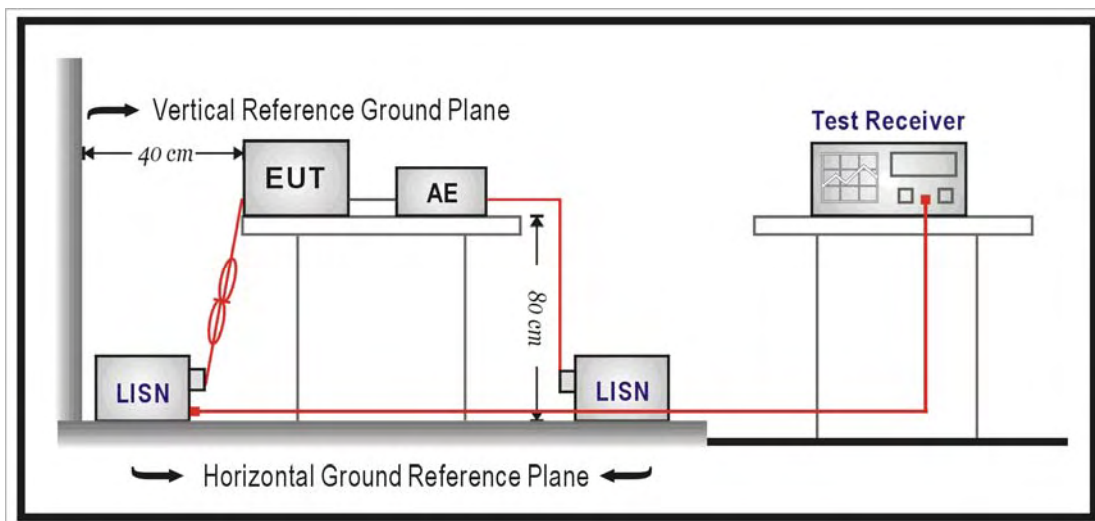
### 4.2. Test Instruments

| Describe      | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|---------------|--------------|--------------|---------------|------------|--------|
| Test Receiver | R&S          | ESCI         | 100367        | 07/01/2009 | (1)    |
| LISN          | R&S          | ENV216       | 101040        | 03/02/2010 | (1)    |
| LISN          | R&S          | ENV216       | 101041        | 03/02/2010 | (1)    |
| Test Site     | ATL          | TE02         | TE02          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 4.3. Test Setup



#### **4.4. Test Procedure**

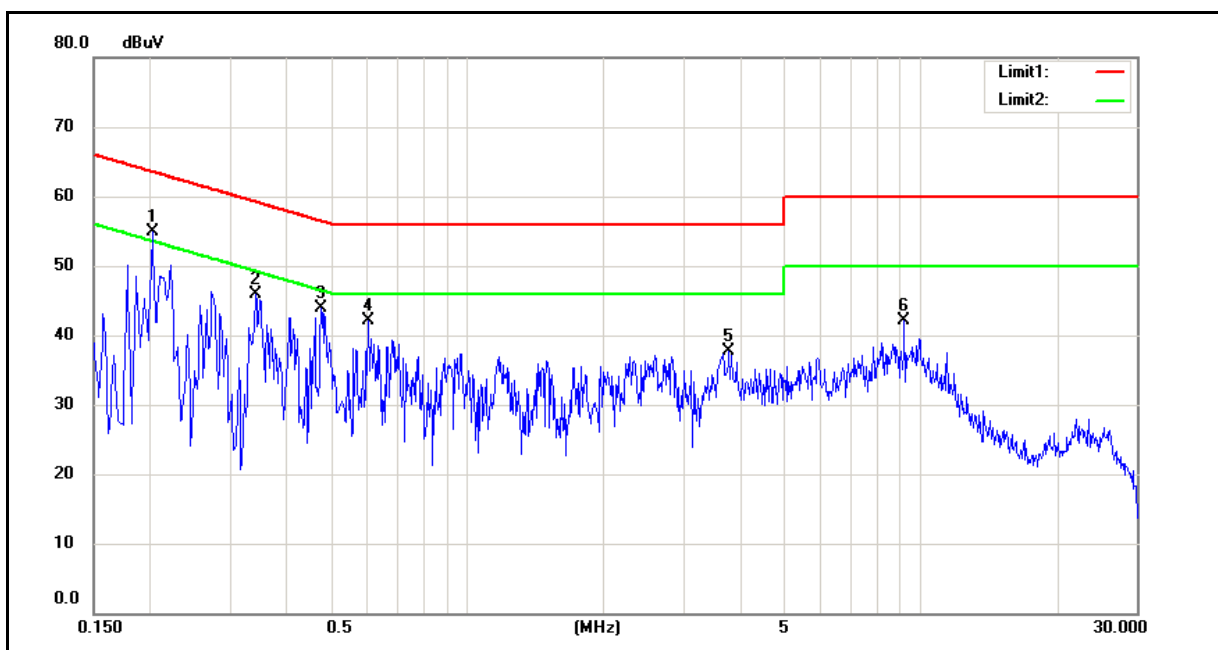
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

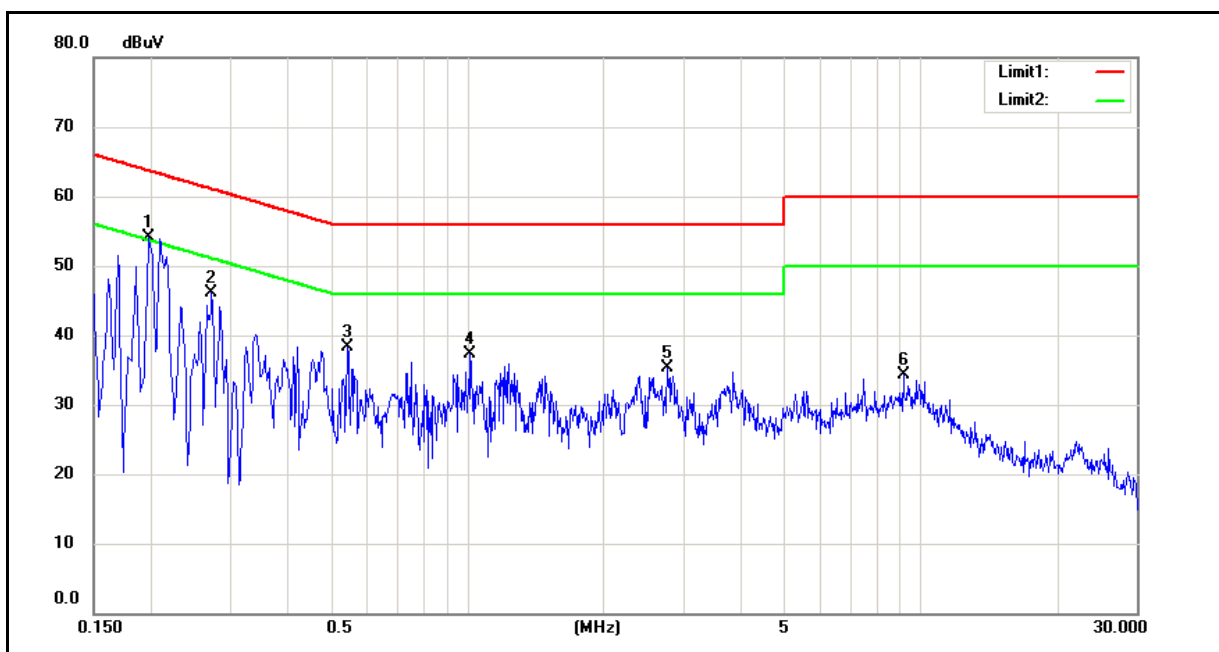
## 4.5. Test Result

|              |                    |                      |              |
|--------------|--------------------|----------------------|--------------|
| Standard:    | FCC Part 15C       | Line:                | L1           |
| Test item:   | Conducted Emission | Power:               | AC 120V/60Hz |
| Model:       | OT-200             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:        | Mode 1             | Date:                | 2010/06/17   |
|              |                    | Test By:             | Gary Wu      |
| Description: |                    |                      |              |



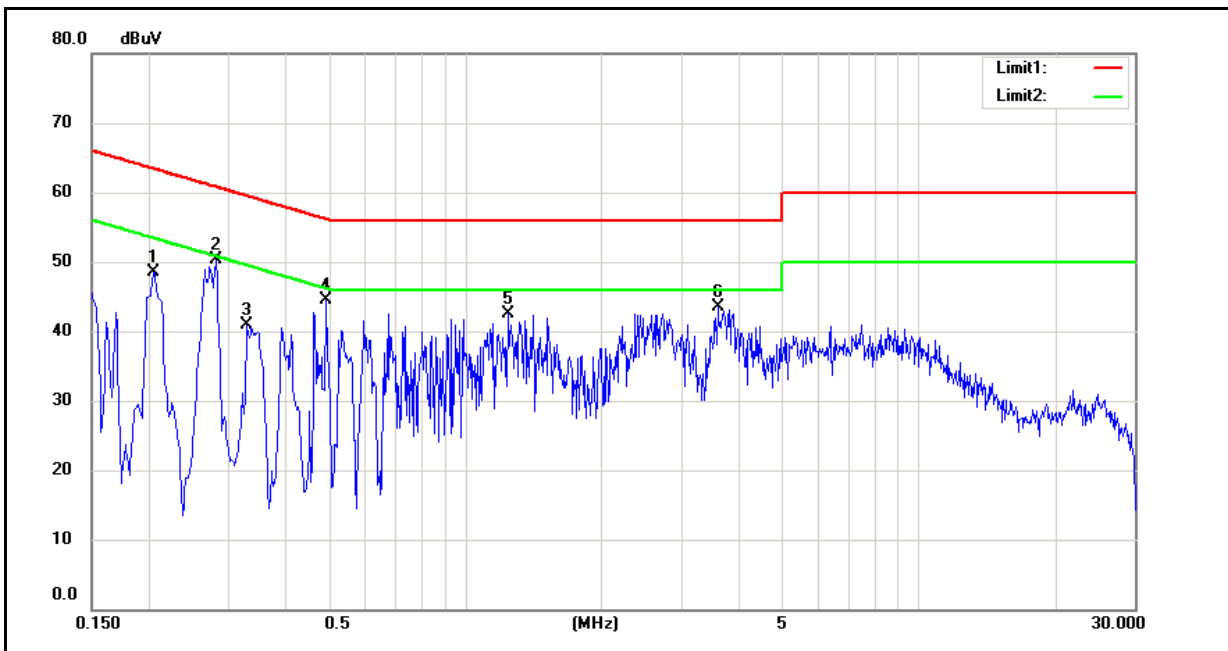
| No. | Frequency<br>(MHz) | QP<br>reading<br>(dBuV) | AVG<br>reading<br>(dBuV) | Correction<br>factor<br>(dB) | QP<br>result<br>(dBuV) | AVG<br>result<br>(dBuV) | QP<br>limit<br>(dBuV) | AVG<br>limit<br>(dBuV) | QP<br>margin<br>(dB) | AVG<br>margin<br>(dB) | Remark |
|-----|--------------------|-------------------------|--------------------------|------------------------------|------------------------|-------------------------|-----------------------|------------------------|----------------------|-----------------------|--------|
| 1   | 0.2020             | 42.59                   | 29.15                    | 10.08                        | 52.67                  | 39.23                   | 63.53                 | 53.53                  | -10.86               | -14.30                | Pass   |
| 2   | 0.3420             | 32.30                   | 19.43                    | 10.02                        | 42.32                  | 29.45                   | 59.15                 | 49.15                  | -16.83               | -19.70                | Pass   |
| 3   | 0.4780             | 30.22                   | 19.48                    | 9.97                         | 40.19                  | 29.45                   | 56.37                 | 46.37                  | -16.18               | -16.92                | Pass   |
| 4   | 0.6060             | 25.49                   | 14.20                    | 9.91                         | 35.40                  | 24.11                   | 56.00                 | 46.00                  | -20.60               | -21.89                | Pass   |
| 5   | 3.7860             | 21.04                   | 11.42                    | 9.84                         | 30.88                  | 21.26                   | 56.00                 | 46.00                  | -25.12               | -24.74                | Pass   |
| 6   | 9.2420             | 21.42                   | 12.02                    | 10.13                        | 31.55                  | 22.15                   | 60.00                 | 50.00                  | -28.45               | -27.85                | Pass   |

|              |                    |                      |              |
|--------------|--------------------|----------------------|--------------|
| Standard:    | FCC Part 15C       | Line:                | N            |
| Test item:   | Conducted Emission | Power:               | AC 120V/60Hz |
| Model:       | OT-200             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:        | Mode 1             | Date:                | 2010/06/17   |
|              |                    | Test By:             | Gary Wu      |
| Description: |                    |                      |              |



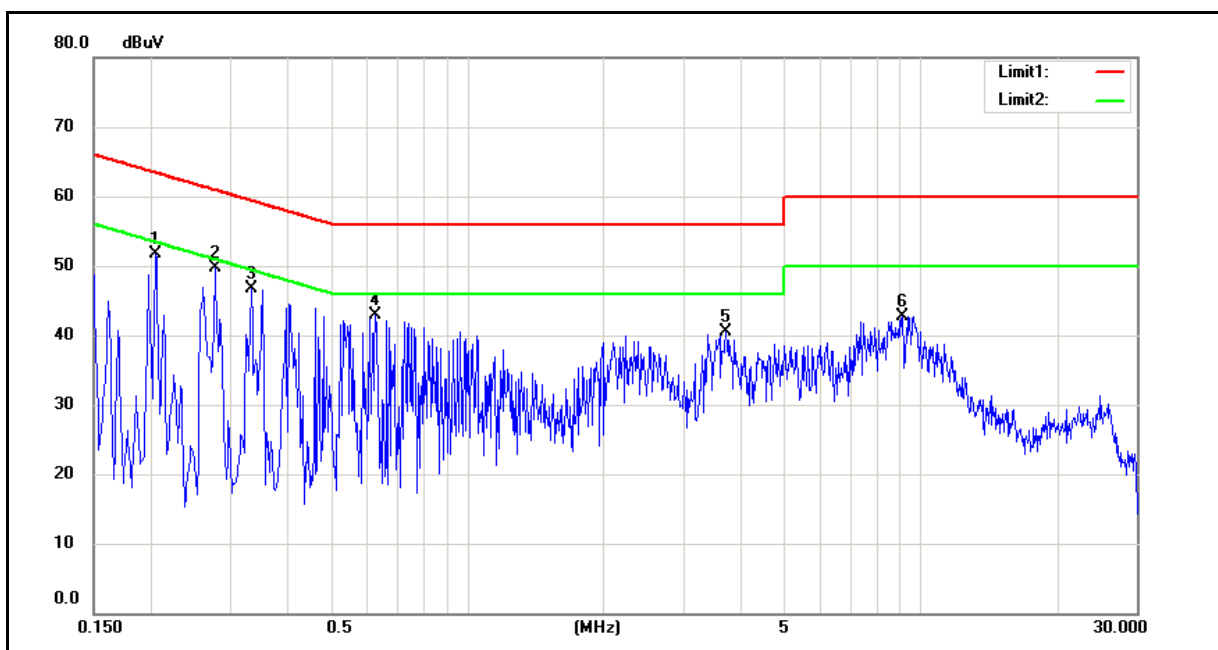
| No. | Frequency<br>(MHz) | QP<br>reading<br>(dBuV) | AVG<br>reading<br>(dBuV) | Correction<br>factor<br>(dB) | QP<br>result<br>(dBuV) | AVG<br>result<br>(dBuV) | QP<br>limit<br>(dBuV) | AVG<br>limit<br>(dBuV) | QP<br>margin<br>(dB) | AVG<br>margin<br>(dB) | Remark |
|-----|--------------------|-------------------------|--------------------------|------------------------------|------------------------|-------------------------|-----------------------|------------------------|----------------------|-----------------------|--------|
| 1   | 0.1980             | 38.29                   | 24.76                    | 10.07                        | 48.36                  | 34.83                   | 63.69                 | 53.69                  | -15.33               | -18.86                | Pass   |
| 2   | 0.2740             | 32.59                   | 18.62                    | 10.04                        | 42.63                  | 28.66                   | 61.00                 | 51.00                  | -18.37               | -22.34                | Pass   |
| 3   | 0.5460             | 24.53                   | 10.76                    | 9.94                         | 34.47                  | 20.70                   | 56.00                 | 46.00                  | -21.53               | -25.30                | Pass   |
| 4   | 1.0180             | 22.74                   | 10.62                    | 9.74                         | 32.48                  | 20.36                   | 56.00                 | 46.00                  | -23.52               | -25.64                | Pass   |
| 5   | 2.7740             | 17.45                   | 9.42                     | 9.80                         | 27.25                  | 19.22                   | 56.00                 | 46.00                  | -28.75               | -26.78                | Pass   |
| 6   | 9.1700             | 16.33                   | 9.72                     | 10.12                        | 26.45                  | 19.84                   | 60.00                 | 50.00                  | -33.55               | -30.16                | Pass   |

|              |                    |                      |              |
|--------------|--------------------|----------------------|--------------|
| Standard:    | FCC Part 15C       | Line:                | L1           |
| Test item:   | Conducted Emission | Power:               | AC 120V/60Hz |
| Model:       | OT-200             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:        | Mode 2             | Date:                | 2010/06/17   |
|              |                    | Test By:             | Gary Wu      |
| Description: |                    |                      |              |



| No. | Frequency (MHz) | QP reading (dBuV) | AVG reading (dBuV) | Correction factor (dB) | QP result (dBuV) | AVG result (dBuV) | QP limit (dBuV) | AVG limit (dBuV) | QP margin (dB) | AVG margin (dB) | Remark |
|-----|-----------------|-------------------|--------------------|------------------------|------------------|-------------------|-----------------|------------------|----------------|-----------------|--------|
| 1   | 0.2060          | 36.88             | 24.45              | 10.08                  | 46.96            | 34.53             | 63.37           | 53.37            | -16.41         | -18.84          | Pass   |
| 2   | 0.2820          | 37.08             | 23.50              | 10.05                  | 47.13            | 33.55             | 60.76           | 50.76            | -13.63         | -17.21          | Pass   |
| 3   | 0.3300          | 29.62             | 16.74              | 10.03                  | 39.65            | 26.77             | 59.45           | 49.45            | -19.80         | -22.68          | Pass   |
| 4   | 0.4940          | 29.52             | 13.44              | 9.96                   | 39.48            | 23.40             | 56.10           | 46.10            | -16.62         | -22.70          | Pass   |
| 5   | 1.2460          | 24.42             | 11.66              | 9.65                   | 34.07            | 21.31             | 56.00           | 46.00            | -21.93         | -24.69          | Pass   |
| 6   | 3.6140          | 28.36             | 15.67              | 9.84                   | 38.20            | 25.51             | 56.00           | 46.00            | -17.80         | -20.49          | Pass   |

|              |                    |                      |              |
|--------------|--------------------|----------------------|--------------|
| Standard:    | FCC Part 15C       | Line:                | N            |
| Test item:   | Conducted Emission | Power:               | AC 120V/60Hz |
| Model:       | OT-200             | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:        | Mode 2             | Date:                | 2010/06/17   |
|              |                    | Test By:             | Gary Wu      |
| Description: |                    |                      |              |



| No. | Frequency (MHz) | QP reading (dBuV) | AVG reading (dBuV) | Correction factor (dB) | QP result (dBuV) | AVG result (dBuV) | QP limit (dBuV) | AVG limit (dBuV) | QP margin (dB) | AVG margin (dB) | Remark |
|-----|-----------------|-------------------|--------------------|------------------------|------------------|-------------------|-----------------|------------------|----------------|-----------------|--------|
| 1   | 0.2060          | 39.23             | 22.26              | 10.07                  | 49.30            | 32.33             | 63.37           | 53.37            | -14.07         | -21.04          | Pass   |
| 2   | 0.2780          | 36.79             | 21.75              | 10.04                  | 46.83            | 31.79             | 60.88           | 50.88            | -14.05         | -19.09          | Pass   |
| 3   | 0.3340          | 33.54             | 16.71              | 10.03                  | 43.57            | 26.74             | 59.35           | 49.35            | -15.78         | -22.61          | Pass   |
| 4   | 0.6300          | 28.07             | 12.04              | 9.90                   | 37.97            | 21.94             | 56.00           | 46.00            | -18.03         | -24.06          | Pass   |
| 5   | 3.7340          | 23.50             | 10.63              | 9.83                   | 33.33            | 20.46             | 56.00           | 46.00            | -22.67         | -25.54          | Pass   |
| 6   | 9.1180          | 24.43             | 10.95              | 10.11                  | 34.54            | 21.06             | 60.00           | 50.00            | -25.46         | -28.94          | Pass   |

## 5 Radiated Interference Measurement

### 5.1. Limit

| Frequency Range<br>(MHz) | Peak<br>(dBuV) |
|--------------------------|----------------|
| 30 to 88                 | 39             |
| 88 to 216                | 43.5           |
| 216 to 960               | 46.4           |
| Above 960                | 49.5           |

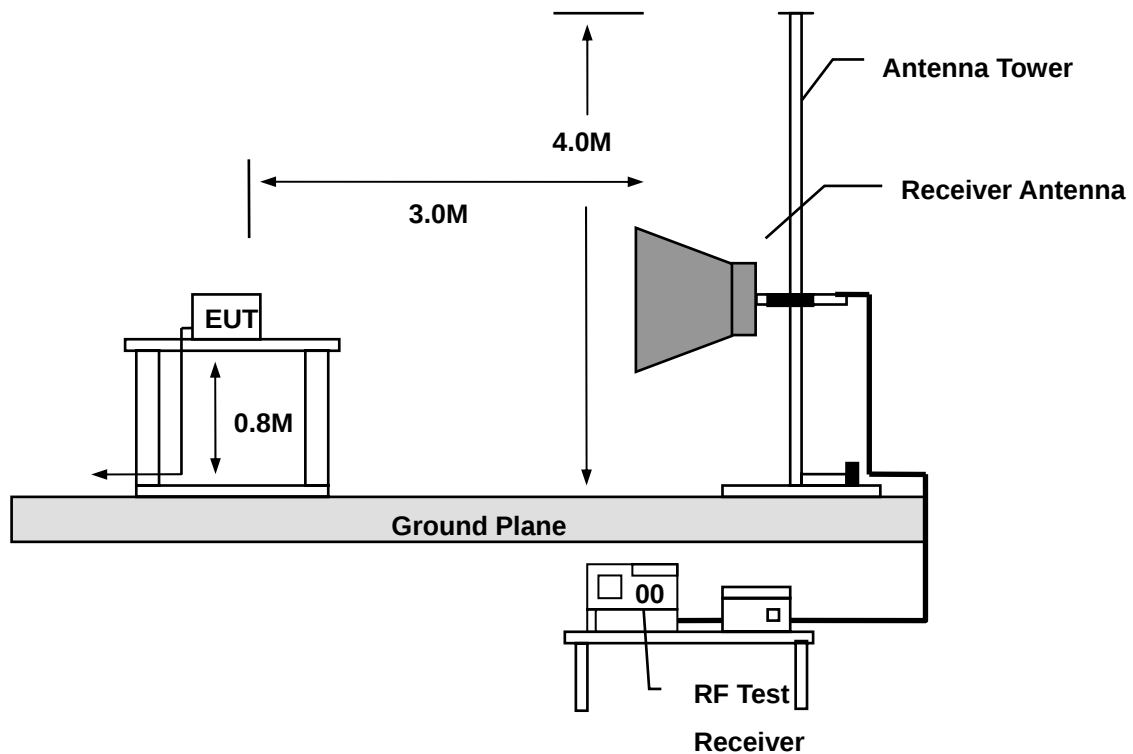
### 5.2. Test Instruments

| 3 Meter Chamber   |                                |              |               |            |        |
|-------------------|--------------------------------|--------------|---------------|------------|--------|
| Equipment         | Manufacturer                   | Model Number | Serial Number | Cal. Date  | Remark |
| RF Pre-selector   | Agilent                        | N9039A       | MY46520256    | 01/27/2009 | (2)    |
| Spectrum Analyzer | Agilent                        | E4446A       | MY46180578    | 01/20/2009 | (2)    |
| Pre Amplifier     | Agilent                        | 8449B        | 3008A02237    | 02/24/2010 | (1)    |
| Pre Amplifier     | Agilent                        | 8447D        | 2944A10961    | 02/24/2010 | (1)    |
| Bi-log Antenna    | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9163     | 9163-270      | 06/23/2009 | (2)    |
| Horn Antenna      | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9120D    | 9120D-550     | 07/01/2009 | (2)    |
| Horn Antenna      | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9170     | 9170-320      | 06/30/2009 | (2)    |
| Test Site         | ATL                            | TE01         | 888001        | 08/06/2009 | (1)    |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 5.3. Setup



### 5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

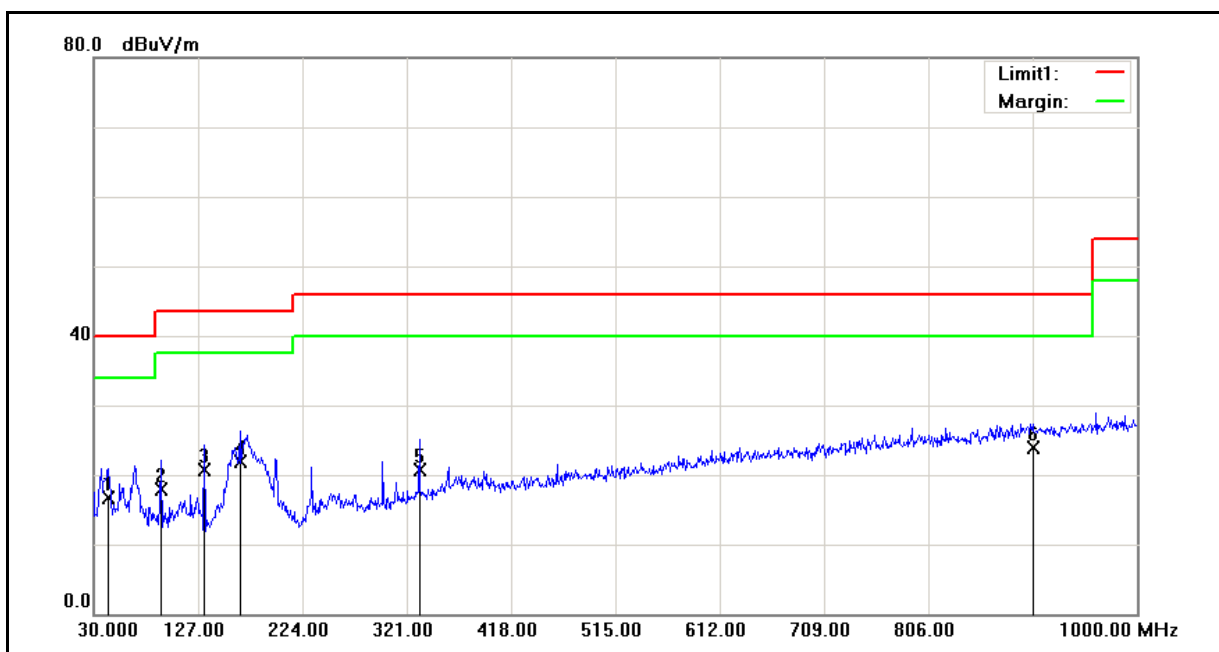
(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

## 5.5. Test Result

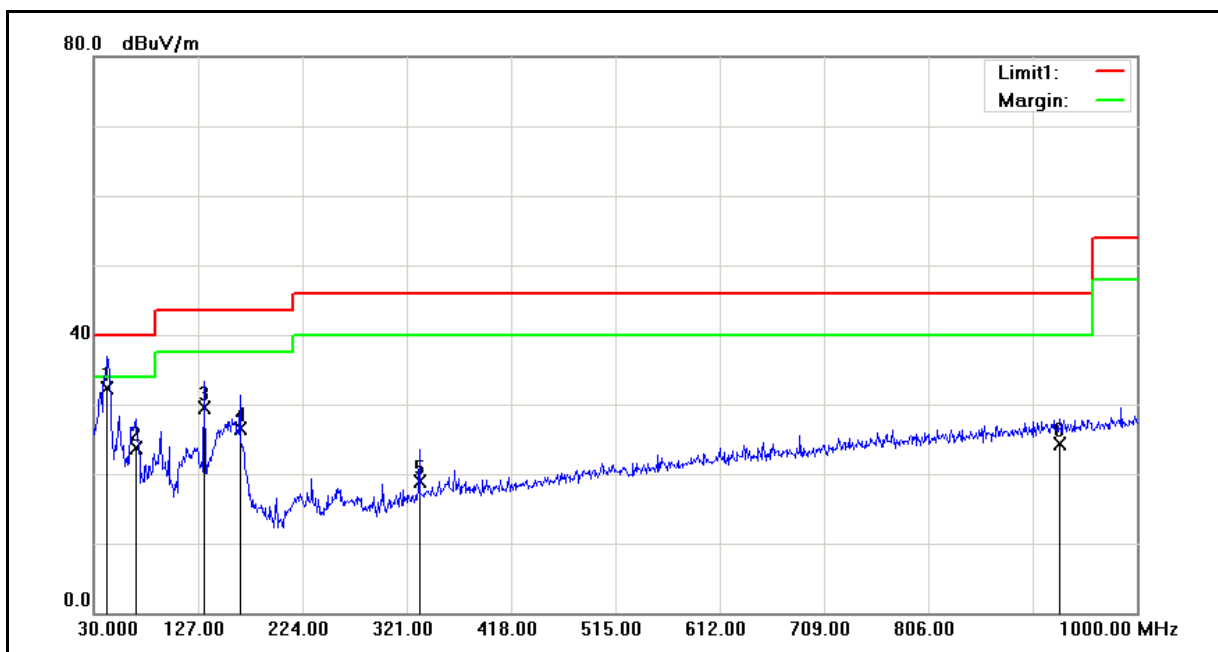
### 5.5.1. Below 1GHz

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 2            | Date:                | 2010/06/20   |
| Ant.Polar.: | Horizontal        | Test By:             | Gary Wu      |



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 43.5800         | 28.36          | -11.74               | 16.62           | 40.00          | -23.38      | QP     |
| 2   | 92.5650         | 33.15          | -15.29               | 17.86           | 43.50          | -25.64      | QP     |
| 3   | 132.8200        | 37.56          | -16.84               | 20.72           | 43.50          | -22.78      | QP     |
| 4   | 166.2850        | 37.45          | -15.60               | 21.85           | 43.50          | -21.65      | QP     |
| 5   | 332.6400        | 30.12          | -9.37                | 20.75           | 46.00          | -25.25      | QP     |
| 6   | 903.4850        | 23.64          | 0.36                 | 24.00           | 46.00          | -22.00      | QP     |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 2            | Date:                | 2010/06/20   |
| Ant.Polar.: | Vertical          | Test By:             | Gary Wu      |



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 42.6100         | 44.21          | -11.83               | 32.38           | 40.00          | -7.62       | QP     |
| 2   | 68.8000         | 39.36          | -15.68               | 23.68           | 40.00          | -16.32      | QP     |
| 3   | 132.8200        | 46.25          | -16.84               | 29.41           | 43.50          | -14.09      | QP     |
| 4   | 166.2850        | 42.12          | -15.60               | 26.52           | 43.50          | -16.98      | QP     |
| 5   | 332.6400        | 28.34          | -9.37                | 18.97           | 46.00          | -27.03      | QP     |
| 6   | 928.7050        | 23.64          | 0.65                 | 24.29           | 46.00          | -21.71      | QP     |

### 5.5.2. Above 1GHz

| <b>Standard:</b>   |                   | <b>FCC Part 15C</b>      |                    | <b>Test Distance:</b>       |                | <b>3m</b>           |                     |
|--------------------|-------------------|--------------------------|--------------------|-----------------------------|----------------|---------------------|---------------------|
| <b>Test item:</b>  |                   | <b>Radiated Emission</b> |                    | <b>Power:</b>               |                | <b>AC 120V/60Hz</b> |                     |
| <b>Model:</b>      |                   | <b>OT-200</b>            |                    | <b>Temp.(°C)/Hum.(%RH):</b> |                | <b>26(°C)/60%RH</b> |                     |
| <b>Mode:</b>       |                   | <b>Mode 3</b>            |                    | <b>Date:</b>                |                | <b>2010/06/20</b>   |                     |
| <b>Frequency:</b>  |                   | <b>2402 MHz</b>          |                    | <b>Test By:</b>             |                | <b>Gary Wu</b>      |                     |
| Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m)  | Result<br>(dBuV/m) | Limit<br>(dBuV/m)           | Margin<br>(dB) | Remark              | Ant.Polar.<br>H / V |
| 4804.000           | 43.42             | 7.74                     | 51.16              | 74.00                       | -22.84         | peak                | H                   |
| 7206.000           | 34.68             | 15.30                    | 49.98              | 74.00                       | -24.02         | peak                | H                   |
| 4804.000           | 42.88             | 7.74                     | 50.62              | 74.00                       | -23.38         | peak                | V                   |
| 7206.000           | 34.80             | 15.30                    | 50.10              | 74.00                       | -23.90         | peak                | V                   |

| <b>Standard:</b>   |                   | <b>FCC Part 15C</b>      |                    | <b>Test Distance:</b>       |                | <b>3m</b>           |                     |
|--------------------|-------------------|--------------------------|--------------------|-----------------------------|----------------|---------------------|---------------------|
| <b>Test item:</b>  |                   | <b>Radiated Emission</b> |                    | <b>Power:</b>               |                | <b>AC 120V/60Hz</b> |                     |
| <b>Model:</b>      |                   | <b>OT-200</b>            |                    | <b>Temp.(°C)/Hum.(%RH):</b> |                | <b>26(°C)/60%RH</b> |                     |
| <b>Mode:</b>       |                   | <b>Mode 3</b>            |                    | <b>Date:</b>                |                | <b>2010/06/20</b>   |                     |
| <b>Frequency:</b>  |                   | <b>2441 MHz</b>          |                    | <b>Test By:</b>             |                | <b>Gary Wu</b>      |                     |
| Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m)  | Result<br>(dBuV/m) | Limit<br>(dBuV/m)           | Margin<br>(dB) | Remark              | Ant.Polar.<br>H / V |
| 4882.000           | 47.98             | 7.96                     | 55.94              | 74.00                       | -18.06         | peak                | H                   |
| 4882.000           | 32.11             | 7.96                     | 40.07              | 54.00                       | -13.93         | AVG                 | H                   |
| 7323.000           | 34.56             | 15.63                    | 50.19              | 74.00                       | -23.81         | peak                | H                   |
| 4882.000           | 46.85             | 7.96                     | 54.81              | 74.00                       | -19.19         | peak                | V                   |
| 4882.000           | 32.26             | 7.96                     | 40.22              | 54.00                       | -13.78         | AVG                 | V                   |
| 7323.000           | 33.75             | 15.63                    | 49.38              | 74.00                       | -24.62         | peak                | V                   |

| <b>Standard:</b>   |                   | <b>FCC Part 15C</b>      |                    | <b>Test Distance:</b>       |                | <b>3m</b>           |                     |
|--------------------|-------------------|--------------------------|--------------------|-----------------------------|----------------|---------------------|---------------------|
| <b>Test item:</b>  |                   | <b>Radiated Emission</b> |                    | <b>Power:</b>               |                | <b>AC 120V/60Hz</b> |                     |
| <b>Model:</b>      |                   | <b>OT-200</b>            |                    | <b>Temp.(°C)/Hum.(%RH):</b> |                | <b>26(°C)/60%RH</b> |                     |
| <b>Mode:</b>       |                   | <b>Mode 3</b>            |                    | <b>Date:</b>                |                | <b>2010/06/20</b>   |                     |
| <b>Frequency:</b>  |                   | <b>2480 MHz</b>          |                    | <b>Test By:</b>             |                | <b>Gary Wu</b>      |                     |
| Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m)  | Result<br>(dBuV/m) | Limit<br>(dBuV/m)           | Margin<br>(dB) | Remark              | Ant.Polar.<br>H / V |
| 4960.000           | 51.45             | 8.18                     | 59.63              | 74.00                       | -14.37         | peak                | H                   |
| 4960.000           | 33.75             | 8.18                     | 41.93              | 54.00                       | -12.07         | AVG                 | H                   |
| 7440.000           | 34.79             | 15.96                    | 50.75              | 74.00                       | -23.25         | peak                | H                   |
| 4960.000           | 51.40             | 8.18                     | 59.58              | 74.00                       | -14.42         | peak                | V                   |
| 4960.000           | 33.71             | 8.18                     | 41.89              | 54.00                       | -12.11         | AVG                 | V                   |
| 7440.000           | 34.37             | 15.96                    | 50.33              | 74.00                       | -23.67         | peak                | V                   |

| <b>Standard:</b>   |                   | <b>FCC Part 15C</b>      |                    | <b>Test Distance:</b>       |                | <b>3m</b>           |                     |
|--------------------|-------------------|--------------------------|--------------------|-----------------------------|----------------|---------------------|---------------------|
| <b>Test item:</b>  |                   | <b>Radiated Emission</b> |                    | <b>Power:</b>               |                | <b>AC 120V/60Hz</b> |                     |
| <b>Model:</b>      |                   | <b>OT-200</b>            |                    | <b>Temp.(°C)/Hum.(%RH):</b> |                | <b>26(°C)/60%RH</b> |                     |
| <b>Mode:</b>       |                   | <b>Mode 5</b>            |                    | <b>Date:</b>                |                | <b>2010/06/20</b>   |                     |
| <b>Frequency:</b>  |                   | <b>2402 MHz</b>          |                    | <b>Test By:</b>             |                | <b>Gary Wu</b>      |                     |
| Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m)  | Result<br>(dBuV/m) | Limit<br>(dBuV/m)           | Margin<br>(dB) | Remark              | Ant.Polar.<br>H / V |
| 4804.000           | 38.02             | 7.74                     | 45.76              | 74.00                       | -28.24         | peak                | H                   |
| 7206.000           | 34.72             | 15.30                    | 50.02              | 74.00                       | -23.98         | peak                | H                   |
| 4804.000           | 37.82             | 7.74                     | 45.56              | 74.00                       | -28.44         | peak                | V                   |
| 7206.000           | 36.29             | 15.30                    | 51.59              | 74.00                       | -22.41         | peak                | V                   |

| <b>Standard:</b>   |                   | <b>FCC Part 15C</b>      |                    | <b>Test Distance:</b>       |                | <b>3m</b>           |                     |
|--------------------|-------------------|--------------------------|--------------------|-----------------------------|----------------|---------------------|---------------------|
| <b>Test item:</b>  |                   | <b>Radiated Emission</b> |                    | <b>Power:</b>               |                | <b>AC 120V/60Hz</b> |                     |
| <b>Model:</b>      |                   | <b>OT-200</b>            |                    | <b>Temp.(°C)/Hum.(%RH):</b> |                | <b>26(°C)/60%RH</b> |                     |
| <b>Mode:</b>       |                   | <b>Mode 5</b>            |                    | <b>Date:</b>                |                | <b>2010/06/20</b>   |                     |
| <b>Frequency:</b>  |                   | <b>2441 MHz</b>          |                    | <b>Test By:</b>             |                | <b>Gary Wu</b>      |                     |
| Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m)  | Result<br>(dBuV/m) | Limit<br>(dBuV/m)           | Margin<br>(dB) | Remark              | Ant.Polar.<br>H / V |
| 4882.000           | 41.56             | 7.96                     | 49.52              | 74.00                       | -24.48         | peak                | H                   |
| 7323.000           | 34.74             | 15.63                    | 50.37              | 74.00                       | -23.63         | peak                | H                   |
| 4882.000           | 42.01             | 7.96                     | 49.97              | 74.00                       | -24.03         | peak                | V                   |
| 7323.000           | 35.53             | 15.63                    | 51.16              | 74.00                       | -22.84         | peak                | V                   |

| <b>Standard:</b>   |                   | <b>FCC Part 15C</b>      |                    | <b>Test Distance:</b>       |                | <b>3m</b>           |                     |
|--------------------|-------------------|--------------------------|--------------------|-----------------------------|----------------|---------------------|---------------------|
| <b>Test item:</b>  |                   | <b>Radiated Emission</b> |                    | <b>Power:</b>               |                | <b>AC 120V/60Hz</b> |                     |
| <b>Model:</b>      |                   | <b>OT-200</b>            |                    | <b>Temp.(°C)/Hum.(%RH):</b> |                | <b>26(°C)/60%RH</b> |                     |
| <b>Mode:</b>       |                   | <b>Mode 5</b>            |                    | <b>Date:</b>                |                | <b>2010/06/20</b>   |                     |
| <b>Frequency:</b>  |                   | <b>2480 MHz</b>          |                    | <b>Test By:</b>             |                | <b>Gary Wu</b>      |                     |
| Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m)  | Result<br>(dBuV/m) | Limit<br>(dBuV/m)           | Margin<br>(dB) | Remark              | Ant.Polar.<br>H / V |
| 4960.000           | 45.46             | 8.18                     | 53.64              | 74.00                       | -20.36         | peak                | H                   |
| 4960.000           | 30.95             | 8.18                     | 39.13              | 54.00                       | -14.87         | AVG                 | H                   |
| 7440.000           | 32.78             | 15.96                    | 48.74              | 74.00                       | -25.26         | peak                | H                   |
| 4960.000           | 44.43             | 8.18                     | 52.61              | 74.00                       | -21.39         | peak                | V                   |
| 4960.000           | 30.83             | 8.18                     | 39.01              | 54.00                       | -14.99         | AVG                 | V                   |
| 7440.000           | 34.53             | 15.96                    | 50.49              | 74.00                       | -23.51         | peak                | V                   |

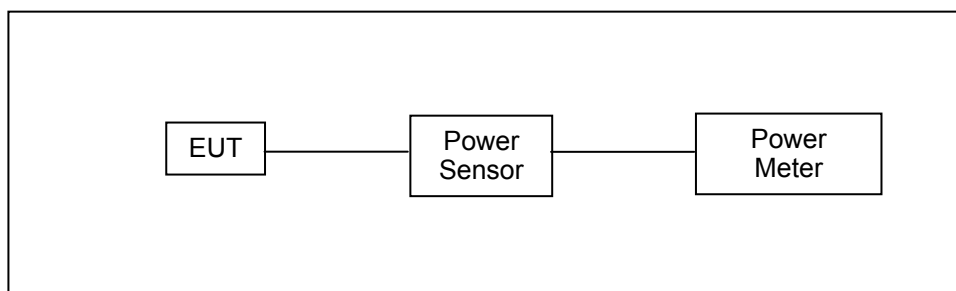
| <b>Standard:</b>           |                           | <b>FCC Part 15C</b>             |                            | <b>Test Distance:</b>       |                        | <b>3m</b>           |                             |
|----------------------------|---------------------------|---------------------------------|----------------------------|-----------------------------|------------------------|---------------------|-----------------------------|
| <b>Test item:</b>          |                           | <b>Radiated Emission</b>        |                            | <b>Power:</b>               |                        | <b>AC 120V/60Hz</b> |                             |
| <b>Model:</b>              |                           | <b>OT-200</b>                   |                            | <b>Temp.(°C)/Hum.(%RH):</b> |                        | <b>26(°C)/60%RH</b> |                             |
| <b>Mode:</b>               |                           | <b>Mode 6</b>                   |                            | <b>Date:</b>                |                        | <b>2010/06/20</b>   |                             |
| <b>Frequency:</b>          |                           | <b>2441 MHz</b>                 |                            | <b>Test By:</b>             |                        | <b>Gary Wu</b>      |                             |
| <b>Frequency<br/>(MHz)</b> | <b>Reading<br/>(dBuV)</b> | <b>Correct<br/>Factor(dB/m)</b> | <b>Result<br/>(dBuV/m)</b> | <b>Limit<br/>(dBuV/m)</b>   | <b>Margin<br/>(dB)</b> | <b>Remark</b>       | <b>Ant.Polar.<br/>H / V</b> |
| 2725.500                   | 40.06                     | 1.07                            | 41.13                      | 74.00                       | -32.87                 | peak                | H                           |
| 6600.000                   | 35.37                     | 13.26                           | 48.63                      | 74.00                       | -25.37                 | peak                | H                           |
| 2736.000                   | 41.30                     | 1.11                            | 42.41                      | 74.00                       | -31.59                 | peak                | V                           |
| 6729.500                   | 35.64                     | 13.73                           | 49.37                      | 74.00                       | -24.63                 | peak                | V                           |

## 6 Maximum Conducted Output Power Measurement

### 6.1. Limit

For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels < 1 watt.

### 6.2. Test Setup



### 6.3. Test Instruments

| Equipment                      | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark |
|--------------------------------|--------------|--------------|---------------|------------|--------|
| Single Channel PK Power Sensor | Agilent      | N1911A       | MY15101619    | 07/14/2009 | (1)    |
| Wideband Power Meter           | Agilent      | N1921A       | MY45241957    | 07/25/2009 | (1)    |
| Test Site                      | ATL          | TE06         | TE06          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 6.4. Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the power sensor, for prevent the power sensor input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

The antenna port of the EUT was connected to the input of a power sensor. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

## 6.5. Test Result

| Model           | OT-200                         |               |         |             |                |           |
|-----------------|--------------------------------|---------------|---------|-------------|----------------|-----------|
| Test Item       | Maximum Conducted Output Power |               |         |             |                |           |
| Test Mode       | Mode 3: GFSK Link Mode         |               |         |             |                |           |
| Date of Test    | 06/22/2010                     |               |         | Test Site   | TE06           |           |
| Frequency (MHz) | Packet Type                    | Average Power |         | Peak Power  |                | Limit (W) |
|                 |                                | (dBm)         | (W)     | (dBm)       | (W)            |           |
| 2402            | DH1                            | -2.04         | 0.00063 | <b>3.44</b> | <b>0.00221</b> | < 1       |
|                 | DH3                            | 1.14          | 0.00130 | 3.42        | 0.00220        | < 1       |
|                 | DH5                            | 1.82          | 0.00152 | 3.35        | 0.00216        | < 1       |
| 2441            | DH1                            | -2.26         | 0.00059 | 3.03        | 0.00201        | < 1       |
|                 | DH3                            | 0.91          | 0.00123 | 3.08        | 0.00203        | < 1       |
|                 | DH5                            | 1.59          | 0.00144 | 3.09        | 0.00204        | < 1       |
| 2480            | DH1                            | -3.60         | 0.00044 | 1.74        | 0.00149        | < 1       |
|                 | DH3                            | -0.43         | 0.00091 | 1.73        | 0.00149        | < 1       |
|                 | DH5                            | 0.25          | 0.00106 | 1.73        | 0.00149        | < 1       |

| Model           | OT-200                         |               |         |             |                |           |
|-----------------|--------------------------------|---------------|---------|-------------|----------------|-----------|
| Test Item       | Maximum Conducted Output Power |               |         |             |                |           |
| Test Mode       | Mode 4: $\pi/4$ -DQPSK Mode    |               |         |             |                |           |
| Date of Test    | 06/22/2010                     |               |         | Test Site   | TE06           |           |
| Frequency (MHz) | Packet Type                    | Average Power |         | Peak Power  |                | Limit (W) |
|                 |                                | (dBm)         | (W)     | (dBm)       | (W)            |           |
| 2402            | DH1                            | -2.81         | 0.00052 | 3.76        | 0.00238        | < 1       |
|                 | DH3                            | -0.05         | 0.00099 | <b>3.83</b> | <b>0.00242</b> | < 1       |
|                 | DH5                            | 0.57          | 0.00114 | 3.81        | 0.00240        | < 1       |
| 2441            | DH1                            | -3.31         | 0.00047 | 3.39        | 0.00218        | < 1       |
|                 | DH3                            | -0.57         | 0.00088 | 3.40        | 0.00219        | < 1       |
|                 | DH5                            | 0.04          | 0.00101 | 3.33        | 0.00215        | < 1       |
| 2480            | DH1                            | -4.81         | 0.00033 | 1.98        | 0.00158        | < 1       |
|                 | DH3                            | -2.10         | 0.00062 | 2.00        | 0.00158        | < 1       |
|                 | DH5                            | -1.47         | 0.00071 | 2.01        | 0.00159        | < 1       |

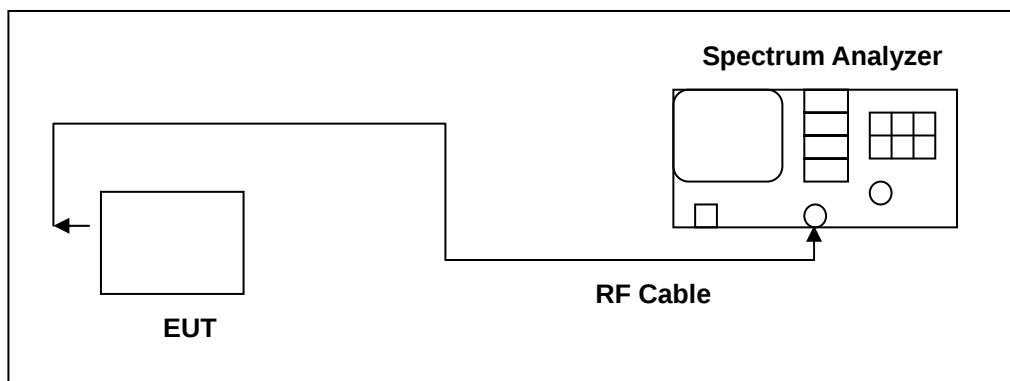
| Model           | OT-200                         |               |         |             |                |           |
|-----------------|--------------------------------|---------------|---------|-------------|----------------|-----------|
| Test Item       | Maximum Conducted Output Power |               |         |             |                |           |
| Test Mode       | Mode 5: 8DPSK Link Mode        |               |         |             |                |           |
| Date of Test    | 06/22/2010                     |               |         | Test Site   | TE06           |           |
| Frequency (MHz) | Packet Type                    | Average Power |         | Peak Power  |                | Limit (W) |
|                 |                                | (dBm)         | (W)     | (dBm)       | (W)            |           |
| 2402            | DH1                            | -2.82         | 0.00052 | <b>3.89</b> | <b>0.00245</b> | < 1       |
|                 | DH3                            | -0.08         | 0.00098 | 3.82        | 0.00241        | < 1       |
|                 | DH5                            | 0.53          | 0.00113 | 3.82        | 0.00241        | < 1       |
| 2441            | DH1                            | -3.32         | 0.00047 | 3.42        | 0.00220        | < 1       |
|                 | DH3                            | -0.59         | 0.00087 | 3.40        | 0.00219        | < 1       |
|                 | DH5                            | 0.03          | 0.00101 | 3.44        | 0.00221        | < 1       |
| 2480            | DH1                            | -4.79         | 0.00033 | 2.11        | 0.00163        | < 1       |
|                 | DH3                            | -2.09         | 0.00062 | 1.99        | 0.00158        | < 1       |
|                 | DH5                            | -1.47         | 0.00071 | 2.04        | 0.00160        | < 1       |

## 7 Minimum 20dB RF Bandwidth Measurement

### 7.1. Limit

N/A

### 7.2. Test Setup



### 7.3. Test Instruments

| Equipment         | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark         |
|-------------------|--------------|--------------|---------------|------------|----------------|
| Spectrum Analyzer | Agilent      | E4445A       | MY46181986    | 05/14/2009 | <sup>(2)</sup> |
| Test Site         | ATL          | TE06         | TE06          | N.C.R.     | -----          |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 7.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW  $\geq$  1% of the 20dB span
3. VBW  $\geq$  RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

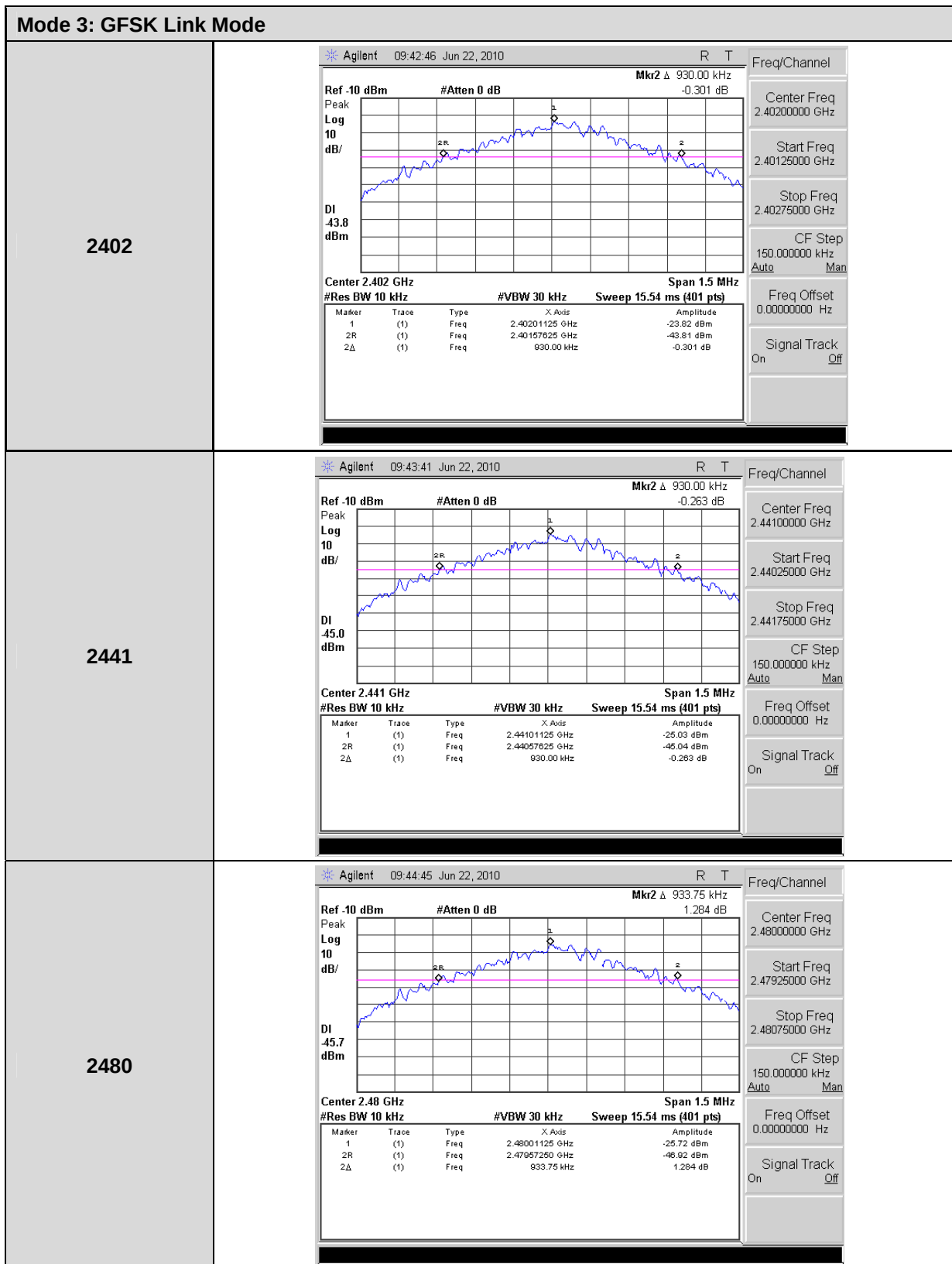
The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

## 7.5. Test Result

|                 |                           |             |      |
|-----------------|---------------------------|-------------|------|
| Model           | OT-200                    |             |      |
| Test Item       | Minimum 20dB RF Bandwidth |             |      |
| Test Mode       | Mode 3: GFSK Link Mode    |             |      |
| Date of Test    | 06/22/2010                | Test Site   | TE06 |
| Frequency (MHz) | Measurement (MHz)         | Limit (MHz) |      |
| 2402            | 0.93000                   | -----       |      |
| 2441            | 0.93000                   | -----       |      |
| 2480            | 0.93375                   | -----       |      |

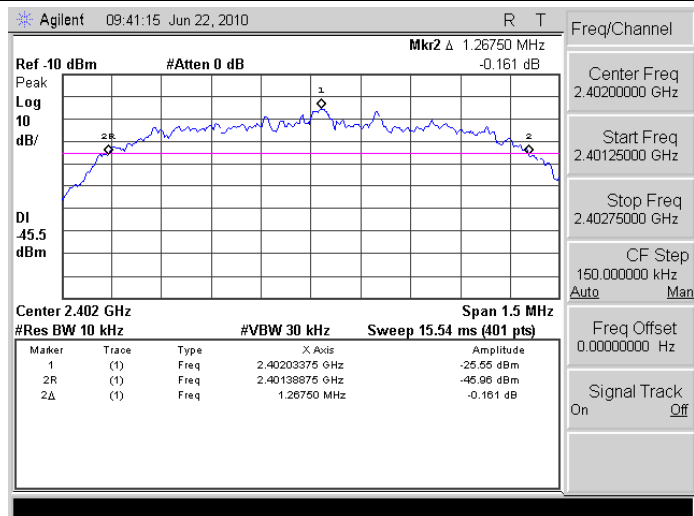
|                 |                           |             |      |
|-----------------|---------------------------|-------------|------|
| Model           | OT-200                    |             |      |
| Test Item       | Minimum 20dB RF Bandwidth |             |      |
| Test Mode       | Mode 5: 8DPSK Link Mode   |             |      |
| Date of Test    | 06/22/2010                | Test Site   | TE06 |
| Frequency (MHz) | 20dB Bandwidth (MHz)      | Limit (MHz) |      |
| 2402            | 1.26750                   | -----       |      |
| 2441            | 1.26750                   | -----       |      |
| 2480            | 1.30500                   | -----       |      |

## 7.6. Test Graphs

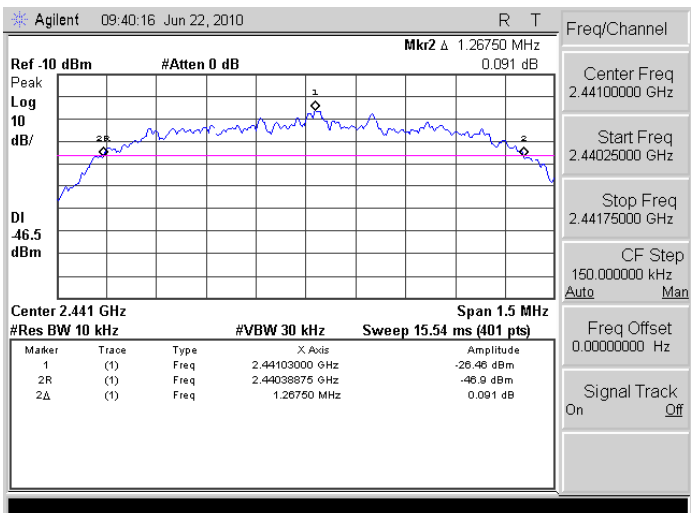


**Mode 5: 8DPSK Link Mode**

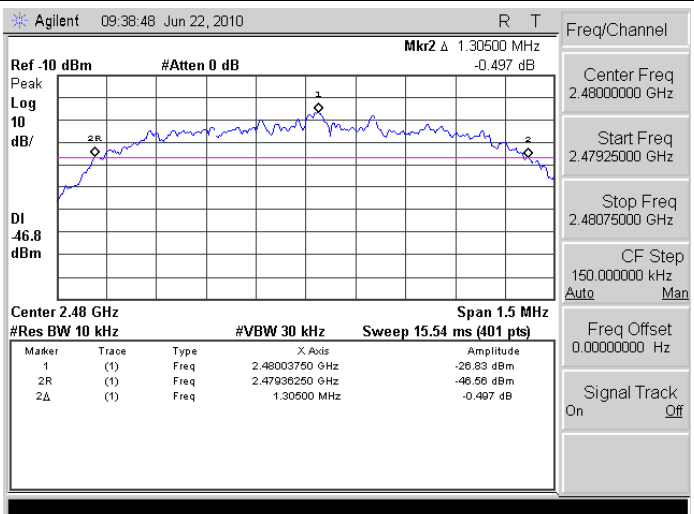
**2402**



**2441**



**2480**

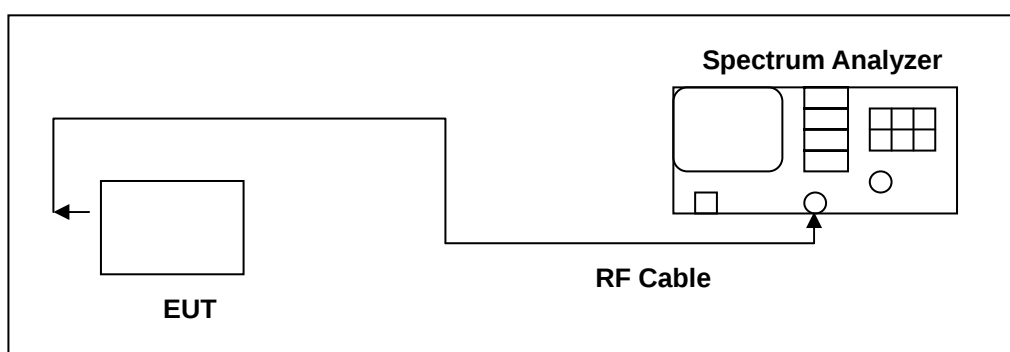


## 8 Carrier Frequency Separation Measurement

### 8.1. Limit

Title 47 of the CFR: 2002, Part 15 Subpart (c) 15.247(a)(1)(i) requires the measurement of the bandwidth of the transmission between the -20 dB points on the transmitted spectrum. The results of this test determine the limits for channel spacing. The channel spacing shall be a minimum of 25 kHz or the 20 dB bandwidth.

### 8.2. Test Setup



### 8.3. Test Instruments

| Equipment         | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark         |
|-------------------|--------------|--------------|---------------|------------|----------------|
| Spectrum Analyzer | Agilent      | E4445A       | MY46181986    | 05/14/2009 | <sup>(2)</sup> |
| Test Site         | ATL          | TE06         | TE06          | N.C.R.     | -----          |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

## 8.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW)  $\geq$  1% of the span
3. Video (or Average) Bandwidth (VBW)  $\geq$  RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

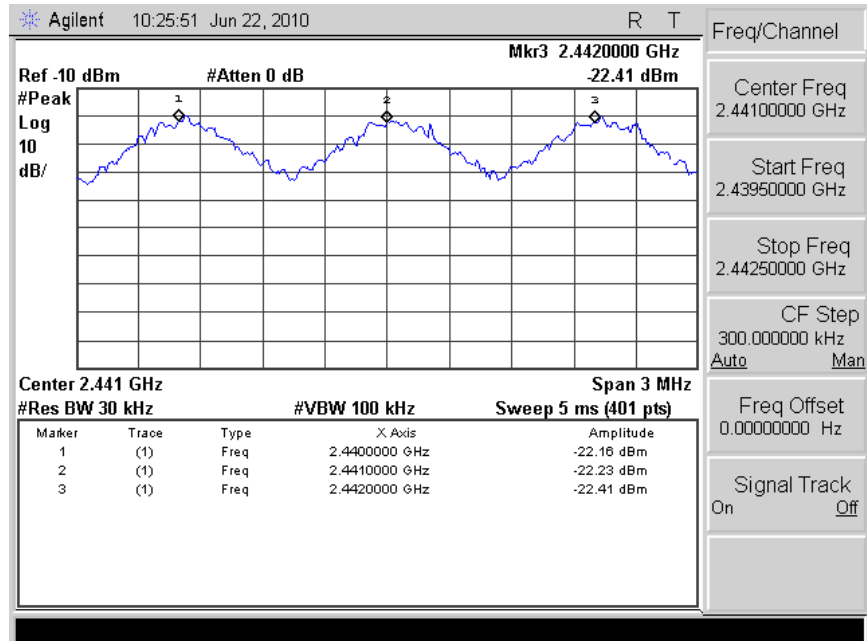
## 8.5. Test Result

|                 |                              |                                          |      |
|-----------------|------------------------------|------------------------------------------|------|
| Model           | OT-200                       |                                          |      |
| Test Item       | Carrier Frequency Separation |                                          |      |
| Test Mode       | Mode 3: GFSK Link Mode       |                                          |      |
| Date of Test    | 06/22/2010                   | Test Site                                | TE06 |
| Frequency (MHz) | Measurement (MHz)            | Limit (MHz)                              |      |
| 2441            | 1                            | minimum of 25 kHz or the 20 dB bandwidth |      |

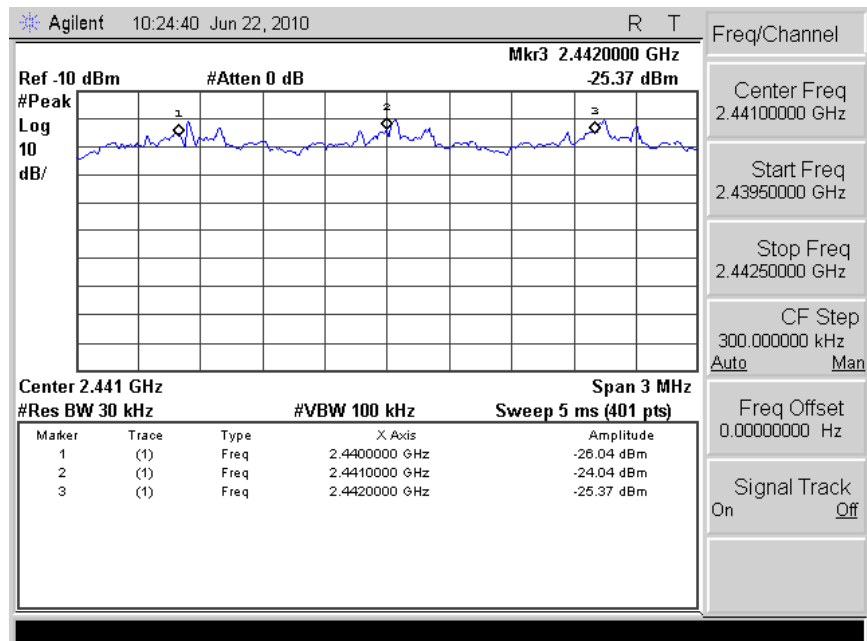
|                 |                              |                                          |      |
|-----------------|------------------------------|------------------------------------------|------|
| Model           | OT-200                       |                                          |      |
| Test Item       | Carrier Frequency Separation |                                          |      |
| Test Mode       | Mode 5: 8DPSK Link Mode      |                                          |      |
| Date of Test    | 06/22/2010                   | Test Site                                | TE06 |
| Frequency (MHz) | Measurement (MHz)            | Limit (MHz)                              |      |
| 2441            | 1                            | minimum of 25 kHz or the 20 dB bandwidth |      |

## 8.6. Test Graphs

### Mode 3: GFSK Link Mode



### Mode 5: 8DPSK Link Mode

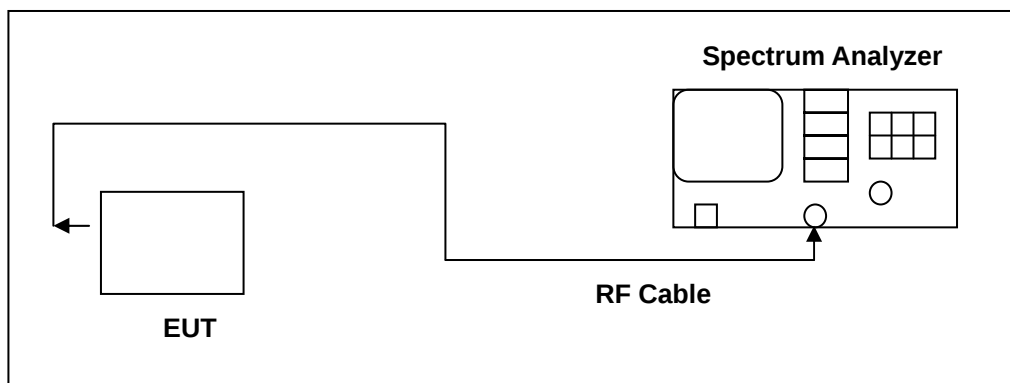


## 9 Number of Hopping Measurement

### 9.1. Limit

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

### 9.2. Test Setup



### 9.3. Test Instruments

| Equipment         | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark         |
|-------------------|--------------|--------------|---------------|------------|----------------|
| Spectrum Analyzer | Agilent      | E4445A       | MY46181986    | 05/14/2009 | <sup>(2)</sup> |
| Test Site         | ATL          | TE06         | TE06          | N.C.R.     | -----          |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 9.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW  $\geq$  1% of the span
3. VBW  $\geq$  RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

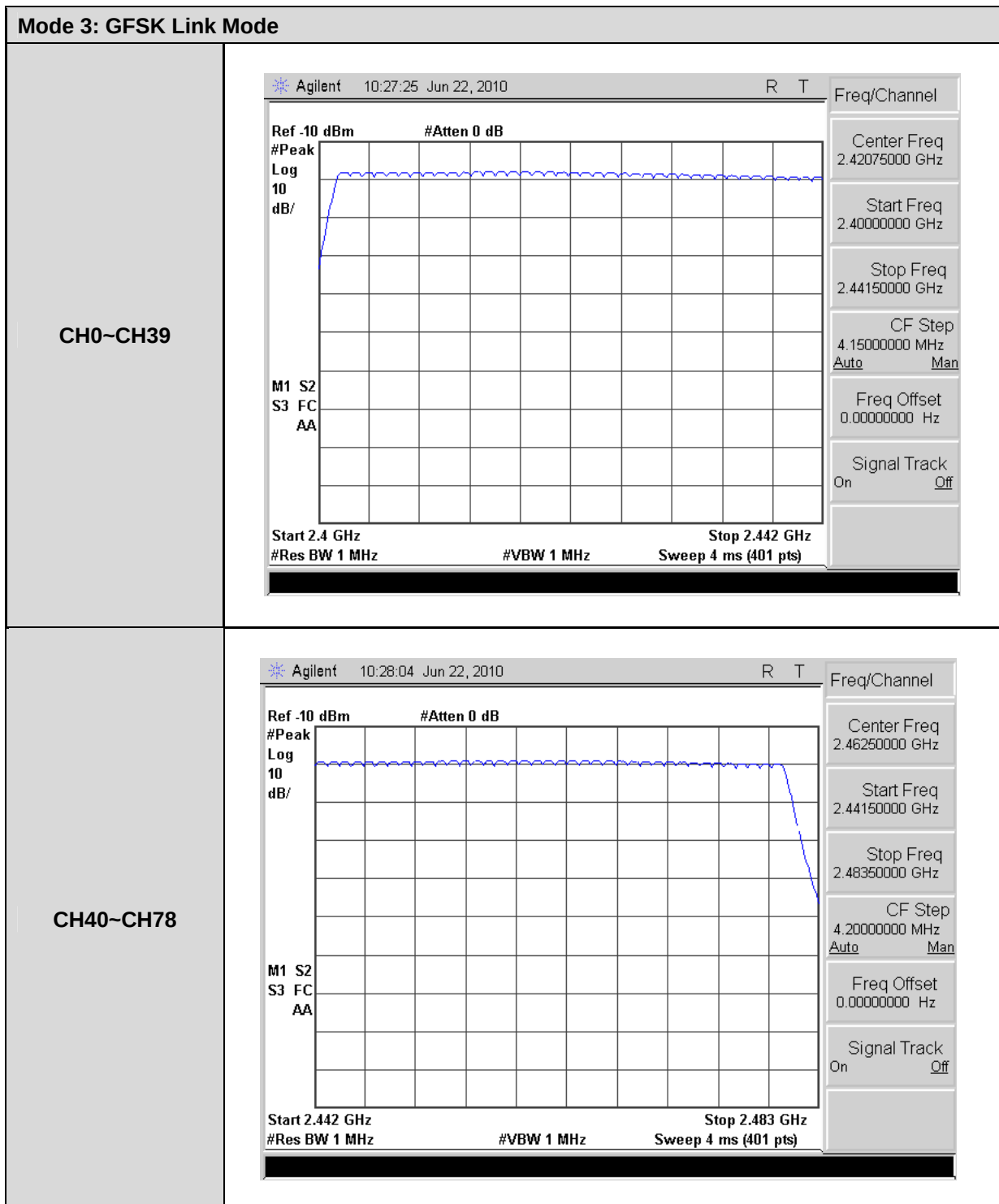
The trace was allowed to stabilize.

## 9.5. Test Result

|                          |                        |           |               |
|--------------------------|------------------------|-----------|---------------|
| Model                    | OT-200                 |           |               |
| Test Item                | Number of Hopping      |           |               |
| Test Mode                | Mode 3: GFSK Link Mode |           |               |
| Date of Test             | 06/22/2010             | Test Site | TE06          |
| Frequency Range<br>(MHz) | Measurement<br>(ch)    |           | Limit<br>(ch) |
| 2402 - 2480              | 79                     |           | > 15          |

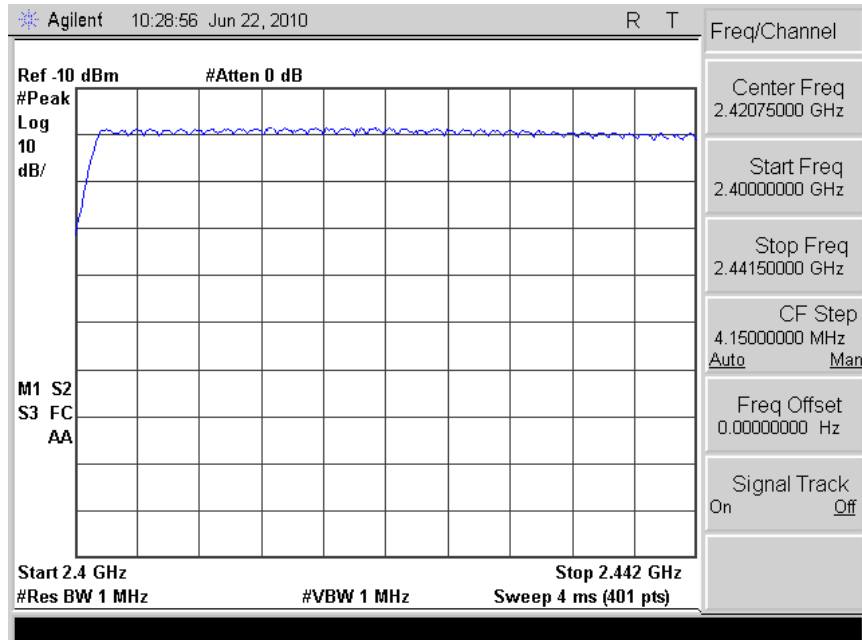
|                          |                         |           |               |
|--------------------------|-------------------------|-----------|---------------|
| Model                    | OT-200                  |           |               |
| Test Item                | Number of Hopping       |           |               |
| Test Mode                | Mode 5: 8DPSK Link Mode |           |               |
| Date of Test             | 06/22/2010              | Test Site | TE06          |
| Frequency Range<br>(MHz) | Measurement<br>(ch)     |           | Limit<br>(ch) |
| 2402 - 2480              | 79                      |           | > 15          |

## 9.6. Test Graphs

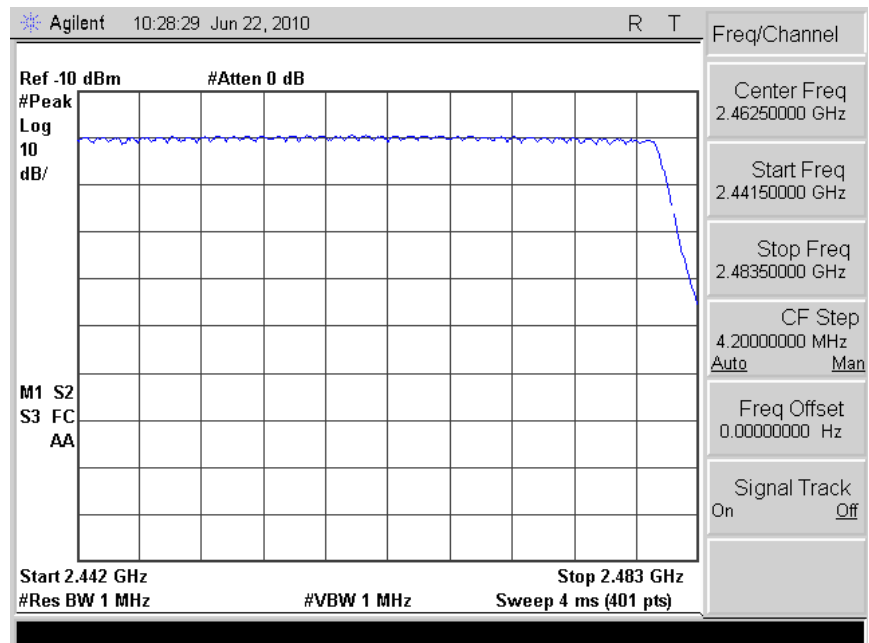


**Mode 5: 8DPSK Link Mode**

**CH0~CH39**



**CH40~CH78**

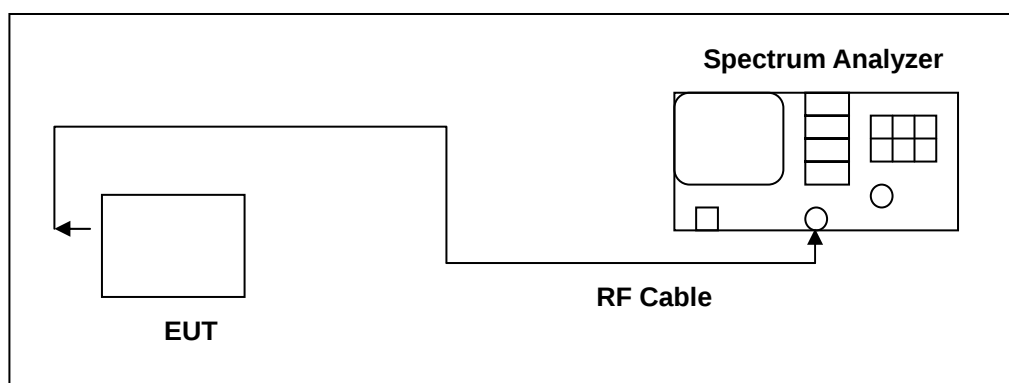


## 10 Time of Occupancy (Dwell Time) Measurement

### 10.1. Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

### 10.2. Test Setup



### 10.3. Test Instruments

| Equipment         | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark         |
|-------------------|--------------|--------------|---------------|------------|----------------|
| Spectrum Analyzer | Agilent      | E4445A       | MY46181986    | 05/14/2009 | <sup>(2)</sup> |
| Test Site         | ATL          | TE06         | TE06          | N.C.R.     | -----          |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 10.4. Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 1 MHz
3. VBW  $\geq$  RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

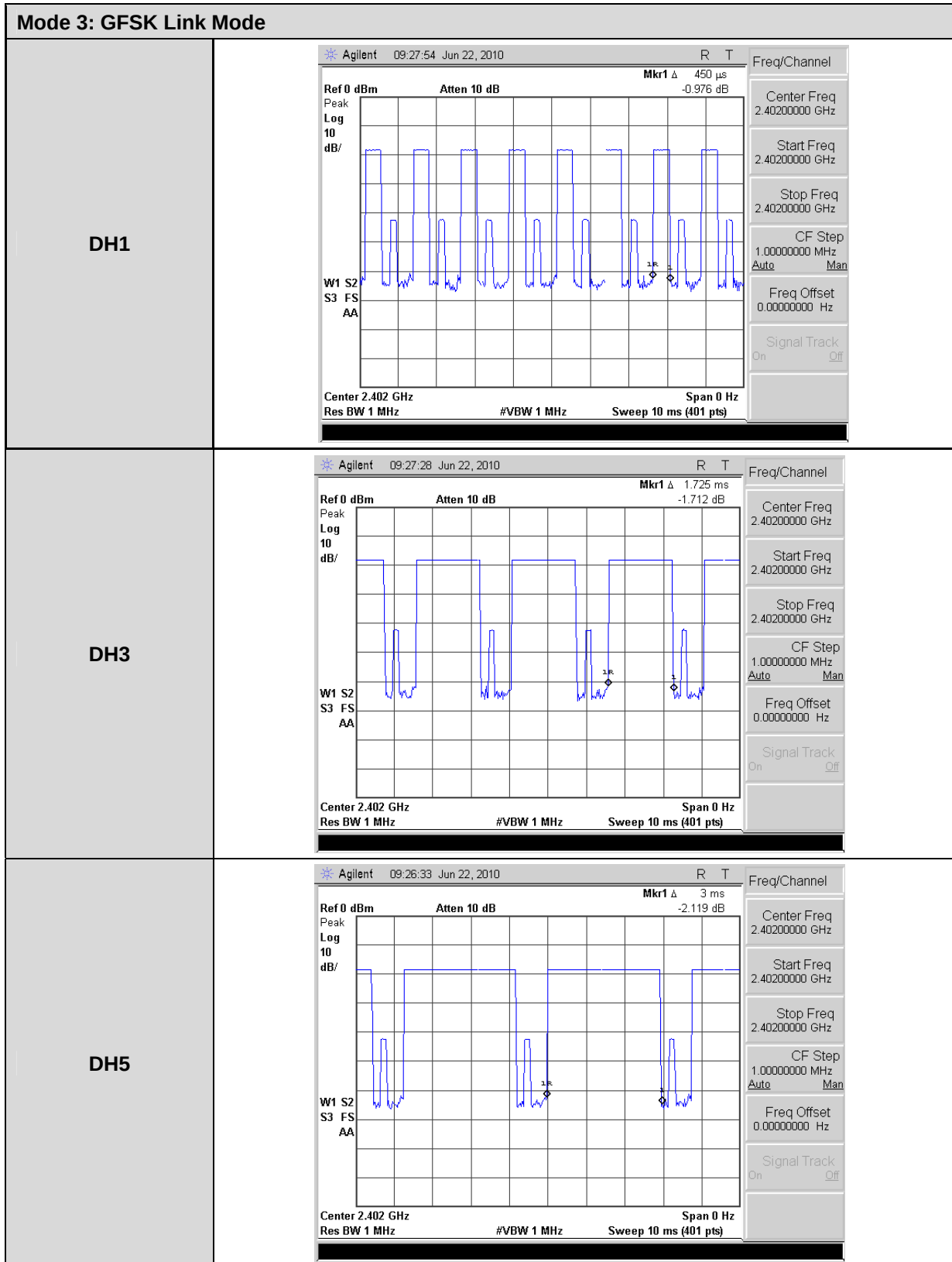
The marker-delta function was used to determine the dwell time.

### 10.5. Test Result

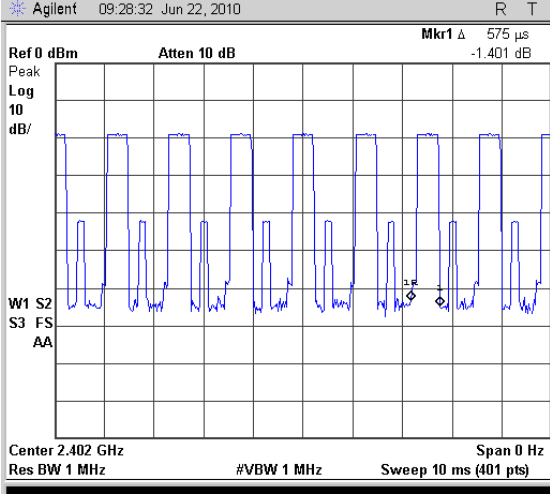
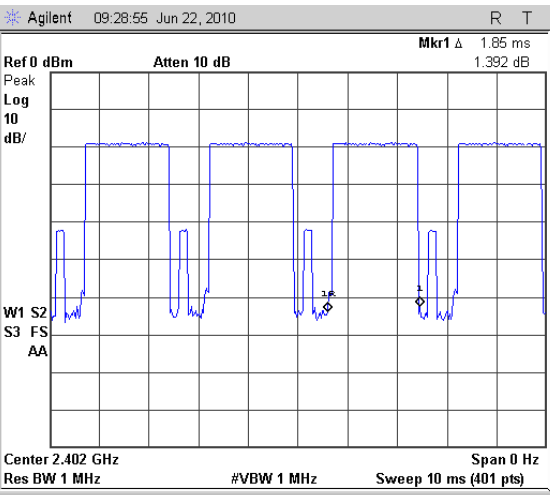
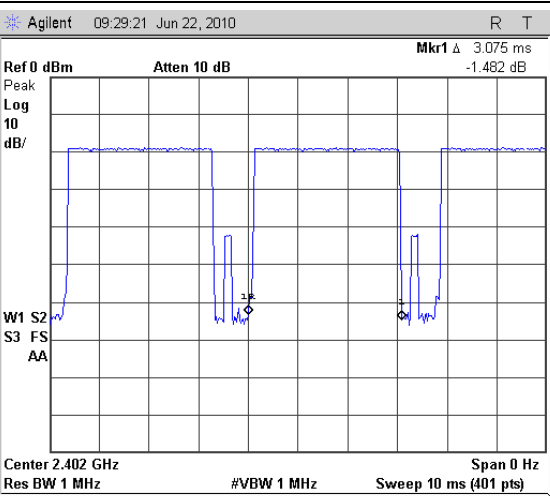
|                                      |                                |           |      |
|--------------------------------------|--------------------------------|-----------|------|
| Model                                | OT-200                         |           |      |
| Test Item                            | Time of Occupancy (Dwell Time) |           |      |
| Test Mode                            | Mode 3: GFSK Link Mode         |           |      |
| Date of Test                         | 06/22/2010                     | Test Site | TE06 |
| DH1                                  |                                |           |      |
| Cycle Calculate                      | 79CH * 0.4 = 31.6 (sec)        |           |      |
| The EUT Hopping Number per Sec       | 1600 times/sec                 |           |      |
| Each Channel Dwell Times per Sec     | 800/79CH = 10.13(times/sec)    |           |      |
| Each Channel Dwell Times (1)         | 0.450       ms (sec)           |           |      |
| Each Channel Dwell Times on Cycle(2) | 31.6 * 10.13 = 320.108(times)  |           |      |
| Dwell Times on Cycle (1) * (2)       | 144.0486   ms (sec)            |           |      |
| LIMIT(msec)                          | < = 400                        |           |      |
| DH3                                  |                                |           |      |
| Cycle Calculate                      | 79CH * 0.4 = 31.6 (sec)        |           |      |
| The EUT Hopping Number per Sec       | 1600 times/sec                 |           |      |
| Each Channel Dwell Times per Sec     | 400/79CH = 5.1(times/sec)      |           |      |
| Each Channel Dwell Times (1)         | 1.725       ms (sec)           |           |      |
| Each Channel Dwell Times on Cycle(2) | 31.6 * 5.1 = 161.16(times)     |           |      |
| Dwell Times on Cycle (1) * (2)       | 278.0010   ms (sec)            |           |      |
| LIMIT(msec)                          | < = 400                        |           |      |
| DH5                                  |                                |           |      |
| Cycle Calculate                      | 79CH * 0.4 = 31.6 (sec)        |           |      |
| The EUT Hopping Number per Sec       | 1600 times/sec                 |           |      |
| Each Channel Dwell Times per Sec     | 266.7/79CH = 3.37(times/sec)   |           |      |
| Each Channel Dwell Times (1)         | 3.000       ms (sec)           |           |      |
| Each Channel Dwell Times on Cycle(2) | 31.6 * 3.37 = 106.492(times)   |           |      |
| Dwell Times on Cycle (1) * (2)       | 319.4760   ms (sec)            |           |      |
| LIMIT(msec)                          | < = 400                        |           |      |

|                                      |                                |           |      |
|--------------------------------------|--------------------------------|-----------|------|
| Model                                | OT-200                         |           |      |
| Test Item                            | Time of Occupancy (Dwell Time) |           |      |
| Test Mode                            | Mode 5: 8DPSK Link Mode        |           |      |
| Date of Test                         | 06/22/2010                     | Test Site | TE06 |
| 3DH1                                 |                                |           |      |
| Cycle Calculate                      | 79CH * 0.4 = 31.6 (sec)        |           |      |
| The EUT Hopping Number per Sec       | 1600 times/sec                 |           |      |
| Each Channel Dwell Times per Sec     | 800/79CH = 10.13(times/sec)    |           |      |
| Each Channel Dwell Times (1)         | 0.575       ms (sec)           |           |      |
| Each Channel Dwell Times on Cycle(2) | 31.6 * 10.13 = 320.108(times)  |           |      |
| Dwell Times on Cycle (1) * (2)       | 184.0621   ms (sec)            |           |      |
| LIMIT(msec)                          | < = 400                        |           |      |
| 3DH3                                 |                                |           |      |
| Cycle Calculate                      | 79CH * 0.4 = 31.6 (sec)        |           |      |
| The EUT Hopping Number per Sec       | 1600 times/sec                 |           |      |
| Each Channel Dwell Times per Sec     | 400/79CH = 5.1(times/sec)      |           |      |
| Each Channel Dwell Times (1)         | 1.850       ms (sec)           |           |      |
| Each Channel Dwell Times on Cycle(2) | 31.6 * 5.1 = 161.16(times)     |           |      |
| Dwell Times on Cycle (1) * (2)       | 298.1460   ms (sec)            |           |      |
| LIMIT(msec)                          | < = 400                        |           |      |
| 3DH5                                 |                                |           |      |
| Cycle Calculate                      | 79CH * 0.4 = 31.6 (sec)        |           |      |
| The EUT Hopping Number per Sec       | 1600 times/sec                 |           |      |
| Each Channel Dwell Times per Sec     | 266.7/79CH = 3.37(times/sec)   |           |      |
| Each Channel Dwell Times (1)         | 3.075       ms (sec)           |           |      |
| Each Channel Dwell Times on Cycle(2) | 31.6 * 3.37 = 106.492(times)   |           |      |
| Dwell Times on Cycle (1) * (2)       | 327.4629   ms (sec)            |           |      |
| LIMIT(msec)                          | < = 400                        |           |      |

## 10.6. Test Graphs



**Mode 5: 8DPSK Link Mode**

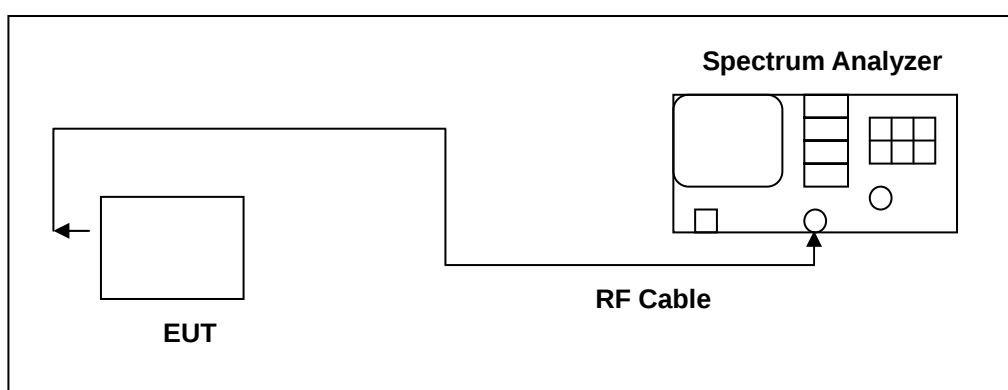
|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>2DH1</b></p> |  <p>Agilent 09:28:32 Jun 22, 2010 R T</p> <p>Ref 0 dBm Atten 10 dB Mkr1 Δ 575 μs -1.401 dB</p> <p>Center 2.402 GHz Res BW 1 MHz #VBW 1 MHz Sweep 10 ms (401 pts) Span 0 Hz</p> <p>W1 S2 S3 FS AA</p> <p>Freq/Channel</p> <p>Center Freq 2.40200000 GHz</p> <p>Start Freq 2.40200000 GHz</p> <p>Stop Freq 2.40200000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>     |
| <p><b>2DH3</b></p> |  <p>Agilent 09:28:55 Jun 22, 2010 R T</p> <p>Ref 0 dBm Atten 10 dB Mkr1 Δ 1.85 ms 1.392 dB</p> <p>Center 2.402 GHz Res BW 1 MHz #VBW 1 MHz Sweep 10 ms (401 pts) Span 0 Hz</p> <p>W1 S2 S3 FS AA</p> <p>Freq/Channel</p> <p>Center Freq 2.40200000 GHz</p> <p>Start Freq 2.40200000 GHz</p> <p>Stop Freq 2.40200000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>    |
| <p><b>2DH5</b></p> |  <p>Agilent 09:29:21 Jun 22, 2010 R T</p> <p>Ref 0 dBm Atten 10 dB Mkr1 Δ 3.075 ms -1.482 dB</p> <p>Center 2.402 GHz Res BW 1 MHz #VBW 1 MHz Sweep 10 ms (401 pts) Span 0 Hz</p> <p>W1 S2 S3 FS AA</p> <p>Freq/Channel</p> <p>Center Freq 2.40200000 GHz</p> <p>Start Freq 2.40200000 GHz</p> <p>Stop Freq 2.40200000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> |

## 11 Out of Band Conducted Emissions Measurement

### 11.1. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

### 11.2. Test Setup



### 11.3. Test Instruments

| Equipment         | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark         |
|-------------------|--------------|--------------|---------------|------------|----------------|
| Spectrum Analyzer | Agilent      | E4445A       | MY46181986    | 05/14/2009 | <sup>(2)</sup> |
| Test Site         | ATL          | TE06         | TE06          | N.C.R.     | -----          |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

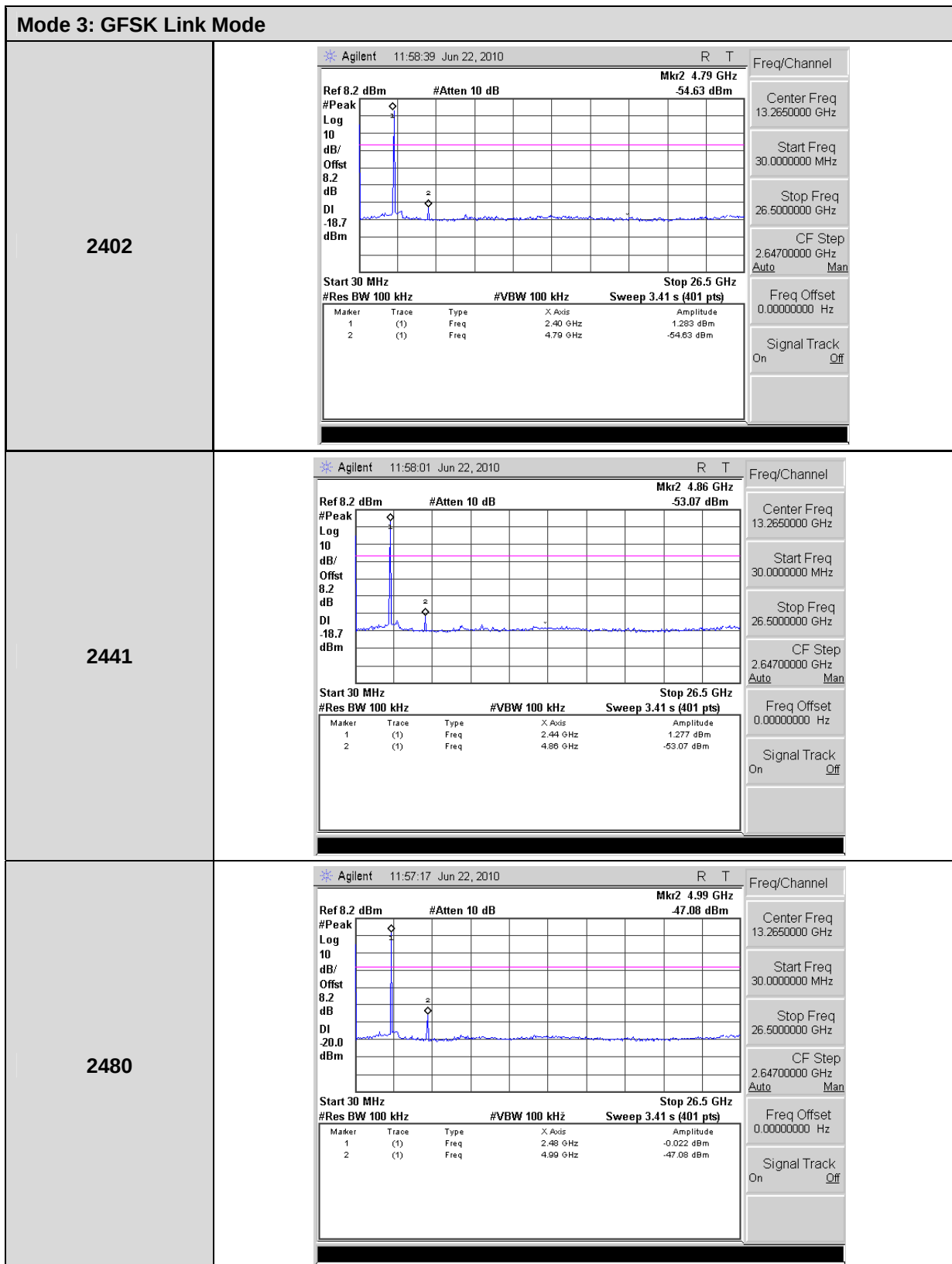
NOTE: N.C.R. = No Calibration Request.

### 11.4. Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 0, 39, 78)

## 11.5. Test Graphs



**Mode 5: 8DPSK Link Mode**

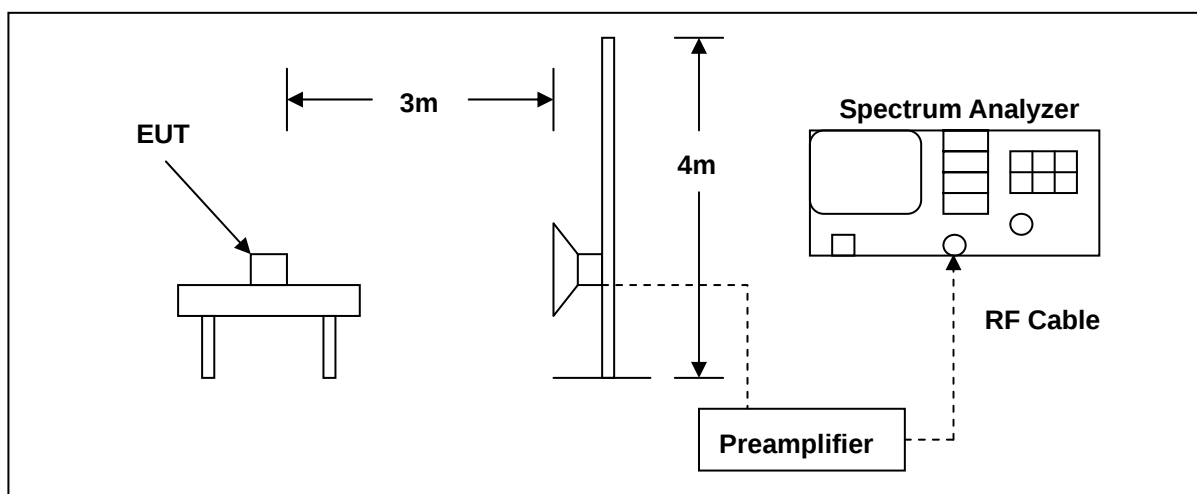
|      |  |
|------|--|
| 2402 |  |
| 2441 |  |
| 2480 |  |

## 12 Band Edges Measurement

### 12.1. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

### 12.2. Test Setup



### 12.3. Test Instruments

| Equipment         | Manufacturer                   | Model Number | Serial Number | Cal. Date  | Remark |
|-------------------|--------------------------------|--------------|---------------|------------|--------|
| Spectrum Analyzer | Agilent                        | E4408B       | MY45107753    | 06/23/2009 | (2)    |
| Pre Amplifier     | Agilent                        | 8449B        | 3008A02237    | 07/01/2009 | (1)    |
| Horn Antenna      | SCHWARZBECK<br>MESS-ELEKTRONIK | 9120D        | 9120D-550     | 07/01/2009 | (2)    |
| Test Site         | ATL                            | TE06         | TE06          | N.C.R.     | -----  |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

#### **12.4. Test Procedure**

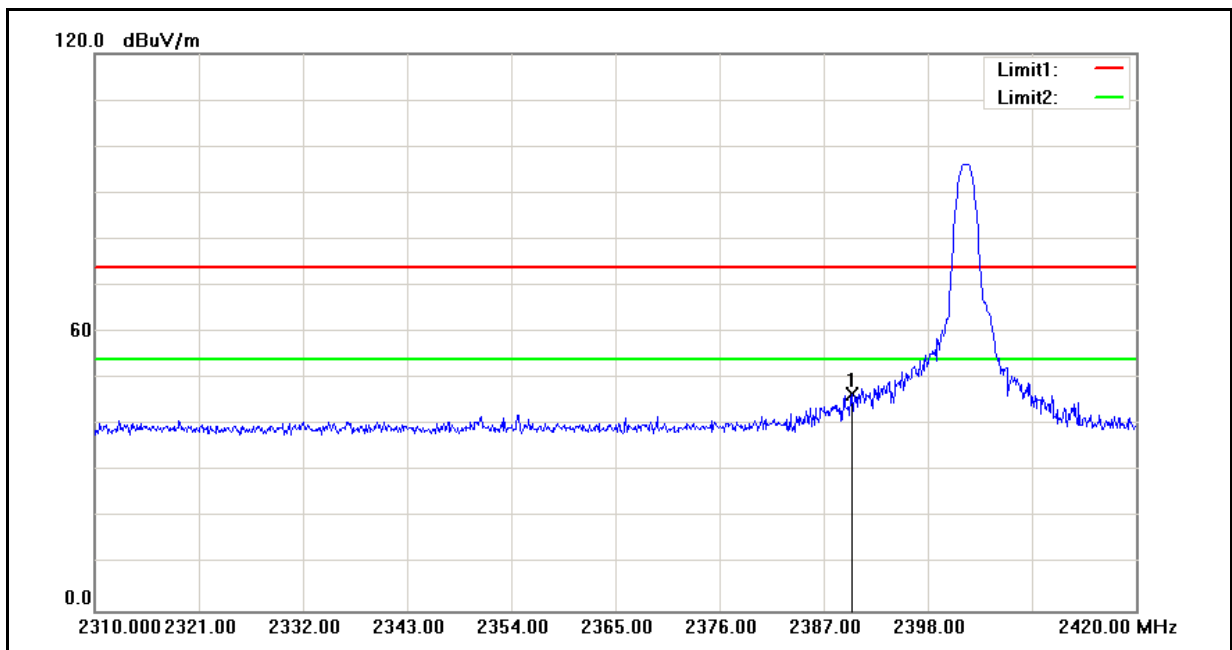
The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

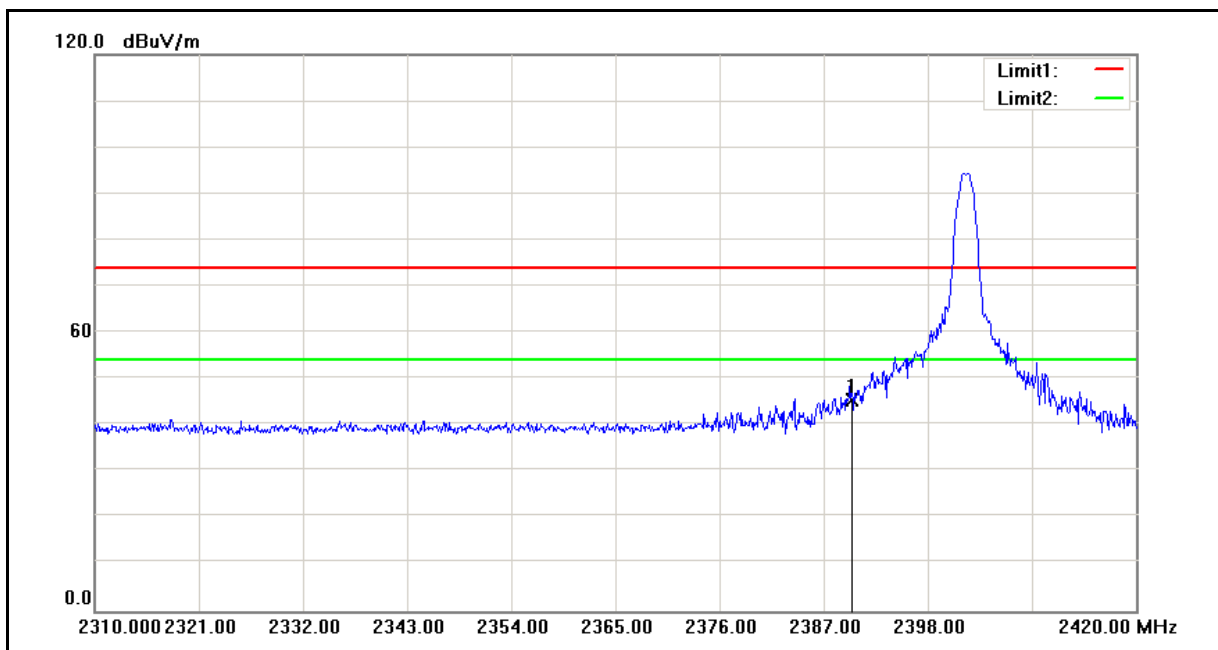
## 12.5. Test Result

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 3            | Date:                | 2010/06/20   |
| Frequency:  | 2402 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Horizontal        |                      |              |



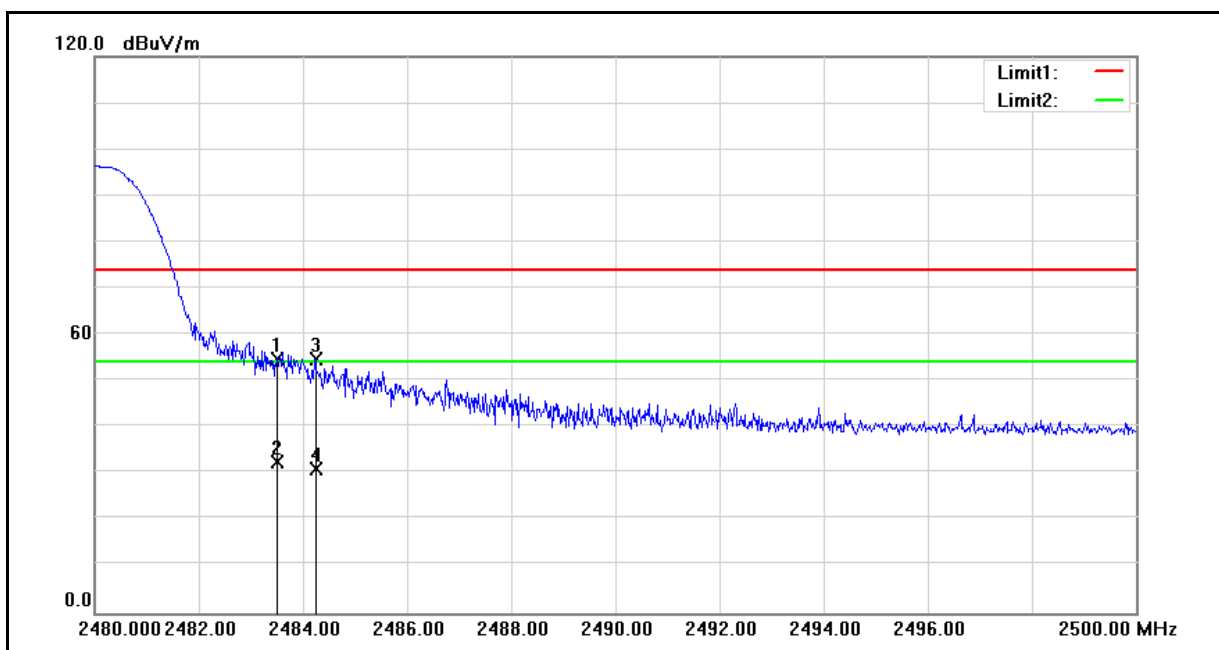
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 46.94             | -0.24                   | 46.70              | 74.00             | -27.30         | peak   |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 3            | Date:                | 2010/06/20   |
| Frequency:  | 2402 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Vertical          |                      |              |



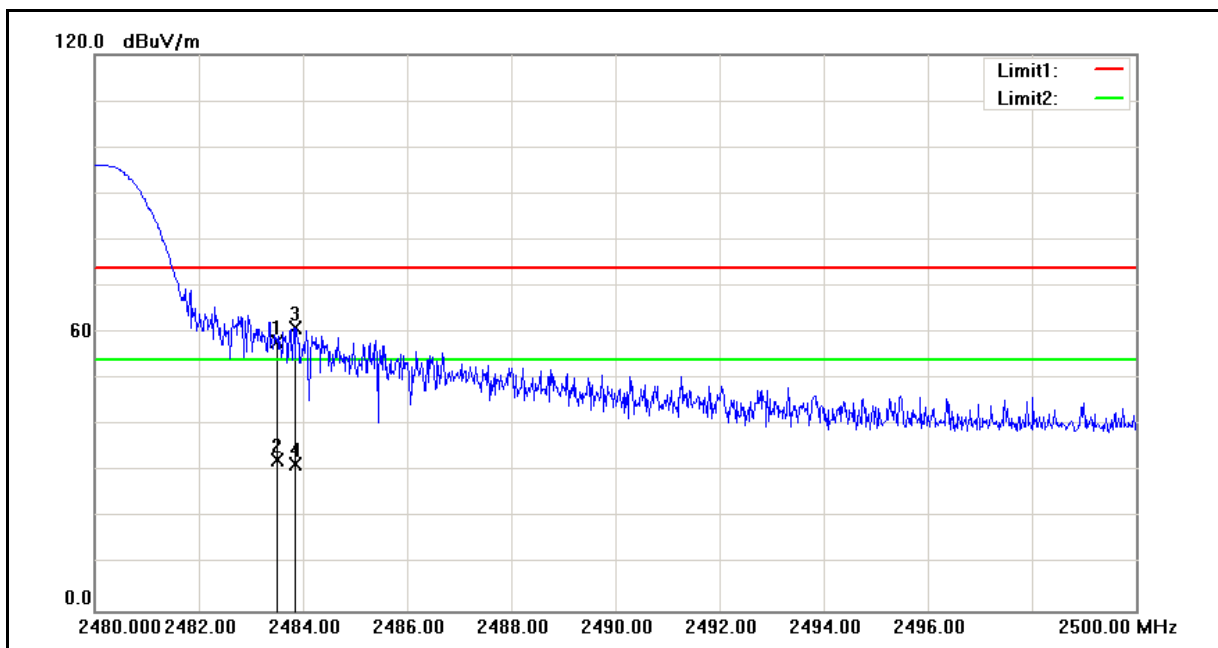
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 45.76             | -0.24                   | 45.52              | 74.00             | -28.48         | peak   |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 3            | Date:                | 2010/06/20   |
| Frequency:  | 2480 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Horizontal        |                      |              |



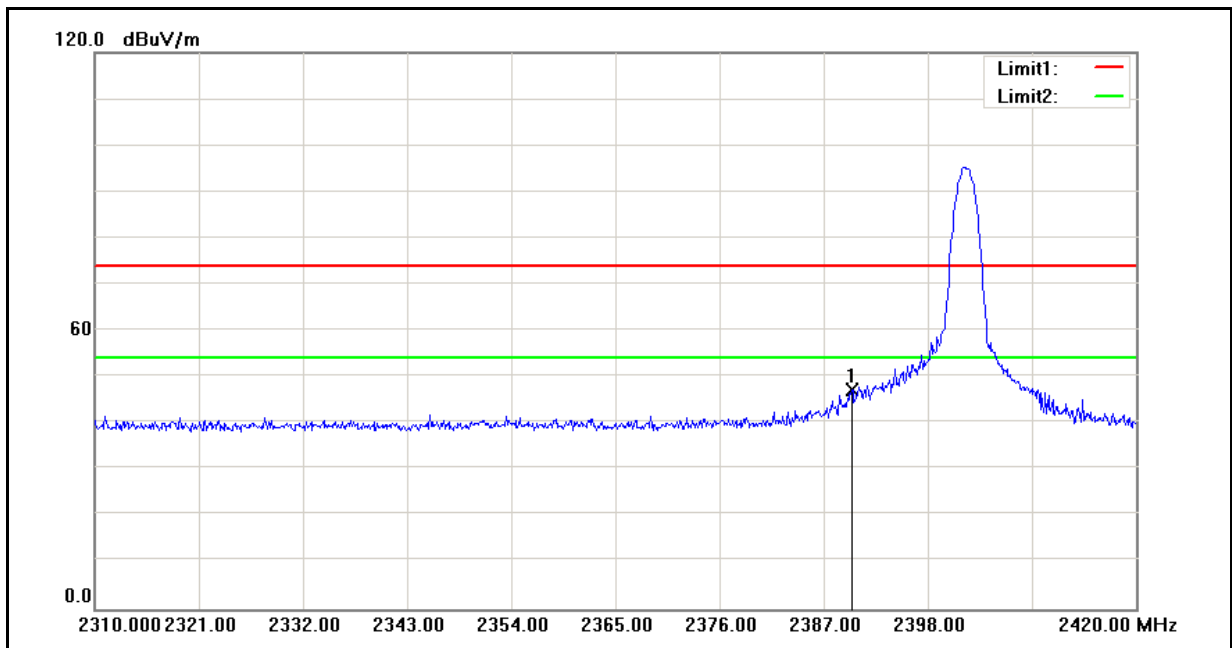
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2483.500        | 54.50          | 0.15                 | 54.65           | 74.00          | -19.35      | peak   |
| 2   | 2483.500        | 32.26          | 0.15                 | 32.41           | 54.00          | -21.59      | AVG    |
| 3   | 2484.240        | 54.58          | 0.16                 | 54.74           | 74.00          | -19.26      | peak   |
| 4   | 2484.240        | 30.84          | 0.16                 | 31.00           | 54.00          | -23.00      | AVG    |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 3            | Date:                | 2010/06/20   |
| Frequency:  | 2480 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Vertical          |                      |              |



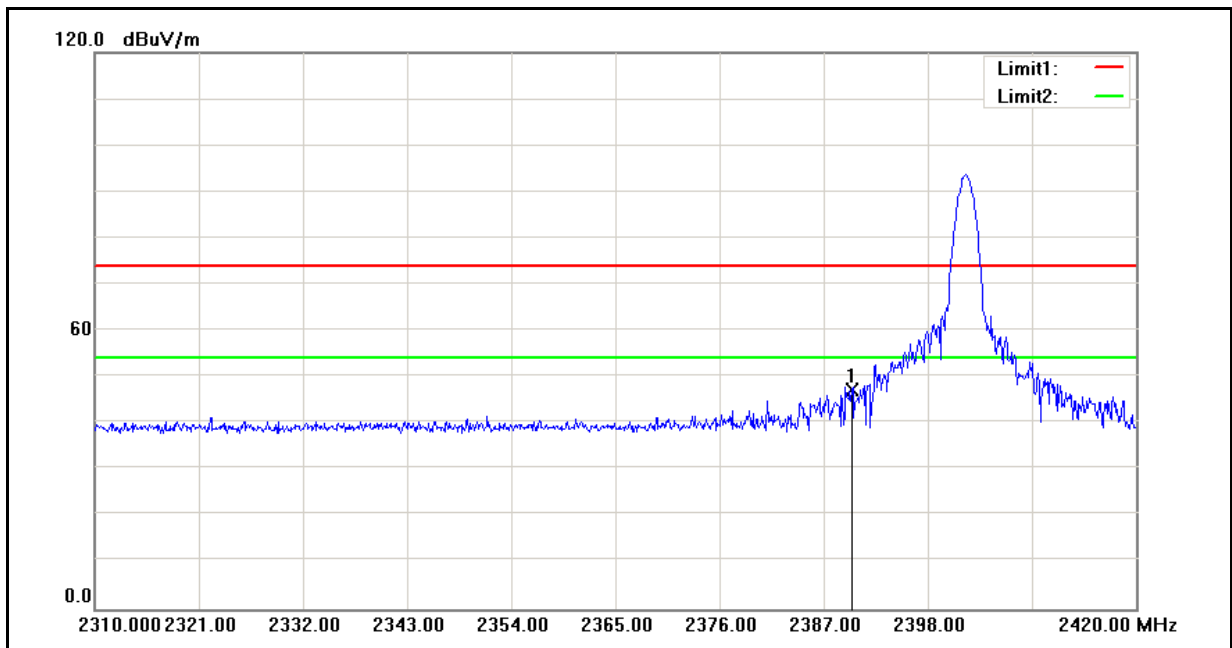
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2483.500        | 58.01          | 0.15                 | 58.16           | 74.00          | -15.84      | peak   |
| 2   | 2483.500        | 32.28          | 0.15                 | 32.43           | 54.00          | -21.57      | AVG    |
| 3   | 2483.860        | 61.00          | 0.15                 | 61.15           | 74.00          | -12.85      | peak   |
| 4   | 2483.860        | 31.41          | 0.15                 | 31.56           | 54.00          | -22.44      | AVG    |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 5            | Date:                | 2010/06/20   |
| Frequency:  | 2402 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Horizontal        |                      |              |



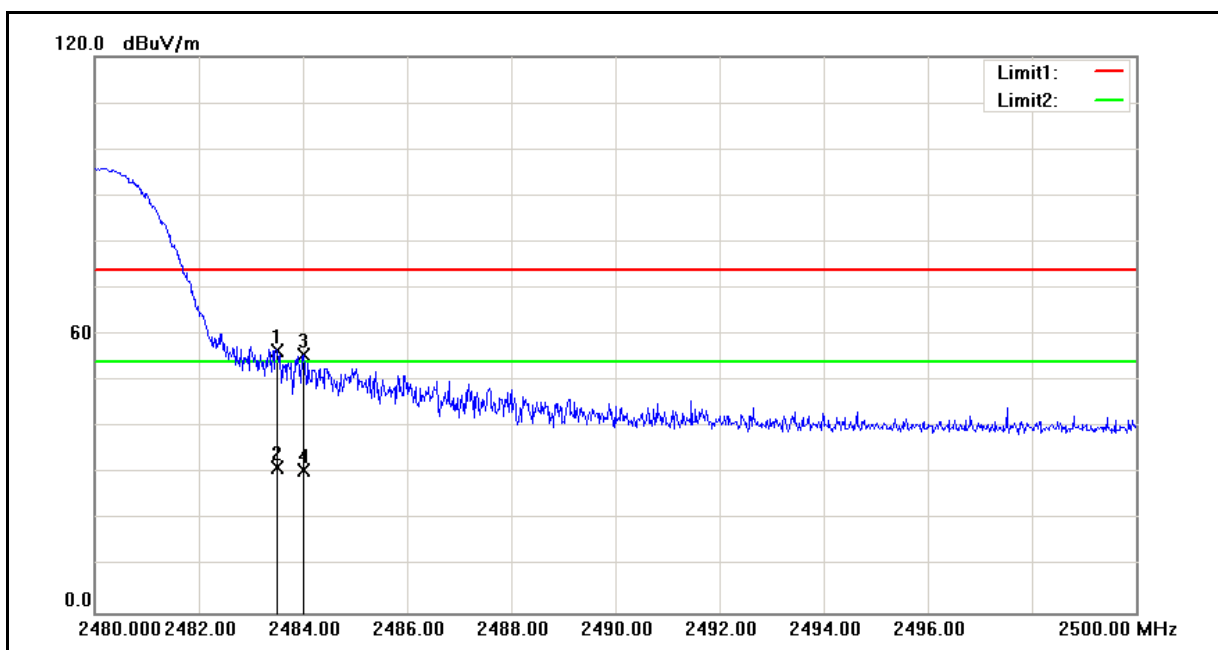
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2390.000        | 47.37          | -0.24                | 47.13           | 74.00          | -26.87      | peak   |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 5            | Date:                | 2010/06/20   |
| Frequency:  | 2402 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Vertical          |                      |              |



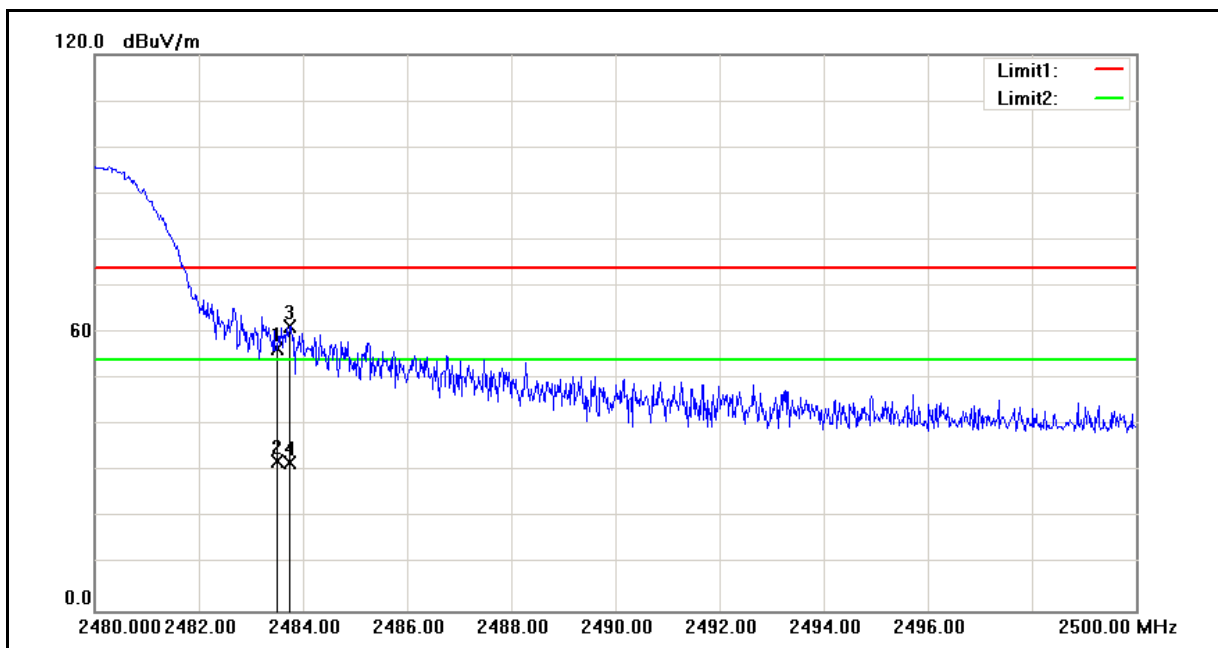
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 47.36             | -0.24                   | 47.12              | 74.00             | -26.88         | peak   |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 5            | Date:                | 2010/06/20   |
| Frequency:  | 2480 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Horizontal        |                      |              |



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2483.500        | 56.27          | 0.15                 | 56.42           | 74.00          | -17.58      | peak   |
| 2   | 2483.500        | 31.25          | 0.15                 | 31.40           | 54.00          | -22.60      | AVG    |
| 3   | 2484.000        | 55.48          | 0.16                 | 55.64           | 74.00          | -18.36      | peak   |
| 4   | 2484.000        | 30.44          | 0.16                 | 30.60           | 54.00          | -23.40      | AVG    |

|             |                   |                      |              |
|-------------|-------------------|----------------------|--------------|
| Standard:   | FCC Part 15C      | Test Distance:       | 3m           |
| Test item:  | Radiated Emission | Power:               | AC 120V/60Hz |
| Model:      | OT-200            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | Mode 5            | Date:                | 2010/06/20   |
| Frequency:  | 2480 MHz          | Test By:             | Gary Wu      |
| Ant.Polar.: | Vertical          |                      |              |



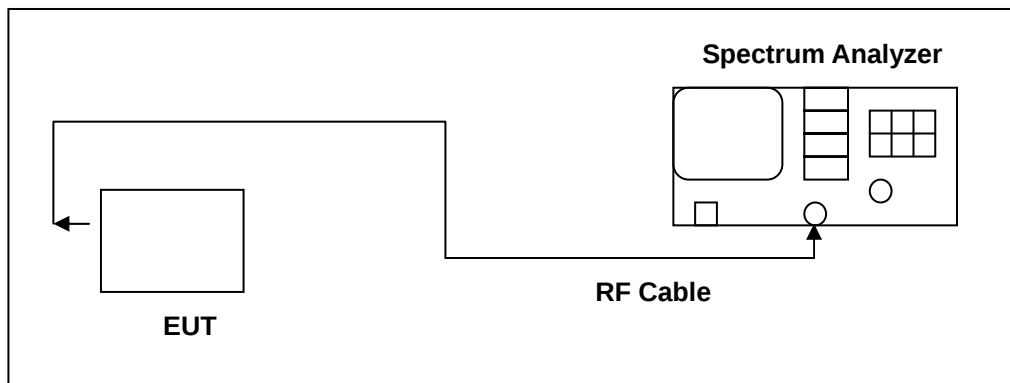
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2483.500        | 56.32          | 0.15                 | 56.47           | 74.00          | -17.53      | peak   |
| 2   | 2483.500        | 32.05          | 0.15                 | 32.20           | 54.00          | -21.80      | AVG    |
| 3   | 2483.740        | 61.27          | 0.15                 | 61.42           | 74.00          | -12.58      | peak   |
| 4   | 2483.740        | 31.91          | 0.15                 | 32.06           | 54.00          | -21.94      | AVG    |

## 13 99 % Occupied Bandwidth Measurement

### 13.1. Limit

N/A

### 13.2. Test Setup



### 13.3. Test Instruments

| Equipment         | Manufacturer | Model Number | Serial Number | Cal. Date  | Remark         |
|-------------------|--------------|--------------|---------------|------------|----------------|
| Spectrum Analyzer | Agilent      | E4445A       | MY46181986    | 05/14/2009 | <sup>(2)</sup> |
| Test Site         | ATL          | TE06         | TE06          | N.C.R.     | -----          |

Remark: <sup>(1)</sup> Calibration period 1 year. <sup>(2)</sup> Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

### 13.4. Test Procedure

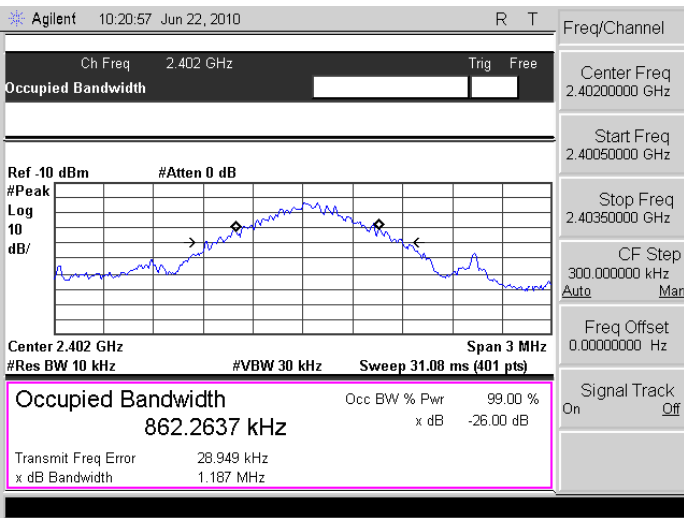
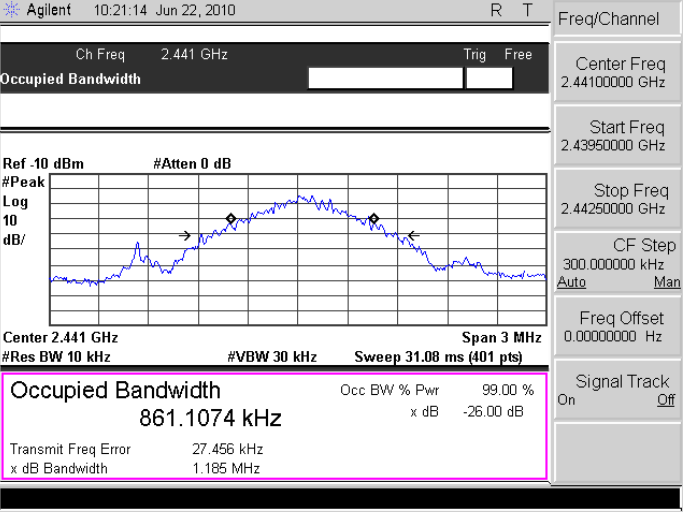
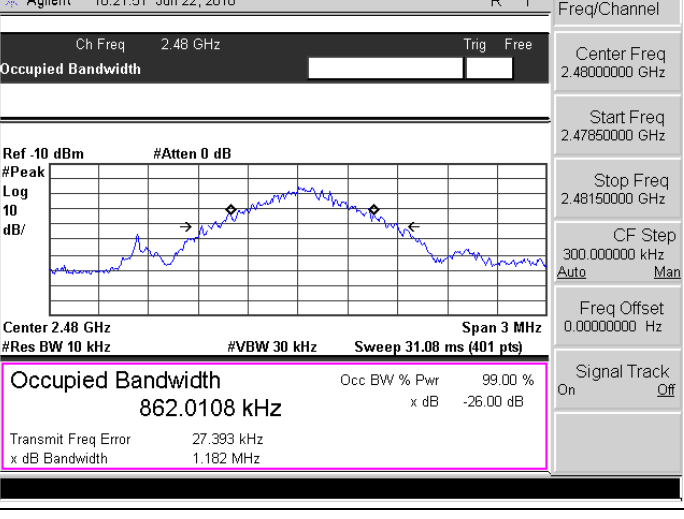
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

### 13.5. Test Result

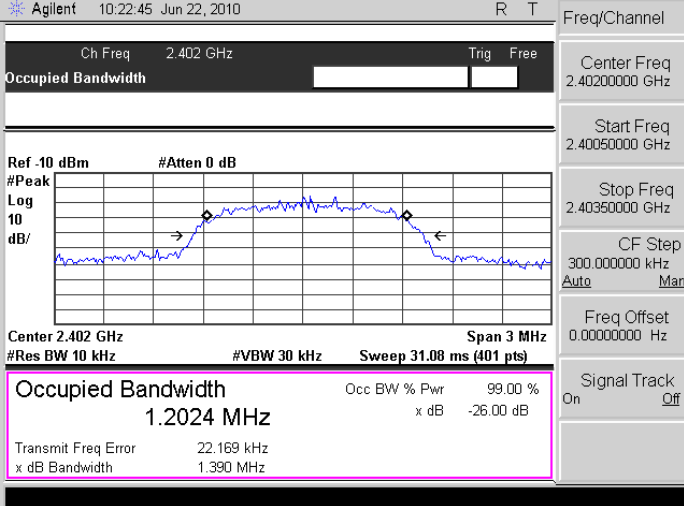
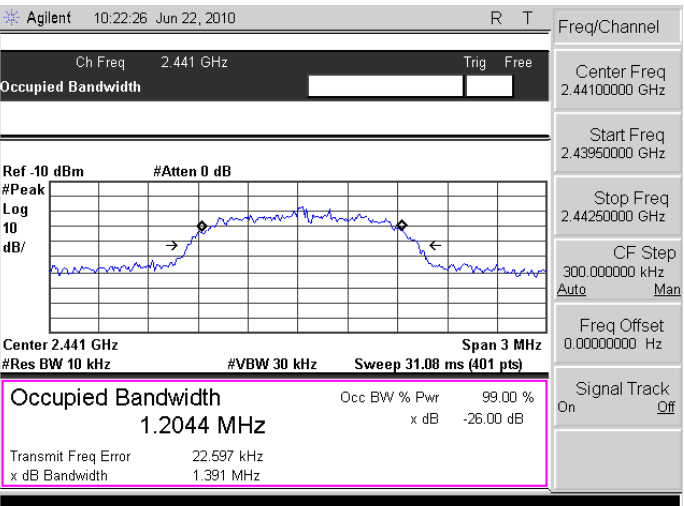
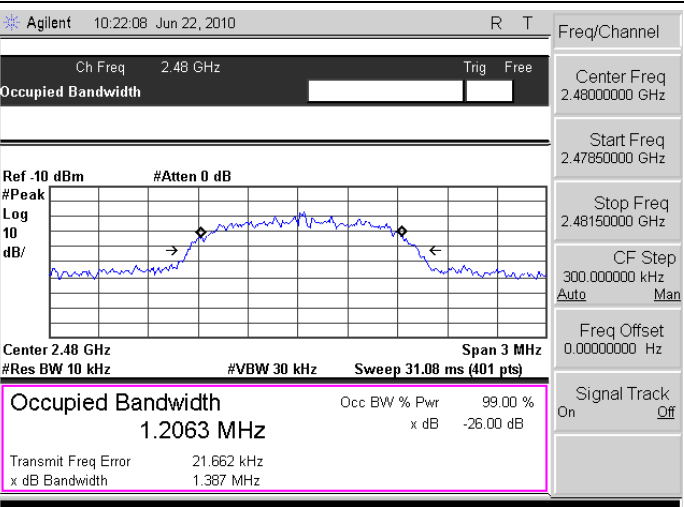
|                 |                         |           |             |
|-----------------|-------------------------|-----------|-------------|
| Model           | OT-200                  |           |             |
| Test Item       | 99 % Occupied Bandwidth |           |             |
| Test Mode       | Mode 3: GFSK Link Mode  |           |             |
| Date of Test    | 06/22/2010              | Test Site | TE06        |
| Frequency (MHz) | Measurement (MHz)       |           | Limit (MHz) |
| 2402            | 0.8622637               |           | -----       |
| 2441            | 0.8611074               |           | -----       |
| 2480            | 0.8620108               |           | -----       |

|                 |                         |           |             |
|-----------------|-------------------------|-----------|-------------|
| Model           | OT-200                  |           |             |
| Test Item       | 99 % Occupied Bandwidth |           |             |
| Test Mode       | Mode 5: 8DPSK Link Mode |           |             |
| Date of Test    | 06/22/2010              | Test Site | TE06        |
| Frequency (MHz) | Measurement (MHz)       |           | Limit (MHz) |
| 2402            | 1.2024                  |           | -----       |
| 2441            | 1.2044                  |           | -----       |
| 2480            | 1.2063                  |           | -----       |

### 13.6. Test Graphs

| Mode 3: GFSK Link Mode |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2402                   |  <p>Agilent 10:20:57 Jun 22, 2010 R T</p> <p>Ch Freq 2.402 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref -10 dBm #Atten 0 dB</p> <p>#Peak Log 10 dB/</p> <p>Center 2.402 GHz Span 3 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 31.08 ms (401 pts)</p> <p>Occupied Bandwidth 862.2637 kHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 28.949 kHz</p> <p>x dB Bandwidth 1.187 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.4020000 GHz</p> <p>Start Freq 2.40050000 GHz</p> <p>Stop Freq 2.40350000 GHz</p> <p>CF Step 300.000000 kHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p>  |
| 2441                   |  <p>Agilent 10:21:14 Jun 22, 2010 R T</p> <p>Ch Freq 2.441 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref -10 dBm #Atten 0 dB</p> <p>#Peak Log 10 dB/</p> <p>Center 2.441 GHz Span 3 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 31.08 ms (401 pts)</p> <p>Occupied Bandwidth 861.1074 kHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 27.456 kHz</p> <p>x dB Bandwidth 1.185 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.4410000 GHz</p> <p>Start Freq 2.43950000 GHz</p> <p>Stop Freq 2.44250000 GHz</p> <p>CF Step 300.000000 kHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p> |
| 2480                   |  <p>Agilent 10:21:51 Jun 22, 2010 R T</p> <p>Ch Freq 2.48 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref -10 dBm #Atten 0 dB</p> <p>#Peak Log 10 dB/</p> <p>Center 2.48 GHz Span 3 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 31.08 ms (401 pts)</p> <p>Occupied Bandwidth 862.0108 kHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 27.393 kHz</p> <p>x dB Bandwidth 1.182 MHz</p> <p>Freq/Channel</p> <p>Center Freq 2.4800000 GHz</p> <p>Start Freq 2.47850000 GHz</p> <p>Stop Freq 2.48150000 GHz</p> <p>CF Step 300.000000 kHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p>  |

**Mode 5: 8DPSK Link Mode**

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2402 |  <p>Agilent 10:22:45 Jun 22, 2010 R T</p> <p>Ch Freq 2.402 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref -10 dBm #Atten 0 dB</p> <p>#Peak Log 10 dB/</p> <p>Center 2.402 GHz Span 3 MHz<br/>#Res BW 10 kHz #VBW 30 kHz Sweep 31.08 ms (401 pts)</p> <p><b>Occupied Bandwidth</b><br/><b>1.2024 MHz</b></p> <p>Occ BW % Pwr 99.00 %<br/>x dB -26.00 dB</p> <p>Transmit Freq Error 22.169 kHz<br/>x dB Bandwidth 1.390 MHz</p> <p>Freq/Channel<br/>Center Freq 2.40200000 GHz<br/>Start Freq 2.40050000 GHz<br/>Stop Freq 2.40350000 GHz<br/>CF Step 300.000000 kHz Auto Man<br/>Freq Offset 0.00000000 Hz<br/>Signal Track On Off</p>  |
| 2441 |  <p>Agilent 10:22:26 Jun 22, 2010 R T</p> <p>Ch Freq 2.441 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref -10 dBm #Atten 0 dB</p> <p>#Peak Log 10 dB/</p> <p>Center 2.441 GHz Span 3 MHz<br/>#Res BW 10 kHz #VBW 30 kHz Sweep 31.08 ms (401 pts)</p> <p><b>Occupied Bandwidth</b><br/><b>1.2044 MHz</b></p> <p>Occ BW % Pwr 99.00 %<br/>x dB -26.00 dB</p> <p>Transmit Freq Error 22.597 kHz<br/>x dB Bandwidth 1.391 MHz</p> <p>Freq/Channel<br/>Center Freq 2.44100000 GHz<br/>Start Freq 2.43950000 GHz<br/>Stop Freq 2.44250000 GHz<br/>CF Step 300.000000 kHz Auto Man<br/>Freq Offset 0.00000000 Hz<br/>Signal Track On Off</p> |
| 2480 |  <p>Agilent 10:22:08 Jun 22, 2010 R T</p> <p>Ch Freq 2.48 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref -10 dBm #Atten 0 dB</p> <p>#Peak Log 10 dB/</p> <p>Center 2.48 GHz Span 3 MHz<br/>#Res BW 10 kHz #VBW 30 kHz Sweep 31.08 ms (401 pts)</p> <p><b>Occupied Bandwidth</b><br/><b>1.2063 MHz</b></p> <p>Occ BW % Pwr 99.00 %<br/>x dB -26.00 dB</p> <p>Transmit Freq Error 21.662 kHz<br/>x dB Bandwidth 1.387 MHz</p> <p>Freq/Channel<br/>Center Freq 2.48000000 GHz<br/>Start Freq 2.47850000 GHz<br/>Stop Freq 2.48150000 GHz<br/>CF Step 300.000000 kHz Auto Man<br/>Freq Offset 0.00000000 Hz<br/>Signal Track On Off</p>  |

## **14 Antenna Measurement**

### **14.1. Limit**

For intentional device, according to 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 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 6dBi.

### **14.2. Antenna Connector Construction**

The antenna used in this product is **Internal antenna**. And the maximum Gain of this antenna is only **2.94 dBi**.